The National Maternity Hospital
ANNUAL REPORT 2022

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Holles Street

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This Annual Report should be read in conjunction with the Annual Financial Statements which provide certain additional information required under the Code of Practice for the Governance of State Bodies Business and Financial Reporting Requirements purposes.

Front cover image: *Rebecca Moriarty with her baby boy Ollie Moriarty-Devitt, born at just 27 weeks gestation. Ollie spent 72 days in the NMH NICU. (Little Shadow Photography)*

The NMH Mission and Vision Statements

Mission

As the leading Maternity Hospital in Ireland and a national referral centre for complicated pregnancies, premature and sick babies, our mission is to ensure our patients receive high quality, safe, evidence based care whilst respecting their dignity and rights. This will be achieved through fostering excellence and innovation in patient care, training, education and research, in a culture of quality and safety where each person is valued, respected and facilitated for personal and professional growth.

Vision

To be renowned as a world class hospital for the care of women and babies.

Births:
6,815

Babies:
6,948

Outpatient Attendances:
82,081

Food Safety Assurance Award:
100%

Ultrasound Scans:
33,181

Emergency Room Attendances:
11,827

Radiology Exams:
7,211

Specimens Received:
177,460

Staff:
954

Beds:
200

Breastfeeding Rate:
69%

Medications Dispensed:
23,324

Contents

Deputy Chairman's Report

Once again 2022 was a busy year overall for the NMH for many reasons. While we continue to deal with the aftermath of COVID-19 the activity in relation to general obstetrics continued to decline slightly while core neonatology and gynaecology remained at reasonably static levels. However, the Hospital continued to be very active in expanding and developing services for our client population.

The NMH was the first maternity Hospital to directly employ an onsite Consultant Geneticist with part-time sessions initiated many years ago. In 2020 the NMH followed on this initiative as being the first Maternity Unit in the country to employ a fulltime Consultant Geneticist with the appointment of Dr Samantha Doyle. This appointment allowed for the full range and benefits of genetics input into both pregnancy and neonates. With the ongoing support of the National Women and Infants Health Programme (NWIHP), this service will see further development in 2023 with the appointment of additional staff including a genetics counsellor and hopefully the allocation of a designated space.

The NMH Fetal MRI service was established a number of years ago due primarily to a substantial private donation that provided for the purchase of an onsite MRI in NMH. With the assistance of NWIHP in the initial years, this service was provided through a third party, Alliance. With NWIHP funding, NMH has now engaged specialist Consultant Radiologists and also Radiographers who are trained both in Fetal and Neonatal MRI.

In the late 1990's the Merrion Fertility Clinic was established by NMH Consultant, Dr Mary Wingfield, to provide infertility services for patients that were not available through the public system. The Clinic was originally operating in buildings on Holles Street but since 2009 it has been operating in the buildings at numbers 58-61 Mount Street. In recent years the government has begun funding certain infertility services and NMH is one of six hubs in the country for these services. With the appointment of Dr David Crosby during 2022 and the establishment of a consulting suite we will hopefully be receiving the national referrals for public IUI later in the year.

During 2022, with the assistance of fundraising and also NWIHP, the National Placenta Accreta Spectrum multidisciplinary Team has been established at NMH by Prof Donal Brennan with co-operation from our colleagues in SVUH. This invaluable service now takes referrals for all over the island of Ireland and enables these women to receive the necessary treatment in an appropriate clinical setting with clinicians who are experienced in dealing with the condition.

The NMH was the first centre in the country to introduce a specialist menopause service for women in mid-2021. During 2022, this service was formally recognised by NWIHP and with the support of additional funding the original service has been expanded. The service, headed by Dr Deirdre Lundy, is in great demand and is a development that will ultimately benefit women throughout the Ireland East region.

Maternal mental health is an issue for some of our patients and in this regard we have had a small onsite team led by Prof Anthony McCarthy for many years. However, in line with the National Maternity Strategy and with support of NWIHP, this team has been expanded and now the required support is available to many more of our NMH patients and also to other patients referred from the Region.

"As always, despite all of the challenges, our patients continue to receive excellent care in the NMH and th is is due to the amazing people who we have working in the Hospital."

Due to improvements in techniques and overall medical advances, the volume of day case gynaecology work is expanding. NWIHP have supported additional staffing in this area and we anticipate that a dedicated modern clinical space will be developed during 2023 to continue to grow this invaluable service for women in IEHG.

As always the year presented challenges including ongoing difficulties in recruiting and retaining staff, particularly midwifery, nursing and paramedical. There is no doubt that these difficulties stem from the cost of living in Dublin including both transport and property costs.

Pat McCann, Deputy Chairman.

The project to co-locate to the Elm Park Campus continued to move at a very slow pace with the approval of the Final Business Case by the DOH, DEPR and the Government being a pre–requisite in order to allow for the next phase which would include issuing of tenders for further enabling works and the main contract. On a positive note, the text of the various legal documents was approved by Government in May thus allowing for the various other processes to move ahead. On a similar theme I am happy to report that the Co-ordination Agreement, the overarching legal document, was in fact signed by all of the parties in February 2023. With various processes and approvals and with the tender and construction requirements we are likely to be onsite about 2030.

In the past five years the Hospital Executive has focussed a lot of time and effort on improving our overall governance structures in line with modern standards while of course recognising our Charter. This ongoing process continued in 2022 with the introduction of a number of new members of the Executive, the formation of a new Board subcommittee, the People and Organisation, new members onto other committees including Nominations and also the refreshing of various committees' terms of reference including the three-year term, renewable twice.

Other challenges during the year relate to managing the activity, including the new services, on the existing Hospital site in Holles Street with its limited accommodation and ongoing infrastructural issues. With the co-location seven to ten years away, and the very limited investment in the site in the past ten years, there is a need for some immediate investment in Holles Street and a number of issues will be addressed as a matter of urgency.

As always, despite all of the challenges, our patients continue to receive excellent care in the NMH and this is due to the amazing people who we have working in the Hospital. The Hospital is blessed to have such a wonderful team of people led by Prof Shane Higgins, Mary Brosnan and Ronan Gavin. Despite all the challenges with the physical asset and the remnants of Covid, the culture remains strong and intact. It is a pleasure to walk around the Hospital and see our wonderful teams in action. I am so proud to be involved with this iconic institution. And it's all about the people. While we are fundamentally a maternity Hospital the ever expanding range of new services that we now provide will have such a positive effect on women's health through Ireland. This is long overdue. I look forward to contributing in whatever way I can to NMH in the coming years. A big thank you to all in NMH for outstanding service and dedication.

Pat McCann, Deputy Chairman

Master's Report

Prof Shane Higgins, Master with his wife Kate, sons Tom (left) , Jack (right) and daughter Dr Tess Higgins, a Registrar at the Hospital.

It is my great privilege as Master of The National Maternity Hospital to introduce the combined Corporate and Clinical Reports for the year.

My sincere thanks to Mr Pat McCann, Deputy Chair, for giving so freely of your time to both myself and the Hospital. It is obvious to all how invested in the Hospital you are.

My thanks also to Ms Michele Connolly, Hon Treasurer, Mr William Johnston, Hon Secretary and all members of the Executive Board for giving so freely of their time, expertise, knowledge and advice during the year.

I owe an enormous debt of gratitude to the Executive Management Team of Ms Mary Brosnan, Director of Midwifery and Nursing, Mr Ronan Gavin, Secretary General Manager, Dr Roger McMorrow, Clinical Director and Mr Alistair Holland, Financial Controller for their continued support and commitment to the Hospital during another extraordinary year.

The National Maternity Hospital was established in 1894 at its current location in four Georgian Houses, No's 28 to 32 Holles Street, where it remains to this day. It was the third 'ly-ing in' hospital to be established in Dublin; a term referring to the fact that mothers would often remain in hospital for up to a month after giving birth to be released from "domestic drudgery", to rest and spend some time with their babies.

The National Maternity Hospital is now one of Europe's largest maternity hospitals with 154 inpatient beds. The hospital provides maternity, gynaecology, neonatology, fetal medicine, anaesthetics, pathology, radiology, maternal medicine, perinatal mental health, urogynaecology, National Neonatal Transfer Service and community midwifery services. The hospital's

"Without every member of staff committing to ensuring the safety of all I do not believe we would have succeeded in our endeavours."

Neonatal Intensive Care Unit is recognised as a national referral centre for complicated pregnancies, premature babies and sick infants. Our gynaecology unit treats over 10,000 outpatients annually. One of the hospital's main sub-specialities is the treatment of gynaecological cancer, our colposcopy service is funded by the National Cancer Screening Service and is one of the largest units in the country. We delivered 6,948 babies to 6,815 mothers and there were 1,132 admissions to our neonatal intensive care unit during the year.

The NMH established a community midwifery service in 1998 including homebirth, domino birth and early transfer home programmes. This service covers Dublin and North Wicklow and continues to be the busiest community midwifery service in Ireland.

The NMH has built up a reputation for undergraduate and postgraduate training and attracts a number of overseas fellows and visiting consultants to visit the Hospital and observe our Labour and Birthing Unit practices. The hospital also educates undergraduate and postgraduate midwives. There is a very extensive professional development programme for midwives and nurses within the hospital. An annual higher diploma programme in Neonatal Nursing Studies is facilitated in conjunction with the two other Dublin maternity hospitals and the Royal College of Surgeons Ireland (RCSI).

The NMH is part of the Ireland East Hospital Group (IEHG) which comprises 11 hospitals in total. The IEHG is Ireland's largest hospital group serving 1.1 million people, with University College Dublin (UCD) as its main academic partner. There are 3 other maternity units within the IEHG; Midland Regional Hospital Mullingar, St. Luke's General Hospital Kilkenny and Wexford General Hospital. There is significant inter-linking of services between the NMH and other hospitals including St. Vincent's University Hospital, Temple Street Children's University Hospital, Our Lady's Hospital for Sick Children, Crumlin, and Mater University Hospital

The Royal Charter granted to the hospital by Edward the VII in 1903 formally lays down the structure of the hospital and remains to this day the legal basis of the hospital's existence. In addition, the NMH is governed by a set of Bye Laws which help to ensure that the operational activity of the hospital is consistent with the Hospital Charter.

The last three years have been a difficult time for all health care facilities. Adapting the way we provide services to our patients including telehealth and virtual consultations, mask wearing, is a continual testament and constant reminder if one was necessary that our staff are our greatest asset. Without every member of staff committing to ensuring the safety of all I do not believe we would have succeeded in our endeavours. In addition to the pandemic the infrastructural deficits of the hospital made our response all the more remarkable. Patients felt safe attending the hospital and staff felt safe coming to work.

As we approached the end of 2022 and with an end to the pandemic in sight we observed the opening of borders to staff travelling overseas to work. Several of our midwifery staff have taken this delayed opportunity to travel. We wish you well and God speed; we look forward to having you back with additional experience and skills to take up permanent posts here at The National Maternity Hospital.

Of further concern to the EMT is our capacity to train and retain our midwifery and nursing staff. The cost of living in Dublin drives staff to seek employment in maternity units outside the greater Dublin area or to GP practices. This problem has developed and worsened over the last number of years and in conjunction with natural retirements it is placing a burden on our ability to adequately staff all areas of the hospital.

As we approach in May 2023, the 10th anniversary of the announcement by the Minister for Health of the day, Dr James Reilly of the relocation of The National Maternity Hospital to the Elm Park Campus it is timely that we reflect on the move. Amid a flurry of activity in April 2022 several members of staff attended the Oireachtas Health Committee hearings, took to the airways and social media to help achieve approval of the Legal Framework by Government. My gratitude to you all for taking on this responsibility. My particular thanks to Alice Murphy from Mason Hayes and Curran for her support for the Hospital in this matter.

My thanks also to the HSE Estates and Design teams support in realising this critical National project.

As we move closer to embarking on the main build of the new National Maternity Hospital @ Elm Park we continue to seek critical capital investment in the current campus with most of the buildings nearly 90 years old. The current campus will never be fit for purpose, but with continuously expanding services, we require additional appropriately sized and fitted infrastructure. Our new Labour and Birthing Unit (LBU) extension is now completed affording five modern delivery rooms including a hydrotherapy pool for labouring patients. Our new theatre development is complete and operational providing three functional theatres allowing a greater focus on benign gynaecology in the coming years.

Capital funding has been secured to develop a new ambulatory gynaecology suite and an additional patient lift within the hospital and we hope to have approval for the redevelopment of the Clinical Decontamination Unit (CDU) and the building of a two storey build in the car park to house the Perinatal Pathology and Bereavement services.

During the year valued members of my Consultant Colleagues reached retirement and I would especially like to mention, Prof Peter McParland, Prof Mary Wingfield and Dr Grainne Flannelly and thank them wholeheartedly for their long years of service and dedication to the Hospital. They are sorely missed along the hospital corridors but I wish them continued good health and happiness in the years ahead.

It is with great sadness and regret I must mention the passing of two Consultant Colleagues during the year. Dr Breda O'Kelly retired Consultant Anaesthetist and Professor Michael O'Keeffe, Consultant Opthalmologist, who provided remarkable service to our patients over the years. May they rest in peace.

I would to take this opportunity to thank all staff members for their selfless dedication to our patients over the past twelve months and for the excellent outcomes achieved by their continued endeavours, I am extremely grateful and proud of you all.

Prof Shane Higgins, Master.

Prof Shane Higgins, Master, with Mary Brosnan, Director of Midwifery & Nursing and Prof Peter McParland who retired during the year.

Honorary Treasurer's Report

The financial results for the Hospital for 2022 reflected an overall surplus of €1.76m.

From operational activity the Hospital effectively ended the year on a break even basis and in line with budget. The surplus arose from the receipt of outstanding capital funding of €1.8m late in 2022. This HSE debtor had been fully provided against in previous years due to its age so the receipt released a write back of a provision to the Income & Expenditure statement resulting in a surplus for the year.

Income for the Hospital comes from two primary sources. Funding from HSE amounted to €84m for the year which was 88% of overall income. HSE income is up 11% on prior year reflecting an increased volume of services and specialties that the Hospital now delivers. This includes a new genetics function and a new fertility service. This will be dealt with more comprehensively elsewhere in the Annual Report but the breadth and complexity of services provided by NMH continues to increase year on year and is often underestimated. HSE income also included funding for additional costs such as the Pandemic Award payment made to staff who worked during the COVID-19 pandemic. The balance of funding primarily comes from services provided to private and semi-private patients. This amounted to €10.8m for 2022 which was an 11% decline on prior year in line with a decrease in activity. Again it should be noted that whilst actual delivery levels were down, the complexity and range of services that women are now accessing has increased.

Total costs incurred were €93m. Of this €77.3m related to Pay and €15.7m to Non Pay expenditure. As with previous years the cost base of the Hospital remains largely fixed with staff costs accounting for 83% of hospital spend. This proportion is higher in 2022 (but closer to more typical levels) as non pay costs have declined by €7.9m in the year. Costs in 2021 included a €7.2m provision against the capital debtor due from the HSE for the Labour & Birthing Unit and new Theatre works. While €5.4m of this still remains outstanding, it is already fully provided against. The other major elements of non pay costs relate to medicines, pathology costs, medical supplies and cleaning costs. The hospital continues to incur costs related to dealing with the ongoing impacts of COVID-19 including lost income. Staffing remains a challenge for the Hospital with the accommodation challenges that exist in its environ. The Hospital is looking at all possible avenues to try and support staff with this issue.

Whilst the Hospital awaits to be co-located to the St Vincent's University Campus at Elm Park, it continues to provide excellent care in an aging building. The move is still some years away. The current building does need continual maintenance but also investment in the intervening period. As commented on in previous years, the Hospital utilized significant cash reserves to fund the Labour and Birthing Unit and Theatre capital works. It is still awaiting receipt of funds in relation to this from HSE. Discussions are also ongoing with HSE in relation to funding of additional essential upgrade works.

The funding model from the HSE remains a challenge. There are considerable delays in approval for any capital projects and the revenue allocation for a given year is never fully confirmed until several months post the year end. In the interim certain essential spend (including ongoing costs of the NMH @ Elm Park Project Team) often has to be funded from the normal operational revenue funding allocation. This is totally sub optimal from a financial planning and cash management perspective. The Hospital is managing this by seeking advance drawdown of its revenue allocation from the HSE on an ongoing basis but that is a short term solution to a longer term issue.

Other areas of focus by the Finance Committee during 2022 included governance, procurement, policies and procedures, management of debtors, monitoring compliance with the Charities Act and the project to move to SORP accounting.

I would like to extend my appreciation to all the NMH finance team and my fellow members of the Finance Committee. The NMH finance team have successfully exercised strong financial control whilst concentrating on essential spend to ensure we can continue to deliver excellent care to the patients. The NMH is an organisation we are all proud to be a part of.

Michele Connolly, Honorary Treasurer.

Executive Committee Report

Prof Shane Higgins, Master, Pat McCann, Deputy Chairman and Mary Brosnan, Director of Midwifery & Nursing.

At the 2022 AGM the outgoing members of the Board were re-elected save for Prof. Colm O'Herlihy who did not go forward for re-election. Prof. O'Herlihy was a member of the Board for 26 years and we thank him for his enormous contribution not only to the Board but to the Hospital itself and for his unstinting work and good nature to so many patients in the Hospital over many years.

Dr Jennifer Walsh and Ms Sarah Claxton were elected to the Board at the AGM following the recommendation of the Nominations Committee.

At the first Board meeting following the 2022 AGM, Mr Pat McCann was re-elected as Deputy Chair.

We welcome to the Board Cllr. Caroline Conroy who was elected Lord Mayor in June 2022 and are grateful for her continuing interest in the Hospital. We would particularly like to thank her predecessor as Lord Mayor, Cllr. Alison Gilliland, for her thoughtful and incisive contributions to the Board.

Following the recommendation of the Nominations Committee, Ms Carmel Logan and Mr Tom Murphy were elected by the Executive Committee in September 2022 as new Board members.

Board Work

The Co-location Committee continued its work during the year on the legal documentation for the proposed move of the Hospital to Elm Park. A Special meeting of the Board was held in March 2022 covering aspects of the legal agreements for the proposed move of the Hospital to Elm Park.

With almost 1,000 people being employed in the Hospital, the Board set up a People & Organisation Committee under the Chair of Ms Denise Cole. This is an exciting development and should enhance the challenging operation of looking after those who give their expertise, care and time in the Hospital in patient care. There are now nine Committees, each with their own detailed terms of reference, reporting to the Board regularly on their activities.

Apart from facilitating the additional Committee, the Board have amended the Bye-laws to allow for a more practical and productive agenda, which now includes a detailed report each month by the Secretary/General Manager as to the considerable non-clinical activity in the Hospital.

To enhance the understanding of, and thus contributions by, Board members, there have been several presentations to the Board during the year namely, in January the Ethics in Public Office Act by Mr Carl Alfvag the NMH Compliance & Operations Manager, in February the Patient Experience by Ms Rachel Irwin the NMH Quality Manager, in April Cyber-security by Mr Con Grimes the NMH IT Manager, in June Genetic Services by Dr Sam Doyle, NMH Consultant Geneticist, in September Creating an Environment that Fosters Excellence in Research, Innovation and Education by Prof. Fionnuala McAuliffe,

Chair & full Academic Professor of Department of Obstetrics & Gynaecology, UCD, in November Clinical Engineering by Mr Eoghan Hayden, NMH Head of Clinical Engineering and in December Optimising Services for Patients in Women's Health and Maternity and Neonatal Care by Dr Roger McMorrow, NMH Clinical Director and Consultant Anaesthetist.

At each monthly meeting of the Board, reports from members of the Executive Management Team (the EMT) are discussed and where considered appropriate, further direction is given by the Board to the EMT. Clinical aspects of these reports are covered elsewhere in the Annual Report.

Corporate Governance

Board Induction took place on two occasions during the year for new Board members and a refresher induction for existing members.

Following the exploration of the social distances requirements Board meetings returned to the Hospital Boardroom. The Board met on twelve occasions in 2022 and attendances were as follows:

Members of Executive Committee	Meetings Attended	Meetings Appointed to Attend
Mr Pat McCann, Deputy Chair	12	12
Mr William Johnston, Honorary Secretary	10	12
Ms Michele Connolly, Honorary Treasurer	11	12
Prof. Shane Higgins, Master	12	12
Ms Ingrid Browne	10	12
Ms Mairéad Butler	11	12
Ms Sarah Claxton *(from May)*	7	7
Ms Denise Cole	12	12
Fr. Enda Cunningham	10	12
Mr Aidan Devlin	10	12
Mr Frank Downey	9	12
Cllr. James Geoghegan	6	12
Ms Gráinne Hennessy	11	12
Prof. Declan Keane	9	12
The Lord Mayor, Cllr. Alison Gilliland *(to June)*	3	5
The Lord Mayor, Cllr. Caroline Conroy, *(from June)*	2	7
Ms Carmel Logan *(from Sept.)*	3	3
Dr John Murphy	10	12
Mr Tom Murphy *(from Sept.)*	3	3
Prof. Fionnuala McAuliffe	12	12
Ms Jane McCluskey	9	12
Dr Roger McMorrow	10	12
Prof. Peter McParland	7	12
Cllr. Cat O'Driscoll	7	12
Prof. Colm O'Herlihy *(to May)*	2	4
Cllr. Naoise Ó Muíri	10	12
Ms Patricia O'Shea	9	12
Ms Nóirín O'Sullivan	5	12
Dr Michael Robson	7	12
Mr Stephen Vernon	7	12
Dr Jennifer Walsh *(from May)*	4	7
In Attendance		
Mr Ronan Gavin, Secretary/General Manager	10	12
Ms Mary Brosnan, DOM&N	10	12
Mr Alistair Holland, Financial Controller	9	12
Ms Geraldine Duffy, ADOM&N	2	2
Mr Francis Rogers, Management Accountant	2	2
Mr Damian McKeown, Project Co-Ordinator, NMH @ Elm Park	1	1
Mr Con Grimes, IT Manager	1	1
Dr Sam Doyle, Consultant Geneticist	1	1
Mr Carl Alfvag, Compliance & Operations Manager	1	1
Mr Rachel Irwin, Quality Manager	1	1
Mr Eoghan Hayden, Head of Clinical Engineering	1	1
External Attendees		
Ms Alice Murphy, MH&C	1	1
Ms Nicola Byrne, MH&C	1	1
Naomi Clarke, MH&C	1	1

Ann Rath (3rd from left), Assistant Director of Midwifery & Nursing who received the Director of Midwifery Award in recognition of her outstanding contribution to midwifery and the NMH for almost 40 years and Caroline Brophy, (2nd from right) who was awarded the 'Colm O'Herlihy Research Medal' for her project entitled 'Perenial Granulate Tissue - The Poppy Clinic Experience' with the Master, Prof Shane Higgins, Ann Calnan (left), Valerie Kinsella (2nd from left), both Assistant Directors of Midwifery & Nursing and Martina Cronin, Labour & Birthing Unit Manager.

His Grace the Catholic Archbishop of Dublin does not attend the meetings.

Governors

At the AGM two Governors, whose seven-year terms expire prior to the next AGM and who offer themselves for re-election, were re-elected as Governors namely, Mr Nicholas Kearns and Ms Michele Connolly.

Following the recommendation of the Nominations Committee each of the following persons were elected a Governor of the Hospital at the AGM: Ms Louise Bennett, Dr Stephen Carroll, Ms Sarah Claxton, Mr George Maybury, Mr Bernard McLoughlin, Ms Patricia Nolan and Dr Jennifer Walsh.

In September 2022, following the recommendation of the Nominations Committee, Ms Carmel Logan and Mr Tom Murphy were elected Governors by the Executive Committee.

SUB COMMITTEES OF THE BOARD

Finance Committee

As can be seen from the Financial Report summarised on page 214 the Hospital closed the year with a surplus of €1.76m. Further detailed commentary on the finances are provided in the Honorary Treasurer's Report, page 11.

The Committee met on twelve occasions during the year and attendances were as follows:

Members of Finance Committee	Meetings Attended	Meetings Appointed to Attend
Mr Pat McCann, Deputy Chair	12	12
Mr William Johnston, Honorary Secretary	10	12
Ms Michele Connolly, Honorary Treasurer	12	12
Prof. Shane Higgins, Master	12	12
Ms Denise Cole	11	12
Ms Carmel Logan *(from Sept.)*	3	3
Mr Tom Murphy *(from Sept.)*	3	3
In Attendance		
Mr Ronan Gavin, Secretary/General Manager	11	12
Ms Mary Brosnan, DOM&N	11	12
Mr Alistair Holland, Financial Controller	10	12
Mr Francis Rogers, Management Accountant	2	2
Ms Geraldine Duffy, ADOM&N	1	1

Audit Committee

The Audit Committee continued its work throughout the year and a separate report on the work of the Committee is provided on page **X**

The Committee met five times during 2022 and attendances were as follows:

Members of Audit Committee	Meetings Attended	Meetings Appointed to Attend
Mr Aidan Devlin, Chair	5	5
Ms Michele Connolly, Honorary Treasurer	5	5
Ms Mairéad Butler	5	5
Mr Frank Downey	5	5
Cllr. Naoise Ó Muíri *(from May)*	3	3
In Attendance		
Mr Ronan Gavin, Secretary/General Manager	5	5
Mr Alistair Holland, Financial Controller	3	5
Ms Ann Rath, ADOM&N	5	5
Mr Francis Rogers, Management Accountant	1	1
Ms Yuliya Hrofman, Financial Accountant	1	1
Mr Carl Alfvag, Compliance & Operations Manager	1	1
Mr Con Grimes, IT Manager	1	1
External Attendees		
Mr Jessie de Guzman, PWC	1	1
Mr Richard Sammond, PWC	2	2
Mr Fernando Angelo, PWC	1	1
Mr Andrea Shupinski, (SORP Consultant)	2	2
Ms Aileen Hughes, Crowe	1	1
Mr Alan Davidson, Crowe	1	1

QRPS Committee

The QRPS (Quality, Risk & Patient Safety) Committee continued its work throughout the year and a separate report on the work of the Committee is provided on page .....

The QRPS Committee met on six occasions in 2022 and attendances were as follows:

Members of QRPS Committee	Meetings Attended	Meetings Appointed to Attend
Ms Mairéad Butler, Chair	6	6
Dr Ingrid Browne	4	6
Mr Aidan Devlin	5	6
Prof. Declan Keane	3	6
Prof. Fionnuala McAuliffe	5	6
Ms Jane McCluskey	6	6
Mr Bernard McLoughlin *(from Sept.)*	2	2
Dr Roger McMorrow	4	6
Cllr. Naoise Ó Muíri	5	6
Ms Patricia O'Shea	6	6
In Attendance:		
Ms Mary Connolly, AON	6	6
Mr Ronan Gavin, Secretary/General Manager	4	6
Dr Luke Feeney, Director of QRPS *(to August)*	4	4
Dr Anne Twomey, Director of QRPS *(from Nov.)*	2	2
Mr Carl Alfvag, Compliance & Operations Manager	6	6
Mr Martin Creagh, H&S Manager	6	6
External Attendees		
Mr Alan Davidson, Crowe	2	2
Mr Tom Beegan, Crowe	1	1
Ms Aileen Hughes, Crowe	1	1

Co-Location Committee

The Co-Location Committee continued its work throughout the year and a separate report on the work of the Committee is provided on page .....

The Committee met on three occasions during 2022 and attendances were as follows:

Members of Co-Location Committee	Meetings Attended	Meetings Appointed to Attend
Mr Stephen Vernon, Chair *(to Dec.)*	3	3
Mr Pat McCann, Deputy Chairman	3	3
Ms Michele Connolly, Honorary Treasurer	2	3
Ms Sarah Claxton *(from May)*	1	1
Ms Gráinne Hennessy	3	3
Dr Roger McMorrow	2	3
In Attendance		
Prof. Shane Higgins, Master	3	3
Dr Orla Sheil, Consultant Obs/Gynae	3	3
Mr Ronan Gavin, Secretary/General Manager	3	3
Mr William Johnston, Honorary Secretary	1	1
External Attendees		
Ms Alice Murphy, MHC	1	1
Ms Nicola Byrne, MHC	1	1
Ms Naomi Clarke, MHC	1	1

Nominations Committee

The Nominations Committee provides the Board with recommendations in relation to the appointment of Governors and the appointment of members of the Executive Committee and other committees provided for under the Charter and Bye-laws and Regulations in line with succession planning and criteria.

The Nominations Committee met on three occasions during 2022 and attendances were as follows:

Members of Nominations Committee	Meetings Attended	Meetings Appointed to Attend
Mr Pat McCann, Deputy Chairman	3	3
Mr William Johnston, Honorary Secretary	3	3
Ms Michele Connolly, Honorary Treasurer	2	3
Prof. Shane Higgins, Master	2	3
Ms Mairéad Butler *(from May)*	1	1
Ms Denise Cole	3	3
Mr Aidan Devlin *(from May)*	0	1
Prof. Declan Keane	2	3
Ms Eugenée Mulhern *(to April)*	1	1
Dr John Murphy	3	3
Ms Paula Reid	3	3
In Attendance		
Mr Ronan Gavin, Secretary/General Manager	3	3

Medical Fund Committee

This Committee, which receives funds from the semi-private clinic, provides funding principally for education and research relating to the medical services provided by the Hospital. A separate report on the work of the Committee is provided on page.....

The Medical Fund Committee met on nine occasions during 2022 and attendances were as follows:

Members of the Medical Fund Committee	Meetings Attended	Meetings Appointed to Attend
Ms Michele Connolly, Honorary Treasurer, Chair	8	9
Prof. Shane Higgins, Master	7	9
Dr Stephen Carroll *(from May)*	6	6
Mr Frank Downey	7	9
Ms Gráinne Hennessy	8	9
Prof. Declan Keane	8	9
Prof. Peter McParland *(to Feb.)*	3	3
In Attendance		
Mr Ronan Gavin, Secretary/General Manager	9	9
Mr Alistair Holland, Financial Controller	9	9
Mr Francis Rogers, Management Accountant	4	4
Ms Rosie Byrne, SPC Manager	2	2
External Attendees		
Richard Salmon, PWC	1	1
Mr Fernando Angelo, PWC	1	1

Executive Ethics Committee

The Executive Ethics Committee met once during the year to review the terms of reference, the Committee's effectiveness/self-assessment and review the succession/skill mix.

The members of the Executive Ethics Committee are: Dr John Murphy, Chair, Prof. Shane Higgins, Master, Ms Catherine Altman, Dr Ingrid Browne, Ms Denise Cole, Ms Caroline Devlin, Mr Frank Downey, Dr Paul Downey, Ms Jane McCluskey and Cllr. Naoise Ó Muirí.

House Committee

The Committee, which is one of the longest serving, assists in ensuring that the Hospital's infection control strategies are effective. The work of the Committee involves carrying out on-site inspections of various areas in the Hospital and members were pleased to resume these inspections in 2022 as COVID restrictions eased. The Committee continued its work throughout the year and a separate report is provided on page .....

The Committee met on five occasions during 2022 and attendances were as follows:

Members of the House Committee	Meetings Attended	Meetings Appointed to Attend
Ms Catherine Altman, Chair	5	5
Ms Sara Appleby	5	5
Ms Louise Bennett *(from May)*	3	3
Ms Sheena Carton	4	5
Ms Jane Collins	3	5
Ms Fiona Davy	5	5
Ms Elaine Doyle	3	5
Ms Lydia Ensor	2	5
Ms Kate Higgins	2	5
Ms Judith Meagher *(to Dec.)*	4	5
Ms Margaret McCourt	3	5
Ms Anne Murphy	5	5
Ms Teresa Murphy	2	5
Ms Suzanne O'Brien *(from May)*	3	3
Ms Kathleen O'Grady	1	5
Ms Aoife O'Shea	2	5
In Attendance		
Prof. Shane Higgins, Master	1	1
Ms Mary Brosnan, DOM&N	3	5
Mr Mark Anderson, Hygiene Services Manager	5	5
Mr Calin Buie, Housekeeping Services Supervisor	4	5

People & Organisation Committee

The People and Organisation Committee was established in May 2022. It provides over-sight of the HR function and HR policies within the NMH. The Committee met on three occasions during 2022 and attendances were as follows:

Members of the People & Organisation Committee	Meetings Attended	Meetings Appointed to Attend
Ms Denise Cole, Chair	3	3
Ms Sarah Claxton	3	3
Ms Gráinne Hennessy	3	3
Mr George Maybury	3	3
Ms Patricia Nolan	2	3
Ms Nóirín O'Sullivan	3	3
In Attendance		
Mr Ronan Gavin, Secretary/General Manager	3	3
Ms Mary Brosnan, DOM&N	3	3
Ms Yvonne Connolly, HR Manager	3	3
Ms Caoimhe de Brun, Assistant HR Manager	2	2
Ms Geraldine Duffy, ADOM&N	1	1
Ms Lisa Murray, Midwifery & Nursing HR	1	1

Maternity Hospitals Joint Standing Committee

The Committee of the three Dublin Maternity Hospitals meets monthly to discuss issues of common interest and concern. During 2022 the Committee, under the Chairmanship of Dr Don Thornhill, continued to meet to discuss issues of common concern. The main issues were COVID-19 and its continued challenges, midwifery & nursing staffing, home birth services, genetics services and epilepsy services. They also discussed the management of pregnant Ukrainian refugees, interstate transfers, postnatal hubs, the Viewpoint system, patient mental health issues and Obstetric Event Support Team.

Charter Day

The annual Charter Day reception was hosted by the Master, Prof. Shane Higgins and his wife, Mrs Kate Higgins to whom we are most grateful. Due to the COVID-19 pandemic, the event which was held on 26th May 2022, was reduced with only Board members, the EMT, medal recipients and their guests in attendance. A zoom link was arranged for Governors and staff who wished to view the speeches and the presentations of medals.

The Master delivered an inspiring address to the Board, the prize-winners and their families and to Governors and staff joining by zoom.

The 65th Annual Charter Day Lecture was held via webinar and in the Lecture Theatre on Friday, 27th May 2022. The Lecture entitled

"Developing Preterm Birth Prevention Services: the UK Experience" was delivered by Prof. Andrew Shennan, King's College London & St. Thomas's Hospital, Clinical Director of South London Clinical Research Network.

A Symposium entitled "The Three P's of Preterm Birth – Predict, Prevent & Prepare" was held on Friday, 27th May 2022 as part of the Charter Day celebrations and took place in the Lecture Theatre at 65/66 Lower Mount Street. The symposium was chaired by the Master, Prof. Shane Higgins and the following lectures were delivered.

"The Vaginal Microbiome: A New Frontier in Preterm Birth Prevention"
Dr Siobhan Corcoran, Consultant Obstetrician/Gynaecologist

"Laparoscopic Abdominal Cerclage – A Stitch in time"
Dr Donal O'Brien, Consultant Obstetrician/Gynaecologist

"Preterm Birth Prevention; The Patient's Perspective"
Ms Catriona Keyes, NMH Mother

"Advances in Delivery Room Care for Preterm Infants"
Prof Colm O'Donnell, Consultant Neonatologist

"Antenatal Corticosteroids – An Update"
Dr Etaoin Kent, Consultant Obstetrician/Gynaecologist, Rotunda Hospital.

HOSPITAL AWARDS & CERTIFICATES

Awards for 2022 are as follows:

Medical Students

John F. Cunningham Medal	Dr Aoife O'Sullivan
RCSI/NMH Medal	Kate Murray
Kieran O'Driscoll Prize	Harry Forde
A. Edward Smith Medal	Laura Hennigan

Student Midwives

Hospital Gold Medal	Alice Tuthill (H.Dip.)
Elizabeth O'Farrell Medal	Sabine O'Connell (BSc)
	Michelle Duffy (H.Dip.)-
Neonatal Medal *(established by Dr Niall O'Brien)*	
	Ma Crystelle Vilena
	Sheila Joy Cuidno

Director of Midwifery Award

Ann Rath – in recognition of her outstanding contribution to midwifery and the NMH for almost 40 years *(awarded May 2022)*

Ciara Coveney – to acknowledge her leadership in diabetes and in digital healthcare. *(awarded Jan 2023)*

We congratulate them all and wish them every success in their future careers.

APPOINTMENTS, PROMOTIONS, RETIREMENTS AND DEATHS

New appointments during 2022 included:

Dr Clare O'Connor O'Sullivan,
Consultant Obstetrician/Gynaecologist
Lucy Collender, Sonographer/
Senior Radiographer, FAU
Fidelma Shortall, Senior Occupational
Therapist, Perinatal Mental Health
Mark Power, Senior Clinical Engineer
Keith Lowry, Engineering Building Services Assistant
Gary Ryan, Grade VI, Tendering Officer
Michael Lennon, Catering Officer

Internal promotions 2022 included:

Dr Anne Twomey, Consultant Neonatologist,
seconded as Director of QRPS
Erica Mullins, ADOM&N, Night Duty
Teresa McCreery, ADOM&N, Community
Midwifery Service
Helen Thompson, CMM3, Gynaecology
Sive Cassidy, CMM 3, MN-CMS
Avril O'Connell, Clinical Placement Co-Ordinator
Lavanya Lakshaman, Clinical Skills Facilitator
Bronwyn Redmond, CMM2, Infection Control
Mairead Markey, CMM2, Labour & Birthing Unit
Sheeba Masih, CMM2, Labour & Birthing Unit
Michelle Barry CMM2, Fertility Hub
Kim Ryan, CMM2, MN-CMS
Alphonsa Pius, CMM2, MN-CMS
Theresa Barry, CMM2, Parent Craft
Emma Ruth Candeleria, CNM2, NICU
Jisha Vijayan, CNM 2, NICU
Alice Hoffmeister, CMM2, Community Midwife
Bronwyn Nicol, CMM 2, Community Midwife
Rahel Dalton, CMM2, Night Duty
Emer Kilduff, CMM2, Night Duty
Linda Smiles, cANP, NICU
Gillian McMurray, Senior Medical Social Work Practitioner
Laura Moyles, Radiography Services Manager
James Byrne, Joint Hospital Tendering Manager
Declan Corrigan, IT Assistant Manager
Ciaran Richardson, Engineering Building Services Assistant
Damian Lally, Acting Laboratory Manager

Long Serving Staff

We would like to congratulate Breda Reilly Lavin (CMM1, Unit 4) who reached 40 years' service in the NMH in 2022. We wish to thank Breda for her service over the years and wish her many more happy years in NMH.

Staff Retirements

The following staff members retired during the year after many years of service:

Mary Anderson, Senior Medical Scientist	42 years
Mary McAlinden, Administration, Laboratory	42 years
Annette Kelly, Administration, Admissions	41 years
Breda Coronella, CMM2, NICU	40 years
Margaret McErlean, CMM1, Postnatal	40 years
Prof. Peter McParland, Con. Obstetrician/Gynaecologist	31 years
Dr Gráinne Flannelly, Con. Obstetrician/Gynaecologist	31 years
Marie Phelan, CMM1, Emergency Room	31 years
Maria O'Connell, CMM2, Gynaecology	30 years
Prof. Mary Wingfield, Con. Obstetrician/Gynaecologist	27 years
Patricia McNevin, Multi-Task Attendant	27 years
Jimmy Dunne, Porter	24 years
Adrienne McLachlan, Administration	22 years
Rosario Tugado, Senior Staff Nurse, Theatre	21 years
Julie Miague, CNM1, NICU	21 years
Christine Coleman, Catering Assistant	20 years
Ann Bourke, Senior Staff Midwife, Postnatal	20 years
Grace Viloria, Senior Staff Nurse, NICU	19 years
Roy Canete, Medical Lab Aide	18 years
Josephina Garay, Senior Staff Nurse, NICU	17 years
Mary Lou Gomez, CSSD	11 years
Dr Luke Feeney, Director of Quality Risk & Patient Safety	7 years

We thank each of them for their enormous contribution during their many years of service and wish them a very happy retirement.

Deaths

We send our sincere condolences to the family, friends and colleagues of Kate Doheny Bashford, Staff Midwife, Labour & Birthing Unit and Sanell Vosloo, Staff Nurse, Theatre, who sadly passed away in service during 2022.

During the year a number of our retired staff died and we send our sincere condolences to their families, friends and former colleagues. They include: Dr Breda O'Kelly, Consultant Anaesthesiologist, who retired in 2016 after 24 years of service in the NMH. She was particularly helpful to my wife on the birth of our sons in 2011 and 2014. Peter Cockburn, Medical Scientist, who retired in 2015 after 34 years of service in the Laboratory and Bernie Spillane, former ADOM&N who retired in 1994 after 35 years of service. Ms Spillane joined the Linen Guild shortly after her retirement and was elected a Governor in 2011 and a member of the House Committee in 2012.

Conclusion

The Board are grateful to the Executive Management Team for their tireless work during the year of continuing challenges. The Master, Professor Shane Higgins, the Director of Midwifery and Nursing, Ms Mary Brosnan, the Secretary/General Manager, Mr Ronan Gavin, the Clinical Director, Dr Roger McMorrow and Mr Alistair Holland, Financial Controller and their teams, and indeed all persons who have devoted their time during the year in the Hospital, deserve our special appreciation for their unstinting and selfless dedicated work in their care of woman and babies.

Mr William Johnston, Honorary Secretary.

Secretary/General Manager's Report

In 2022 there were 6,948 babies delivered in the NMH. When combined with all of the other services, including many new and evolving services being provided by the staff in the NMH, this represents another busy year. When combined with the overhanging implications of COVID, this was another challenging year for everyone in the NMH.

COVID unfortunately continued to be an issue during the year with ongoing precautions and vaccinations but thankfully the incidences were at a reduced level as the year continued and we moved towards more 'normality'.

In February 2022, the NMH staff app was launched. This app involved a lot of work by a number of people over the previous two years.

Also in February, the Minister for Health, Mr Stephen Donnelly, TD, officially opened the new Labour and Birthing Unit. These new rooms and the upgrading of existing rooms will provide a much enhanced environment for our patients during the coming years in advance of the planned co-location to our new facility at the Elm Park campus.

The Theatre project continued through the year and the finished Theatre Suite was handed over in October 2022. A theatre group was formed and met on a number of occasions to review how we undertake our theatre work and how best to utilise the new resource. Subject to staffing, it is expected the new theatre will be fully operational by early 2023.

A number of Departments attained or retained accreditation during the year. The Laboratories in the NMH retained accreditation to the ISO 15189 standard. This is a tremendous achievement for all the staff who work hard to maintain a quality management system while providing a responsive clinical diagnostic testing service to meet the needs of our patients.

The Catering Department retained Accreditation to the ISO 22,000:2018 quality standard. They also achieved a Distinction in the FSPA Food Safety Assurance Award, achieving a score of 100%. As in previous years, they continued to excel with a very high standard and variety of food and in 2022 were nominated in two categories, "Ireland's Healthcare Caterer" and the "Front of House Team" by the Hotel Catering Review Gold Medals Awards Committee. To be nominated for any award is a great achievement but to be the only healthcare team nominated in the Font of House Team category is a significant achievement. The continued success of the Catering Department is a credit to the hard work and dedication of the entire team.

Ronan Gavin, Secretary/ General Manager, Mary Brosnan, Director of Midwifery & Nursing, Pat McCann, Deputy Chairman and Prof Shane Higgins, Master at Charter Day Celebrations.

We continue to await the progress of the Business Case for the Hospital's co-location to Elm Park through the various approvals in various Government departments as required by the public spending code. The initial phase of operational readiness and the initial project management office had effectively been officially stood-down since the end of 2021 but work was ongoing on a number of aspects of the project. We continued to work with the Design Team and HSE to close-out the final elements of the Stage 2C design.

After many years of work, commencing with the Mulvey mediation process and the Mulvey Agreement in 2016, the final wording of the legal documents were agreed by all parties in March 2022 and were approved by the Government in May 2022. This was followed by the signing of the "Co-Ordination" agreement by all parties in February 2023.

The next milestones will be the tender for the remaining enabling works, the tender for the main contract and the commencement of the operational readiness phase two. These elements of the project await the official approval of the "Final Business Case"

which is going through the review process in the various Departments (DOH & DEPR) before going to Government for sign off. We anticipate progress during 2023 and with some positive momentum we could be onsite in Elm Park around the end of the decade.

The current site, where we will remain for a number of years more, has many immediate infrastructural needs which are not surprising considering our move to Elm Park was originally announced almost 10 years ago and the infrastructure continues to age. Similarly, the continued introduction and expansion of new services under the National Maternity Strategy and supported by NWIHP has stretched our accommodation capacity. We are pursuing a number of projects with IEHG/HSE Estates that we need to fast track in order to provide sufficient site capacity to allow us to continue to provide services over the next 7 to 10 years onsite.

Compliance requirements from various regulations and legislation continues to be a rapidly expanding area and the requirements to meet various standards is an ongoing challenge in an ever evolving environment. Changes such as protected disclosure, gender pay gap, SORP are all relevant and necessary but continue to place additional burden on organisations. The upcoming EU Corporate Sustainability Directive will further require focus and analysis of our environmental, social and governance work every year. The NMH Executive Committee are constantly reviewing and enhancing our governance arrangements to be aligned with best practice and to meet the governance needs of a modern healthcare facility. The past five years have seen significant enhancement of governance with additional committees and updated committee memberships. The Board, acknowledging that our people are our most essential asset, established a new Board sub-committee, the People & Organisation Committee during the year.

The Hospital is very aware of the increasing focus on Environment Social Governance (ESG). During the year the Hospital Environment Committee was re-invigorated and has a number of new members and new ideas for trialling. The core of our work is the provision of services to woman and infants and thus we are very conscious of our social responsibilities.

DHR Communications, following a competitive tender process, were appointed as our PR agency in 2022.

With the removal of COVID restrictions, the Social Committee were active and we had the first staff BBQ in three years. The NMH Choir was also established during the year. In October the "All Hardest of Women" was staged in the NMH outpatient department as part of the Dublin Theatre Festival. There was a party held in November for all staff who had retired during the period of the COVID restrictions. This was a special event and facilitated retirees, many of whom had long service, to say farewell to their colleagues.

In November, our Laboratory Manager, Ms Marie Culliton, was seconded to the HSE as the Scientific Lead, National Clinical Programme for Pathology. We wish Marie every success in her new role. Mr Damian Lally was the successful candidate for her replacement and is now Acting Laboratory Manager. Congratulations to them both.

Dr Luke Feeney retired as Director of Quality, Risk and Patient Safety in August and we thank him for his commitment and invaluable work during his time with the NMH. Dr Anne Twomey, Consultant Neonatologist has replace him as Director of QRPS and we wish her every success.

Despite all the challenges, especially in relation to infrastructure, the NMH has again provided services to many women and their families over the past 12 months. As always this is primarily due to the commitment and dedication of all of our staff who remain our most important resource and the focus of the service provided and I thank everyone for their efforts during the year.

It is with regret that I note the untimely and unexpected passing of our colleagues Ms Kate Doheny Bashford and Ms Sanell Vosloo. They will both be greatly missed by their friends and colleagues throughout the Hospital. May they rest in peace.

I would like to thank the Master, Prof Shane Higgins, Director of Midwifery & Nursing, Ms Mary Brosnan, Financial Controller, Mr Alistair Holland and Clinical Director, Dr Roger McMorrow for their continued support throughout the year. I would especially like to thank Ms Clare Gray and Ms Pam Robinson without whose support the work of the Secretary/General Manager would never be completed. Finally, I wish to thank all the members of the Executive Committee, the Finance Committee and the Board Sub-Committees for their continued assistance and support throughout the year.

Ronan Gavin, Secretary/General Manager.

Director of Midwifery and Nursing Report

It was the third year of the COVID-19 pandemic and we continued to deal with surges of infection, but with each variant, the physical deleterious effects of this virus thankfully lessened. We have seen more viral infections including influenza and RSV throughout the year, but in general, women were not experiencing severe symptoms. The biggest issue is the capacity to isolate patients within our current infrastructure, but Staff have continued to manage this in their usual professional, competent and empathetic manner.

The wider impacts of the pandemic on society are being seen in more demands on the health service in general and an increased demand for support for mental health services. For maternity, neonatal and women's health care, providing a high quality service depends on having the appropriate health care professionals with excellent skills to provide that service. For me, the biggest impact has been higher midwifery and nursing staff turnover levels this year which has made service provision more challenging. Turnover rates in all occupations have increased; the phenomenon of 'the great resignation' is well described. From our own organization, we have seen that same impact. Staff resignations almost doubled from the usual 35 annual voluntary leavers to 67 leavers in 2022. Some have moved out of Dublin to regional units, some have emigrated to gain experience abroad and some have decided to retire a little earlier. Many staff have also opted to reduce their working hours. Cost of living issues are impacting on staff retention but most importantly accommodations costs and shortages have caused the biggest concerns for us. Shift working and public transport availability are also important factors that have to be considered in supporting staff to stay working in pressurised jobs in city centre locations.

Mary Brosnan, Director of Midwifery & Nursing (right) with Ciara Coveney, Advanced Midwife Practitioner, Diabetes who received the Director of Midwifery Award to acknowledge her leadership in diabetes and in digital healthcare.

Some of the adaptations we had to make in the initial stages of the pandemic have enhanced care and are here to stay. Many of our online or digital resources for parents are helping to improve education and emotional support. Webinars, Breastfeeding classes, virtual clinics utilizing 'Attend Anywhere' have all increased and enhance our service, but we are pleased to be able to offer face-to-face classes and supports too.

During the year we have continued to expand services for maternity and women's health.

I would like to congratulate the following on their promotions during the year. Rahel Dalton, CMM 2 (Night Duty), Michelle Barry, CMM 2 (Fertility Hub), Mairead Markey, CMM 2 (Labour & Birthing Unit), Sheeba Masih, CMM 2 (Labour & Birthing Unit), Kim Ryan, CMM 2 (MN CMS), Alphonsa Pius, CMM 2 (MN-CMS), Sive Cassidy, CMM 3 (MN-CMS), Bronwyn Redmond, CMM 2 (Infection Control), Theresa Barry, CMM 2 (Parentcraft), Erica Mullins, ADOM&N (Night Duty), Helen Thompson, CMM 3 (Gynaecology), Avril O'Connell, Clinical Placement Co-ordinator, Lavanya Lakshaman, Clinical Skills Facilitator, Emma Ruth Candeleria, CMM 2 (NICU), Jisha Vijayan, CMM 2 (NICU), Alice Hoffmeister, CMM2 (Community Midwife), Bronwyn Nicol, CMM 2 (Community Midwife), Emer Kilduff, CMM 2 (Night Duty), Linda Smiles, Candidate ANP NICU, Teresa McCreery, ADOM&N (Community).

In 2022 many senior staff members retired from our team after long years of service to the Hospital which was greatly appreciated by ourselves and by patients throughout their careers. Margaret McErlean, Rosario Tugado, Maria O'Connell, Catriona Sullivan, Bernie O'Brien, Ann Bourke, Breda Coronella, Julie Miague, Grace Vilora, Marie Phelan, Josephina Garay. We wish each of them many years of good health and happiness in the future.

During the year, we also experienced the tragic deaths of two midwifery and nursing colleagues, Ms Kate Doheny and Ms Sanell Vosloo. Their friends in the hospital miss them daily and we also remember their families who continue to grieve their loss.

I want to express my gratitude to all the midwifery and nursing and health care assistant staff for all they do to support maternity, neonatal and gynaecology care within the hospital. I want to pay particular tribute to my Assistant Directors of Midwifery and Nursing on day and night duty who work tirelessly to support the service and support me personally in my role. The CMM3's carry a huge responsibility for the management of all of the units and each of them continue to make a great contribution to our team in the last year. My PA Ms Siobhan Flanagan and my HR colleague Ms Lisa Murray and all the HR team are extremely hardworking and support us every day.

Mary Brosnan, with Stephen Donnelly, Minister for Health and Prof Shane Higgins, Master.

The Staff in the National Maternity Hospital are so committed to supporting all women and their partners and families during pregnancy and childbirth, or those having a gynae procedure. I am always proud to read the beautiful feedback I receive on a weekly basis about the care we provide in the midwifery and nursing and wider team. The need to co-locate The NMH at the St Vincent's University Campus at Elm Park becomes more urgent annually due to the pressures for space and improved facilities. In May, we had extensive engagement with Minister Donnelly and the political system to ensure the formal approval of the Government to co-locate on the site of St Vincent's University Hospital, which our staff welcomed with great relief. In the meantime, we continue to provide excellent maternity, neonatal and women's health care despite the infrastructure and we continue to advocate for the necessity to build this new facility.

Mary Brosnan, Director of Midwifery & Nursing.

Sarah O'Rourke with her newborn baby girl, Margot.

Audit Committee

Ann Rath (2nd from left) with her son Alan, daughter Jenny and Prof Shane Higgins, Master, at Charter Day 2022 where Ann received the Director of Midwifery Award in recognition of her outstanding contribution to midwifery and the NMH for almost 40 years.

The Audit Committee's role is to provide assurance as to the effectiveness of the Hospital's systems of internal control, including financial operational and compliance controls and non-clinical risk management.

To that end, the Audit Committee convened five times during the year including meeting with the Hospital's external auditors, PwC, to agree their terms of engagement for the audit of the Hospital's annual financial statements and, following completion of the audit, to receive and consider PwC's post audit report and recommendations.

The Audit Committee also had ongoing interactions throughout the year with the Hospital's internal auditors, Crowe, to agree their work plan for the year and review reports issued. Internal Audit reports received from Crowe and considered by Audit Committee during 2022 covered Bank and Cash controls, Capital Projects Management and ICT Security and Systems. The Audit Committee also tracks and monitors the implementation of recommendations of internal audit reports.

Other matters falling within the Audit Committee's remit included reviewing and recommending for Board approval the Hospital's annual compliance returns to HSE and the Charities Regulator as well as recommending new policies and amendments thereto relating to the Hospital's internal control framework.

The Audit Committee in conjunction with the Finance Committee continues to oversee preparations for the adoption of the Charities SORP (Statement of Recommended Practice) for the Hospital's accounts which will become mandatory following approval of the Charities Amendments Bill 2022 which is currently before the Houses of the Oireachtas.

The members of the Audit Committee in 2022 are Mr. Aidan Devlin (Chair), Ms Mairéad Butler, Ms Michele Connolly, Mr Frank Downey and Cllr Naoise Ó Muirí. Ms Ann Rath was in attendance.

Aidan Devlin, Chair.

Quality Risk and Patient Safety Committee

The Quality Risk and Patient Safety Committee (QRPS) operates under Terms of Reference approved by the Board. These are reviewed annually and changes made as needed.

The main aims of the QRPS Committee are:

a. To understand the risks to which the patients and the staff are exposed and to provide assurance that process are in place to ensure they are managed adequately;
b. To drive quality, risk and patient safety strategy, management and improvement within the NMH
c. To provide a level of assurance to the Board that there is adequate and suitable governance of quality, risk and patient safety in place.

To these ends, the QRPS Committee met six times during the year. At these meetings reports from various departments were reviewed, covering matters such as data protection, incident management and risk management in general.

The year 2022 continued to be influenced by the impact of COVID-19, although increased visiting was permitted to mothers and other patients in the Hospital, but otherwise activity began to return towards normal. Our priority remained the safety of our patients and staff, and as a hospital built in the 1930s, our ability to segregate is limited, but hopefully the outcomes have justified our approach. We continue to be vigilant about incoming cases, but the crises of 2020 and 2021 appears to have abated.

Dr Luke Feeney, Director of Quality, Risk and Patient Safety retired during the year and we thank him for his invaluable work on the Committee since its establishment in 2015. We wish Luke a long and happy retirement.

Dr Anne Twomey, Consultant Neonatologist, joined the Committee in November as Director of Quality, Risk and Patient Safety and we welcome her to the Committee.

The members of the QRPS Committee are: Ms Mairéad Butler (Chair), Dr Ingrid Browne, Mr Aidan Devlin, Prof Declan Keane, Prof Fionnuala McAuliffe, Ms Jane McCluskey, Dr Roger McMorrow, Cllr Naoise Ó Muirí, Ms Patricia O'Shea and Mr Bernard McLoughlin (from Sept 2022). Ms Mary Connolly (external advisor, AON), Dr Anne Twomey, Director of Quality Risk and Patient Safety and Mr Ronan Gavin, Secretary/ General Manager, also attend.

The Committee thanks the Master, Prof Shane Higgins, Mr Ronan Gavin, Dr Anne Twomey and Ms Mary Connolly for their support and assistance throughout the year.

Mairéad Butler, Chair.

Damian McKeown from NMH with procurement colleagues across IEHG hospitals receiving the Irish Healthcare Award for Response to Covid-19 by a Hospital, Patient Group, Doctor or Institution.

Co-Location Committee

The Committee had three main pillars of work in recent years. As the Operational Readiness, Phase 1, had been completed most of the Team were effectively stood down pending the approval of the Final Business Case (FBC).

In relation to the Operational Readiness there continued to be ongoing work on ICT and also the finalisation of Stage 2C Report which required significant work from the remaining groups during 2022.

The FBC which had been submitted to the HSE in June 2020 was submitted to the Department of Health (DOH) who engaged PWC to undertake an EAP which as substantially finalised by year end. It is anticipated that the DOH will submit the FBC and EAP Report to the Department of Public Expenditure and Reform early in 2023. A number of key actions such as issue of tenders and commencement of Operational Readiness, Phase 2, are awaiting the FBC approval.

Nicola Burke with her newborn baby girl, Robyn.

In March, the final text of the various legal documents were approved by the NMH and the SVUH Boards. The Ground Lease from SVUH to HSE is for 299 years, the NMH DAC is as set out in the Mulvey Agreement except for the agreed change in Directors, 3 NMH, 3 SVUH and 3 Minister for Health.

Following a number of meetings with the Oireachtas Health Committee during May 2022, the texts of all of these documents were approved by Cabinet at the end of May 2022. This represents a substantial milestone for the Project and was the result of substantial work by the NMH team, HSE Estates and the SVUH team.

It is anticipated that Stage 2C will be signed off in early 2023 and it is hoped that the FBC will get to Government in early 2023 and be approved to allow for tenders to issue during 2023.

Members of the Co-Location Committee in 2022 are Mr Stephen Vernon, Chair, Mr Pat McCann, Ms Michele Connolly, Ms Gráinne Hennessy, Dr Roger McMorrow and Ms Sarah Claxton. I would like to thank all of the Committee members for their time, commitment and invaluable input over the course of the year.

Mr Stephen Vernon, Chair.

The Medical Fund Committee

Sadhbh Crowley CMM1, Alison Hickey, Clinical Skills Facilitator and Lisa Canavan CMM1, Labour & Birthing Unit.

The Medical Fund, as set out in the Hospital Charter and Bye-laws, provides funding for education and research related to women's health care. It receives its funding from the semi-private clinic, whose costs and revenues are shared between the consultants who operate the semi-private clinic and the Medical Fund. The semi-private clinic offers a third category of care for patients of The National Maternity Hospital that falls between the public offering and that offered on a fully private basis.

During 2022 the Medical Fund received a total of €1,167k income from its share of the semi-private clinic activities. Its share of the costs to operate the clinic, amounted to €804k of which €350k related to clinic salaries. That resulted in funds available for charitable purposes of €428k. This was used to fund a variety of activities including the provision of €368k funding towards 3.5 WTE Research Fellows and €78k for other comparable research and education activities. The Fund had a deficit of €65k for the year.

The Medical Fund Committee has reviewed the current semi-private facilities and agreed that it requires some enhancement and it is hoped to progress this during 2023.

The Medical Fund Committee meets on a regular basis and reports to the NMH Executive Committee. The Medical Fund Committee comprises the Master, Prof. Shane Higgins, and Dr Stephen Carroll who is the elected representative from the Obstetrics & Gynaecology Consultants of the NMH and Ms Michele Connolly, Mr Frank Downey, Prof Declan Keane and Ms Gráinne Hennessey who are nominated by the NMH Executive Committee. Dr Stephen Carroll joined the Committee in May 2022 on the retirement of Prof Peter McParland. Dr McParland served as the consultants' representative on the Committee for many years and we thank him for his invaluable work and wish him every happiness in his retirement.

Michele Connolly, Honorary Treasurer, Chair.

House Committee

The House Committee is one of the longest serving sub-committees of the Board and meets five times each year. The Committee conducts unannounced independent quality assurance inspections of the Hospital's facilities and equipment and communicates these findings to the Executive Management Team and the Board. The House Committee reviews the facilities through a structured format and plays a significant role in monitoring many of the elements that contribute to the efficacy of the Hospital's infection control strategies.

In 2022, the Committee assessed 10 clinical areas of the hospital. Collectively these assessments achieved an overall average score of 92.42%, and an average medical equipment score of 91.58%, exceeding the hospital's targets. In May, the Committee welcomed Ms. Louise Bennett and Ms. Suzanne O'Brien, and in December, Ms. Judith Meagher retired. The Committee wishes to acknowledge and thank Ms. Meagher for her many years of active service.

The 2022 House Committee members are: Ms. Catherine Altman, Chair, Ms. Sarah Appleby, Ms. Sheena Carton, Ms. Jane Collins, Ms. Fiona Davy, Ms. Elaine Doyle, Ms. Lydia Ensor, Ms. Judith Meagher, Ms. Kate Higgins, Ms. Margaret McCourt, Ms. Anne Murphy, Ms. Teresa Murphy, Ms. Kathleen O'Grady, Ms. Aoife O'Shea and Ms. Louise Bennett and Ms. Suzanne O'Brien.

The Committee wishes to thank Professor Shane Higgins, Master, Ms. Mary Brosnan, Director of Midwifery & Nursing, Mr. Ronan Gavin, General and Secretary Manager and Mr. Mark Anderson, Hygiene Services Manager for their support and assistance during the year.

Catherine Altman, Chair.

Prof Peter McParland, Consultant Obstetrician & Gynaecologist who retired in 2022 with his wife Margo McParland who retired from The Linen Guild after 30 years. The Linen Guild is a discretionary charity founded in 1912 which provides emergency assistance to mothers and babies in real need who attend The National Maternity Hospital.

Masters of The National Maternity Hospital

2019 –	Shane Higgins
2012 – 2018	Rhona Mahony
2005 – 2011	Michael Robson
1998 – 2004	Declan Keane
1991 – 1997	Peter Boylan
1984 – 1990	John M. Stronge
1977 - 1983	Dermot W. MacDonald

1970 – 1976	Declan J.Meagher
1963 – 1969	Kieran O'Driscoll
1956 – 1962	Charles F.V. Coyle
1949 – 1955	Arthur P. Barry
1942 – 1948	Alex W. Spain
1932 – 1941	John F. Cunningham
1924 – 1931	Patrick T. McArdle

1923	Sir Andrew J. Horne
	Patrick T. McArdle
1909 – 1922	Sir Andrew J. Horne
	Reginald J. White
1894 – 1908	Patrick J. Barry
	Sir Andrew Horne
1885 – 1893	William Roe

Charter Day Lectures

2022	**Professor Michael A. Patton**	"The Importance of Genetics"
2021	**Dr. Sanne Gordijn, PhD.**	"The Placenta – A Love Story"
2020	**Dr. Roch Cantwell**	"There is no Health without Perinatal Mental Health"
2019	**Professor Alan D. Cameron**	"Each Baby Counts - a Five Year Quality Improvement Programme"
2018	**Professor Lesley Regan**	"Current challenges for the President, Royal College of Obstetrics & Gynaecology, UK"
2017	**Dr David Hugh Richmond**	"When will we ever learn?"
2016	**Dr Jeanne A. Conry**	"The Ostrich And The Obstetrician Gynaecologist: How The Environment Can Impact Reproductive Health"
2015	**Dr John O. L. DeLancey**	"Birth, Pelvic Floor Injury and Prolapse: Who Cares?"
2014	**Professor Mark Kilby**	"Fetal Medicine & Therapy: A Fantastic Step Forward But Are We Delivering A Good Service?"
2013	**Professor Michael Raymond Foley**	"Discovering Fulfilment as a Medical Professional – Ancient Wisdom for Modern Medicine"
2012	**Professor Michael de Swiet**	"Saving Mothers' Lives: Lessons to be learned from the Confidential Enquiry into Maternal Mortality"
2011	**Professor Dian Donnai**	"Genetic Medicine – Possibilities and Promises"
2010	**Professor James Eisenach**	"Pain Pregnancy & Depression."
2009	**Dr Kenneth J. Leveno**	"Caesarean Memories"
2008	**Dr. Terry Inder**	"The Pathway to Improving Neurodevelopment in at-risk Infants – Nurturing Fetal and Neonatal Neurons"
2007	**Prof Wolfgang Holzgreve**	"Fetal Cells and DNA in maternal circulation- clinical importance for non-invasive prenatal diagnosis and maternal diseases"
2006	**Dr. José Belizán**	"Calcium Intake During Pregnancy- Maternal and Fetal Outcome"
2005	**Dr. Robert C. Pattinson**	"Getting the Right Thing Done"
2004	**Prof. Thomas F. Baskett**	"The Evolution of Operative Vaginal Delivery"
2003	**Prof Heman V. Van Geijn**	"Is Cardiotocography to Blame?"
2002	**Joseph J. Volpe**	"Brain Injury in the premature infant – is it preventable?"
2001	**Professor Frank A. Manning**	"Echoes from the Past: the Alpha-Omega Theory."
2000	**Raymond J. Reilly**	"Surgical Gynaecology, the Past, the Present and the Future."
1999	**Paul Hilton**	"Vesicovaginal Fistula – Of Historical Interest?"
1998	**Sir Naren Patel**	"Chronogenetics – Role of Obstetricians."
1997	**Dr. Fredric D. Frigoletto Jr.**	"Is Obstetric Practice Evidence based?"
1996	**Carol J. Baker**	"Group B Streptococcal Disease: Pilgrims' Progress."
1995	**Prof. Fiona Stanley**	"Cerebral Palsy – Contribution from the Antipodes."
1994	**R. W. Beard**	"Medicine in the New Europe – The Impact on Obstetrics and Gynaecology"
1993	**Knox Ritchie**	"Sad – but can anything be done? ..."
1992	**John Monaghan**	"A Century of Subspecialization in Gynaecological Oncology – are we progressing?"
1991	**Charles Whitfield**	"The Rh Story"
1990	**Roy M. Pitkin**	"Anatomy and Physiology of a Peer Review Journal"
1989	**Claude Sureau**	"Decision making in reproductive medicine."

1988	**Geoffrey Chamberlain**	"One up on Dactylonomy"
1987	**Hugh Philpott**	"Obstetrics of Poverty."
1986	**Charles R. Scriver**	"Medelian Disease – What can it do to us? Can it be treated?"
1985	**Alexander C. Turnbull**	"Learning Obstetrics in Scotland, Wales, England and Ireland."
1984	**Sir Rustam Feroze**	"What alternative to what Medicine?"
1983	**William Dignam**	"Post Graduate Education in Obstetrics and Gynaecology in the U.S.A.: At the Crossroads."
1982	**Richard Mattingly**	"New Horizons in Cervical Cancer Detection."
1981	**Robert H. Usher**	"The Very Low Birth-weight Infant – Immediate and Long Term Prospects."
1980	**Shirley Driscoll**	"Placentas I Have Known."
1979	**John S. Tomkinson**	"Ultimate Tragedy."
1978	**Otto Kaser**	"Post-operative Complications."
1977	**Denis Cavanagh**	"Eclamtogenic Toxaemia – The Science and the Art."
1976	**John H. Pinkerton**	"The Tell Tale Heart."
1975	**Marcel Renaer**	"Transplacental Haemorrhage as a Cause of Perinatal Mortality and Morbidity."
1974	**James Scott**	"Counting the Cost"
1973	**Mogens Ingerslev**	"Modern Democracy in the National Health Service"
1972	**Ian Donald**	"Naught for Your Comfort"
1971	**Raymond Illsley**	"Social Limitations on Obstetric Management."

1970	**Christopher J. Dewhurst**	"The Place of Modern Technical Advances in Obstetrics."
1969	**Dunanc Reid**	"The Right and Responsibility."
1968	**G. J. Kloosterman**	"The Practice of Obstetrics in the Netherlands."
1967	**Sir John Peel**	"Pre-Diabetes in Obstetrics and Gynaecology."
1966	**Hugh McLaren**	"The Conservative Treatment of Cervical Pre-Cancer."
1965	**John McClure Browne**	"Placental Insufficiency."
1964	**Sir Hector MacLennan**	"Version."
1963	**Harold Malkin**	"The Art of Obstetrics."
1962	**Charles Scott Russell**	"The Fetus and its Placenta."
1961	**Sir Norman Jeffcoate**	"Prolonged Labour."
1960	**John Stallworthy**	"The Debt We Owe."
1959	**George Gibbard**	"Changes in the Manifestations of Puerperal Sepsis."
1958	**Sir Arthur Gemmell**	"Some thoughts on the Adrenal in pregnancy."

Executive Committee (The Board)

Pat McCann, *Deputy Chairman*
Pat has over fifty years' experience in the Hotel business. He started in 1969 in Ryan Hotel Group plc before joining Jurys Hotel Group plc in 1989. He retired from Jurys Doyle in 2006 and founded Dalata Hotel Group in 2007. Pat served as President of Ibec from September 2019 to September 2020. Pat was Chairman of Whitfield Hospital in Waterford from 2011 to 2018. He is currently a Non-Executive Director of Glenveagh and a number of private companies. On March 2nd 2021, Pat announced his retirement from Dalata Hotel Group plc.

William Johnston, *Honorary Secretary*
William Johnston is an economics graduate of Trinity College Dublin, a solicitor, the external examiner in Banking Law for the Law Society, a member of the Banking Law Senior Advisory Board of the International Bar Association, and a Director of the Housing Finance Agency and the Port of Waterford.

Michele Connolly, *Honorary Treasurer*
Michele Connolly is a Chartered Accountant with over 25 years commercial experience. She is currently a partner in professional practice. She specialises in supporting State, Semi State, not for profit and commercial companies in fund raising, development of new infrastructure and general financial matters.

Prof Shane Higgins, *Master*
Shane Higgins, is a Consultant Obstetrician/ Gynaecologist and the current Master of The National Maternity Hospital. He is an Associate Professor at UCD, Department of Obstetrics & Gynaecology and has a special interest in Maternal-Fetal Medicine. Shane has a broad range of clinical and management experience gained within Ireland, Scotland and Melbourne, Australia.

Dr Ingrid Browne
A graduate of RCSI medical school, Ingrid Browne has been a Consultant Anaesthesiologist for the past 16 years to National Maternity Hospital and St Vincent's University Hospital. She is a fellow of the College of Anaesthesiologists and holds a Masters in medical science. She completed post graduate fellowship training in obstetric anaesthesia at Columbia University NYC.

Mairéad Butler
Mairéad Butler is a Chartered Accountant and has spent most of her career in financial services in Dublin and Sydney, working in risk, compliance and communications roles. She is also a Director of An Cosán, a charity focused on education as a pathway out of poverty.

Sarah Claxton
Sarah is an Engineer with over 24 years' experience in the energy industry. Having worked in technical engineering and line management roles, she completed an MSc in Work and Organisation Behaviour and has worked in the area of Strategic HR & Organisation Development for the past 10 years. She currently leads People and Organisation Capability at ESB Networks as that business transforms to enable wide-scale electrification of society in support of the National Climate Action Plan.

Fr Enda Cunningham
Son of a NMH nurse, Fr Enda serves as Administrator of Westland Row parish and chaplain to the National Maternity Hospital.

Denise Cole
Denise Cole has 25 years of experience working in Human Resources and combines a wealth of strategic and operational HR and organisation development experience in both the private and public sectors. Her career includes seven years in KPMG in London and Dublin, thirteen years in acute hospitals; eleven years in Beacon Hospital as Head of HR and two years in St James Hospital as Head of HR Strategy. Denise is currently Head of HR for the Courts Service where she leads a People & Organisation Transformation programme.

Aidan Devlin

Aidan Devlin is a Chartered Accountant and a UCC Commerce graduate. He is a member of the Institute of Directors in Ireland and the Mediators Institute of Ireland. Aidan has over 35 years' experience in Corporate Banking and Project Finance both in Ireland and the Middle East. He is also a board member of an Affordable Housing Body and was a founding board member of the NMH Foundation.

Frank Downey

Frank Downey has over 30 years' experience as an Actuarial and Employee Benefits Consultant. Frank is an economics graduate of Trinity College, Dublin, a Director of Invesco Limited and an actuary and advisor for corporate clients. Frank also acts as a trustee for a number of large pension schemes.

Cllr James Geoghegan

James Geoghegan is an elected member of Dublin City Council, practising Barrister at Law in Ireland with a mixed civil practice with a focus on Banking Law, Administrative Law, European Union Law and civil proceedings related to crime.

Gráinne Hennesy

Gráinne Hennessy is a senior partner at Arthur Cox with over 28 years' experience in advising lenders and borrowers on syndicate finance, real estate finance, including some of the largest construction finance projects in the country, leveraged acquisition finance and debt restructurings. Gráinne was Head of the Arthur Cox Finance Department and a member of its management committee for 6 years. Gráinne is also one of two partners who are responsible for Arthur Cox's diversity and inclusion strategy.

Prof Declan Keane

Declan Keane has been a Consultant Obstetrician since 1985 and is a former Master of the Hospital. He has worked in the UK and the USA and was recently appointed as a Professor to the RCSI. He has considerable administrative experience and was a former member of the National Women's Council and was the obstetrician advising the Citizen's Assembly on the 8th Amendment.

Carmel Logan

Carmel Logan is a Chartered Accountant and Tax Adviser. She is a partner at KPMG with over 20 years' experience providing tax services to Irish and international companies across a range of sectors including real estate, infrastructure, technology and lifesciences. She is also a member of a number of industry bodies across the sectors she works in.

Prof Fionnuala McAuliffe

Fionnuala McAuliffe is Chair and Professor of Obstetrics & Gynaecology, UCD, Director UCD Perinatal Research Centre, Head, Women's and Children's Health, UCD, Consultant Obstetrician & Gynaecologist at The National Maternity Hospital. Her subspecialty area is maternal and fetal medicine and she is Programme Director of the RCOG maternal and fetal medicine subspecialisation fellowship at NMH. She has received significant grant funding both nationally and internationally. Fionnuala has developed guidelines for pregnancy both in Ireland, UK and internationally.

Dr John Murphy

John Murphy is a Consultant Paediatrician in the National Maternity Hospital and Paediatric & Neonatal Clinical Lead with the HSE in Clinical Strategy & Programmes Directorate. His is also editor of the Irish Medical Journal.

Tom Murphy

Tom Murphy is a Chartered Accountant with over 30 years of financial and commercial experience while based in the UK, the US and Ireland. He served as CFO of Fyffes Plc. for 14 years. Now retired, he is a non-executive director of several companies.

Jane McCluskey

Jane McCluskey is a lawyer with a large multinational technology company and has over ten years' experience practising corporate, commercial and intellectual property law. She is also a registered trade mark agent. Jane is Mum to three children, all of whom were born at the National Maternity Hospital.

Dr Roger McMorrow

Roger McMorrow is a graduate of The Queens University of Belfast and he has been a consultant anaesthetist at the National Maternity Hospital and St Vincent's University Hospital since 2009. He has served as Clinical Director of the NMH since January 2018. He has a specialist interest in high risk obstetrics, clinical risk and high altitude mountaineering. In 2007 he was part of an expedition that reached the summit of Mt Everest.

Prof Peter McParland

Peter McParland is a Consultant Obstetrician/ Gynaecologist in the National Maternity Hospital with a special interest in Maternal Fetal Medicine.

Nóirín O'Sullivan

Nóirín O'Sullivan most recently served as United Nations Assistant Secretary General for Safety and Security based in New York. Nóirin served as Garda Commissioner from 2014 – 2017. She holds a Masters in Business Studies from UCD Smurfit Business School. She has served two terms on the Governing Council of the Pharmaceutical Society of Ireland and chaired the Inspection and Enforcement Committee. She is a member of the North American Advisory Board of the UCD Smurfit Business School. Nóirin is the recipient of numerous awards including an Honorary Doctorate of Laws from the University of Ulster for Distinguished Public Service.

Cllr Naoise Ó'Muirí

Naoise Ó'Muirí has served as a Dublin City Councillor since June 2004 and is a former Lord Mayor of Dublin. Naoise studied Engineering at the National University of Ireland, Galway and runs a technology company.

Cllr. Cat O'Driscoll

Cat O'Driscoll represents the Cabra Glasnevin LEA and chairs the Arts and Culture Strategic Policy Committee in Dublin City Council. A native of Cork, Cllr O'Driscoll has been a board member of Quality and Qualifications Ireland and The National Forum for the Enhancement of Teaching & Learning.

Patricia O'Shea

Patricia O'Shea is a law graduate of University College Cork and is Group Head of Legal Affairs & Secretariat for a semi-state company. She was formerly General Counsel of a US multinational company serving as Company Secretary and a Director of a group company.

Dr Michael Robson

Michael Robson is a Consultant Obstetrician/ Gynaecologist and former Master of the NMH. Dr Robson is Joint National Clinical Lead for the development of the Maternal and New-born Clinical Management System (electronic patient record). He also developed the methodology for the classification of caesarean sections, known world-wide as the Robson 10.

Stephen Vernon

Stephen Vernon is one of the founders of Green Property Group and has extensive experience in property and property development in Ireland and the UK. A Bristolian, educated in London, Mr Vernon has been based in Ireland for several years.

Dr Jennifer Walsh

A graduate of UCD, Jennifer Walsh is a Consultant Obstetrician and Gynaecologist and Maternal and Fetal Medicine Subspecialist at the National Maternity Hospital. She was appointed to NMH in 2016 following completion of postgraduate subspecialty training at Columbia University NYC. She is the Director of Fetal Medicine at the NMH. Jennifer sits on both the Project Team and Project Board for the move to SVUH campus at Elm Park and chairs the Digital Health Steering Group for the future hospital. She is also Mum to three children, all of whom were Holles Street babies.

Executive & Sub Committees

Executive Committee
Dr Dermot Farrell, Archbishop of Dublin, *Chairman*
Lord Mayor of Dublin, Cllr. Caroline Conroy *(from Jun)*
Mr Pat McCann, *Deputy Chairman*
Mr William Johnston, *Honorary Secretary*
Ms Michele Connolly, *Honorary Treasurer*
Prof. Shane Higgins, *Master*
Dr Ingrid Browne
Ms Mairéad Butler
Ms Sarah Claxton *(from May)*
Ms Denise Cole
Very Rev. Fr Enda Cunningham
Mr Aidan Devlin
Mr Frank Downey
Cllr. James Geoghegan
Ms Gráinne Hennessy
Prof. Declan Keane
Ms Carmel Logan *(from Sept)*
Dr John Murphy
Mr Tom Murphy *(from Sept)*
Prof. Fionnuala McAuliffe
Ms Jane McCluskey
Dr Roger McMorrow
Prof. Peter McParland
Cllr. Cat O'Driscoll
Prof. Colm O'Herlihy *(to May)*
Cllr. Naoise Ó Muirí
Ms Patricia O'Shea
Ms Nóirín O'Sullivan
Dr Michael Robson
Mr Stephen Vernon
Dr Jennifer Walsh *(from May)*

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*
Ms Mary Brosnan, *Director of Midwifery & Nursing*
Mr Alistair Holland, *Financial Controller*

Finance Committee
Mr Pat McCann, *Deputy Chairman*
Mr William Johnston, *Honorary Secretary*
Ms Michele Connolly, *Honorary Treasurer*
Prof. Shane Higgins, *Master*
Ms Denise Cole
Ms Carmel Logan *(from Sept)*
Mr Tom Murphy *(from Sept)*

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*
Ms Mary Brosnan, *Director of Midwifery & Nursing*
Mr Alistair Holland, *Financial Controller*

Audit Committee
Mr Aidan Devlin, *Chair*
Ms Michele Connolly, *Honorary Treasurer*
Ms Mairéad Butler
Mr Frank Downey
Cllr. Naoise Ó Muirí *(from May)*

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*
Mr Alistair Holland, *Financial Controller*
Ms Ann Rath, *A. Director of Midwifery & Nursing*

QRPS Committee
Ms Mairéad Butler, *Chair*
Dr Ingrid Browne
Mr Aidan Devlin
Prof. Declan Keane
Ms Fionnuala McAuliffe
Ms Jane McCluskey
Mr Bernard McLoughlin *(from Sept)*
Dr Roger McMorrow
Cllr. Naoise Ó Muirí
Ms Patricia O'Shea

In Attendance
Ms Mary Connolly, *AON*
Dr Luke Feeney, *Director of Quality, Risk & Patient Safety (to Aug)*
Dr Anne Twomey, *Director of Quality, Risk & Patient Safety (from Nov)*
Mr Ronan Gavin, *Secretary/General Manager*

Co-Location Committee
Mr Stephen Vernon, *Chair (to Dec)*
Mr Pat McCann, *Deputy Chairman*
Ms Michele Connolly, *Honorary Treasurer*
Ms Sarah Claxton *(from May)*
Ms Gráinne Hennessy
Dr Roger McMorrow

In Attendance
Prof. Shane Higgins, *Master*
Dr Orla Sheil, *Consultant Obstetrician/Gynaecologist*
Mr Ronan Gavin, *Secretary/General Manager*

Nominations Committee
Mr Pat McCann, *Deputy Chairman, Chair*
Mr William Johnston, *Honorary Secretary*
Ms Michele Connolly, *Honorary Treasurer*
Prof. Shane Higgins, *Master*
Ms Mairéad Butler *(from May)*
Ms Denise Cole
Mr Aidan Devlin *(from May)*
Prof. Declan Keane
Ms Eugenée Mulhern *(to Apr)*
Dr John Murphy
Ms Paula Reid

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*

Medical Fund Committee
Ms Michele Connolly, *Honorary Treasurer, Chair*
Prof. Shane Higgins, *Master*
Dr Stephen Carroll *(from May)*
Mr Frank Downey
Ms Gráinne Hennessy
Prof. Declan Keane
Prof. Peter McParland *(to Feb)*

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*
Mr Alistair Holland, *Financial Controller*
Mr Francis Rogers, *Management Accountant*

NMH Executive Ethics Committee
Dr John Murphy, *Consultant Paediatrician, Chair*
Prof. Shane Higgins, *Master*
Ms Catherine Altman
Dr Ingrid Browne
Ms Denise Cole
Ms Caroline Devlin
Mr Frank Downey
Dr Paul Downey
Ms Jane McCluskey
Cllr. Naoise Ó Muirí

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*

House Committee
Ms Catherine Altman, *Chair*
Ms Sara Appleby
Ms Louise Bennett *(from May)*
Ms Sheena Carton
Ms Jane Collins
Ms Fiona Davy
Ms Elaine Doyle
Ms Lydia Ensor
Mrs Kate Higgins
Ms Judith Meagher *(to Dec)*
Ms Margaret McCourt
Ms Anne Murphy
Ms Teresa Murphy
Ms Suzanne O'Brien *(from May)*
Ms Kathleen O'Grady
Ms Aoife O'Shea

In Attendance
Ms Mary Brosnan, *Director of Midwifery & Nursing*
Mr Mark Anderson, *Hygiene Services Manager*

People and Organisation Committee
Ms Denise Cole, *Chair*
Ms Sarah Claxton
Ms Gráinne Hennessy
Mr George Maybury
Ms Patricia Nolan
Ms Nóirín O'Sullivan

In Attendance
Mr Ronan Gavin, *Secretary/General Manager*
Ms Mary Brosnan, *Director of Midwifery & Nursing*
Ms Yvonne Connolly, *HR Manager*

Board of Governors

Governors Ex-Officio
Dr Dermot Farrell (Archbishop of Dublin – Chairman)
Councillor Caroline Conroy (Lord Mayor - Vice Chairman) *(from Jun)*
Prof. Shane Higgins (Master)
Very Rev. Fachtna McCarthy, Administrator, Parish of Haddington Road
Very Rev. John McDonagh, Parish Priest of the Parish of Sandymount
Very Rev. Enda Cunningham, Administrator, Parish of St. Andrew, Westland Row

Nominated by the Minister for Health
Ms Patricia O'Shea
Vacant

Nominated by Dublin City Council
Councillor James Geoghegan
Councillor Cat O'Driscoll

GOVERNORS

Dr Alan O'Grady
Dr John R McCarthy
Dr Niall O'Brien
Mr J. Brian Davy
Mrs Judith Meagher
Dr Jack T. Gallagher
Mr Gabriel Hogan
Mrs Anne Davy
Mrs Margaret Anderson
Mrs Kathleen O'Grady
Dr John F. Murphy, Obs.
Dr Frances Meagher
Mr Kevin Mays
Dr Declan O'Keeffe
Prof. Colm O'Herlihy
Mr William Johnston *(Honorary Secretary)*
Dr Peter Boylan
Mrs Joanne Keane
Mrs Anne Murphy
Mr Frank Downey
Mr Anthony Garry
Dr Freda Gorman
Mrs Jane Collins
Ms Alexandra Spain
Mrs Margo McParland
Mrs Catherine Altman
Dr John Murphy, Paeds.
Mr Niall Doyle
Ms Lydia Ensor
Ms Sara Appleby
Ms Caroline Hayes (Simons)
Dr Peter Lenehan
Dr Orla Sheil
Prof. Peter McParland
Ms Sheena Carton
Ms Elaine Doyle
Prof. Declan Keane
Ms Maeve Dwyer
Dr Kevin McKeating
Mrs Mary Donohoe
Ms Catherine Ghose
Mr Barry Dixon
Ms Paula Reid
Ms Suzanne O'Brien
Ms Margaret McCourt
Ms Teresa Murphy
Ms Eugenée Mulhern
Ms Fiona Davy
Dr Michael Robson
Dr Deirdre MacDonald
Prof. Fionnuala McAuliffe
Ms Jane McCluskey
Ms Isabel Foley
Cllr. Naoise Ó Muirí
Ms Elizabeth Nolan
Dr Ingrid Browne
Mr Stephen Vernon
Ms Rachel Hussey
Ms Niamh Callaghan
Mr Aidan Devlin
Ms Lisa Taggart
Ms Helen Caulfield
Ms Marie Daly Hutton
Mr Nicholas Kearns
Ms Michele Connolly *(Honorary Treasurer)*
Ms Aoife O'Connor
Ms Mairéad Butler
Dr Roger McMorrow
Dr Rhona Mahony
Dr Paul Downey
Mrs Kate Higgins
Ms Aoife O'Shea
Ms Caroline Devlin
Ms Denise Cole
Ms Gráinne Hennessy
Mr Pat McCann *(Deputy Chairman)*
Ms Nóirín O'Sullivan
Ms Louise Bennett
Dr Stephen Carroll
Ms Sarah Claxton
Mr George Maybury
Mr Bernard McLoughlin
Ms Patricia Nolan
Dr Jennifer Walsh
Ms Carmel Logan
Mr Tom Murphy

Professional Advisors

Law Advisors
Mason, Hayes & Curran, South Bank House, Barrow Street, Grand Canal Dock, Dublin 4.
Arthur Cox, Ten Earlsfort Terrace, Dublin 2.
Daniel Spring & Co. Solicitors, 50 Fitzwilliam Sq, Dublin 2.

Bankers
The Bank of Ireland, 2 College Green, Dublin 2.

Auditors
External
Price Waterhouse Coopers, Chartered Accountants, One Spencer Dock, North Wall Quay, Dublin 1.

Internal
Crowe, Marine House, Clanwilliam Place, Dublin 2

Neonatology

The Department of Neonatology aims to deliver excellence in neonatal care through innovation, cooperation, education, research with attention to evidence based practice, empathy and a family-centred approach. The NMH Neonatal Intensive Care Unit (NICU) provides tertiary medical services for newborns up to 6 weeks of age and admits patients from south Dublin and north Wicklow and Ireland East Hospital Group catchment area and also from other areas of Dublin and the island of Ireland. The neonatal unit has 35 beds (9 NICU, 13 HDU, 13 SCBU) and provides a high level of care to medically complex neonates. It is recognised for its expertise in the management of prematurity, neonatal encephalopathy, seizures, perinatal stroke, sepsis, twin-to-twin transfusion syndrome, rhesus isoimmunisation and congenital anomalies.

We supervise the care of all liveborn babies (n=6815) who are born in this hospital even if they do not require admission to the Neonatal Intensive Care Unit (NICU). Our staff attend all instrumental deliveries, emergency caesarean sections and the delivery of any baby where there are recognised risk factors: in 2022, the instrumental delivery rate was at 11.3% and emergency C/S rate 19.0%. Every baby born in NMH undergoes a comprehensive physical examination by one of the neonatal team before discharge home. On average, we examine approximately 19 babies a day. Apart from providing reassurance to parents, this examination allows us to pick up conditions including heart murmurs, unstable hips and congenital anomalies that may not have been suspected antenatally so that advice can be given, and appropriate follow-up arranged. With mothers and babies spending less and less time in hospital, it is often a challenge to arrange such tests and referrals in such a short-time frame, particularly over weekends. We provide a nurse-doctor team every third week to the national neonatal transport programme, a vital service that transports critically ill newborn babies from anywhere in the country. Our staff is available to meet any family in advance of a delivery where problems are anticipated. This service has grown significantly over the past few years for a variety of reasons including more widespread access

to routine antenatal scanning, advances in neonatal care and recent legislation allowing for termination of pregnancy in cases of fatal fetal anomalies. Our care for a baby does not end when the baby is discharged from the hospital as many of our babies return to clinic for follow-up or are referred for assessment by their GP or Public Health Nurse.

Last year, there were 1,132 babies admitted to the NICU. On average, 1 in every 7 babies delivered in this hospital is admitted to us even if only for a brief period of time. Many first-time parents are surprised to hear how high that figure is and are often not prepared for the fact that they may be separated from their baby for several hours. For the past number of years, we have made every effort to keep our admission rates for term infants (those infants born ≥37 weeks gestation) as low as possible. We do this by auditing the reasons why babies are admitted and by looking at alternative ways to provide care that minimise the chances that mothers and babies are separated. In 2020, we introduced changes to how hypoglycaemia (low blood glucose) was managed in the newborn period. By doing so, our staff, supported by our nursing and midwifery colleagues on the postnatal wards, reduced the admissions for hypoglycaemia from 306 babies in 2019, to 189 babies in 2020 and to 109 babies in 2021 with a slight increase to 138 in 2022. We will continue to make incremental changes year on year guided by feedback received from families who have used our services. A core value in our Department is the concept of family-centred care, not just for those babies who spend long periods of time in our NICU, but also for those babies who may only be with us for a few days. As the clinicians caring for babies, we believe our role is to support families to provide as much of the direct care that their babies need as possible. Family Integrated Care (FICare) is a model of care developed initially in North America which aims to involve families in an integral way in the care of their babies while in NICU. FICare integrates families as partners in the NICU care team, and provides a structure that supports the implementation of family-centred care. We are starting to institute a number of changes in the NICU to align more closely with a FICare model. For example, during ward rounds, parents are encouraged to be at their baby's cotside to contribute to the ward round discussion and if at a neighbouring cotside, noise cancelling headphones are available to promote confidentiality between patients. Ideally, mothers (and partners) should be accommodated in beds beside their sick babies. Obviously, the infrastructural constraints of our hospital in its current location are the main reason why this cannot be achieved. This hospital was not built with modern neonatal intensive care in mind. This is another reason why this Department, along with the rest of the hospital, is fully supportive of our co-location to the St Vincent's University Hospital campus. In a newly-built modern hospital, one that is specifically designed with mothers and babies in mind, mothers and partners will be able to room-in with their babies' day and night. How can a healthcare service purport to be supportive of breastfeeding if mothers and babies cannot be cared for in the same location?

"A core value in our Department is the concept of family centred care, not just for those babies who spend long periods of time in our NICU, but also for those babies who may only be with us for a few days."

Our NICU is one of four designated tertiary care NICUs in this country that provides specialised care to the most premature of infants, many of whom are referred to us while still in-*utero* (i.e. when the mother is still pregnant) from locations all around the country. Last year, we looked after 119 Very Low Birth Weight Infants (babies born ≤29 weeks and/or ≤1500g). These infants are extremely vulnerable and often spend several weeks in hospital frequently not being discharged home before their due date. There have been major advances in neonatal intensive care medicine over the past 50 years and survival across all gestational ages is increasing. We now have reported survivors of infants born at 23 weeks' gestation. In our hospital, where healthy babies are born at a rate of about one every hour, it can be hard to fathom that just a few feet away, in our NICU on the first floor, a tiny baby weighing less than 1lb may be attached to a life-support machine, receiving high level intensive care. The odds of a baby surviving at 23 weeks is still quite low but some of these tiny babies can, and do, survive. Unfortunately, many will face ongoing challenges, particularly as they get older, in terms of their long-term neurodevelopmental outcome. As greater numbers of these tiny fragile babies survive, research has shown us that optimising babies' early

neurosensory experiences, and social environment, impacts on their long-term neurodevelopmental outcome. By providing individualised, neuroprotective care to each baby, by gentle containment, minimising stress and pain, safeguarding sleep and optimising nutrition, it has been shown that babies have better long-term physical, cognitive and emotional outcomes. Such developmental care principles underpin all of our care practices in the NICU. Our multidisciplinary team (MDT) which includes Psychology (Marie Slevin), Physiotherapy (Jo Egan), Dietetics (Roberta McCarthy and her team), Speech and Language Therapy (Zelda Greene), a newly funded Neonatal Occupational Therapist post and Medical Social Work complement the advanced medical and nursing care we provide, advising parents and staff alike on positioning, feeding and social interactions.

Our NICU is one of 4 centres in the country that provides therapeutic hypothermia to infants with Hypoxic Ischaemic Encephalopathy (HIE). In 2021, a total of 8 infants (4 inborn and 4 outborn) were reported with HIE of which 8 (4 inborn and 4 outborn) received therapeutic hypothermia. A further 6 infants (3 inborn and 3 outborn) were diagnosed with Neonatal Encephalopathy but did not meet the criteria for HIE. All 6 of these underwent therapeutic hypothermia. Details on these cases are included in this clinical report (see Neonatal Encephalopathy section). Further details, including data on long-term outcomes, are outlined in our Annual Neonatal Report 2022.

Our outpatient clinic continued to be very busy, no doubt in part due to the pandemic. In all, 2,815 babies were seen in clinic of which 1,784 were first-time visits and 1,031 were follow-up visits. Apart from overseeing the patients who attend, they triage numerous queries, we provide a huge amount of advice over the telephone to families, GPs and community services and follow up on a myriad of investigations and referrals. While a large part of this work often goes unnoticed, the clinic could not provide such a good service to our families without their dedication. We have also recently developed a specialised multi-disciplinary clinic for follow-up of the ex-NICU high risk babies (ACORN clinic, see below).

The NICU Clinical Psychologist, Marie Slevin, continues her important work in seeing all our NICU graduates at 2 years corrected age for a detailed neurodevelopmental assessment. For those families that could not attend, Marie used alternative methods to assess these babies by using validated parental questionnaires supported by phone contacts and/or limited face-to-face assessments. Such data are invaluable by providing us with important feedback as to how our babies do in the long-term. Additionally, these assessments can provide families with very useful information that can be used to lobby for additional resources for their infant, if required.

"...by gentle containment, minimising stress and pain, safeguarding sleep and optimising nutrition, it has been shown that babies have better long-term physical, cognitive and emotional outcomes."

Research plays a central and important role in the Neonatal Unit. In 2022, three Neonatology Specialist Registrars performed clinical research in the Department for higher degrees at UCD. Dr Emma Dunne studied thermoregulation in premature babies supervised by Dr. Lisa McCarthy and Prof Colm O'Donnell; Dr Caitriona Ní Chathasaigh studied airway management of newborns supervised by Dr. Anna Curley and Dr. Eoin Ó Curraín; and Dr. Lucy Geraghty studied the use of videolaryngoscopy for intubation of newborns supervised by Prof Colm O'Donnell. The Department also participated in several multi-centre trials. Our NCHDs and nursing staff are encouraged to participate in local projects and audits, and to present their work at local and international meetings. We are enormously grateful to our families for their willingness to participate in research at such a difficult time in their lives. We are also hugely grateful to our colleagues – nursing, administrative, clinical engineering, allied health and medical – for their support us as we try to answer important questions about how to better care for babies.

One achievement the Department would like to highlight this year is the continued promotion of breastfeeding for our most vulnerable babies. We actively encourage women to express breast milk for their premature babies and use those tiny precious drops of colostrum as babies' first feeds. With the support and encouragement, not just of the staff in the NICU but also of the staff on the postnatal wards, the numbers of babies receiving their own mother's milk is increasing and we are seeing for the first time,

mothers who have successfully transitioned their baby from tube feeding to exclusive breastfeeding, before discharge home. Our staff should take great pride in the role they play in empowering women to successfully breastfed their babies even when delivered prematurely.

While most babies make the transition to extra-uterine life without a problem, we know that about 5 in every 100 babies born at term require medical assistance to help them begin breathing. As time is of the essence, much effort is focused on training staff (and not just those working in the Department of Neonatology) in the art of neonatal resuscitation. Increasingly, it is being recognised that simulation is a powerful tool to teach practical skills, build proficiency and speed and encourage good teamwork. Dr Eoin O'Currain, Dr Carmel Moore, Ms Shirley Moore ANP and Ms Linda Smiles CNM2 now run weekly neonatal resuscitation simulations in various locations around the hospital. These sessions have been very well received by staff and have resulted in improved core competencies across all levels and grade of staff.

We continue our use of "AngelEye" in the NICU; a secure camera system that allows mothers and fathers keep a watchful eye on their babies even when not in the hospital. This facility for families receives much positive feedback. The option to access all teaching sessions and hospital meetings using a virtual platform is now standard, allowing the staff much greater flexibility and leading to increased attendance rates. Families can now be offered the option of a virtual outpatient visit, if appropriate, and many have availed of the opportunity to avoid the need to have to travel to the hospital with a small baby. Our Allied Health Professionals and Clinical Discharge Coordinators took virtual platforms a step further and now host a number of parental educational webinars and facilitated Q&A sessions on-line and these have been very well received by families.

May I conclude by taking this opportunity to thank the entire neonatal team which includes consultant colleagues, our non-consultant hospital doctors, many of whom are with us for more than one year, our neonatal nursing staff under the stellar leadership of our CMM3, Hilda Wall, our allied health professionals, our administrative staff and our dedicated household staff. We must also mention the many other ancillary services who support our work including the laboratory, pharmacy, radiology, infection control, ICT and bioengineering. We welcome our new locum consultant neonatologist, Dr Madeleine Murphy to the team. Over 2022, a number of senior NICU staff retired, Breda Cornella (CMM2) and Josephina Garay (Senior Staff Nurse) and Trish McNevin (MTA). We are very thankful for their dedicated service to NMH NICU and wish them a long and enjoyable retirement. We are very grateful to our visiting consultants from Children's Health Ireland Crumlin and Temple Street for the service they provide in reviewing our babies and for their support and expert advice.

I would like to thank all of those who contributed to the writing of this report. The time and effort invested is enormous and is much appreciated. Lastly, we acknowledge all the parents and babies who passed through our NICU in 2022, and in particular, the 49 babies who sadly died in our care. They remain in our thoughts.

Finally, we acknowledge the incredible service provided to this hospital by Professor Michael O'Keeffe, Consultant Paediatric Ophthalmologist who died early in the year (2023). He established a screening and treatment programme for retinopathy of prematurity - a serious eye condition that affects preterm babies and can lead to blindness. Because of his expertise, our hospital soon became recognised as a centre of excellence for this condition, both nationally and internationally and many babies from around the country were specifically transferred to us for his expert opinion. We, and the babies for whom he cared, are very grateful for his tremendous contribution.

Dr Deirdre Sweetman, Consultant Neonatologist.

"...the best possible support is made available to the high risk infant and their family while an inpatient and post discharge home."

Zyra Navarro,
Staff Nurse NICU.

"An audit conducted by SLT in 2022 identified that approximately 50% of babies on the NICU are eligible for the SLT service."

NEONATAL DISCHARGE PLANNING SERVICE

The Neonatal Discharge Planning service continues to play a vital part in the care of the high risk infant and family in the Neonatal Unit by streamlining each infant's discharge. This has been achieved by supporting and building a rapport with the family from admission until discharge and thereafter. The service offers support to parents as well as anticipating their needs pre and post discharge home. The Clinical Nurse Specialist (CNS) collaborates early with the Multi-Disciplinary Team and Community Support Services so that the best possible support is made available to the high risk infant and their family while an inpatient and post discharge home.

Caseload and Activity

High risk infants include all preterm infants with birth weight <1500g or <32 weeks' gestational age, infants with Neonatal Abstinence Syndrome, complex social admissions, life-limiting Illnesses, those requiring palliative care as well as infants with congenital abnormalities and brain injury. There were a total of 219 discharges involving the CNS and a further 600 phone contacts.

Training and Education

Staff are continually updated and advised regarding changes to discharge policies and procedures. Students and Midwives, Student Public Health Nurses are also updated.

Education and Information

A Basic Life Support class and preparing for home class is regularly provided and they are also available online for families and carers of high risk infants and also on 1:1 basis

Follow up calls are made to parents following their infant's discharge providing advice and support to families.

The CNS continues to be the link person with the HSE appointed Northgate Hearing Screening Service who provides a national hearing screening programme for all infants, chairs the Inter Hospital Neonatal Clinical Nurse Specialist Group, is involved in Quality Improvement Initiatives to promote Family Centred Care and early breastfeeding in the NICU and also initiates and attends MDT meetings for vulnerable babies and their families. The PHN Community Discharge Information Study Day was held virtually in September.

The service was also involved with developing Parent Questionnaire for the NICU and is represented on the Prime B –Breastfeeding and Infant Mental Health Hospital committees

Ciara Murphy, Neonatal CNS.

SPEECH AND LANGUAGE THERAPY (SLT)

2022 saw the first full year of SLT clinical activity at the NMH. Our SLT Zelda Greene is a clinical specialist in Neonatology and provides an inpatient service to the NICU as well as outpatient clinics. In February 2022 Zelda was appointed adjunct assistant Professor in Clinical Speech and Language Studies in Trinity College Dublin. Over the course of 2022 Zelda has seen approximately 140 inpatients and over 60 outpatients. The majority of these babies have been born prematurely. An audit conducted by SLT in 2022 identified that approximately 50% of babies on the NICU are eligible for the SLT service. Zelda works very closely with the neonatal team and other allied health professional colleagues and has contributed to the establishment of the ACORN programme (**A**llied **C**are **o**f at **R**isk **N**ewborns). This involves a weekly multidisciplinary in-patient ward round focusing specifically on development as well as a post discharge developmental surveillance clinic. Another first for 2022 was the training of SLT postgraduate students to the NMH NICU. Students from the Masters in Dysphagia programme from Trinity College Dublin began clinical placements in NICU under Zelda's supervision. Zelda also contributes directly to teaching and research on the MSc Dysphagia programme in Trinity College. Part of establishing the SLT service in NMH involves collaboration and support to SLT colleagues in community services as they transition their services as part of the HSE progressing disabilities programme.

Zelda Greene, Speech & Language Therapist.

NEURODEVELOPMENTAL FOLLOW-UP REPORT

Neurodevelopmental Follow-up of Infants Born Preterm and Term

Our neurodevelopmental follow-up of infants born preterm (both inborn and outborn) now spans 23 years from 1997- 2020. Our follow-up of term infants diagnosed with neonatal encephalopathy (NE) at birth is in its 13th year. The Bayley Scales (Bayley-lll) which is one of the most widely used standardised tools for the assessment of neurodevelopment in early childhood is our key measurement of developmental outcome in these cohorts. 85% of families attended for the Bayley assessment, as this assessment is face-to-face and an important follow-up appointment.

The PARCA-R – a parent report questionnaire (see below for details on this questionnaire) was used for families who did not wish to travel to Dublin for the full Bayley assessment for various reasons, for example, distance to travel, busy family life, being happy with their child's development to date, and being already linked in with their local Early Intervention Service. The PARCA-R accepts that parents are good judges of their child's current abilities. It assesses cognitive and language development from 23.5 – 27.5 months of age. Unfortunately, the PARCA-R does not have a motor scale. Hence, motor follow-up was by discussion with the child's parents similar to the Ages and Stages Questionnaire.

A total of 98 preterm infants born <1500g and/ or > 29 weeks, gestation, and 8 term infants with Neonatal Encephalopathy, were referred for follow-up in 2022. A total of 83 Bayley assessments and 14 PARCA-R Questionnaires were completed. The infants born preterm were assessed at two years corrected age. The term infants diagnosed with Neonatal Encephalopathy were assessed at two years' chronological age. An assessment at two years of age (2 years corrected age for preterm infants) is the optimum time to measure cognitive, language and motor outcome when following up these cohorts.

Of the 98 preterm infants listed for assessment, 90 (91%) were formally assessed. Of those families who did not have a formal follow-up, one child was living in England without forwarding contact details, two families (one with triplets (3) and one with twins (2)) did not attend due to a busy family lifestyle and did not complete the PARCA-R questionnaire despite many attempts to engage them. Both families reported that their children were doing fine, suggesting normal development. Two assessments are still pending, due to family issues.

There were 4 additional independent referrals (3 Bayley Assessments and 1 PARCA-R not included in the VON follow-up or in the figures above).

Preterm Group

In the preterm cohort, 24% were from the Dublin area. The remaining 76% children assessed lived outside the Dublin area travelling from as far as Donegal (8 children), Mayo/Sligo (5 children), Wexford (11 children) and spanning counties Longford, Offaly, Westmeath, Meath and Wicklow. Six (6) children were from Northern Ireland. Seventy-seven children (86%) were assessed using the Bayley-lll Scales and 13 children (14%) were assessed using the PARCA-R Questionnaire. Detailed results of their outcomes will be presented in the NMH Annual Neonatal Report for 2022 which will be published later this year.

Neonatal Encephalopathy Group

In the neonatal encephalopathy group, 8 term children were referred for follow-up. All (100%) were followed up, 6 (75%) using the Bayley Scales, one (12.5%) using the PARCA-R Questionnaire and one (12.5%) in discussion with the child's parent (as the parent did not wish the child to undergo either of the assessments offered). Four children (44%) within this TH cohort had a normal outcome (one with advanced performance) across all three parameters measured (cognitive, language and motor). One child had a normal cognitive and fine motor outcome but showed moderate language delay and mild gross motor delay. One child had moderate cognitive and language delay and severe motor delay. One child had mild cognitive delay, severe language delay and normal motor development. The child whose parent declined a formal assessment was indicating severe gross motor delay and delayed cognitive, language and fine motor development. These results will be presented in more detail in the NMH Annual Neonatal Report for 2022.

Bayley Scales of Infant and Toddler Development (Bayley-lll)

The Bayley-lll is an ability test of global development. It comprises of a series of play tasks and language stimulus books broken up into 3 composite scales with 5 sub-categories – cognitive development (Cognitive Scale), receptive and expressive communication (Language Scale) and fine motor and gross motor

development (Motor Scale). It can classify delayed or advanced development within the specific sub-categories. The assessment session can take 2 hours or more to complete depending upon toddler cooperation, duration of assessment feedback and discussion with parents. The process can be tedious as the children are only 2 years of age, active and busy. It can be demanding when children are tired or challenged (especially for those travelling for more than 2-3 hours for the assessment). During the testing session, the child's emotional and behavioural reactions are noted. A full report is documented. The scores generated allow for a comparison between a child's performance over time and in relation to peers of the same age range. The scale identifies children with developmental delay and hence provides information for intervention planning.

PARCA-R (Parent Report of Children's Abilities–Revised)

The PARCA-R is a standardised, UK norm-referenced assessment of children's cognitive and language development at 24 months of age. It can assess a child's developmental level and can classify delayed development of any severity as well as advanced development. The children need to be assessed at 23.5 to 27.5 months to derive the standardised scores. There are separate scores for Non-Verbal Cognition and Language. The outcomes, 'above average', 'average', 'mild', 'moderate' and 'severe delay' can be calculated as used in conventional standard deviation (SD-banded) cut-offs. It is available in 14 languages. The PARCA-R is free and is immediately available to download www.parca-r.info.

Since its first validation study was published in 2004, it has been used as an outcome measure in clinical trials, observational studies, and as a screening tool in child development clinics and neonatal follow-up services. The PARCA-R is a well-researched tool that took 20 years to develop. It was the popular substitute for the Bayley Scales

Zelda Greene (top right), Speech & Language Therapist caring for Baby Cuan Carroll with his Mother, Hailey (top left) in the NICU, with Eimear Lee 4th Year Student and Alice Minuti Postgraduate MSc Student, both from the School of Clinical Speech and Language Studies in the University of Dublin, Trinity College.

during the pandemic. It has been recommended by the NICE Guidelines as an assessment tool to screen for developmental delay. It has validity and reliability ratings providing standardised scores. It has been accepted as producing standard scores similar to other IQ/ developmental tests. It has been favourably compared with the Bayley-lll.

Extreme Preterm Birth

Extreme preterm birth can be associated with high rates of adverse neurodevelopmental outcomes including cognitive impairment (low IQ - especially non-verbal, poor working memory, slow processing speed and deficits in executive functions), attention problems/ADHD, peer relationship problems/Autistic Spectrum Disorder, anxiety/emotional disorders and physical disability as well as subtle learning difficulties. Neurosensory issues are increasingly recognised. The preferred Bayley assessment enables the clinician to identify specific developmental delays, early signs of poor attention skills, poor auditory processing skills, poor sensory integration skills and poor motor/ coordination skills. All of these factors are relevant in terms of later classroom performance. The process of administering the scale alone generates valuable information about a child's learning potential. Identifying and managing these issues at an early age is important to facilitate optimum long-term outcome. The assessment experience is also educational for parents as it gives them an insight into the range of developmental activities from which their child can benefit. The process can strengthen a child's potential by bringing about a change in parent attitude, knowledge and behaviour. Providing Bayley Assessments is a valuable service in terms of assessing two-year outcomes for preterm babies and the data is used to counsel parents when their babies are admitted to the Neonatal Intensive Care Unit (NICU).

Over the years we have noted that attention and sensory processing skills are two notable challenges for the preterm child, who despite having a good outcome, is not achieving his/her potential in terms of learning and language development. We looked at a home intervention programme to address these issues in a small cohort of infants. Our research paper titled 'Therapeutic Listening for Preterm Children with Sensory Dysregulation, Attention and Cognitive Problems' was published in January 2020.[1] The research showed this home intervention programme to be a feasible intervention for preterm children improving their attention levels and sensory processing skills. These skills, as we know, are very important for future learning and language development. We are continuing to research these issues so that we can get a better understanding of the needs of our preterm population in terms of attention and sensory processing skills.

Neonatal Encephalopathy (NE) Diagnosis

The National Neonatal Encephalopathy collaborative is of increasing importance for term infants, particularly since the advent of therapeutic hypothermia (January 2009). Outcome for this group of infants is improving since the introduction of therapeutic hypothermia as evidenced by our follow-up and international studies. However, we have seen from our small cohort over the years that neonatal encephalopathy impacts neurodevelopmental outcomes, and that outcome is mainly determined by the extent of injury to the brain. In a NMH retrospective study looking at developmental outcomes in a cohort of 115 NE infants from 2009-2016, developmental delay was greater in the infants with abnormal MRI brain scans compared to those with normal MRIs. In the cohort of infants with normal MRIs, language delay was 27%, motor delay was 9% and cognitive delay was 9%. In the cohort of infants with abnormal MRIs, language delay was 48%, cognitive delay was 40%, and motor delay was 30% indicating a marked difference[2]. High seizure burden was also associated with poor outcome.

In the Neonatal Therapeutic Hypothermia in Ireland Annual Report 2020 (national aggregate report 2016-2019)[3] published recently, Bayley outcome follow-up data for 85 children showed that 26% had Gross Motor Delay, 21% had Receptive Language Delay, 21% had Expressive Language Delay,16% had Cognitive Delay, and 12% had Fine Motor Delay.

From the data presented above, neonatal encephalopathy that is treated with therapeutic hypothermia but not followed by severe impairments such as CP, can still be associated with impairments in sensory regulation, cognitive, motor, language and

"The process can strengthen a child's potential by bringing about a change in parent attitude, knowledge and behaviour."

educational outcomes. Hence, we need to structure our neonatal encephalopathy follow-up to identify the best interventions both in the NICU and during the recovery and development of this highly vulnerable group of infants. As these children are at 'high risk' of potentially modifiable neurodevelopmental sequelae, they should be enrolled in neonatal follow-up programmes such as in our recently introduced ACoRN Programme which is discussed below.

Why are we doing these assessments?

Great advances have been made in neonatal intensive care over the past decade. Survival of infants born at 23 weeks, gestation is now increasingly reported. Unless we measure our neonatal outcomes, we cannot hope to make improvements in the care we provide. These assessments are also an important service for our babies and their families. The parents receive a detailed copy of their child's report. Copies of the report, if requested by the family, may be sent to other clinicians who are involved in the care of their child.

Professional resources continue to be very limited for those children requiring developmental intervention such as speech therapy, physiotherapy and occupational therapy. This was particularly evident during the Covid pandemic when many children did not receive any follow-up at all. Waiting lists continue to be long. There is often no service available when a therapist is on leave. There was a lack of consistency in how publicly funded services were provided throughout the country. This was addressed by the launch of a National Policy on Access to Services which was approved by the HSE in September 2021 to ensure more equitable access to services for children in need and to Children Disability Network Teams (CNDTs). The CNDT has replaced existing disability teams provided by Enable Ireland, the Health Service Executive (HSE) Early Intervention Teams and School-Aged Assessment Teams, St. Catherine's Association, St. John of Gods Services and St. Michael's House. Unfortunately, as reported in the Irish Times on 3rd March 2023, over one third of these services approved posts remains vacant. In 2022 there were more than 700 vacancies across the country's 91 CDNTs.

We need to improve educational outcomes. Neurodevelopmental outcomes do not appear to be improving despite improved survival and neonatal care. In a UK survey, carried out in 2020, more than 90% of 426 families reported that there should be more awareness and understanding of the educational needs of children born preterm. Impairments in speech and language impact negatively on academic learning and executive functioning skills during the school years. Recognising these challenges, the PRISM E–learning resource programme[4], consisting of 5 x1 hours sessions, with interactive multimedia content, has been devised for educational professionals in the UK.[4] The sessions examine preterm birth, educational outcomes, cognitive outcomes, behavioural outcomes and social and emotional outcomes. It outlines strategies to support children with inattention, working memory difficulties, slow processing speed, poor visuospatial skills, social and emotional problems and mathematics difficulties. There is a need to bridge the gap between healthcare and education to determine what support children and families need, to understand the factors that contribute to attainment after preterm birth and to develop and evaluate intervention programmes.

Our newly appointed neonatal speech and language therapist (SLT) took up her post in November 2021. The importance of such a role was highlighted in the HSE Model of Care document and the NICE Guidelines.[5] A speech and language therapist working with parents during the neonatal period and for the first two years is now deemed an essential service for children born preterm. The support of an SLT is vital for children struggling with feeding or who present with speech and language delays. Our SLT works with parents to initiate and develop their child's attention and listening skills, play skills, their comprehension and expression of language (combining words to make sentences), and their speech articulation, all which contribute to language development.

We know that preterm infants who have had early feeding problems are more likely to have language impairment, some with lasting effects into childhood and adolescence. Although preterm infants will not speak for a few years, elements of their care in the NICU may impact on their speaking ability over the long-term. Of our preterm group who were followed-up in 2022, 47% showed an expressive speech delay at least one standard deviation or more below the mean (score <85) while 31% had a receptive speech delay. Comparable figure for 2020 were 31% and 21% respectively. The extent of

language delay as a problem in preterm infants is often under-appreciated, as many centres, including ours, primarily report on composite cognitive and motor scores as opposed to language scores. Our data support the need for early speech and language therapy input commencing in the NICU. Please note that our speech and language therapist was not working in the NICU for this cohort of preterm infants who were followed up in 2022.

The ACoRN Programme

We now know that early identification of developmental delay is critical as early intervention is likely to be the most effective in decreasing impairment. With this in mind, we introduced the ACoRN (Allied Care Of at Risk Newborns) Programme in February 2022 for a teamed approach for ongoing formal developmental assessment and intervention by Physiotherapy (PT), Speech and Language Therapy (SLT), Dietetics, Psychology, Medical Social Work (MSW) and Pharmacy in conjunction with the NICU Medical and Nursing teams. An Occupational Therapist will join our team in April 2023.

For our cohort of children, born preterm and term with neonatal encephalopathy, the NICE Guideline NG72 provides a very comprehensive outline of the biomarkers for delay and the need for follow - up at 2 years and 4 years of age respectively[1]. We are doing well with our follow-up at two years of age. However, these babies are not yet being followed up at 4 years of age which should be our next goal to support better school life and learning potential.

Publications have been added to the section at the end of this report.

Marie Slevin, Developmental Psychologist.

Brendan Turner with his son Ridge in the NICU.

Neonatal Activity

Number of Admissions to the Neonatal Intensive Care Unit (NICU)

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number	1823	1944	2083	1926	2090	1517	1579	1240	1243	1132

Sources of Admission to the NICU

Admission Source	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
First admission for inborn infants	1612 (88%)	1720 (89%)	1809 (87%)	1703 (88%)	1907 (91%)	1341 (88%)	1417 (90%)	1107 (89%)	1059 (85%)	957 (85%)
- Delivery Ward	649	644	729	715	780	915	950	772	783	715
- Theatre	532	603	629	590	629	Inc. above	Inc. above	Inc. above	Inc. above	Inc. above
- Postnatal Ward	430	473	451	399	498	426	467	335	276	242
First admission for Outborn infants	62 (3%)	52 (3%)	48 (2%)	45 (2%)	55 (3%)	41 (3%)	38 (2%)	46 (4%)	60 (5%)	57 (5%)
First admission from home	69 (4%)	60 (3%)	91 (5%)	82 (4%)	67 (4%)	42 (3%)	38 (2%)	30 (2%)	59 (5%)	48 (4%)
Readmission from postnatal ward	34 (2%)	46 (2%)	60 (3%)	39 (2%)	30 (2%)	39 (3%)	41 (3%)	21 (2%)	15 (1%)	29 (3%)
Readmission from other hospital	19 (1%)	20 (1%)	27 (1%)	14 (1%)	12 (1%)	16 (1%)	21 (1%)	12 (1%)	14 (1%)	11 (1%)
Readmission from home	27 (2%)	46 (2%)	48 (2%)	43 (2%)	19 (1%)	38 (2%)	24 (2%)	24 (2%)	36 (3%)	30 (3%)
Total	**1823 (100%)**	**1944 (100%)**	**2083 (100%)**	**1926 (100%)**	**2090 (100%)**	**1517 (100%)**	**1579 (100%)**	**1240 (100%)**	**1243 (100%)**	**1132 (100%)**

Clinical Reasons for First Admission of Inborn and Outborn Infants

Clinical Reason	2018		2019		2020		2021		2022	
Respiratory	360	26%	517	36%	399	35%	394	35%	402	40%
Prematurity	207	15%	204	14%	259	22%	248	22%	134	13%
Gastroenterology	319	23%	306	21%	189	16%	109	10%	77	8%
Suspected/Proven Infection	185	13%	139	9%	77	7%	111	10%	39	4%
Small for Dates	95	7%	73	5%	63	5%	81	7%	135	13%
Congenital Anomalies	30	2%	42	3%	30	3%	37	3%	26	3%
Cardiac	44	3%	42	3%	32	3%	41	4%	33	3%
Birth Depression	13	1%	27	2%	17	1%	17	2%	8	1%
Other Neurological	11	1%	18	1%	12	1%	20	2%	11	1%
Surgical	2	<1%	7	<1%	4	<1%	6	<1%	2	<1%
Haematological	23	2%	28	2%	23	2%	14	1%	7	1%
Other	93	8%	52	4%	48	4%	41	4%	140	14%
Total	**1382**	**100%**	**1455**	**100%**	**1153**	**100%**	**1119**	**100%**	**1014**	**100%**

Levels of Neonatal Care

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of Intensive Care Days	1647	1561	1397	1307	1664	1403	1289	1105	1295	1208
Number of High Dependency Care Days	2047	2499	2712	2813	3051	2916	3457	3134	3142	2659
Number of Special Care Days	7553	7557	7401	6423	7021	7644	6882	5822	5440	4563

*British Association of Perinatal Medicine. Categories of Care 2011 (August 2011). http://www.bapm.org/publications/documents/guidelines/CatsofcarereportAug11.pdf

Outpatient Clinic Attendances

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Actual clinics	388	419	417	381	428	395	248	250	250	249
New patients (first visits)	2632	1562	1537	1542	1894	2828	2835	1669	1827	1784
Return visits	1635	2740	2240	2372	2129	539	608	861	1332	1031
Total visits	**4267**	**4365**	**3777**	**3914**	**4023**	**3367**	**3443**	**2530**	**3159**	**2815**

Summary of Infants reported to VON

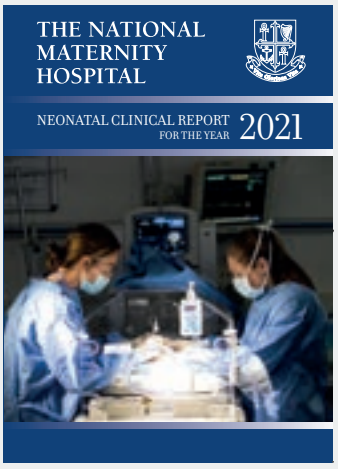
	All Cases	Number of cases excluding congenital anomalies
Infants < 401g but ≥22 wks gestation	0	0
Infants 401-500g	5	5
Infants 501-1500g	112	103
Infants > 1500g but ≤29 wks gestation	3	3
Total	**120**	**115**

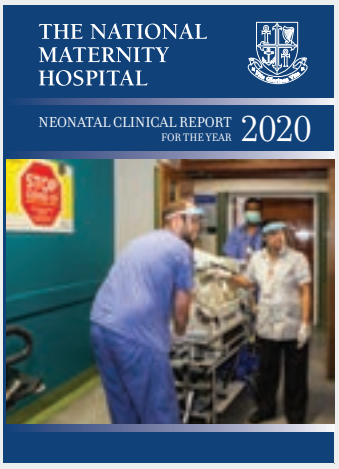
Survival Rate to Discharge of VLBW Infants reported to VON according to Gestational Age (n=121)

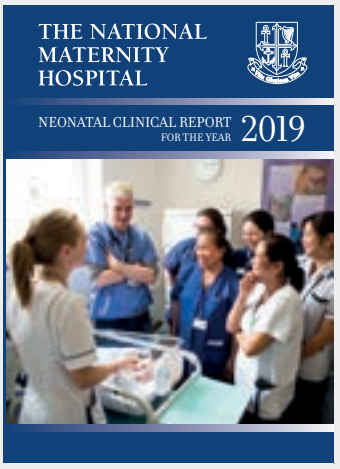
Gestational Age	Inborn Infants	Survival to Discharge	Outborn Infants	Survival to Discharge	Total Survival to Discharge
20 wks	0	0 (0%)	0	0 (0%)	0 (0%)
21 wks	1	0 (0%)	0	0 (0%)	0 (0%)
22 wks	2	0 (0%)	0	0 (0%)	0 (0%)
23 wks	6	0 (0%)	1	0 (0%)	0 (0%)
24 wks	6	5 (83%)	1	0 (0%)	5 (71%)
25 wks	10	4 (40%)	2	2 (100%)	6 (50%)
26 wks	16	8 (50%)	2	2 (100%)	10 (56%)
27 wks	7	2 (29%)	1	1 (100%)	3 (38%)
28 wks	17	17 (100%)	1	1 (100%)	18 (100%)
29 wks	13	13 (100%)	1	1 (100%)	14 (100%)
30 wks	9	9 (100%)	0	0 (0%)	9 (100%)
31 wks	8	8 (100%)	0	0 (0%)	8 (100%)
32 wks	10	10 (100%)	0	0 (0%)	10 (100%)
>32 wks	6	6 (100%)	0	0 (0%)	6 (100%)
Total	**111**	**82/111 (74%)**	**9**	**7/9 (78%)**	**89/120 (74%)**

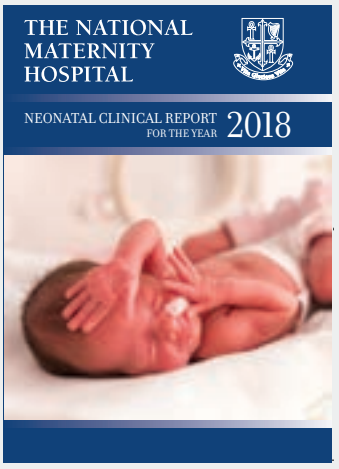
Survival Rate to Discharge of VLBW Infants reported to VON according to Birthweight (n=)

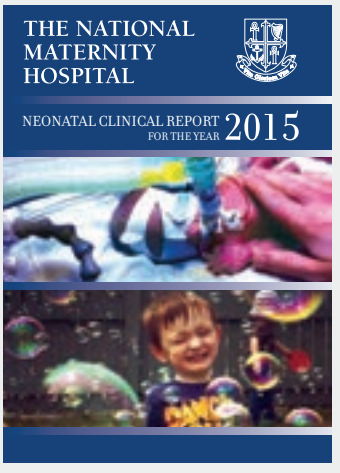
Birthweight	Inborn Infants	Suvival to Discharge	Outborn Infants	Survival to Discharge	Total Survival to Discharge
<501g	5	0 (0%)	0	0 (0%)	0 (0%)
501-600g	10	2 (20%)	0	0 (0%)	2 (20%)
601-700g	10	5 (50%)	2	2 (100%)	7 (58%)
701-800g	6	3 (50%)	3	2 (66.7%)	5 (56%)
801-900g	11	8 (73%)	1	0 (0%)	8 (67%)
901-1000g	13	11 (85%)	1	1 (100%)	12 (86%)
1001-1100g	3	2 (67%)	1	1 (100%)	3 (75%)
1101-1200g	9	9 (100%)	0	0 (0%)	9 (100%)
1201-1300g	10	9 (90%)	1	1 (100%)	10 (91%)
1301-1400g	18	17 (94%)	0	0 (0%)	17 (94%)
1401-1500g	13	13 (100%)	0	0 (0%)	13 (100%)
>1500g	3	3 (100%)	0	0 (0%)	3 (100%)
Total	**111**	**82/111 (74%)**	**9**	**7/9 (78%)**	**89/120 (74%)**

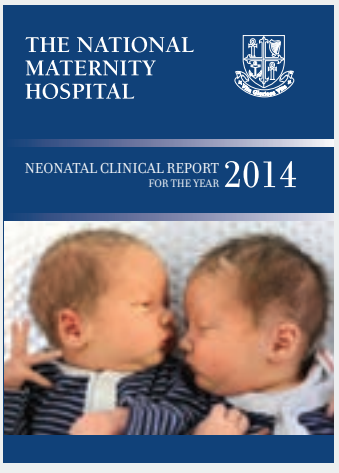












Perinatal, Neonatal & Infant Mortality

Perinatal Mortality: Congenital Anomalies – Livebirths (9)

Case No.	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	25+0	895	Female	Spontaneous Vaginal	5, 4	1	NMH	No	No	Gross only	Anomalies	No
2	26+2	680	Male	C-Section	2, 1, 1	1	DR Death	Home	Yes	TCTA. DCH. Abnormal maturation.	Pulmonary hypoplasia, PPROM; multiple congenital anomalies (cardiac, skeletal, palate)	No
3	27+3	860	Male	C-Section	6, 4	1	DR Death	Yes	No	DCDA. Low grade FVM.	Genetic syndrome identified	No
4	27+3	1240	Male	C-Section	3, 5, 6	7	NICU	Yes	No	DCDA.	Pulmonary hypoplasia, pulmonary hypertension, urinary tract anomaly; bilateral hydroureteronephrosis, prematurity, VLBW	No
5	31+3	1560	Female	C-Section	2, 4	2	NICU	No	No	Hydrops	Pulmonary hypoplasia, PPROM (from 22 weeks), non-immune hydrops fetalis, bilateral chylothoraces, prematurity	No
6	35+1	2900	Male	Spontaneous Vaginal	1, 1	1	DR Death	No	No	Chorioamnionitis	Complex congenital heart abnormality	No
7	36+6	2760	Male	C-Section	2, 1, 1	1	OT NMH	No	No	Gross only	Complex congenital heart abnormality	No
8	38+5	2690	Male	C-Section	7, 9	2	Paediatric Hospital	Yes	No	Gross only, short cord.	Hypoplastic left heart; genetic abnormality identified	No
9	39+0	3120	Male	C-Section	7, 8	2	NMH ward	No	No	No abnormal histology reported	Severe congenital heart abnormality	No

Perinatal Mortality: Congenital Anomalies – Stillbirths (9)

Case No.	EGA	BW (gms)	Gender	Delivery method	External Referral	IUGR	Placental Histology	Cause of death	PM
1	23+2	590	Male	Spontaneous vaginal	No	No	No placenta	Anomalies	No
2	24+0	325	Female	Spontaneous breech with MSV	No	Yes	High grade MVM. SUA.	Anomalies	No
3	24+0	690	Indeterminate	Spontaneous vaginal	No	No	Normal gross	Anomalies	No
4	24+2	920	Male	Spontaneous vaginal	No	No	Hydrops	Hydrops due to CCAM	Yes
5	24+3	430	Male	Spontaneous vaginal	No	No	Gross only	Anomalies	No
6	25+2	490	Female	Spontaneous vaginal	No	No	No placenta	Anomalies	No
7	26+5	690	Male	Spontaneous vaginal	No	No	MVM.	Anomalies	No
8	27+3	485	Female	Spontaneous vaginal	No	Yes	Small normal placenta	Triploidy	No
9	38+4	1145	Female	Spontaneous vaginal	No	Yes	Small normal placenta	Trisomy 18	No

Perinatal Mortality: Antepartum Stillbirths (19)

Case No.	EGA	BW (gms)	Gender	Delivery method	External Referral	IUGR	Placental Histology	Cause of death	PM
1	24+0	385	Female	Spontaneous vaginal	Yes	Yes	Severe MVM and high grade FVM.	Severe PET	No
2	24+3	335	Female	Spontaneous vaginal	No	Yes	Amniotic band with cord stricture and high grade FVM.	Cord pathology	No
3	24+4	540	Male	Spontaneous vaginal	No	No	Severe MIR and FIR	Ascending infection	No
4	25+5	380	Male	Spontaneous vaginal	No	Yes	Small placenta with high grade villitis and moderate MVM	Villitis	No
5	26+0	270	Female	Spontaneous vaginal	No	Yes	Severe MVM; Severe FVM	Severe MVM	No
6	26+3	425	Male	Spontaneous vaginal	Yes	Yes	High grade FVM with tight knot; severe MVM	Severe MVM	No
7	27+2	510	Male	Spontaneous vaginal	No	Yes	Severe MVM; velamentous cord with FVM	Severe MVM	No
8	28+0	1070	Female	Spontaneous breech with MSV	No	No	Hypercoiled cord; mild MVM	Cord pathology	No
9	28+1	1025	Male	Spontaneous vaginal	No	No	MVM with retroplacental haemorrhage (60%)	Case under review by Coroner	CC
10	28+2	1860	Male	Spontaneous vaginal	No	No	Hypercoiled cord with high grade FVM	Cord pathology	No
11	29+4	750	Female	Spontaneous vaginal	No	Yes	Severe MVM	Severe MVM	No
12	29+6	1045	Male	Spontaneous vaginal	No	Yes	Hypercoiled cord with stricture and high grade FVM	Cord Pathology	No
13	33+4	2135	Female	Spontaneous vaginal	No	No	No abnormal histology	Obstetric cholestasis	Yes
14	34+2	1900	Male	Spontaneous vaginal	No	No	Cord stricture with high grade FVM	Cord pathology	No
15	35+5	1995	Male	C-Section	No	No	MVM with infarction (30%), hypercoiled cord	MVM	No
16	37+4	2400	Female	Spontaneous vaginal	No	No	Long cord with high grade FVM: true knot and tight nuchal cord, and high grade villitis	Cord pathology	No
17	38+5	3420	Male	Spontaneous vaginal	No	No	High Grade FVM	Cord pathology, tight nuchal cord	No
18	39+2	2750	Female	Operative vaginal	No	No	Hypercoiled cord. MVM with retroplacental haemorrhage (30%)	Abruption	No
19	39+2	3190	Female	Spontaneous vaginal	No	No	Hypercoiled cord with high grade FVM	Cord pathology	No

Perinatal Mortality: Early Neonatal Deaths (16)

Case No.	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	23+0	535	Female	Spontaneous Vaginal	1, 1	1	DR Death	Yes	No	Chorioamnionitis	Extreme prematurity, intensive care measures not initiated	No
2	23+2	555	Female	Spontaneous Vaginal	5, 9	5	NICU	Yes	No	Decidual necrosis	E.Coli sepsis, extreme prematurity, severe RDS, clinical chorioamnionitis, PPROM x 2 days	No
3	23+2	615	Female	C-Section	5, 3	1	DR Death	No	No	Chorioamnionitis	Extreme prematurity, ELBW, resuscitative measures not initiated	No
4	23+4	510	Male	Spontaneous Vaginal	1, 1	1	DR Death	Yes	No	Chorioamnionitis	Extreme prematurity, clinical chorioamnionitis, PPROM x 3 days, intensive care measures not initiated	No
5	24+6	800	Male	Spontaneous Vaginal	1, 3	1	DR Death	No	No	Chorioamnionitis	Extreme prematurity, intensive care measures not initiated	No
6	25+0	590	Male	Spontaneous Vaginal	n/r	1	NICU	No	No	FVM. MIR and FIR. Severe chorioamnionitis.	Extreme prematurity, pulmonary hypoplasia, PPROM from 21 weeks'	No
7	25+0	900	Female	C-Section	3, 5, 6	1	NICU	No	No	DCH	Multiorgan failure, perinatal asphyxia, placental compromise and recurrent APH, extreme prematurity	No
8	25+3	700	Female	C-Section	1, 2, 3	1	NICU	No	No	Chorioamnionitis	Pulmonary hypoplasia, PPROM from 18 weeks, severe metabolic acidosis, extremely preterm twin	No
9	26+2	935	Male	C-Section	8, 8	4	NICU	Home	No	TCTA. DCH.	Grade IV IVH, extreme prematurity, triplet pregnancy	No
10	26+3	1010	Male	C-Section	0, 1	1	NICU	No	No	Chorioamnionitis, low grade FVM.	Pulmonary hypoplasia, oligohydramnios from 14 weeks, extreme prematurity, ELBW	Yes
11	26+4	580	Male	C-Section	1, 4, 6	3	NICU	No	Yes	Severe MVM	Severe RDS, ELBW, extreme prematurity	No
12	27+0	1310	Female	C-Section	2, 4, 5	2	NICU	No	No	Villous oedema	Severe pulmonary haemorrhage, feto-maternal haemorrhage and severe fetal anaemia, multi-organ dysfunction, extreme prematurity	No
13	27+2	770	Male	C-Section	6, 10	3	NICU	No	No	Severe MVM.	Pulmonary haemorrhage, extreme prematurity, ELBW	No
14	27+3	930	Male	Spontaneous breech with MSV	3, 4, 6	1	NICU	No	No	MCDA	Pulmonary hypoplasia, oligohydramnios, prematurity, MCDA twins with TTTS	No
15	39+2	3715	Female	C-Section	3, 8	6	NICU	No	No	Retroplacental haemorrhage. High grade FVM.	Case under review by Coroner	CC
16	41+0	3980	Male	Spontaneous Vaginal	0, 0, 1	5	NICU	No	No	Delayed villous maturation	Coroner's inquest	CC

Late Neonatal Deaths (6) and Early Infant Deaths (8) Including Congenital Anomalies

Case No.	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	23+6	560	Male	Spontaneous Vaginal	3, 4, 7	8	NICU	No	No	Chorioamnionitis	Intestinal perforation, suspected NEC, extreme prematurity, ELBW	No
2	25+0	735	Female	Spontaneous Vaginal	6, 8	47	NICU	Yes	No	MIR and FIR. Low grade MVM.	NEC, extreme prematurity, ELBW	No
3	25+3	590	Female	C-Section	7, 10	28	NICU	No	No	Severe MVM, velamentous cord with SUA.	Imperforate anus and colostomy formation, skeletal abnormalities, complications of extreme prematurity, ELBW, severe RDS	No
4	26+0	700	Male	C-Section	5, 5, 7	12	NICU	Yes	No	MCDA. No abnormal histology reported.	Severe RDS, extreme prematurity, gram negative sepsis	No
5	26+1	450	Female	C-Section	1, 9	10	NICU	Yes	Yes	High grade MVM and FVM	Gram negative sepsis, extreme prematurity, ELBW, severe RDS, seizures	No
6	26+2	660	Female	C-Section	3, 6, 6	15	NICU	Home	Yes	TCTA. DCH. Velamentous hypercoiled cord.	NEC, extreme prematurity, ELBW, IVH	No
7	31+6	2270	Male	C-Section	8, 9	10 months	Out of hospital death	No	No	Low grade MVM. High grade FVM.	Coroner's inquest	CC
8	34+2	1665	Male	C-Section	8, 8	46	Paediatric Hospital	No	No	Abnormal villous maturation	Genetic syndrome identified	No
9	34+6	2015	Male	Spontaneous Vaginal	9, 9	69	Out of hospital death	No	No	Low grade FVM.	SIDS	CC
10	38+0	3580	Male	C-Section	9, 9	36	Out of hospital death	No	No	Gross only	SIDS	CC
11	38+2	3055	Female	C-Section	4, 6, 8	186	Paediatric Hospital	No	No	No placenta	Congenital metabolic syndrome with a genetic cause identified	No
12	38+4	3220	Male	Spontaneous Vaginal	6, 8	21	Paediatric Hospital	No	No	Chorangiosis	Congenital heart lesion – truncus arteriosus, 22q11 deletion syndrome	No
13	38+5	3565	Female	C-Section	4, 7	12	Paediatric Hospital	No	No	Gross only	Multiple congenital anomalies; diaphragmatic hernia, genetic abnormality identified	No
14	39+2	3080	Male	C-Section	9, 8	97	Paediatric Hospital	No	no	Normal gross	Multiple congenital anomalies; cardiac, renal, brain; genetic abnormality identified	No

Liveborn Babies <500g and <24 wks gestation (7)

Case No.	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	18+1	225	Male	Spontaneous Vaginal	n/r	1	DR Death	No	No	Chorioamnionitis	Extreme prematurity, preterm labour at a pre-viable gestation	No
2	19+3	290	Female	Spontaneous Vaginal	2, 2	1	DR Death	No	No	Mild chorionitis	Extreme prematurity, preterm labour at a pre-viable gestation	No
3	20+0	330	Male	Spontaneous Vaginal	4, 4, 4	1	DR Death	No	No	Gross only	Anomalies	No
4	21+0	435	Male	Spontaneous Vaginal	1, 1	1	DR Death	No	No	Chorioamnionitis with retroplacental haemorrhage	Extreme prematurity, preterm labour at a pre-viable gestation	No
5	22+0	455	Female	C-Section	n/r	1	NMH OT	No	No	High grade FVM	Extreme prematurity, PPROM, clinical chorioamnionitis; placenta accreta	No
6	22+5	470	Female	Spontaneous Vaginal	2, 2	1	DR Death	No	No	Chorioamnionitis	Extreme prematurity, preterm labour at a pre-viable gestation	No
7	23W 5D	470	Female	Spontaneous Vaginal	4, 5, 6	32	NICU	No	No	High grade MVM. MIR,	Perforated NEC	No

Outborn Deaths (5)

Case No.	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	23+5	745	Male	C-Section	n/r	4	NICU	Outborn	No	None	Grade IV IVH, extreme prematurity	No
2	23+5	745	Male	C-Section	n/r	4	NICU	Outborn	No	None	Grade IV IVH, complications of extreme prematurity	No
3	24+1	840	Male	Spontaneous Vaginal	5, 7, 8	10	NICU	Outborn	No	None	Extreme prematurity, ELBW, severe RDS	No
4	39+4	3170	Male	C-Section	0, 0, 8	252	Local hospital/ home	Outborn	No	None	Seizure disorder, abnormal brain on MRI, genetic condition identified	No
5	39+4	3800	Female	C-Section	1, 3	4	NICU	Outborn	No	None	Severe neonatal encephalopathy, placental abruption	Yes

Neonatal Encephalopathy

Since 2013, NMH now reports on all infants **≥35 weeks gestation** who during the first week of life have:

- Either seizures alone

or

- Signs of Neonatal Encephalopathy which is defined as clinical findings in 3 or more of the following domains:
- Level of consciousness
- Spontaneous activity when awake or aroused
- Posture
- Tone
- Primitive reflexes
- Automonic system

For a more detailed description of the findings in each domain, please refer to the appendix. To be included in our annual figures, the signs of neonatal encephalopathy (whether mild, moderate or severe) must be present for at least 24 hrs.

Cases reported are reviewed and some are subsequently reclassified as Hypoxic-Ischaemic Encephalopathy if there is clinical evidence of encephalopathy (as defined above) associated with one or more of the following physiological criteria:

- Apgar score ≤5 at 10 mins of age
- Continued need for resuscitation (endotracheal intubation or PPV) at 10 mins after birth.
- Acidosis within 60 mins of birth (defined as a pH < 7.0 in an umbilical cord or any neonatal arterial, venous or capillary blood sample)
- Base deficit ≥ 16 mmol/L in an umbilical cord or any neonatal blood sample (arterial, venous or capillary) within 60 mins of birth

Reference is also made to which cases undergo therapeutic hypothermia. Please note that the physiological criteria which are now used to reclassify a case as HIE are broader than the criteria applied in previous years. If pertinent obstetric details surrounding the delivery are not available (as in the case of outborn infants) to allow a case to be catergorised as HIE according to the above definition, then, the case, by default, is reported as a case of Neonatal Encephalopathy. In all reported cases, it is assumed that there is no evidence of an infectious cause, a congenital malformation of the brain or an inborn error of metabolism that could explain the encephalopathy.

All cases (both neonatal encephalopathy cases and hypoxic-ischaemic encephalopathy cases) are further categorised according to severity of presentation. The most severe stage observed during the first 7 days following birth is recorded based on the infant's level of consciousness and response to arousal manoeuvres such as persistent gentle shaking, shining a light or ringing of a bell. Infants are considered to fall into the 'mild' category if they are alert or hyperalert with either a normal or exaggerated response to arousal, infants fall into the 'moderate' category if they are arousable but are lethargic and have a diminished response to arousal manoeuvres and infants fall into the 'severe' category if they are stuporous or comatosed and are difficult to arouse or are not arousable. If further clarification regarding any of these clinical terms or definitions is required, please refer to the appendix.

Since 2017, infants who have seizures but who are not clinically encephalopathic are no longer included in the neonatal encephalopathy figures as before; they will now be listed separately.

No. of Cases 2022

	Inborns	Outborns
Neonatal Encephalopathy - with HIE	4	4
• Mild HIE (Grade 1)	0	0
• Moderate HIE (Grade 2)	3	2
• Severe HIE (Grade 3)	1	2
Neonatal Encephalopathy	3	3
Seizures – No Encephalopathy	3	0
Therapeutic Hypothermia	7	7

Infants Undergoing Therapeutic Hypothermia in the NMH

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Inborn										
HIE cases reported	12	9	19	9	9	9	5	8	6	4
Number cooled	11	9	18	9	9	9	5	8	6	4
NE cases reported	7	4	2	5	2	4	0	0	0	3
Number cooled	3	*0*	*2*	2	*2*	4	0	0	0	3
Total (cooled in brackets)	**19 (14)**	**13 (9)**	**21 (20)**	**14 (11)**	**11 (11)**	**13 (13)**	**5 (5)**	**8 (8)**	**6 (6)**	**7 (7)**
Outborn										
HIE cases reported	8	13	8	6	10	2	6	4	2	4
Number cooled	7	12	8	5	9	2	6	4	2	4
NE cases reported	4	1	1	1	1	0	2	2	3	3
Number cooled	2	0	1	1	1	0	1	1	3	3
Total (cooled in brackets)	**12 (9)**	**14 (12)**	**9 (9)**	**7 (6)**	**11 (10)**	**2 (2)**	**8 (7)**	**6 (5)**	**5 (5)**	**7 (7)**
Total Inborn and Outborn Cases	31	27	30	21	22	15	13	14	11	14
Total receiving Therapeutic Hypothermia										
Inborn infants cooled	14	9	20	11	11	13	5	8	6	7
Outborn infants cooled	9	12	9	6~	10	2	7	5	5	7
Total	**23**	**21***	**29^**	**17~**	**21~**	**15**	**12∞**	**13**	**11**	**14**

** 2 other inborn infants were cooled in 2014 but are excluded from the above table as both of these infants were diagnosed with early onset neonatal sepsis.*

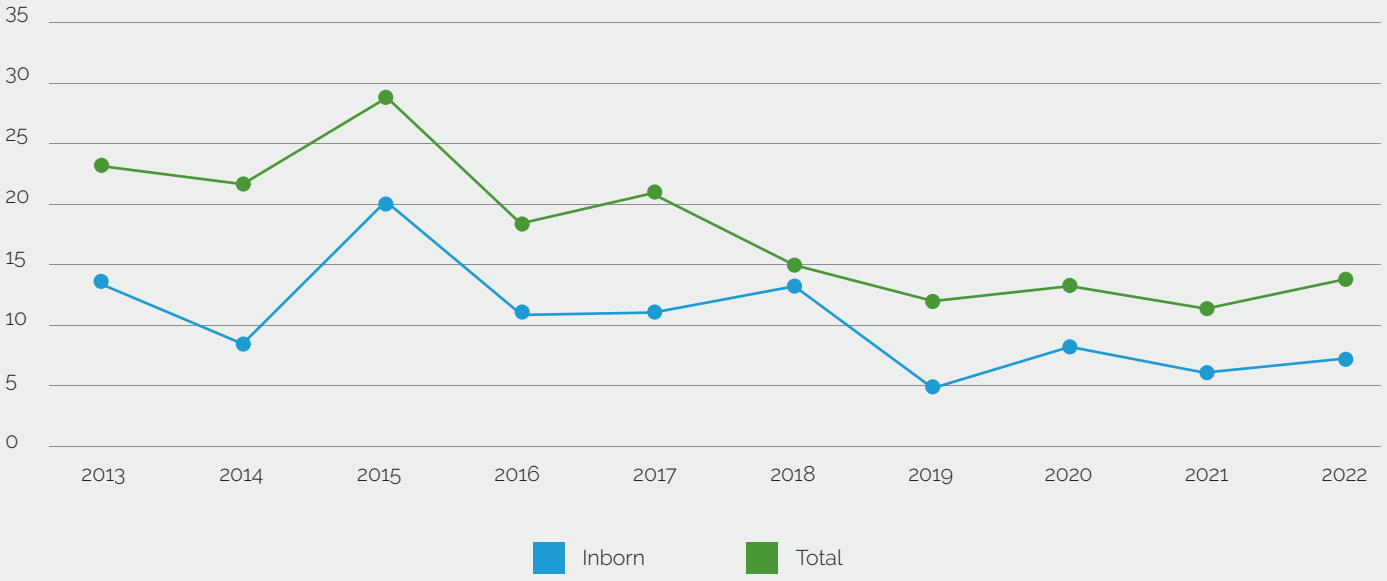
^one outborn infant was cooled in 2015 but is excluded from the above table as the infant was diagnosed with a congenitally acquired condition postnatally.

~ one infant is not included in the hypothermia figures as although the infant was initially commended on cooling, it was discontinued as it was not tolerated.

∞one inborn infant was cooled in 2019 but is excluded from the above table as the infant was diagnosed with early onset neonatal sepsis.

Please note as of 2017, infants who have seizures but who are not clinically encephalopathic are excluded from the above table.

Infants Undergoing Therapeutic Hypothermia in the NMH 2013 - 2022



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Inborn	14	9	20	11	11	13	5	8	6	7
Total	**23**	**21**	**29**	**17**	**21**	**15**	**12**	**13**	**11**	**14**

Dr Anne Twomey, QRPS Director and Marie Slevin, Clinical Psychologist.

Hypoxic Ischaemic Encephalopathy: Inborn (4)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	40	3450	Operative vaginal (Forceps)	Failure to advance, maternal pyrexia, failed ventouse	2,4,6	No	6.99	-16.4	No	Yes	2	Normal parenchyma, left extra-axial haemorrhage	AKI, increased LFTs, coagulopathy, SIADH	Discharged home DOL 8	Mild chorionitis with mild fetal response	3,4 HIE inborn
2	41	3980	SVD	NRCTG	0,0,1	Yes	6.8	Incalculable	Yes	Yes	3	Abnormal: global pattern of ischaemia/ infarction	Ventilated, acute kidney injury, raised liver function tests, coagulopathy	Deceased DOL 5, Coroner's case	Delayed villous maturation	1,2,3,4 HIE inborn
3	36+3	3950	SVD	PPROM, shoulder dystocia	0,0,3	Yes	7.27	-7.3	Yes	Yes	2	Normal	Ventilated	Discharged home DOL 36	High grade FVM	1,2 HIE inborn
4	38+6	3840	Operative vaginal (Forceps)	Fetal tachycardia, NRCTG	1,1,4	Yes	7	-21.9	Yes	Yes	2	Abnormal: multiple small areas of infarction bilaterally, pattern suggestive of infection	Ventilated, acute kidney injury, raised LFTS, SIADH, coagulopathy, culture negative meningitis	Discharged DOL 18	Chorioamnionitis with fetal response. High grade villitis with stem vessel obliteration	1,2,4 HIE inborn

Neonatal Encephalopathy: Inborn (3)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	37+4	2600	Emergency C-Section (not in labour)	NRCTG	2,6,8	No	7	-12	Yes	Yes	2	Abnormal: large left intra-parenchymal hemorrhage in tempero-ocipital area	Ventilated, hyponatraemia, SIADH, coagulopathy, thromobytopenia,	Discharged home DOL 15	High grade villitis with stem vessel obliteration. Moderate MVM.	NE with seizures - inborn
2	39+2	3715	Emergency C-Section (not in labour)	Placental abruption, reduced fetal movements, NRCTG	3,8	No	7.11	-9.5	Yes	Yes	3	Abnormal: global pattern of ischaemia/ infarction	Ventilated, acute kidney injury, anaemia, thrombocytopenia, SIADH	Deceased DOL 5, Coroner's case	Retroplacental haemorrhage. High grade FVM.	NE with seizures - inborn
3	40+1	3475	Operative vaginal (Forceps)	NRCTG	4,6,8	No	7.12	-13.8	No	Yes	2	Normal	None	Discharged home DOL 9	High grade FVM	NE inborn

Hypoxic Ischaemic Encephalopathy: Outborn (4)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	40	3800	Emergency C-Section (not in labour)	Placental abruption, fetal bradycardia	1,3,4	Yes	6.85	-17.8	Yes	Yes	3	Abnormal: global pattern of ischaemia/ infarction	Ventilated, myocardial dysfunction, acute kidney injury, SIADH, hyponatraemia, raised LFTS	Deceased DOL 4	Outborn	1,2,3,4 HIE outborn
2	37+4	2900	Emergency C-Section (in labour)	IOL for oligohydramnios, NRCTG	0,0,0	Yes	7	-8	Yes	Yes	3	Abnormal: global pattern of ischaemia/ infarction	Ventilated, coagulopathy	Transferred back to referring hospital DOL 11	Outborn	1,2 HIE outborn
3	38+6	4060	SVD	IOL for GDM , shoulder dystocia	2,1,4, 6,8	Yes	7.18	-12	No	Yes	2	Normal	Ventilated	Discharged home DOL 8	Outborn	1,2 HIE outborn
4	40+6	2955	Operative vaginal (Ventouse)	fetal bradycardia	4,5,6	Yes	6.8	Incalculable	No	Yes	2	Abnormal: Unilateral, right sided, two small areas of focal ischaemic change. Parenchyma otherwise normal	Ventilated	Transferred back to referring hospital DOL 6	Outborn	2,3,4 HIE outborn

Neonatal Encephalopathy: Outborn (3)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 20 mins	PPV at 10 mins	Min pH within 60 mins	Max BE within 60 mins	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Placental Histology	Classification
1	37	2750	Operative vaginal (Ventouse)	IOL reduced fetal movement, NRCTG	5,8	No	7.18	-7.9	No	Yes	2	Normal	Ventilated, SIADH, raised LFTs	Transferred back to referring hospital DOL 7	Outborn	NE outborn
2	39+1	3550	SVD	fetal bradycardia	4, 8, 10	No	7.09	-11	No	Yes	2	Normal parenchyma, isolated cortical vein thrombus	None	Transferred back to referring hospital DOL 6	Outborn	NE outborn
3	39+2	3485	SVD	Spontaneous labour	9,10	No	7.03	-14	Yes	Yes	2	Normal	Ventilated, SIADH, raised LFTs	Transferred back to referring hospital DOL 6	Outborn	NE with seizures - outborn

Seizures – No Encephalopathy: Inborn (3)

Case No.	EGA	BW (g)	Delivery Method	Delivery Method Indication	Apgars 1, 5, 10, 15, 20	PPV at 10 mins	Min pH within 60 min	Max BE within 60 min	Seizures Y/N	TH	Grade of NE	Summary of MRI brain	Organ Involvement	Outcome	Histology	Classification
1	36+5	4260	Emergency C- Section	Reduced fetal movements	5,8	No	7.08	-6.3	Yes	No	0	Bilateral IVH	Ventilated	DC home DOL 43	High grade FVM and long cord	Seizure secondary to underlying genetic syndrome (under investigation)
2	40+5	4050	Emergency C-Section	Fetal bradycardia	8,9	No	7.29	Not recorded	Yes	No	0	Biilateral ischaemic changes periventricular regions	None	Transfer to children's hospital DOL 14	Long hypocoiled cord	Seizure secondary to hypoglycaemia and hyperinsulinism
3	41+2	4060	SVD	Spontaneous	8,9	No	7.11	-10	Yes	No	0	CRUSS: Normal	None	DC home DOL 14	None	Seizure likely secondary to culture negative meningitis

Seizures – No Encephalopathy: Outborn (0)

No cases to report.

Classification:

1) Apgar score ≤5 at 10 mins of age
2) Continued need for resus at 10 mins after birth
3) pH <7.0 within 60 mins of birth
4) Base excess ≥ 16.0 within 60 mins of birth

Antenatal Education

Childbirth education aims to empower women and partners to navigate pregnancy, childbirth, the postnatal period and the transition to early parenthood with confidence. The antenatal/parent education team in NMH continued to develop a comprehensive programme of classes in 2022 and in July we were delighted to welcome Theresa Barry CMM2 to the team.

The COVID-19 pandemic continued to provide challenges, but also opportunities, to develop new ways of information sharing and learning. Virtual classes are now firmly embedded and numbers attending our classes have significantly increased, perhaps due to the flexible nature of the online format. Feedback indicates that the online classes have exceeded expectations but approximately 60% of women would like some element of face-to-face group classes. Therefore, in November 2022, it was decided to resume face-to-face classes in Spring 2023. A blended form of learning is envisaged.

The department is part of a multidisciplinary (MDT) team bringing information to women/partners and colleagues. The Perinatal Mental Health Department developed two mental health classes designed to support mental wellbeing in pregnancy and beyond. Continuing that theme, we renamed our "Early Pregnancy" class to "Wellbeing in Pregnancy" changing it from a single class, to a set of three individual classes with the hope of increasing flexibility and choice for women.

- Class one: Midwife and Pharmacist
- Class two: Physiotherapist
- Class three: Dietitian

We have always worked as part of a MDT with our colleagues in Medical Social Work, Perinatal Mental Health, and Bereavement to provide specialist and individual classes for vulnerable women. Whilst we would normally have seen on average, two women a week for individual sessions, the war in the Ukraine has prompted a noticeable increase in referrals via the 'inclusion health' referral system. This vulnerable group of women have specific needs and usually require interpreters which has significantly increased our workload. We anticipate that these numbers will continue to grow.

The younger women are also a group which require a great deal of input and follow-up and the "Young Mums and Dads" classes now include practical hands on baby care sessions.

Feedback and research guides service development, and led to the development of a "Partners Only" class in March 2022 which has been very well received. The "Introduction to Hypnobirthing" class is also now firmly embedded in our programme and is very popular in particular with women who have had difficult past experiences or who suffer from anxiety.

Antenatal education and the delivery of information has dramatically changed over the past few years. The NMH eLearning Hub is integral to our classes. Whilst these innovations enhance our service, they require development and monitoring, all of which takes time and expertise. In addition, consumer expectations continue to rise and we work hard to develop resources that meet those expectations. We also now have national antenatal education standards which guide our development of resources.

Services are developed beyond antenatal education e.g. in teaching BLS (basic life support) within the hospital and with the Dublin City Infant Mental Network. We are also heavily involved in developing breastfeeding services within NMH.

Eleanor Durkin, Antenatal Education CMM2..

We currently provide the broadest range of antenatal education classes in Ireland (see below). Our service could not run without the admin support of Susan Doyle and Nicola Jordan who answer a significant amount of emails and phone calls every week, in addition to setting up the online classes.

Classes include:

- A set of three "wellbeing in pregnancy" classes facilitated by the multidisciplinary team. This is open to women at any stage of their pregnancy but ideally the earlier the better.
- Classes for first time parents.
- A refresher class for women/partners who have had previous vaginal births run three times a month.
- A VBAC (vaginal delivery after caesarean birth) class for women who wish to have a vaginal birth this time are run three times a month.
- "Preparation for Elective Caesarean Birth" classes take place once a month for women with a booked elective caesarean section.
- Twin classes run every month.
- "Young Mums and Dads" classes are run every five weeks and now include "hands on" baby care.
- "Partners Only" class once a month.
- "An Introduction to Hypnobirthing" class - once a month.
- "Tus Maith" (Healthy eating) class- in collaboration with the dietitians-monthly
- "Mental Wellbeing in Pregnancy and Beyond" classes-facilitated by mental health midwives
- "Healthy Bodies After Birth" classes-facilitated by physiotherapists.
- Individual classes for vulnerable women/couples

57% of first time mothers attended antenatal education courses during the year and 34% attended our pregnancy wellbeing course. 16% of women who have previously given birth attended our refresher courses.

Bereavement

The vast majority of babies are born healthy and well, but we are acutely aware of the great tragedy associated with the death of a baby, whatever the circumstance. Over the past number of years, we have been working to develop a comprehensive holistic service for bereaved families attending The National Maternity Hospital (NMH).

The Bereavement Midwives at the NMH care for women who experience 1st and 2nd trimester miscarriage, stillbirth, neonatal death and support couples who have Termination of Pregnancy in the case of life limiting conditions or termination in the maternal interest. Central to the running of the service are the Clinical Midwife Specialists (CMS) in Bereavement, Brenda Casey, Sarah Cullen and Katarzyna Sobczyk (CMM1) who co-ordinate bereavement care pathways for women, their partners and families. Arrangements are made for follow-up in specialist clinics which are run by the bereavement midwives, senior medical personnel and specialist consultants.

There are four bereavement clinics led by Consultant Obstetrician & Gynaecologists: Dr Stephen Carroll met with 16 couples in the Stillbirth Clinic in 2022. Dr Corcoran met with 17 couples whose pregnancy loss was related to preterm labour/PSROM, in which a comprehensive individualised care pathway was outlined for a subsequent pregnancy. Follow up was also arranged with individual consultants for a further 24 couples that require combined obstetric and neonatal appointments. 27 couples attended the Late Miscarriage clinic with Prof Cathy Allen. The Recurrent Miscarriage clinic remains busy with a high demand for appointments. 87 couples attended the clinic with input from the multidisciplinary Reproductive Genetics MDT where necessary. Dr David Crosby also supports this clinic and counselled 64 couples following early pregnancy loss in the Reproductive Genetics clinic. The TLC Clinic provides additional support to women in the 1st trimester, specifically for women who are pregnant again, having previously attended the recurrent miscarriage clinic; 58 women attended the TLC Clinic during the year.

These clinics provide an opportunity to determine how parents are coping with grief and loss and assess those who may need additional support. Medical information, obtained through investigations including haematological, microbiological, sonographic, radiological, genetic and histology is shared. Some women require an MRI and images are reviewed by the Consultant Radiologist. Clinics are supported by Consultant Pathologists Drs Paul Downey and Eoghan Mooney, who provide valuable information through rapid histological placental examination and postmortem examination. Dr Samantha Doyle, Consultant Clinical and Biochemical Geneticist, provides expertise and counsels couples in cases where genetic assessment is required.

The official launch of the Bereavement Suite in the Labour and Birthing Unit took place in February. This dedicated suite aims to provide a seamless journey from admission to discharge for bereaved couples, which facilitates the continuity of carer where possible in a calm space.

The Bereavement Midwives arrange all hospital burials of miscarriages in the Holy Angels plot in Glasnevin Cemetery. Burials were organized for 40 babies following early or mid-trimester miscarriage. We believe time invested in preparing babies for burial with respect and dignity is one of the most important aspects of our work.

The Annual Remembrance Service was held in person this year in October, coinciding with Pregnancy Loss Awareness week. It is an important day in the hospital calendar where bereaved parents, their families and hospital staff come together to remember all babies that have died during pregnancy and around the time of birth.

Support, information and advocacy continues to be provided to women who have experienced the death of a baby at any stage of pregnancy. The Miscarriage Support Group continued monthly with positive feedback from attendees. Planning is in place to commence a 'Pregnancy After Loss Support Group' in 2023 in collaboration with the Perinatal Mental Health team.

We continue educational input with staff and student midwives within the hospital and UCD. The Hospice Friendly Hospitals standard of care initiatives are in place.

Multidisciplinary bereavement education continued: the Irish Hospice Foundation education programme 'Dealing with Loss in Maternity Settings', aims to support hospital staff involved directly or indirectly in bereavement care. A generous donation from a bereaved family provided funding for ongoing education which was facilitated online by 'Bereavement Care International' with plans to continue in 2023. We continue to work with colleagues in UCD on research in relation to bereavement care and education.

Bereavement Team.

Breastfeeding Support Services

Robyn Kelly

The National Maternity Hospital Breastfeeding Support Services promote, support and aid all mothers who want to breastfeed and those who choose or need to express breastmilk and maintain their supply for their babies. From the antenatal period of a mother's pregnancy to the postnatal discharge and follow up services provided by the team, 73% of our mothers were partly breastfeeding at discharge home. The national average is 53%. In 2022, unfortunately there was a reduction in the availability of expertise in the service due to long term sick leave which had a negative impact on the activity of the team.

Antenatal Harvesting of Colostrum: There are weekly education sessions which encourage and advise mothers to collect their colostrum antenatally from 37 weeks gestation. This quality initiative which has being running since 2016, has proven to increase mother's self-efficacy when breastfeeding their newborns: less babies of diabetic mothers are admitted to NICU (Neonatal Intensive Care Unit) due to hypoglycaemia although the policy for hypoglycaemia, since it's revision, has also helped in this reduction. More mothers in general are now doing more antenatal harvesting than ever before.

The team also run **Preparation for Breastfeeding classes** twice a month and saw 1,534 mothers log into our online 'Webex' classes; partners are also welcome. Even though virtual education is now a part of life since COVID-19, in 2023 we plan to re-introduce a classroom teaching alongside virtual education.

Intrapartum mothers can hand express colostrum as we now have harvesting packs in delivery ward. Mothers who have premature babies have successfully provided colostrum for their baby prior to transfer to NICU.

In 2022, 99% of babies in NICU received some breastmilk during their hospital stay. Since November, NICU now officially have a part-time lactation consultant on staff.

The 'Number of Consults' chart at the end shows the number of mothers seen in the various departments throughout the hospital: there were a total of 1,529 consultations which does not include follow up phone calls and emails.

Breastfeeding Clinic

This takes place twice weekly and 818 mothers attended during the year. Mothers can avail of this follow up for 6 weeks post-delivery.
The charts below (auditing January – June 2022) show patient category and the mode of delivery the Breastfeeding Clinic attendees had. The mode of delivery can result in mothers having difficulties initiating breastfeeding.

Staff Education

64 staff members attended formal education when they attended the Breastfeeding refresher and NICU/ Theatre/Gynae staff breastfeeding study days. Health Care Assistants, Public Health Nurses and Paediatricians also received in-house education sessions run by the Breastfeeding team.

The National Breastfeeding Week 2022 was celebrated in October and the theme this year was "Expert help for every step of the way". An educational masterclass presentation by the UCD School of Midwifery was screened to celebrate the week for staff.

The National Maternity Hospital received recognition for the "IBCLC Care Award 2022": this award is for the promotion, protection and support of breastfeeding and this is the 3rd re-certification undertaken by the hospital.

Breastfeeding Team.

Community Midwifery Service

Mum Lindsey Doyle, Dad Austin and Baby Veda with Community Midwives Julie and Nicola and Student Midwife Aoife.

The Community Midwifery Service is in its 24th year of operation and has three main components to the care we provide:

1. DOMINO/Homebirth
2. Antenatal Care in Community Clinics
3. Early Transfer Home

DOMINO/Homebirth Antenatal Care

The aims of the service are:

1. To provide continuity of care to low-risk women throughout pregnancy, labour and the postnatal period
2. To provide a 24-hour midwifery care for all women booked with the scheme
3. To have a community midwife providing care in labour and to have a community midwife known to the woman conducting her care
4. To provide early discharge home where the postnatal care can be done in the women's home

The antenatal clinics take place in Blackrock Centric Health, Churchtown Primary Care Centre, Leopardstown Primary Care Centre, Bray Primary Care Centre, Greystones Primary Care Centre and Newtownmountkennedy Primary Care Centre.

We encourage all women to have combined care with their GPs. If a non-urgent obstetric opinion is requested, women are reviewed by Dr. Zara Fonseca-Kelly at The National Maternity Hospital with the CMM 3, Teresa McCreery. All women who are over 40 weeks' gestation have a liquor volume done at this clinic and women have reported they like this reassurance scan. If a woman needs an urgent medical opinion, the NCHDs on-call, will review the woman as requested by the community midwife.

The DOMINO Midwives in conjunction with Valerie Spillane, CMM 3 Fetal Medicine Unit, rolled out a 'Basics in Ultrasound' course. This is an excellent resource which is used weekly in the hospital-based public Holles Clinic where a midwife will complete liquor volume on all women who are over 40 weeks with their consent. Feedback from this clinic is very positive from the expectant mother. A total of 262 women attended the Community Midwife Review Clinic with the majority of these women needing senior midwifery review to develop a care plan for them. Obstetrical involvement is rarely required; however, it is invaluable to have to assist in the decision making in women who are no longer falling into the normal pathway.

The face-to-face antenatal breastfeeding class commenced on the 14th April 2022. A breastfeeding resource pack is sent to women following the class with some useful videos and simple reminders for the initial days feeding. The classes are held twice a month, one in Dublin and one in Bray when staffing allows. We have noted women are better prepared for breastfeeding when we see them at home since the introduction of this class. A total of 154 women have attended these classes with birth partners also welcome to attend.

The Community Midwifery Antenatal Classes continue to be delivered online for Multiparous women while facetoface classes were reintroduced for Nulliparous women and their birth partners. Women report they like the face-to-face interaction of the class format, and the midwives find the couples much more engaged in the learning process with this teaching methodology.

Bookings – A total of 577 women booked with the service of which 367 gave birth under the DOMINO service. A total of 81 pregnancies ended in miscarriage with the remaining reasons for changing the care provider seen in the graph at the end 'Reasons for Transferring from DOMINO Scheme'. While the numbers of women who birthed with this service is notably smaller than the previous years, it is speculated this is a snapshot of the global trends in the maternity care. Women are choosing to have obstetric-led care where they can have a reassuring bedside scan at each appointment or they are attending a private midwife that works outside the hospital setting where they may perceive to have more control.

Homebirths - We had 25 homebirths in 2022. We note that 5 of these were nulliparous women. It is also interesting to note 3 multiparious women booked a homebirth but developed a COVID-19 positive infection or a viral illness that prevented them to do so. See table for figures: Reasons For Transfer Out Of Homebirth Service.

It should be noted that 22 women booked with the DOMINO Service for a DOMINO/Homebirth but chose to change their care giver during the pregnancy. The decline in these numbers could be related to the negative publicity Homebirths received in the press during the beginning of 2022. The rate of nulliparous transfers to hospital is similar to the Self-employed

community midwives. It is interesting to note the main reason for transfer is breech presentation and that only 1 women needed transfer intrapartum which is a 2.5% intrapartum transfer rate of all homebirth supported by the NMH.

Intrapartum Care - Of the 154 nulliparous women who birthed with the Community Midwifery Team, it is very notable that 33.8% required induction of labour. This is down from the 40% last year; however, it is still notably high. The indications for induction are the same as per The National Maternity Hospital Policy with the main reason for induction being Prolonged spontaneous rupture of membranes (PSROM) fetal interest, advanced maternal age, GBS and postdates. It is also interesting to note the Robson Classification of Caesarean Section Group 1 LSCS rate has risen to 9.9% which correlates to the global trend in maternity care. The table for the Community Midwives Robson Ten Groups Classification of Caesarean Section is at the end of this section.

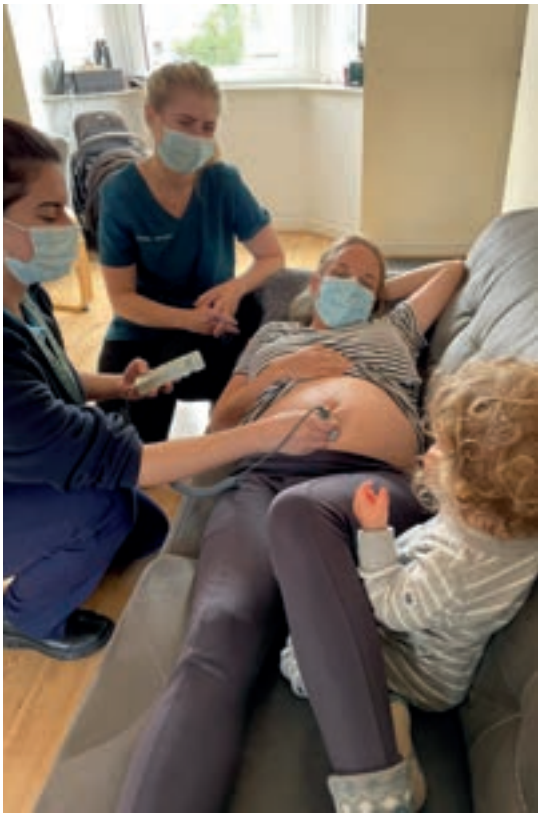
Delivery Method & Epidural by Parity

It is great to report the epidural rate is down from 47% to 35% in nullips. It is thought this may be related to the widening of the inclusion criteria for the hydrotherapy pool, e.g., women who have a history of a PPH/third degree tear and are GBS positive. We are using the hydrotherapy pool as much as possible, but there are a number of women excluded from using it due to the need for continuous fetal monitoring due to the high induction rate. The perineal outcome for women who had a vaginal birth is in the table below.

While the 35% episiotomy rate for nulliparous looks extraordinary high, this figure is inclusive of the women who had an instrumental birth. The third-degree tear rate is down in both Primps and Multips; however, this figure should be looked at with caution as the numbers included in this group are small.

Breastfeeding - One of the key success indicators is the 75% of women are breastfeeding on discharge from the service. In addition, 11% are mixed feeding and have been given a clear plan to reduce the supplementation.

Birth Reflection Service - All women are invited to request a post birth reflection appointment; a total of 26 women requested this service. Of all these discussions, no women faulted the service; however, they wanted to reflect on why they did not get the birth they chose or they wanted to get more information around the events of the birth.



Jaya Tak. Student Midwife caring for Sasha Kinch at home with Community Midwife, Debbi Appelbe.

DOMINO/Early Transfer Home Programme (ETHP) Postnatal Care

A total of 3,050 visits to mothers and babies at home were done in 2022 to women attending the DOMINO Service (see breakdown below). It should be noted that while this number may appear low, the DOMINO Midwifery Team completes a large portion of the ETHP visits at home. The activity levels on this service for postnatal care have remained relatively similar to previous years despite the decrease in women attending The National Maternity Hospital.

The ETHP midwives see all women on the postnatal ward prior to discharge to ensure they are suitable and wish for this service. Feedback continues to be positive about this service and, as previously stated the main advantage of this service is the high rate of women who manage to breastfeeding on discharge.

External Clinics - The mixed risk clinics are supported by Dr. Broderick and Dr. Nita Adnan in Loughinstowm, Bray, Arklow, Greystones and Wicklow Town. The challenges of the COVID-19 pandemic remain in these clinics. A total of 461 women booked into these clinics and 3,641 women had appointment with a mixture of consultantled care and midwifery-led care. The activity levels have increased by 20% from 2020 in both the number of appointments and the number of women attending.

Other Developments – The latter end of 2022 has been exceptionally challenging in relation to staff changes. Dr. Julie Higgins, Ivana Lambe and Donna McNamee sadly moved to promotional positions based outside the Hospital. Their expertise and passion for midwifery care is missed. Two other senior team members are currently on maternity leave. We recruited three senior midwives internally and they are currently being oriented to their new roles.

Despite these challenges, midwifery developments continue on the team. As previously stated, the new facetoface breastfeeding class is hugely successful and exceptional positive feedback has been received in relation to this class.

In addition, we are very proud of the collaboration with The National Maternity Hospital Foundation who have assisted in the purchase of mini dolls/pelvises for all our antenatal clinics. This assists in the teaching of women about optimal fetal positioning and also has been useful in the debriefing services to explain to women why interventions were needed.

The NMH Foundation has also funded the very popular affirmation cards. These cards are available in A5 and A6 sizes and will be formally evaluated in the coming months. Ethical approval was sought and obtained for this research.

Finally, we wish to extend our sincere thanks to the Executive Management Team for funding to have the office used at NMH by the DOMINO/Community undergo a revamp. This space has made working conditions easier for all involved.

Teresa McCreery, Community Midwifery Manager.

Susie O'Connor, Community Midwife on her Wicklow Postnatal Home Visits.

DOMINO Clinics

Clinic Name	New Attended	Follow Up Attended	Total Attended
Bray Primary Care Centre	46	333	379
Blackrock Centric Health	77	383	460
Churchtown Primary Care Centre	74	440	514
Greystones Primary Care Centre	42	307	349
Leopardstown Primary Care Centre	74	348	422
Newtownmountkennedy Primary Care Centre	39	217	256
Outpatients Visits	1	31	32
Pearse Street Primary Care Centre	53	225	278
Review Clinic	-	262	-
TOTAL	406	2546	2952

Table 2: Reasons for transferring from DOMINO scheme

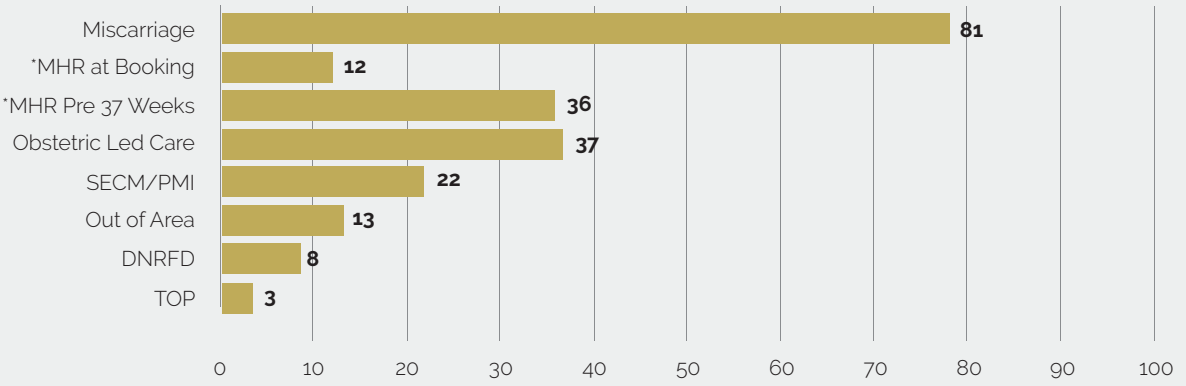


Table 3: Reasons for transferring from Homebirth Service

	Planned homebirth	Actual homebirth	Reasons for transfer out of Homebirth service								
			PSROM	Post Dates	GBS	FTA	Poly	APH	Breech	High Risk (Inc. Covid	Other
Multips	30	20 (80%)	1	2	1	1	2	0	0	3	0
Nullips	11	5 (20%)	1	0	1	0	0	1	2	0	1
Total	**41**	**25**	**2**	**2**	**1**	**1**	**2**	**1**	**2**	**3**	**1**

Table 4: Community Midwives Robson Ten Groups Classification of Caesarean Section

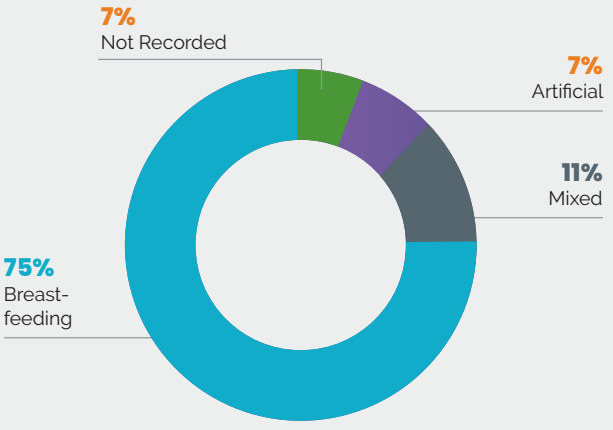
	All Sections	Births	Size of Group	C/S Rate in Group	Contr of each group
1. Nulliparous, single cephalic, >=37 weeks, in spontaneous labour	8	81	22.1%	9.9%	2.2%
2. Nulliparous, single cephalic, >=37 weeks, induced and CS before labour	22	55	15.0%	40.0%	6.0%
2a. Nulliparous, single cephalic, >=37 weeks, induced	19	52	14.20	36.5%	5.2%
2b. Nulliparous, single cephalic, >=37 weeks, CS before labour	3	3	0.8%	100.0%	0.8%
3. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, in spontaneous labour	2	156	42.5%	1.3%	0.5%
4. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, induced and CS before labour *	4	53	14.4%	7.5%	1.1%
4a. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, induced	3	52	14.2%	5.8%	0.8%
4b. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, CS before labour	1	1	0.3%	100.0%	0.3%
5. Previous CS, single cephalic, >= 37 weeks	0	0	0.0%	0.0%	0.0%
6. All nulliparous breeches	16	16	4.4%	100.0%	4.4%
7. All multiparous breeches (including prev. CS)	0	0	0.0%	0.0%	0.0%
8. All multiple pregnancies (including prev. CS)	0	0	0.0%	0.0%	0.0%
9. All abnormal lies (including prev. CS)	1	1	0.3%	100.0%	0.3%
10. All single cephalic,<=36 weeks (including prev. CS)	1	5	1.4%	20.0%	0.3%
TOTAL	**54**	**367**		**14.7%**	

Delivery Method & Epidural by Parity

	Nulliparous		Multiparous		Total	
Spontaneous vaginal	113	53.1%	275	96.2%	388	77.8%
C-Section	49	23.0%	7	2.4%	56	11.2%
Forceps	9	4.2%	1	0.3%	10	2.0%
Ventouse	38	17.8%	0	0.0%	38	7.6%
Ventouse/Forceps	4	1.9%	3	1.0%	7	1.40%

	Episiotomy	Intact/Grazes	1st/2nd Degree	3rd/4th Degree	Total
Nullip	35.1%	35.7%	27.9%	1.3%	154
Multip	7.0%	37.6%	54.5%	0.9%	213

Feeding at Discharge



DOMINO/Early Transfer Home Programme (ETHP) Postnatal Care Table of Visits

DOMINO - Dublin Home Visits	2012
DOMINO - Wicklow Home Visits	1038
Total	**3050**

DOMINO/Early Transfer Home Programme (ETHP) Postnatal Care Table of Visits

ETH - Dublin Home Visits	6336
ETH - Wicklow Home Visits	2045
Total	**8381**

External Clinic Attendances

	New Attended	Follow-Up Attended	Total Attended
Antenatal Booking Clinic - Bray	124	0	124
Antenatal Booking Clinic - Newtownmountkennedy	196	0	196
ETH – Ballinteer Antenatal Clinic	0	260	260
ETH – Dun Laoghaire Antenatal Clinic	0	291	291
Loughlinstown Antenatal Clinic	85	618	703
Arklow Antenatal Clinic	57	466	523
Greystones Antenatal Clinic	0	552	552
Bray Antenatal Clinic	0	697	697
Wicklow Antenatal Clinic	0	757	757
Total	**462**	**3641**	**4103**

Diabetes in Pregnancy

The Diabetes Team

The NMH holds a weekly multidisciplinary team (MDT) clinic for women with both pre-gestational diabetes mellitus and gestational diabetes mellitus (GDM). This is managed with pharmacological therapy and held on a Friday, which benefits greatly from the expertise of the outpatients' midwifery team. On a Tuesday, there is a Registered Advanced Midwife Practitioner (RAMP) led virtual clinic which provides diabetes care for all women with GDM managed with medical nutritional therapy and exercise.

Pre-Gestational Diabetes

The numbers of women presenting with pre-existing diabetes (Type one, Type two, MODY and Cystic-Fibrosis Related Diabetes) remained similar to referrals from previous years. The complexity of care and presence of complex co-morbidities has noticeably changed from previous years. The Hospital provides a comprehensive service for women using Continuous Subcutaneous Insulin Pump Therapy (CSII) and continuous glucose monitoring (sensor) technology.

The provision of this service requires expert training and continuous professional development to keep up to date with the multiple technological advances being made in diabetes care internationally. Current figures show that over 40% of women with Type 1 Diabetes in our service are now using insulin pumps. Although the numbers of women with pre-existing diabetes in the service are small compared to the GDM cohort, they are under the care of the service from 6 weeks' gestation and require weekly MDT input.

Gestational Diabetes Service

The midwifery-led gestational diabetes service, supported by dietetics has provided a unique pathway of care for women attending the Hospital. Women with gestational diabetes, who previously had to come to the hospital every three to four weeks for the duration of their pregnancy on top of their antenatal care, currently receive the care they need in the comfort of their own homes by availing of the Gestational Diabetes Virtual Care Clinic. The virtual GDM service has proven to be a success with acceptances,

invitations and presentations at multiple national and international midwifery and medical conferences. Our innovative service was also presented by Ciara Coveney, RAMP, at the National Nursing and Midwifery Digital Healthcare Conference, Midlands Midwifery Conference, Diabetes Ireland Conference and a Slaintecare Webinar for the Department of Health.

The midwifery led service was also short listed at the Irish Healthcare Awards amongst many prestigious clinical innovations and nationwide MDT's. The midwifery team is also at the write up stage of a research study entitled "Evaluation of the Implementation of a Virtual Care Pathway for GDM Midwifery Services". The Health Service Executive have also supported other hospitals sites nationally to implement this service using the expertise of the clinical team in NMH, the National Digital Health Team and Project Officers from the Nurse Midwife Practice Development Unit (NMPDU)

This pathway is also made possible with the support of our dietetic colleagues in particular who provide ongoing expert input for this cohort and is also supported by Endocrinology, Obstetrics, Dietetics. Following the development of this RAMP led service, we have seen a reduction in overall pharmacological treatment rates this year. Of 561 (88% of total service referrals) women with GDM, 181 required pharmacological therapy (18% required insulin and 14% required metformin). This yields a total treatment rate of 32%, meaning that 68% of women diagnosed with GDM remain in RAMP led care

Diabetes in Pregnancy Team

The Diabetes in Pregnancy service is comprised of a multidisciplinary team with excellent representation from dietetics. Dr Gillian Corbett joined the team in July 2022 as part of her three-year fellowship in Maternal Medicine. Dr. Recie Davern completed her second year of MD/Endocrine Fellow. Her research focused on development of a normogram for thyroid function tests in pregnancy.

Diabetes and Pregnancy model of care – the team are continuing their work in developing a national Model of Care for Diabetes in Pregnancy for Ireland.

Presentations by Diabetes Type

Year	Type 1 diabetes	Type 2 diabetes	GDM and Previous GDMs	Impaired glucose tolerance	Cystic Fibrosis Related Diabetes	MODY/ LADA^	Total
2015	44	14	382	213	-	-	653
2016	42	17	365	248	-	-	672
2017	46		302	223	-	-	595
2018	40	13	354	251	-	-	658
2019	39	20	364	231	-	-	654
2020	43	19	589	N/A*	3	2	656
2021	47	17	774	N/A*	6	0	844
2022	50	21	561	N/A*	3	3	637

**Impaired Glucose Tolerance had previous been defined as on raised value on an Oral Glucose Tolerance Testing. From March 2020 (Covid 19 Planning) Gestational Diabetes defined as any form of glucose intolerance on OGTT.*

^ Maturity-onset diabetes of the young (MODY), Latent autoimmune diabetes in adults (LADA)

Ciara Coveney, AMP Diabetes and Prof Mary Higgins, Consultant Obstetrician & Gynaecologist.

Labour and Birthing Unit

Minister for Health, Mr Stephen Donnelly at the launch of the Hydrotherapy Labour Pool in the Labour & Birthing Unit.

Throughout 2022, the staff of the Labour and Birthing Unit (LBU) continued to provide care and support for women and their partners in labour or for those being induced. Midwives remain committed to the vision for maternity services, as set out by the Maternity Strategy, which places women and children at the centre of the care they provide. Midwives recognises that pregnancy and birth is a normal physiological process, and insofar as it is safe to do so, a woman's choice of maternity care is facilitated. While the overall number of women attending the Unit for care in labour decreased, the complexity of women and the induction of labour rate increased.

In 2022, as we continued to provide care during the COVID-19 pandemic, Ireland and the world began to cautiously open its borders. Midwives who remained in Ireland and who committed to providing care to those women attending for birth in the NMH now had the freedom to travel the world. This impacted the skill mix of staff midwives within the LBU. Many senior midwives successfully achieved promotional posts within the NMH or many others choose to travel to gain experience of life in another country. Despite these challenges, midwives of the LBU continued to mentor student midwives, medical students, general student nurses, paramedic students and

physiotherapy students as part of their daily role while being committed to providing care to women that is high quality, safe, evidence based and respectful of the woman's individual choice and needs.

Evaluation, Feedback and Debriefing Following Birth

All women who attended the Labour and Birthing Unit between January and December were invited to complete an evaluation form following the birth of their baby. These forms provided valuable feedback to staff regarding the experiences of women and their comments provided staff with insight as to how care given could be improved. The form is simple and has open ended questions to allow all points to be made.

Most of the returned forms were completed by the women in the first few days postnatally. Once completed, these forms were returned to the labour and birthing unit. They were read on a daily basis and initial adverse comments are addressed while the women are still in hospital. Alternatively, women had the option to request a face to face discussion about labour and birth issues. If any negative feedback is given or a woman indicates she wishes to discuss her labour and birth the Clinical Midwife Manager (CMM3) of the LBU contacted the woman directly.

All completed evaluation forms were available on the LBU for staff to read and they are encouraged to do so. Both positive and negative feedback is discussed with staff who constantly strive to improve patient experience. The labour and birthing unit staff work hard to provide a high standard of care and value any suggestions on service improvement.
From September, a decision was made that labour and birth evaluation forms would not be given to women immediately post birth. Alternatively, women now give feedback about the care they received in the Labour and Birthing Unit through the NMH maternity experience survey. This survey is completed virtually on the postnatal ward and women are asked the below questions as part of the survey:

- Are you satisfied with the care you received in labour?
- Did you feel fully prepared for your labour?
- Were your birthing preferences taken into account?
- Did you attend antenatal classes and if so, where?

Women also have the option to request a face to face discussion about their labour and birth events.

Antenatal Consultation

An increasing number of antenatal consultations are undertaken for a number of women who had either a fear of delivery or a previous negative birthing experience. Some mothers actively avoid pregnancy and are grateful to have the opportunity to discuss their fears and anxiety. These women are referred by midwives, obstetricians or the mental health team for discussion and antenatal preparation.

An increasing number of women are also referred to the Clinical Midwife Manager (CMM3) if they write a birth plan which needs a more detailed discussion with a member of staff.

A list of the most common positive and negative points is given in the table below.

	Positive comments	Negative comments
Staff	Kind, helpful, friendly, safe, professional, caring, warm, supportive, sensitive, calm, knowledgeable, outstanding	Too few staff, staff leaving room frequently,
Communication	Consent always obtained for procedures, procedures explained, felt listened too, felt involved with all decisions made	Too little information on procedures and progress, toon little time given to make decisions, conflicting advice
Facilities	Rooms nice, big and well equipped, huge improvement in facilities, Quick epidural	Pool not offered, showers too cold, No windows or fresh air in the LBU, rooms too hot/ too cold, delay in getting epidural, Facilities on antenatal ward for early labour very poor

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Antenatal Reviews	1	0	4	6	4	1	4	3	4	4	6	2	**39**
Ward Visits	0	4	0	1	4	0	4	3	1	0	0	0	**17**
Telephone Follow Ups	11	5	25	21	17	4	12	3	13	12	10	4	**137**
Postnatal birth discussion	0	4	4	7	5	1	7	2	4	0	2	3	**39**

Nadine Walsh, Healthcare Assistant.

Labour and Delivery Audit

Audit of maternal and fetal outcome following labour and delivery in this chapter is based on a standardised prospective framework consisting of the four obstetric concepts within which there are different parameters. The obstetric concepts are **Previous record of the pregnancy** *(nulliparous, multiparous without a uterine scar, multiparous with a uterine scar)* **Category of pregnancy** *(single cephalic pregnancy, single breech pregnancy, single oblique or transverse lie, or multiple pregnancy)* **course of labour and delivery** *(spontaneous labour, induced labour or pre labour caesarean)* and **gestational age in completed weeks at the time of delivery.**

Dr Michael Robson, Consultant Obstetrician & Gynaecologist

POPULATION CHANGES OF NULLIPAROUS WOMEN AND MULTIPAROUS WOMEN

	1999				2020			
	Number in group	Number of C/S	Contribution to total population	% C/S	Number in group	Number of C/S	Contribution to total population	% C/S
Nullip	3465	562	3465/7533 (46.0%)	562/3465 (16.2%)	3201	1025	3201/7263 (44.1%)	1025/3201 (32.0%)
Multip no scars	3559	185	3559/7533 (47.2%)	185/3559 (5.2%)	2956	349	2956/7263 (40.7%)	349/2956 (11.8%)
Multip + 1 scar	450	169	450/7533 (6.0%)	169/450 (37.6%)	882	683	882/7263 (12.1%)	683/882 (77.4%)
Multip + 2 or more scars	59	58	59/7533 (0.8%)	58/59 (98.3%)	224	222	222/7263 (3.1%)	222/224 (99.1%)
Totals	**7533**	**974**		**974/7533 (12.9%)**	**7263**	**2279**		**2279/7263 (31.4%)**

	2021				2022			
	Number in group	Number of C/S	Contribution to total population	% C/S	Number in group	Number of C/S	Contribution to total population	% C/S
Nullip	3256	1076	3256/7694 (42.3%)	1076/3256 (33.0%)	2910	1097	2910/6815 (42.7%)	1097/2910 (37.7%)
Multip no scars	3260	366	3260/7694 (42.3%)	366/3260 (11.2%)	2811	312	2811/6815 (41.2%)	312/2811 (11.1%)
Multip + 1 scar	945	736	945/7694 (12.2%)	736/945 (77.9%)	882	721	882/6815 (12.9%)	721/882 (81.7%)
Multip + 2 or more scars	233	233	233/7694 (3.0%)	233/233 (100%)	212	211	212/6815 (3.1%)	211/212 (99.5%)
Totals	**7694**	**2411**		**2411/7694 (31.3%)**	**6815**	**2341**		**2341/6815 (34.4%)**

Comment: There has been a decrease in total deliveries but proportions of women are unchanged.

Onset Rates

	1999	%	2013	%	2020	%	2021	%	2022	%
Spontaneous	5062	67.2%	5214	59.6%	3240	44.6%	3434	44.6%	2711	39.8%
Induced	2006	26.6%	2323	26.5%	2500	34.4%	2644	34.4%	2611	38.3%
Pre-labour CS	466	6.2%	1218	13.9%	1523	21.0%	1616	21.0%	1493	21.9%
Total Deliveries	**7534**		**8755**		**7263**		**7694**		**6815**	

Comment: The incidence of IOL and pre-labour CS continues to increase.

OVERALL DELIVERY METHOD

	2017	%	2019	%	2020	%	2021	%	2022	%
Spontaneous Vaginal Delivery	5048	59.9%	4498	57.1%	4063	55.9%	4348	56.5%	3706	54.4%
Vaginal Operative Delivery	1094	13.0%	989	12.6%	921	12.7%	935	12.2%	768	11.3%
Caesarean Section	2291	27.2%	2384	30.3%	2279	31.4%	2411	31.3%	2341	34.4%
Total	**8433**		**7871**		**7263**		**7694**		**6815**	

C-SECTION RATE BY PATHWAY TO DELIVERY

	Number in group	Number of C/S	Contribution to total population	% C/S
Spontaneous labour	2711	215	2711/6815 (39.8%)	215/6815 (3.2%)
Induced labour	2611	633	2611/6815 (38.3%)	633/6815 (9.3%)
Pre labour c-section	1493	1493	1493/6815 (21.9%)	1493/6815 (21.9%)
Totals	**6815**	**2341**		**2341/6815 (34.4%)**

OXYTOCIN RATES

Oxytocin Rates	Nullip	Multip no scar	Multip +scar	Total
No Oxytocin	1340 (46%)	2085 (74.2%)	1072 (98%)	4497 (66%)
Oxytocin	1570 (54%)	726 (25.8%)	22 (2%)	2318 (34%)
Total	**2910**	**2811**	**1094**	**6815**

TABLE I: THE OVERALL CAESAREAN SECTION RATE AS CLASSIFIED BY THE 10 GROUPS (TOTAL NUMBERS)

Year	1974*	1984*	1994*	2016	2017	2018	2019	2020	2021	2022
Totals	**377/7546**	**330/7758**	**551/6244**	**2303/8851**	**2291/8433**	**2157/7496**	**2384/7871**	**2279/7263**	**2411/7694**	**2341/6815**
1	46/2020	63/2259	80/1771	151/1925	155/1716	147/1515	127/1468	113/1283	137/1322	118/992
2	68/555	41/378	104/566	570/1472	566/1479	525/1249	697/1544	646/1531	645/1527	694/1525
2a	-	-	-	437/1339	426/1337	363/1085	490/1336	449/1334	436/1318	515/1346
2b	-	-	-	133	142	162/164	207/208	197/197	209/209	179/179
3	24/3217	15/3739	25/2467	24/2389	28/2223	34/2038	20/1946	11/1567	24/1700	15/1358
4	88/967	19/562	38/622	144/1105	132/1079	178/994	152/1053	177/1112	179/1281	181/1230
4a	-	-	-	44/1005	48/995	72/888	46/947	50/985	58/1160	74/1123
4b	-	-	-	100	84	106	106	127/127	121/121	107/107
5	32/196	74/332	108/321	821/1069	748/986	712/917	816/1024	792/979	858/1041	812/955
6	26/79	27/79	65/99	162/171	222/229	165/175	176/191	143/152	170/181	166/177
7	7/105	14/98	40/78	115/124	124/141	105/121	143/156	123/133	110/120	76/87
8	10/93	18/96	25/78	119/187	123/190	92/103	87/129	93/136	105/156	101/130
9	20/20	23/23	15/15	30/30	30/30	38/38	32/32	45/45	40/40	27/27
10	56/294	36/192	51/227	167/379	163/360	161/346	134/328	136/325	143/326	151/334

** Years 1974, 1984 and 1994 were not split up into 2a, 2b and 4a, 4b. The numbers are inclusive of inductions and pre labour caesarean sections*

TABLE II: THE CONTRIBUTION THAT EACH GROUP MAKES TO THE OVERALL HOSPITAL POPULATION (PERCENTAGES)

Year	1974	1984	1994	2016	2017	2018	2019	2020	2021	2022
1	26.7%	29.1%	28.4%	21.8%	20.3%	20.2%	18.7%	17.7%	17.2%	14.6%
2	7.4%	4.9%	9.1%	16.6%	17.5%	16.7%	19.6%	21.1%	19.8%	22.4%
2a	-	-	-	15.1%	15.9%	14.5%	17.0%	18.4%	17.1%	19.8%
2b	-	-	-	1.5%	1.7%	2.2%	2.6%	2.7%	2.7%	2.6%
3	42.6%	48.2%	39.5%	27.0%	26.4%	27.2%	24.7%	21.6%	22.1%	19.9%
4	12.8%	7.2%	10.0%	12.5%	12.8%	13.3%	13.4%	15.3%	16.6%	18.0%
4a	-	-	-	11.4%	11.8%	11.8%	12.0%	13.6%	15.1%	16.5%
4b	-	-	-	1.1%	1.0%	1.4%	1.3%	1.7%	1.6%	1.6%
5	2.6%	4.3%	5.1%	12.1%	11.7%	12.2%	13.0%	13.5%	13.5%	14.0%
6	1.1%	1.0%	1.6%	1.9%	2.7%	2.3%	2.4%	2.1%	2.4%	2.6%
7	1.4%	1.3%	1.2%	1.4%	1.7%	1.6%	2.0%	1.8%	1.6%	1.3%
8	1.2%	1.2%	1.2%	2.1%	2.3%	1.4%	1.6%	1.9%	2.0%	1.9%
9	0.3%	0.3%	0.2%	0.3%	0.4%	0.5%	0.4%	0.6%	0.5%	0.4%
10	3.9%	2.5%	3.6%	4.3%	4.3%	4.6%	4.2%	4.5%	4.2%	4.9%

TABLE III: THE CAESAREAN SECTION RATE WITHIN EACH OF THE 10 GROUPS (PERCENTAGES)

Year	1974	1984	1994	2016	2017	2018	2019	2020	2021	2022
Totals	**5.0%**	**4.3%**	**8.8%**	**26.0%**	**27.2%**	**28.8%**	**30.3%**	**31.4%**	**31.3%**	**34.4%**
1	2.3%	2.8%	4.5%	7.8%	9.0%	9.7%	8.7%	8.8%	10.4%	11.9%
2	12.3%	10.8%	18.3%	38.7%	38.3%	42.0%	45.1%	42.2%	42.2%	45.5%
2a	-	-	-	32.6%	31.9%	33.5%	36.7%	33.7%	33.1%	38.3%
2b	-	-	-	100.0%	100.0%	98.8%	99.5%	100.0%	100.0%	100.0%
3	0.7%	0.4%	1.0%	1.0%	1.3%	1.7%	1.0%	0.7%	1.4%	1.1%
4	9.1%	3.4%	6.1%	13.0%	12.2%	17.9%	14.4%	15.9%	14.0%	14.7%
4a	-	-	-	4.4%	4.8%	8.1%	4.9%	5.1%	5.0%	6.6%
4b	-	-	-	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
5	16.3%	22.3%	33.5%	76.8%	75.9%	77.6%	79.7%	80.9%	82.4%	85.0%
6	32.9%	34.2%	65.0%	94.7%	96.9%	94.3%	92.1%	94.1%	93.9%	93.8%
7	6.7%	14.3%	50.6%	92.7%	87.9%	86.8%	91.7%	92.5%	91.7%	87.4%
8	10.8%	18.8%	31.6%	63.6%	64.7%	89.3%	67.4%	68.4%	67.3%	77.7%
9	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
10	19.0%	18.8%	22.4%	44.1%	45.3%	46.5%	40.9%	41.8%	43.9%	45.2%

TABLE IV: THE ABSOLUTE CONTRIBUTION OF EACH GROUP TO THE OVERALL CAESAREAN SECTION RATE PERCENTAGES

Year	1974	1984	1994	2016	2017	2018	2019	2020	2021	2022
Totals	5.0%	4.3%	8.8%	26.0%	27.2%	28.8%	30.3%	30.4%	31.3%	34.4%
1	0.7%	0.8%	1.7%	1.7%	1.8%	2.0%	1.6%	1.6%	1.8%	1.7%
2	0.9%	0.5%	0.4%	6.4%	6.7%	7.0%	8.9%	8.9%	8.4%	10.2%
2a	-	-	-	4.9%	5.1%	4.8%	6.2%	6.2%	5.7%	7.6%
2b	-	-	-	1.5%	1.7%	2.2%	2.6%	2.7%	2.7%	2.6%
3	0.3%	0.2%	0.4%	0.3%	0.3%	0.5%	0.3%	0.2%	0.3%	0.2%
4	1.2%	0.2%	0.6%	1.6%	1.6%	2.4%	1.9%	2.4%	2.3%	2.7%
4a	-	-	-	0.5%	0.6%	1.0%	0.6%	0.7%	0.8%	1.1%
4b	-	-	-	1.1%	1.0%	1.4%	1.3%	1.7%	1.6%	1.6%
5	0.4%	1.0%	1.7%	9.3%	8.9%	9.5%	10.4%	10.9%	11.2%	11.9%
6	0.3%	0.3%	1.0%	1.8%	2.6%	2.2%	2.2%	2.0%	2.2%	2.4%
7	0.1%	0.2%	0.6%	1.3%	1.5%	1.4%	1.8%	1.7%	1.4%	1.1%
8	0.1%	0.2%	0.4%	1.4%	1.5%	1.2%	1.1%	1.3%	1.4%	1.5%
9	0.3%	0.3%	0.2%	0.3%	0.4%	0.5%	0.4%	0.6%	0.5%	0.4%
10	0.7%	0.5%	0.8%	1.9%	1.9%	2.1%	1.7%	1.9%	1.9%	2.2%

ROBSON TEN GROUPS CLASSIFICATION OF CAESAREAN SECTION 2022

	CS No.	Number of Delivery /Births	Size of Group %	CS rate in grp %	Contr of each grp %
1. Nulliparous, single cephalic, >=37 weeks, in spontaneous labour	118	992	14.6%	11.9%	1.7%
2. Nulliparous, single cephalic, >=37 weeks, induced and CS before labour	694	1525	22.4%	45.5%	10.2%
3. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, in spontaneous labour	15	1358	19.9%	1.1%	0.2%
4. Multiparous (excluding prev. CS), single cephalic, >=37 weeks, induced and CS before labour *	181	1230	18.0%	14.7%	2.7%
5. Previous CS, single cephalic, >= 37 weeks	812	955	14.0%	85.0%	11.9%
6. All nulliparous breeches	166	177	2.6%	93.8%	2.4%
7. All multiparous breeches (including prev. CS)	76	87	1.3%	87.4%	1.1%
8. All multiple pregnancies (including prev. CS)	101	130	1.9%	77.7%	1.5%
9. All abnormal lies (including prev. CS)	27	27	0.4%	100.0%	0.4%
10. All single cephalic,<=36 weeks (including prev. CS)	151	334	4.9%	45.2%	2.2%
Total	2341	6815		34.4%	34.4%

INDICATIONS FOR CAESAREAN SECTION BY PATHWAY TO DELIVERY

Tables 1 and 2 show the indications for CS within the TGCS. A different classification is used for pre labour CS and those carried out after either spontaneous or induced labour. A great deal of effort is needed to ensure that the classification is correctly applied and the data validated and quality controlled. In these tables although the quality is good there remain discrepancies which we continue to seek to improve.

Table 1: Spontaneous/Induced Caesarean Section Reason 848/6815 (12.5%)

	Fetal reason (no oxytocin)	% of Group	IUA - Inability to treat fetal intolerance	% of Group	IUA - Inability to treat over contracting	% of Group	IUA - Poor response	% of Group	IUA - No oxytocin given	% of Group	EUA - Persistent malposition	% of Group	EUA - Cephalopelvic disproportion	% of Group	Total	% of Group
Group 1	38	3.8%	39	3.9%	8	0.8%	13	1.3%	2	0.2%	17	1.7%	1	0.1%	118/992	11.9%
Group 2a	89	6.6%	158	11.7%	18	1.3%	191	14.2%	36	2.7%	23	1.7%	0	0.0%	515/1346	38.3%
Group 2b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0/179	0.0%
Group 3	9	0.7%	1	0.1%	1	0.1%	0	0.0%	3	0.2%	1	0.1%	0	0.0%	15/1358	1.1%
Group 4a	24	2.1%	19	1.7%	5	0.4%	21	1.9%	1	0.1%	4	0.4%	0	0.0%	74/1123	6.6%
Group 4b	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0/107	0.0%
Group 5	23	2.4%	2	0.2%	1	0.1%	4	0.4%	24	2.5%	1	0.1%	1	0.1%	56/955	5.9%
Group 6	16	9.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	16/177	9.0%
Group 7	9	10.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	9/87	10.3%
Group 8	11	8.5%	2	1.5%	0	0.0%	1	0.8%	2	1.5%	0	0.0%	0	0.0%	16/130	12.3%
Group 9	3	11.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3/27	11.1%
Group 10	10	3.0%	6	1.8%	1	0.3%	4	1.2%	4	1.2%	1	0.3%	0	0.0%	26/334	7.8%
Total	**232**	**3.4%**	**227**	**3.3%**	**34**	**0.5%**	**234**	**3.4%**	**72**	**1.1%**	**47**	**0.7%**	**2**	**0.0%**	**848/6815**	**12.4%**

Table 2: Pre-labour Caesarean Section Reason: 1494/6815 (21.9%)

	Fetal reason	% of Group	Maternal medical reason/pains	% of Group	Non medical reason/ patient request	% of Group	PET/ Hypertension	% of Group	Postdates	% of Group	Previous caesarean section	% of Group	SROM	% of Group	Total sections in group	% of Group
Group 1	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0/992	0.0%
Group 2a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0/1346	0.0%
Group 2b	53	29.6%	58	32.4%	58	32.4%	5	2.8%	2	1.1%	0	0.0%	3	1.7%	179/179	100.0%
Group 3	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0/1358	0.0%
Group 4a	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0/1123	0.0%
Group 4b	29	27.1%	39	36.4%	37	34.6%	2	1.9%	0	0.0%	0	0.0%	0	0.0%	107/107	100.0%
Group 5	26	2.7%	13	1.4%	0	0.0%	6	0.6%	0	0.0%	700	73.3%	11	1.2%	756/955	79.2%
Group 6	141	79.7%	2	1.1%	0	0.0%	1	0.6%	0	0.0%	0	0.0%	6	3.4%	150/177	84.7%
Group 7	42	48.3%	1	1.1%	0	0.0%	0	0.0%	0	0.0%	19	21.8%	5	5.7%	67/87	77.0%
Group 8	53	40.8%	6	4.6%	1	0.8%	7	5.4%	0	0.0%	15	11.5%	3	2.3%	85/130	65.4%
Group 9	18	66.7%	1	3.7%	0	0.0%	0	0.0%	0	0.0%	5	18.5%	0	0.0%	24/27	88.9%
Group 10	66	19.8%	22	6.6%	1	0.3%	17	5.1%	0	0.0%	17	5.1%	2	0.6%	125/334	37.4%
Total	**428**	**6.3%**	**142**	**2.1%**	**97**	**1.4%**	**38**	**0.6%**	**2**	**0.0%**	**756**	**11.1%**	**30**	**0.4%**	**1493/6815**	**21.9%**

GROUPS 1 AND 2

Total single cephalic nulliparous pregnancies at greater than or equal to 37 weeks' gestation (n=2517)

Spontaneous labour	Induced labour	Pre labour C/S
992/2517 (39.4%)	1346/2517 (53.5%)	179/2517 (7.1%)

Caesarean section contribution according to onset of delivery, in single cephalic nulliparous pregnancies at greater than or equal to 37 weeks' gestation 812/2517 (32.3%)

Spontaneous labour	118/2517	4.7%
Induced labour	515/2517	20.5%
Pre labour C/S	179/2517	7.1%

Group 1

Caesarean section rate of single cephalic nulliparous pregnancies at greater than or equal to 37 weeks gestation in spontaneous labour 118/992 (11.9%)

Fetal reason (no oxytocin)	38/992	3.8%
IUA - Inability to treat fetal intolerance	39/992	3.9%
IUA - Inability to treat over contracting	8/992	0.8%
IUA - Poor response	13/992	1.3%
IUA - No oxytocin given	2/992	0.2%
EUA - Persistent malposition	17/992	1.7%
EUA - Cephalopelvic disproportion	1/992	0.1%

Outcomes

Group 1	2022		2021	2020	2017	2016
ARM	49.8%	494/992	45.8%	49.8%	49.9%	52.4%
Prostaglandin/Propess	0.0%	0/992	-	-	-	-
Oxytocin	45.6%	452/992	44.2%	53.8%	47.3%	43.9%
Epidural	74.9%	743/992	66.9%	76.0%	68.4%	65.9%
Electronic monitoring	89.4%	887/992	85.0%	91.4%	92.0%	89.9%
Fetal blood sample	8.2%	81/992	8.3%	13.1%	18.8%	21.0%
Vaginal operative delivery	28.7%	285/992	28.9%	29.2%	28.7%	31.3%
Apgars <7 at 5 mins	0.6%	6/992	1.1%	0.5%	1.0%	1.0%
Cord pH < 7.0	0.7%	7/992	-	0.0%	0.4%	0.2%
Overall caesarean section	11.9%	118/992	10.4%	8.8%	9.0%	7.8%
Caesarean section at VE=10	1.4%	14/992	1.3%	0.9%	1.5%	1.7%
Admitted to Neonatal Unit	9.5%	94/992	8.9%	8.6%	18.8%	18.1%
Episiotomy	47.4%	470/992	48.8%	49.0%	45.7%	49.5%
*OASIS	2.3%	23/992	2.2%	3.0%	2.2%	3.7%
Length of labour >12 hrs	1.4%	14/992	2.8%	2.4%	5.1%	3.9%
Babies >=4.0kg	10.8%	107/992	12.4%	12.2%	12.7%	12.8%
Aged >=35	28.5%	283/992	26.5%	31.3%	26.6%	23.7%
BMI >=30	8.8%	87/992	9.1%	9.4%	8.6%	7.6%
PPH >= 1000mls	5.2%	52/992	3.9%	3.4%	2.9%	3.0%
HIE	0.1%	1/992	0.0%	0.0%	0.1%	0.0%
Blood transfusion	1.5%	15/992	2.0%	1.6%	2.7%	0.0%

* includes Epi and Sphincter (n=7)

Age Range	Number	%
<20	8	0.8%
20 - 24	94	9.5%
25 - 29	190	19.2%
30 - 34	417	42.0%
35 - 39	258	26.0%
>=40	25	2.5%
Unrecorded	0	0.0%
Total	**992**	

Body Mass Index	Number	%
Underweight: <18.5	20	2.0%
Healthy: 18.5 - 24.9	623	62.8%
Overweight: 25 - 29.9	240	24.2%
Obese class 1: 30 - 34.9	60	6.0%
Obese class 2: 35 - 39.9	15	1.5%
Obese class 3: >40	5	0.5%
Unrecorded	29	2.9%
Total	**992**	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	0	0.0%
2,000 - 2,499 g	7	0.7%
2,500 - 2,999 g	118	11.9%
3,000 - 3,499 g	407	41.0%
3,500 - 3,999 g	353	35.6%
4,000 - 4,449 g	96	9.7%
4,500 - 4,999 g	11	1.1%
>= 5,000 g	0	0.0%
Total	**992**	

Labour Duration	Number	%
0 - 2 hrs	100	10.1%
2 - 4 hrs	184	18.5%
4 - 6 hrs	206	20.8%
6 - 8 hrs	188	19.0%
8 - 10 hrs	114	11.5%
10 - 12 hrs	43	4.3%
> 12 hrs	14	1.4%
Unrecorded	143	14.4%
Total	**992**	

Groups 1 & 2 (as the denominator): Single cephalic nulliparous pregnancies at greater than or equal to 37 weeks' gestation. Indications for induction of labour (Group 2a) 1346/2517 (53.5%).

Fetal	491/2517	19.5%
SROM not in labour	294/2517	11.7%
Maternal	228/2517	9.1%
PET/Hypertension	127/2517	5.0%
Postdates (>40 and less than 42 weeks)	124/2517	4.9%
Postterm (>= 42 weeks)	55/2517	2.2%
Not recorded	14/2517	0.6%
No medical indication	13/2517	0.5%
Total	**1346/2517**	**53.5%**

Comment: Many of the maternal indications, when reviewed, are actually really fetal. There were 14 cases that had no indication for induction recorded

CAESAREAN SECTION RATES ACCORDING TO INDICATION FOR INDUCTION IN SINGLE CEPHALIC NULLIPAROUS PREGNANCIES AT GREATER THAN OR EQUAL TO 37 WEEKS GESTATION 515/1346 (38.3%).

	Fetal reason (no oxytocin)		IUA - Inability to treat fetal intolerance		IUA - Inability to treat over contracting		IUA - Poor response		IUA - No oxytocin given		EUA - Cephalopelvic disproportion		EUA - Persistent malposition	
Fetal 193/491 (39.3%)	39	7.9%	72	14.7%	7	1.4%	53	10.8%	16	3.3%	0	0.0%	6	1.2%
SROM not in labour 118/294 (40.1%)	2	0.7%	31	10.5%	7	2.4%	72	24.5%	0	0.0%	0	0.0%	6	2.0%
Maternal 73/228 (32%)	13	5.7%	19	8.3%	3	1.3%	27	11.8%	5	2.2%	0	0.0%	6	2.6%
PET/Hypertension 44/127 (34.6%)	12	9.4%	13	10.2%	0	0.0%	11	8.7%	7	5.5%	0	0.0%	1	0.8%
Postdates (>40 and less than 42 weeks) 53/124 (42.7%)	16	12.9%	13	10.5%	1	0.8%	14	11.3%	8	6.5%	0	0.0%	1	0.8%
Postterm (>= 42 weeks) 26/55 (47.3%)	4	7.3%	9	16.4%	0	0.0%	10	18.2%	0	0.0%	0	0.0%	3	5.5%
Not Recorded 4/14 (28.6%)	0	0.0%	1	7.1%	0	0.0%	3	21.4%	0	0.0%	0	0.0%	0	0.0%
No medical indication 4/13 (30.8%)	3	23.1%	0	0.0%	0	0.0%	1	7.7%	0	0.0%	0	0.0%	0	0.0%
Total 515/1346 (38.3%)	**89**	**6.6%**	**158**	**11.7%**	**18**	**1.3%**	**191**	**14.2%**	**36**	**2.7%**	**0**	**0.0%**	**23**	**1.7%**

GROUP 2(A) OUTCOMES

Group 2(a)	2022		2021	2020	2017	2016
ARM	55.9%	753/1346	48.2%	52.6%	62.8%	65.9%
Prostaglandin/Propess	53.9%	725/1346	39.2%	50.4%	55.2%	49.7%
Oxytocin	79.3%	1068/1346	70.9%	81.3%	72.1%	71.8%
Epidural	84.8%	1142/1346	73.2%	82.8%	91.8%	76.4%
Electronic monitoring	97.8%	1316/1346	87.3%	98.7%	92.6%	92.5%
Fetal blood sample	12.6%	170/1346	-	19.6%	29.6%	28.4%
Vaginal operative delivery	24.1%	325/1346	-	27.0%	0.0%	29.3%
Apgars <7 at 5 mins	1.2%	16/1346	1.0%	1.6%	1.3%	1.5%
Cord pH < 7.0	0.6%	8/1346	-	0.0%	0.2%	0.4%
Overall caesarean section	38.3%	515/1346	33.1%	33.7%	31.9%	32.6%
Caesarean section at VE=10	1.6%	22/1346	2.0%	1.8%	2.4%	2.5%
Admitted to Neonatal Unit	11.4%	154/1346	14.0%	13.2%	29.8%	30.2%
Episiotomy	39.5%	532/1346	39.8%	42.0%	40.9%	42.6%
*OASIS	1.6%	22/1346	1.7%	1.6%	1.4%	2.2%
Length of labour >12 hrs	4.4%	59/1346	4.7%	3.8%	9.1%	7.7%
Babies >=4.0kg	16.2%	218/1346	16.3%	17.5%	19.5%	18.1%
Aged >=35	34.8%	469/1346	36.6%	41.5%	32.8%	32.8%
BMI >=30	21.0%	282/1346	18.5%	19.9%	12.4%	12.4%
PPH >= 1000mls	6.5%	88/1346	6.6%	6.2%	6.9%	4.7%
HIE	0.1%	1/1346	0.4%	0.3%	0.0%	0.0%
Blood transfusion	3.0%	41/1346	2.2%	1.6%	4.2%	0.0%

**includes Episiotomy and Sphincter Damage (9)*

Age Range	Number	%
<20	10	0.7%
20 - 24	83	6.2%
25 - 29	226	16.8%
30 - 34	558	41.5%
35 - 39	352	26.2%
>=40	117	8.7%
Unrecorded	0	0.0%
Total	**1346**	

Body Mass Index	Number	%
Underweight: <18.5	20	1.5%
Healthy: 18.5 - 24.9	662	49.2%
Overweight: 25 - 29.9	344	25.6%
Obese class 1: 30 - 34.9	178	13.2%
Obese class 2: 35 - 39.9	63	4.7%
Obese class 3: >40	20	1.5%
Unrecorded	59	4.4%
Total	**1346**	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	2	0.1%
2,000 - 2,499 g	23	1.7%
2,500 - 2,999 g	160	11.9%
3,000 - 3,499 g	475	35.3%
3,500 - 3,999 g	468	34.8%
4,000 - 4,449 g	189	14.0%
4,500 - 4,999 g	26	1.9%
>= 5,000 g	3	0.2%
Total	**1346**	

Labour Duration	Number	%
0 - 2 hrs	75	5.6%
2 - 4 hrs	103	7.7%
4 - 6 hrs	171	12.7%
6 - 8 hrs	181	13.4%
8 - 10 hrs	173	12.9%
10 - 12 hrs	106	7.9%
> 12 hrs	59	4.4%
Unrecorded	478	35.5%
Total	**1346**	

Group 2(b): Pre labour caesarean section in single cephalic nulliparous pregnancies at greater than or equal to 37 weeks gestation 180/2517 (7.2%)

Maternal medical reason/pains	58/2517	2.3%
Fetal reason	58/2517	2.3%
Non-medical reason/patient request	53/2517	2.1%
PET/Hypertension	5/2517	0.2%
Previous caesarean section	3/2517	0.1%
Postdates	2/2517	0.1%

Comment: *More detailed information is needed in pre-labour indications*

GROUP 3 AND 4 TOTAL SINGLE CEPHALIC MULTIPAROUS PREGNANCIES AT GREATER THAN OR EQUAL TO 37 WEEKS GESTATION (N=2588)

Spontaneous labour	Induced labour	Pre labour C/S
1358/2588 (52.5%)	1123/2588 (43.4%)	107/2588 (4.1%)

Caesarean section contribution according to onset of delivery of single cephalic multiparous pregnancies without a previous section at greater than or equal to 37 weeks' gestation 196/2588 (7.6%)

Spontaneous labour	15/2588	0.6%
Induced labour	74/2588	2.9%
Pre labour C/S	107/2588	4.1%

Group 3 Caesarean section rate of single cephalic multiparous pregnancies without a previous caesarean section at greater than or equal to 37 weeks gestation in spontaneous labour 15/1358 (1.1%)

Fetal reason (no oxytocin)	9/1358	0.7%
IUA - Inability to treat fetal intolerance	1/1358	0.1%
IUA - Inability to treat over contracting	1/1358	0.1%
IUA - Poor response	0/1358	0.0%
IUA - No oxytocin given	3/1358	0.2%
EUA - Persistent malposition	1/1358	0.1%
EUA - Cephalopelvic disproportion	0/1358	0.0%

Group 3 Single cephalic multiparous pregnancies without a previous caesarean section at greater than or equal to 37 weeks' gestation in spontaneous labour

Outcomes

Group 3	2022		2021	2020	2017	2015
ARM	50.9%	691/1358	46.4%	51.8%	53.2%	53.0%
Prostaglandin/Propess	0.0%	0/1358	-	-	-	-
Oxytocin	4.6%	63/1358	3.8%	3.6%	2.7%	2.0%
Epidural	46.2%	628/1358	37.9%	39.8%	34.1%	31.5%
Electronic monitoring	78.0%	1059/1358	74.4%	77.6%	73.6%	69.4%
Fetal blood sample	5.9%	80/1358	0.8%	2.1%	3.2%	3.3%
Vaginal operative delivery	3.5%	47/1358	3.7%	3.3%	3.5%	5.0%
Apgars <7 at 5 mins	1.4%	19/1358	0.3%	1.5%	0.3%	0.3%
Cord pH < 7.0	0.1%	1/1358	-	0.0%	0.2%	0.3%
Overall caesarean section	1.1%	15/1358	1.4%	1.7%	1.3%	1.0%
Caesarean section at VE=10	0.1%	1/1358	0.2%	0.0%	0.3%	0.3%
Admitted to Neonatal Unit	5.4%	73/1358	4.7%	6.1%	8.8%	6.2%
Episiotomy	8.0%	108/1358	10.2%	8.1%	6.2%	6.7%
OASIS*	0.7%	9/1358	1.1%	1.0%	0.2%	1.0%
Length of labour >12 hrs	0.5%	7/1358	0.4%	1.2%	0.3%	0.3%
Babies >=4.0kg	16.9%	230/1358	20.1%	21.1%	23.9%	21.7%
Aged >=35	53.2%	722/1358	56.5%	59.9%	53.1%	49.4%
BMI >=30	13.7%	186/1358	11.9%	12.6%	10.7%	10.0%
PPH >= 1000mls	2.0%	27/1358	2.0%	1.2%	1.6%	1.3%
HIE	0.1%	2/1358	0.1%	0.0%	0.0%	0.0%
Blood transfusion	0.4%	6/1358	0.4%	0.7%	0.4%	0.0%

**includes Episiotomy and Sphincter Damage (n=0)*

Age Range	Number	%
<20	2	0.1%
20 - 24	40	2.9%
25 - 29	144	10.6%
30 - 34	450	33.1%
35 - 39	605	44.6%
>=40	117	8.6%
Unrecorded	0	0.0%
Total	**1358**	

Body Mass Index	Number	%
Underweight: <18.5	34	2.5%
Healthy: 18.5 - 24.9	754	55.5%
Overweight: 25 - 29.9	355	26.1%
Obese class 1: 30 - 34.9	122	9.0%
Obese class 2: 35 - 39.9	32	2.4%
Obese class 3: >40	7	0.5%
Unrecorded	54	4.0%
Total	**1358**	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	0	0.0%
2,000 - 2,499 g	9	0.7%
2,500 - 2,999 g	112	8.2%
3,000 - 3,499 g	464	34.2%
3,500 - 3,999 g	543	40.0%
4,000 - 4,449 g	196	14.4%
4,500 - 4,999 g	31	2.3%
>= 5,000 g	3	0.2%
Total	**1358**	

Labour Duration	Number	%
0 - 2 hrs	702	51.7%
2 - 4 hrs	351	25.8%
4 - 6 hrs	129	9.5%
6 - 8 hrs	63	4.6%
8 - 10 hrs	13	1.0%
10 - 12 hrs	1	0.1%
> 12 hrs	7	0.5%
Unrecorded	92	6.8%
Total	**1358**	

Group 3 and 4 (as the denominator): Single cephalic multiparous pregnancies section at greater than or equal to 37 weeks' gestation. Indications for induction of labour 1123/2588 (43.4%)

Fetal	420/2588	16.2%
Maternal	322/2588	12.4%
SROM not in labour	141/2588	5.4%
Postdates (>40 and less than 42 weeks)	107/2588	4.1%
Postterm (>= 42 weeks)	49/2588	1.9%
No medical indication	41/2588	1.6%
PET/Hypertension	37/2588	1.4%
Not recorded	6/2588	0.2%
Total	**1123/2588**	**43.4%**

Group 4(a) Caesarean section rates according to indication for induction in single cephalic multiparous pregnancies without a previous caesarean section at greater than or equal to 37 weeks' gestation 74/1123 (6.6%)

	Fetal reason (no oxytocin)		IUA - Inability to treat fetal intolerance		IUA - Inability to treat over contracting		IUA - Poor response		IUA - No oxytocin given		EUA - Cephalopelvic disproportion		EUA - Persistent malposition	
Fetal 34/420 (8.1%)	12/420	2.9%	11/420	2.6%	2/420	0.5%	8/420	1.9%	0/420	0.0%	0/420	0.0%	1/420	0.2%
Maternal 12/322 (3.7%)	1/322	0.3%	1/322	0.3%	1/322	0.3%	7/322	2.2%	0/322	0.0%	0/322	0.0%	2/322	0.6%
SROM not in labour 7/141 (5%)	0/141	0.0%	3/141	2.1%	2/141	1.4%	2/141	1.4%	0/141	0.0%	0/141	0.0%	0/141	0.0%
Postdates (>40 and less than 42 weeks) 4/107 (3.7%)	2/107	1.9%	0/107	0.0%	0/107	0.0%	1/107	0.9%	0/107	0.0%	0/107	0.0%	1/107	0.9%
Postterm (>= 42 weeks) 5/41 (12.2%)	3/41	7.3%	2/41	4.9%	0/41	0.0%	0/41	0.0%	0/41	0.0%	0/41	0.0%	0/41	0.0%
No medical indication 3/37 (8.1%)	1/37	2.7%	0/37	0.0%	0/37	0.0%	1/37	2.7%	1/37	2.7%	0/37	0.0%	0/37	0.0%
PET/Hypertension 7/49 (14.3%)	3/49	6.1%	2/49	4.1%	0/49	0.0%	2/49	4.1%	0/49	0.0%	0/49	0.0%	0/49	0.0%
Not recorded 2/6 (33.3%)	2/6	33.3%	0/6	0.0%	0/6	0.0%	0/6	0.0%	0/6	0.0%	0/6	0.0%	0/6	0.0%
Total 74/1123 (6.6%)	**24/1123**	**2.1%**	**19/1123**	**1.7%**	**5/1123**	**0.4%**	**21/1123**	**1.9%**	**1/1123**	**0.1%**	**0/1123**	**0.0%**	**4/1123**	**0.4%**

Group 4(a) Outcomes

Group 4(a)	2022		2021	2020	2017	2016
ARM	78.4%	880/1123	65.7%	77.1%	75.6%	84.7%
Prostaglandin/Propess	41.9%	471/1123	36.8%	N/A	45.8%	34.6%
Oxytocin	55.7%	626/1123	44.3%	49.1%	32.5%	32.1%
Epidural	72.8%	817/1123	57.7%	60.7%	52.0%	51.4%
Electronic monitoring	98.0%	1101/1123	87.0%	98.7%	92.5%	90.8%
Fetal blood sample	6.5%	73/1123	2.4%	5.7%	8.0%	6.8%
Vaginal operative delivery	5.3%	60/1123	6.6%	5.8%	5.5%	5.7%
Apgars <7 at 5 mins	0.9%	10/1123	0.5%	0.7%	0.7%	0.8%
Cord pH < 7.0	0.4%	5/1123	-	0.0%	0.5%	0.2%
Overall caesarean section	6.6%	74/1123	5.0%	5.1%	4.8%	4.4%
Caesarean section at VE=10	0.4%	5/1123	0.3%	0.2%	0.4%	0.2%
Admitted to Neonatal Unit	9.8%	110/1123	9.4%	11.1%	16.7%	14.4%
Episiotomy	10.5%	118/1123	12.5%	10.3%	7.9%	8.5%
*OASIS	0.5%	6/1123	0.6%	0.6%	0.5%	1.2%
Length of labour >12 hrs	1.2%	14/1123	0.7%	1.3%	0.6%	0.9%
Babies >=4.0kg	19.9%	223/1123	25.7%	25.1%	25.6%	26.3%
Aged >=35	58.3%	655/1123	62.6%	64.4%	53.4%	52.8%
BMI >=30	23.5%	264/1123	20.0%	22.2%	14.6%	14.4%
PPH >= 1000mls	4.5%	51/1123	2.5%	2.1%	2.7%	2.7%
HIE	0.0%	0/1123	0.0%	0.0%	0.1%	0.0%
Blood transfusion	1.0%	11/1123	0.3%	0.6%	1.1%	0.0%

**includes Episiotomy and Sphincter Damage (n=1)*

Comment: *increase in oxytocin over the years.*

Age Range	Number	%
<20	1	0.1%
20 - 24	21	1.9%
25 - 29	115	10.2%
30 - 34	331	29.5%
35 - 39	457	40.7%
>=40	198	17.6%
Unrecorded	0	0.0%
Total	**1123**	

Body Mass Index	Number	%
Underweight: <18.5	15	1.3%
Healthy: 18.5 - 24.9	493	43.9%
Overweight: 25 - 29.9	288	25.6%
Obese class 1: 30 - 34.9	156	13.9%
Obese class 2: 35 - 39.9	64	5.7%
Obese class 3: >40	20	1.8%
Unrecorded	87	7.7%
Total	**1123**	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	1	0.1%
1,500 - 1,999 g	0	0.0%
2,000 - 2,499 g	13	1.2%
2,500 - 2,999 g	97	8.6%
3,000 - 3,499 g	341	30.4%
3,500 - 3,999 g	448	39.9%
4,000 - 4,449 g	197	17.5%
4,500 - 4,999 g	26	2.3%
>= 5,000 g	0	0.0%
Total	**1123**	

Labour Duration	Number	%
0 - 2 hrs	305	27.2%
2 - 4 hrs	295	26.3%
4 - 6 hrs	211	18.8%
6 - 8 hrs	118	10.5%
8 - 10 hrs	50	4.5%
10 - 12 hrs	12	1.1%
> 12 hrs	14	1.2%
Unrecorded	118	10.5%
Total	**1123**	

Group 4(b)

Pre labour caesarean section in single cephalic multiparous pregnancies at greater than or equal to 37 weeks without a previous caesarean section 107/2588 (4.1%)

Maternal medical reason/pains	39/2588	1.5%
Non medical reason/patient request	37/2588	1.4%
Fetal reason	29/2588	1.1%
PET/Hypertension	2/2588	0.1%
SROM	0/2588	0.0%
Postdates	0/2588	0.0%

Comment: *more detailed information on pre-labour indications is needed.*

Group 5: Single cephalic multiparous pregnancies (with at least one previous caesarean section) at greater than or equal to 37 weeks' gestation (n=955)

Spontaneous Labour	Induced Labour	Pre labour C/S
155/955 (16.2%)	44/955 (4.6%)	756/955 (79.2%)

Caesarean Section contribution according to onset of delivery in single cephalic multiparous pregnancies with at least one previous section at greater than or equal to 37 weeks' gestation: (812/955) (85.0%)

Spontaneous labour	34/955	3.6%
Induced labour	22/955	2.3%
Pre labour C/S	756/955	79.2%

Group 5 All

Group 5 Overall	2022		2021	2020	2017	2016
ARM	10.3%	98/955	10.5%	15.6%	31.7%	21.8%
Prostaglandin/Propess	0.1%	1/955	0.0%	0.0%	0.0%	0.2%
Oxytocin	2.1%	20/955	2.6%	3.4%	2.1%	2.4%
Epidural	13.3%	127/955	14.1%	16.5%	17.8%	20.8%
Electronic monitoring	35.8%	342/955	36.4%	46.0%	31.5%	38.2%
Fetal blood sample	24.9%	238/955	0.1%	0.3%	1.6%	2.5%
Vaginal operative delivery	3.6%	34/955	4.3%	5.3%	5.8%	5.1%
Apgars <7 at 5 mins	1.3%	12/955	0.2%	1.1%	0.8%	0.2%
Cord pH < 7.0	0.3%	3/955	-	0.0%	0.3%	1.5%
Overall caesarean section	85.0%	812/955	82.4%	80.9%	75.9%	62.5%
Caesarean section at VE=10	0.1%	1/955	0.2%	0.4%	0.4%	0.6%
Admitted to Neonatal Unit	9.0%	86/955	8.8%	11.3%	13.6%	11.2%
Episiotomy	5.3%	51/955	6.7%	9.0%	9.0%	9.1%
OASIS	0.4%	4/955	0.5%	0.3%	0.5%	0.9%
Length of labour >12 hrs	0.1%	1/955	0.2%	0.2%	0.9%	0.8%
Babies >=4.0kg	18.2%	174/955	16.9%	19.5%	19.9%	20.3%
Aged >=35	64.4%	615/955	66.6%	67.5%	66.0%	60.9%
BMI >=30	22.8%	218/955	26.7%	21.2%	20.3%	18.7%
PPH >= 1000mls	4.3%	41/955	2.7%	2.2%	2.3%	2.2%
HIE	0.0%	0/955	0.0%	0.0%	0.0%	0.0%
Blood transfusion	1.0%	10/955	0.9%	4.2%	2.0%	0.0%

Age Range	Number	%
<20	0	0.0%
20 - 24	17	1.8%
25 - 29	60	6.3%
30 - 34	263	27.5%
35 - 39	452	47.3%
>=40	163	17.1%
Unrecorded	0	0.0%
Total	**955**	

Body Mass Index	Number	%
Underweight: <18.5	12	1.3%
Healthy: 18.5 - 24.9	398	41.7%
Overweight: 25 - 29.9	289	30.3%
Obese class 1: 30 - 34.9	120	12.6%
Obese class 2: 35 - 39.9	55	5.8%
Obese class 3: >40	17	1.8%
Unrecorded	64	6.7%
Total	**955**	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	2	0.2%
2,000 - 2,499 g	8	0.8%
2,500 - 2,999 g	99	10.4%
3,000 - 3,499 g	326	34.1%
3,500 - 3,999 g	346	36.2%
4,000 - 4,449 g	153	16.0%
4,500 - 4,999 g	20	2.1%
>= 5,000 g	1	0.1%
Total	**955**	

Labour Duration	Number	%
0 - 2 hrs	51	5.3%
2 - 4 hrs	46	4.8%
4 - 6 hrs	21	2.2%
6 - 8 hrs	13	1.4%
8 - 10 hrs	8	0.8%
10 - 12 hrs	3	0.3%
> 12 hrs	1	0.1%
Unrecorded	812	85.0%
Total	**955**	

Group 5(a)

Caesarean section rate of single cephalic pregnancies with only one previous caesarean section, at greater than or equal to 37 weeks gestation in spontaneous labour 31/152 (20.4%)*

Fetal reason (no oxytocin)	14/152	9.2%
IUA - Inability to treat fetal intolerance	0/152	0.0%
IUA - Inability to treat over contracting	1/152	0.7%
IUA - Poor response	2/152	1.3%
IUA - No oxytocin given	12/152	7.9%
EUA - Persistent malposition	1/152	0.7%
EUA - Cephalopelvic disproportion	1/152	0.7%

** Does not include 3 pregnancies that had more than one previous caesarean section.*

Group 5a Spontaneous Labour Outcomes

	2022		2021	2020	2017	2016
ARM	43.9%	68/155	39.0%	49.7%	48.4%	45.8%
Prostaglandin/Propess	0.0%	0/155	-	0.5%	0.0%	0.0%
Oxytocin	2.6%	4/155	4.8%	2.7%	3.9%	2.6%
Epidural	61.9%	96/155	55.1%	56.2%	51.2%	49.8%
Electronic monitoring	90.3%	140/155	82.4%	91.9%	94.5%	94.9%
Fetal blood sample	8.4%	13/155	0.5%	0.5%	5.1%	5.1%
Vaginal operative delivery	20.0%	31/155	19.8%	22.7%	18.8%	19.4%
Apgars <7 at 5 mins	0.6%	1/155	0.0%	0.5%	2.3%	0.7%
Cord pH < 7.0	0.6%	1/155	-	0.0%	0.4%	0.0%
Overall caesarean section	21.9%	34/155	18.2%	18.9%	21.1%	19.4%
Caesarean section at VE=10	0.6%	1/155	1.1%	2.2%	1.2%	1.1%
Admitted to Neonatal Unit	7.7%	12/155	10.7%	9.7%	17.6%	12.1%
Episiotomy	30.3%	47/155	33.7%	38.9%	29.3%	26.7%
OASIS	2.6%	4/155	-	1.6%	2.0%	3.3%
Length of labour > 12 hrs	0.6%	1/155	0.5%	0.5%	1.6%	0.7%
Babies >= 4.0kg	17.4%	27/155	15.0%	18.9%	21.9%	19.0%
Aged >= 35	54.2%	84/155	61.0%	60.5%	57.4%	53.8%
BMI >= 30	20.0%	31/155	14.4%	16.8%	16.0%	15.0%
PPH >= 1000mls	8.4%	13/155	3.7%	3.8%	5.5%	3.7%
HIE	0.0%	0/155	0.0%	0.0%	0.0%	0.0%
Blood transfusion	3.2%	5/155	1.6%	2.7%	4.3%	0.0%

Age Range	Number	%
<20	0	0.0%
20 - 24	4	2.6%
25 - 29	13	8.4%
30 - 34	54	34.8%
35 - 39	69	44.5%
>=40	15	9.7%
Unrecorded	0	0.0%
Total	**155**	

Body Mass Index	Number	%
Underweight: <18.5	3	1.9%
Healthy: 18.5 - 24.9	82	52.9%
Overweight: 25 - 29.9	41	26.5%
Obese class 1: 30 - 34.9	17	11.0%
Obese class 2: 35 - 39.9	8	5.2%
Obese class 3: >40	1	0.6%
Unrecorded	3	1.9%
Total	**155**	

Birthweight Range	Number	%
500 - 999 g	0	0.0%
1000 - 1499 g	0	0.0%
1,500 - 1,999 g	1	0.6%
2,000 - 2,499 g	1	0.6%
2,500 - 2,999 g	13	8.4%
3,000 - 3,499 g	57	36.8%
3,500 - 3,999 g	56	36.1%
4,000 - 4,449 g	25	16.1%
4,500 - 4,999 g	2	1.3%
>= 5,000 g	0	0.0%
Total	**155**	

Labour Duration	Number	%
0 - 2 hrs	44	28.4%
2 - 4 hrs	39	25.2%
4 - 6 hrs	18	11.6%
6 - 8 hrs	10	6.5%
8 - 10 hrs	6	3.9%
10 - 12 hrs	2	1.3%
> 12 hrs	1	0.6%
Unrecorded	35	22.6%
Total	**155**	

Group 5(b) Single cephalic multiparous pregnancies with only one previous caesarean section at greater than or equal to 37 weeks gestation. Indications for induction of labour 44/955 (4.6%)

Maternal	19/955	2.0%
SROM not in labour	13/955	1.4%
Fetal	7/955	0.7%
Postdates (>40 and less than 42 weeks)	3/955	0.3%
PET/Hypertension	1/955	0.1%
Not recorded	1/955	0.1%

Group 5(b)
Caesarean section rates according to indication for induction in single cephalic multiparous pregnancies with a previous caesarean section at greater than or equal to 37 weeks' gestation 22/44 (50.0%).

	Fetal reason (no oxytocin)		IUA - Inability to treat fetal intolerance		IUA - Inability to treat over contracting		IUA - Poor response		IUA - No oxytocin given		EUA - Cephalopelvic disproportion		EUA - Persistent malposition	
Maternal 7/19 (36.8%)	2/19	10.5%	0/19	0.0%	0/19	0.0%	0/19	0.0%	5/19	26.3%	0/19	0.0%	0/19	0.0%
SROM not in labour 8/13 (61.5%)	2/13	15.4%	1/13	7.7%	0/13	0.0%	2/13	15.4%	3/13	23.1%	0/13	0.0%	0/13	0.0%
Fetal 5/7 (71.4%)	2/7	28.6%	1/7	14.3%	0/7	0.0%	0/7	0.0%	2/7	28.6%	0/7	0.0%	0/7	0.0%
Postdates (>40 and less than 42 weeks) 2/3 (66.7%)	1/3	33.3%	0/3	0.0%	0/3	0.0%	0/3	0.0%	1/3	33.3%	0/3	0.0%	0/3	0.0%
PET/Hypertension 0/1 (0%)	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%
Not recorded 0/1 (0%)	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%	0/1	0.0%
Total 22/44 (50%)	**7/44**	**15.9%**	**2/44**	**4.5%**	**0/44**	**0.0%**	**2/44**	**4.5%**	**11/44**	**25.0%**	**0/44**	**0.0%**	**0/44**	**0.0%**

Group 5(c)
Pre labour caesarean sections in single cephalic multiparous pregnancies (with at least one previous section at greater than or equal to 37 weeks gestation), 756/955 (79.2%).

75.8% (573/756) of the pre labour caesarean section group had only one previous caesarean section.

24.2% (183/756) of the pre labour caesarean sections had two or more caesarean sections prior to the index pregnancy.

91.4% (524/573) of the pre labour caesarean section group with only one previous caesarean section had a repeat procedure with no specific medical or obstetric reason recorded.

8.6% (49/573) of the pre labour caesarean section group with only one previous caesarean section had a repeat procedure for a specific medical or obstetric reason recorded.

The overall caesarean section rate in all single cephalic multiparous pregnancies with only one previous caesarean section was 81.1% (626/772), [(31+22+573) / (955-183)]

Pre labour caesarean sections in single cephalic multiparous pregnancies with only one previous caesarean section at greater than or equal to 37 weeks gestation (n=573).

Maternal medical reason/pains	12/573	2.1%
Non medical reason/patient request	0/573	0.0%
Fetal reason	24/573	4.2%
PET/Hypertension	5/573	0.9%
SROM	8/573	1.4%
Postdates	0/573	0.0%
Previous caesarean section	524/573	91.4%

Repeat pre labour caesarean section in single cephalic multiparous pregnancies, with only one previous caesarean section, for a specific medical or obstetrical reason by gestation in completed weeks (n=49)

GA (weeks)	Total
37	16
38	18
39	10
40	5
Totals	**49**

Repeat pre labour caesarean section in single cephalic multiparous pregnancies, with only one previous caesarean section and no specific medical or obstetrical reason, other than one previous caesarean section by gestation in completed weeks (n=524)

GA (weeks)	Total
37	27
38	140
39	282
40	59
41	16
Totals	**524**

GROUP 6

All nulliparous pregnancies with a breech presentation (n=177)

	Number in group	Number of C/S	Contribution to total population	% C/S
Spontaneous labour	19	16	19/177 (10.7%)	16/177 (9%)
Induced labour	8	0	8/177 (4.5%)	0/177 (0%)
Pre labour c-section	150	150	150/177 (84.7%)	150/177 (84.7%)
Totals	**177**	**166**		**166/177 (93.8%)**

GROUP 7

All multiparous pregnancies with a breech presentation (including pregnancies with previous caesarean sections) (n=87)

	Number in group	Number of C/S	Contribution to total population	% C/S
Spontaneous labour	14	7	14/87 (16.1%)	7/87 (8%)
Induced labour	6	2	6/87 (6.9%)	2/87 (2.3%)
Pre labour c-section	67	67	67/87 (77%)	67/87 (77%)
Totals	**87**	**76**		**76/87 (87.4%)**

GROUP 8

All multiple pregnancies including pregnancies with previous caesarean sections (n=130)

	Number in group	Number of C/S	Contribution to total population	% C/S
Spontaneous labour	24	12	24/130 (18.5%)	12/130 (9.2%)
Induced labour	21	4	21/130 (16.2%)	4/130 (3.1%)
Pre labour c-section	85	85	85/130 (65.4%)	85/130 (65.4%)
Totals	**130**	**101**		**101/130 (77.7%)**

GROUP 9

All pregnancies with abnormal lies (including previous caesarean section) (n=27)

	Number in group	Number of C/S	Contribution to total population	% C/S
Spontaneous labour	3	3	3/27 (11.1%)	3/27 (11.1%)
Induced labour	0	0	0/27 (0.0%)	0/27 (0.0%)
Pre labour c-section	24	24	24/27 (88.9%)	24/27 (88.9%)
Totals	**27**	**27**		**27/27 (100%)**

GROUP 10

Total single cephalic pregnancies at less than or equal to 36 weeks gestation (including pregnancies with previous caesarean sections) (n=334)

	Number in group	Number of C/S	Contribution to total population	% C/S
Spontaneous labour	146	10	146/334 (43.7%)	10/334 (3%)
Induced labour	63	16	63/334 (18.9%)	16/334(4.8%)
Pre labour c-section	125	125	125/334 (37.4%)	125/334 (37.4%)
Totals	**334**	**151**		**151/334 (45.2%)**

Group 10 by Onset and Gestation

GA (weeks)	Spontaneous labour	Induced labour	Pre labour C-section	Total
21	0	0	0	0
22	0	0	0	0
23	2	2	0	4
24	2	4	2	8
25	1	2	2	5
26	3	2	2	7
27	0	1	2	3
28	2	2	6	10
29	6	2	4	12
30	4	0	1	5
31	2	1	9	12
32	6	0	7	13
33	9	3	13	25
34	23	3	12	38
35	22	3	18	43
36	64	38	47	149
Total	**146**	**63**	**125**	**334**

All deliveries equal to or less than 36 weeks gestational age by onset and gestation

GA (weeks)	Spontaneous labour	Induced labour	Pre labour C-section	Total
21	0	0	0	0
22	0	0	0	0
23	2	4	0	6
24	3	8	2	13
25	5	3	3	11
26	6	3	6	15
27	2	2	3	7
28	3	2	11	16
29	7	2	6	15
30	7	0	5	12
31	4	1	11	16
32	7	0	16	23
33	11	3	16	30
34	26	3	22	51
35	30	3	30	63
36	71	41	78	190
Total	**184**	**75**	**209**	**468**

Incidence of preterm delivery <37 weeks = 468/6815 (6.9%)
Incidence of preterm delivery <=34 weeks = 215/6815 (3.2%)
Incidence of preterm delivery <34 weeks = 164/6815 (2.4%)
Incidence of preterm spontaneous labour <37 weeks = 184/6815 (2.7%)
Incidence of preterm spontaneous labour <=34 weeks = 83/6815 (1.2%)
Incidence of preterm spontaneous labour <34 weeks = 57/6815 (0.8%)

SUMMARY: GROUPS 1-5

Age Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
<20	8	0.8%	10	0.7%	2	0.1%	1	0.1%	0	0.0%	0	0.0%
20 - 24	94	9.5%	83	6.2%	40	2.9%	21	1.9%	17	1.8%	4	2.6%
25 - 29	190	19.2%	226	16.8%	144	10.6%	115	10.2%	60	6.3%	13	8.4%
30 -34	417	42.0%	558	41.5%	450	33.1%	331	29.5%	263	27.5%	54	34.8%
35 - 39	258	26.0%	352	26.2%	605	44.6%	457	40.7%	452	47.3%	69	44.5%
>=40	25	2.5%	117	8.7%	117	8.6%	198	17.6%	163	17.1%	15	9.7%
Total	**992**		**1346**		**1358**		**1123**		**955**		**155**	

Body Mass Index Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
< 18.5	20	2.0%	20	1.5%	34	2.5%	15	1.3%	12	1.3%	3	1.9%
18.5-24.9	623	62.8%	662	49.2%	754	55.5%	493	43.9%	398	41.7%	82	52.9%
25-29.9	240	24.2%	344	25.6%	355	26.1%	288	25.6%	289	30.3%	41	26.5%
30-34.9	60	6.0%	178	13.2%	122	9.0%	156	13.9%	120	12.6%	17	11.0%
35-39.9	15	1.5%	63	4.7%	32	2.4%	64	5.7%	55	5.8%	8	5.2%
>=40	5	0.5%	20	1.5%	7	0.5%	20	1.8%	17	1.8%	1	0.6%
Unrecorded	29	2.9%	59	4.4%	54	4.0%	87	7.7%	64	6.7%	3	1.9%
Total	**992**		**1346**		**1358**		**1123**		**955**		**155**	

Birthweight Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
500 - 999 g	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
1,000 - 1,499 g	0	0.0%	0	0.0%	0	0.0%	1	0.1%	0	0.0%	0	0.0%
1,500 - 1,999 g	0	0.0%	2	0.1%	0	0.0%	0	0.0%	2	0.2%	1	0.6%
2,000 - 2,499 g	7	0.7%	23	1.7%	9	0.7%	13	1.2%	8	0.8%	1	0.6%
2,500 - 2,999 g	118	11.9%	160	11.9%	112	8.2%	97	8.6%	99	10.4%	13	8.4%
3,000 - 3,499 g	407	41.0%	475	35.3%	464	34.2%	341	30.4%	326	34.1%	57	36.8%
3,500 - 3,999 g	353	35.6%	468	34.8%	543	40.0%	448	39.9%	346	36.2%	56	36.1%
4,000 - 4,499 g	96	9.7%	189	14.0%	196	14.4%	197	17.5%	153	16.0%	25	16.1%
4,500 - 4,999 g	11	1.1%	26	1.9%	31	2.3%	26	2.3%	20	2.1%	2	1.3%
>= 5,000 g	0	0.0%	3	0.2%	3	0.2%	0	0.0%	1	0.1%	0	0.0%
Total	**992**		**1346**		**1358**		**1123**		**955**		**155**	

Labour Duration Range by Group

	Group 1		Group 2a		Group 3		Group 4a		Group 5 Overall		Group 5a	
0 - 2hrs	100	10.1%	75	5.6%	702	51.7%	305	27.2%	51	5.3%	44	28.4%
2 - 4hrs	184	18.5%	103	7.7%	351	25.8%	295	26.3%	46	4.8%	39	25.2%
4 - 6hrs	206	20.8%	171	12.7%	129	9.5%	211	18.8%	21	2.2%	18	11.6%
6 - 8hrs	188	19.0%	181	13.4%	63	4.6%	118	10.5%	13	1.4%	10	6.5%
8 - 10hrs	114	11.5%	173	12.9%	13	1.0%	50	4.5%	8	0.8%	6	3.9%
10 - 12hrs	43	4.3%	106	7.9%	1	0.1%	12	1.1%	3	0.3%	2	1.3%
>12hrs	14	1.4%	59	4.4%	7	0.5%	14	1.2%	1	0.1%	1	0.6%
Not Recorded	143	14.4%	478	35.5%	92	6.8%	118	10.5%	812	85.0%	35	22.6%
Total	**992**		**1346**		**1358**		**1123**		**955**		**155**	

Episiotomy Rate by Group

Group 1	Group 2a	Group 3	Group 4a	Group 5 Overall	Group 5a
470/992	532/1346	108/1358	118/1123	51/955	47/155
47.4%	39.5%	8.0%	10.5%	5.3%	30.3%

PERINATAL DEATHS AND HIE CASES PER ROBSON TEN GROUP

Group	No. of Perinatal Deaths*	Per '000 births	No. of HIE Cases	Per '000 births	No. of Infants Cooled	Per '000 births
Groups 1 & 2	3/2517	1.2	1/2517	0.4	4/2517	1.6
Groups 3 & 4	2/2588	0.8	2/2588	0.8	2/2588	0.8
Group 5	2/955	2.1	0/955	0.0	0/955	0.0
Group 8	2/263	7.6	0/263	0.0	0/263	0.0
Groups 6, 7, 9 & 10	26/625	41.6	1/625	1.6	1/625	1.6
Total	**35/6948**	**5.0**	**4/6948**	**0.6**	**7/6948**	**1.0**

**excludes Congenital Anomaly (n=18)*

BLOOD LOSS & TRANSFUSION RATES

Ten groups by Estimated Blood Loss >= 1000mls and >= 1500mls

	EBL >= 1000mls	Total in Group	Rate
Group 1	52	992	5.2%
Group 2	103	1525	6.8%
Group 2a	88	1346	6.5%
Group 2b	15	179	8.4%
Group 3	27	1358	2.0%
Group 4	64	1230	5.2%
Group 4a	51	1123	4.5%
Group 4b	13	107	12.1%
Group 5 all	41	955	4.3%
Group 5a	13	155	8.4%
Group 6	4	177	2.3%
Group 7	4	87	4.6%
Group 8	20	130	15.4%
Group 9	3	27	11.1%
Group 10	18	334	5.4%
Total	**336**	**6815**	**4.9%**

	EBL >= 1500mls	Total in Group	Rate
Group 1	20	992	2.0%
Group 2	34	1525	2.2%
Group 2a	30	1346	2.2%
Group 2b	4	179	2.2%
Group 3	9	1358	0.7%
Group 4	19	1230	1.5%
Group 4a	15	1123	1.3%
Group 4b	4	107	3.7%
Group 5 all	14	955	1.5%
Group 5a	6	155	3.9%
Group 6	0	177	0.0%
Group 7	1	87	1.1%
Group 8	9	130	6.9%
Group 9	1	27	3.7%
Group 10	12	334	3.6%
Total	**119**	**6815**	**1.7%**

Transfusion Rates per Robson Ten Group

Group	1	2a	2b	3	4a	4b	5a	5b	5c	6	7	8	9	10	Total
Total in Group	**992**	**1346**	**179**	**1358**	**1123**	**107**	**155**	**44**	**756**	**177**	**87**	**130**	**27**	**334**	**6815**
Number Transfused	15	41	3	6	11	1	5	0	5	2	2	7	0	14	112
% Transfused	**1.5%**	**3.0%**	**1.7%**	**0.4%**	**1.0%**	**0.9%**	**3.2%**	**0.0%**	**0.7%**	**1.1%**	**2.3%**	**5.4%**	**0.0%**	**4.2%**	**1.6%**
Units crossmatched	**40**	**157**	**22**	**28**	**32**	**4**	**155**	**0**	**20**	**4**	**29**	**26**	**0**	**65**	**436**
Units Transfused	20	75	11	13	18	1	5	0	14	3	11	11	0	30	214
Patients transfused 4 or more units	0	2	1	0	0	0	3.2%	0	1	0	2	0	0	1	7
% Patients transfused 4 or more units (group)	0.0%	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	2.3%	0.0%	0.0%	0.3%	0.1%
% Patients transfused who received 4 or more units	0.0%	4.9%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	100.0%	0.0%	0.0%	7.1%	6.3%

Transfusion Rates per Robson Ten Group for patients with EBL ≥ 1000 mls

Group	1	2a	2b	3	4a	4b	5a	5b	5c	6	7	8	9	10	Total
EBL >= 1000 mls	**52**	**88**	**15**	**27**	**51**	**13**	**13**	**3**	**25**	**4**	**4**	**20**	**3**	**18**	**336**
Number Transfused	10	27	2	5	5	1	3	0	3	1	1	5	0	6	69
% Transfused	**19.2%**	**30.7%**	**13.3%**	**18.5%**	**9.8%**	**7.7%**	**23.1%**	**0.0%**	**12.0%**	**25.0%**	**25.0%**	**25.0%**	**0.0%**	**33.3%**	**20.5%**
Units crossmatched	30	117	21	24	16	4	6	0	13	1	12	23	0	51	318
Units Transfused	13	54	10	11	7	1	5	0	9	1	6	9	0	19	145
Patients transfused 4 or more units	0	2	1	0	0	0	0	0	1	0	1	0	0	1	6
% Patients transfused 4 or more units (group)	0.0%	2.3%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	4.0%	0.0%	25.0%	0.0%	0.0%	5.6%	1.8%
% Patients transfused who received 4 or more units	0.0%	7.4%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	100.0%	0.0%	0.0%	16.7%	8.7%

Transfusion Rates per Robson Ten Group for patients with EBL ≥ 1500 mls

Group	1	2a	2b	3	4a	4b	5a	5b	5c	6	7	8	9	10	Total
EBL >= 1500 mls	**20**	**30**	**4**	**9**	**15**	**4**	**6**	**0**	**8**	**0**	**1**	**9**	**1**	**12**	**119**
Number Transfused	7	18	2	5	5	1	2	0	2	0	1	4	0	5	52
% Transfused	**35.0%**	**60.0%**	**50.0%**	**55.6%**	**33.3%**	**25.0%**	**33.3%**	**0.0%**	**25.0%**	**0.0%**	**100.0%**	**44.4%**	**0.0%**	**41.7%**	**43.7%**
Units crossmatched	**25**	**101**	**21**	**24**	**16**	**4**	**4**	**0**	**12**	**0**	**12**	**20**	**0**	**49**	**288**
Units Transfused	10	41	10	11	7	1	3	0	8	0	6	8	0	18	123
Patients transfused 4 or more units	0	2	1	0	0	0	0	0	1	0	1	0	0	1	6
% Patients transfused 4 or more units (group)	0.0%	6.7%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%	12.5%	0.0%	100.0%	0.0%	0.0%	8.3%	5.0%
% Patients transfused who received 4 or more units	0.0%	11.1%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	100.0%	0.0%	0.0%	20.0%	11.5%

Remy Mathew, Postnatal Services CMM2 and Anitha Sequeria, Staff Midwife, Fitzwilliam Wing.

Severe Maternal Morbidity

In keeping with changes to reporting of information, vignettes will no longer be included in this chapter.

Maternal Mortality

There were two late maternal deaths in 2022 (>42 days postnatal, <1 year postnatal) both tragically due to maternal suicide. We think of their friends and family as they continue without them and hope that they will both rest in peace.

Severe Maternal Morbidity

Data is compiled from a number of sources including the High Dependency Unit Record, Pathology Department, Placenta Accreta Group, Haematology team, Maternal Medicine Clinic, Microbiology Department as well as referral Intensive Care Units and Interventional Radiology teams. In early 2023, data from 2022 was again presented at a hospital wide Grand Rounds in order to share learning points for future care and confirm completion of data. I wish to acknowledge the work of Dr Helena Bartels, Dr Eoghan Mooney, Dr Paul Downey, Dr Susan Knowles, Ms AnnMarie Murphy Cruse, Ms Celine O'Brien. Ms Caroline Brophy and Ms Fionnuala Byrne in compiling and confirming the validity of this information. We are also very grateful to the hard work of Cassandra Herron, Samantha Vega Figueroa (from the University of Mexico), Stephanie Greenan and Aoibhinn Smyth for their work in helping to compile this report as part of a medical research elective as final year medical students in University College Dublin.

The NMH reports all SMM to the National Perinatal Epidemiology Centre for inclusion in a National SMM report. In addition, in 2022 the NMH participated in a national audit on Major Obstetric Haemorrhage that continued from 2021. Mary Higgins is the Institute of Obstetricians and Gynaecologists representative on the NPEC SMM Advisory Group and was involved in the publication of the following paper: ovbjerg M, Leitao S, Corcoran P, O'Regan L, Greene R, Manning E, Maternal Morbidity Advisory Group. Critical care in obstetrics: Clinical audit in the Republic of Ireland, 2014-2016, Eur J Obstet Gynecol Reprod Biol. 2022 Dec;279:183-190.

Prof Mary Higgins, Consultant Obstetrician & Gynaecologist.

Morbidity	2022
Major Obstetric Haemorrhage	18
Uterine Rupture	2
Peripartum Hysterectomy	2
Eclampsia	1
Renal / Liver Dysfunction	5
Pulmonary Oedema	0
Acute Respiratory Dysfunction	0
Pulmonary Embolism	2
Cardiac Arrest	0
Coma	0
Cerebral Vascular Accident	1
Status Epilepticus	0
Septic Shock	1
Anaesthetic Problems	0
*ICU/CCU admission	8
Other	5
Interventional Radiology	1*due to MOH
TOTAL	**45 patients**

** Data from January 1st 2022 to December 31st 2022; some women had more than one SMM GAP*

Maternal Medical Service

Bussy Ayotode with Nicola Burke and her newborn baby girl, Robyn.

There is a weekly multidisciplinary clinic for women with medical disorders led by Prof Fionnuala McAuliffe, Prof Mary Higgins, Dr Siobhan Corcoran, in conjunction with Dr Karen Murphy, Consultant Haematologist and clinic midwives Ms Celine O'Brien, Ms Emma Delaney-Cahill, Ms Annabel Murphy, and Ms AnnMarie Cruse (haematology midwife). Ms. Victoire Hurley, drug liaison nurse, advises on women with drug addiction.

There is a monthly combined obstetric – anaesthetic review of patients at the clinic with Consultant Anaesthetists Dr Roger McMorrow, Dr Nikki Higgins and their team. Pharmacy provides advice on the safety of maternal medications during pregnancy and breastfeeding with weekly attendance from Benedetta Soldati and Louise Delaney. Sarah Louise Killeen, Clinical Dietetics, joined our clinic during the year to see women with inflammatory bowel disease and those requiring dietetics (included patients with severe hyperemesis, bariatric surgery and high BMI)

Specialist Services

Rheumatology: in 2017 we established a monthly Reproductive Rheumatology Health Service: the ROSE clinic. Prof Doug Veale, Dr Aine Gorman (SpR) and Ms Louise Moore attend and women are seen for pre-pregnancy counselling and for pregnancy management. Outputs from the clinic have formed the basis for Dr Kieran Murray's PhD and two clinical research papers from this clinic were published in 2019 and 2020. Our unique care pathway has been presented at national and international meetings and will now form the basis of a national HSE guideline.

"This is service is becoming increasingly popular for women with medical disorders, and we often counsel women and their partners together with the relevant physician."

Hepatology: Prof Aiden McCormick and Prof Omar El-Sherif attend on a monthly basis for a joint hepatology clinic

Gasteroenterology: In 2018 we established a joint gastroenterology obstetric service. Dr Juliette Sheridan and her team attend bi-monthly where we co-manage pregnant women with inflammatory bowel disease.

Epilepsy: There is a fortnightly clinic to review pregnant women with epilepsy run by Ms. Sinead Murphy, specialist epilepsy midwife funded by Brainwave. Each woman is seen at least three times during the antenatal period and receive a postnatal telemedicine check. All women receive written information regarding their medication, and are invited to a newly established 'women with epilepsy WWE' private facebook group.

Cardiology: Dr Carla Canniffe was jointly appointed to NMH and St Vincent's University Hospital to provide a service for women with cardiology problems, before, during and after pregnancy in 2021. She reviews patients at a monthly joint obstetric clinic at NMH and weekly at SVUH in a dedicated woman's cardiology clinic.

Renal Medicine: Dr John Holian commenced a bi-monthly joint obstetric renal clinic in 2021 to review women with renal disease.

Obstetric Haematology Service comprises 2 Consultant Haematologists Dr Karen Murphy and Dr Joan Fitzgerald, a 0.5 WTE Haematology Registrar and the haematology midwife Ms AnnMarie Cruse. There is a weekly Haematology clinic shared with Maternal Medicine colleagues which provides for women with thrombotic and bleeding problems. This blended team ensures provision of high quality care for this complex group of patients during pregnancy. 2022 continued to be challenging for all areas of medicine but the long established nature of the Obstetric Haematology service in NMH allowed for modifications in how the service worked for periods of time when the Haematologists were off site and also allowed for swift development of new guidance with respect to covid 19 and thrombotic risk.

In addition to the numbers recorded below AnnMarie Cruse had approximately 2,600 visits in our service comprising a weekly iron deficiency anemia clinic, reviewing women with family history of venous thromboembolism, women with thrombocytopenia, family history of haemoglobulinopathy, VTE risk assessment. She also collaborates with other services including the National Coagulation centre.

Maternal Medicine Midwife Clinic: In 2022 Celine O'Brien and Emma Delaney-Cahill had 213 visits through the maternal medicine midwife clinic which is a service for women in conjunction with the maternal medicine clinic to review women with stable medical conditions and give women access to midwifery care.

The weekly *Maternal Medicine Multidisciplinary Meeting* (organised by Dr Maggie O'Brien, Dr Gillian Corbett, Dr Jillian Mitchell, Ms. Celine O'Brien and Ms Emma Delaney-Cahill) continues to be very successful facilitating the development of multidisciplinary individualised patient plans.

In 2022 there were 541 new patients seen in the maternal medical service. Some patients presented with more than one problem. The main diagnoses and indications for referral to the clinic in 2022 are recorded below (*only one diagnosis per patient*).

In our *pre-pregnancy service* we saw 19 women and their partners / family members in 2022, in addition to the numbers below. This is service is becoming increasingly popular for women with medical disorders, and we often counsel women and their partners together with the relevant physician.

Prof Fionnuala McAuliffe, UCD Full Academic Professor of Obstetrics & Gynaecology, Consultant Obstetrician & Gynaecologist.

Haematology	Medical Reason	213
	Previous venous thrombo-embolism	61
	VTE current pregnancy	4
	Anti-phospholipid syndrome	16
	Factor V Leiden mutation	15
	Protein C deficiency	1
	Superficial thrombophlebitis	7
	Von Willebrand's Disease	4
	Factor VII deficiency	1
	Factor VIII deficiency	2
	Factor IX deficiency	2
	Factor XI deficiency	1
	Family history of haemophilia	7
	Immune thrombocytopenic purpura	12
	Neutropenia	2
	Essential Thrombocytosis	5
	VTE risk assessments in clinic	43
	May Hegglin platelet anomaly	1
	Severe anaemia	5
	Bleeding disorder of unknown aetiology	6
	Glanzmann's hereditary spherocytosis	1
	Spherocytosis	2
	Beta Thalassemia trait	3
	Alpha Thalassemia trait	2
	G6PD deficiency	1
	Sickle cell trait	5
	Hypofibrinogenemia	2
	CML pre-pregnancy	1
	Hodgkins in pregnancy	1
Infection (excluding COVID-19)		**10**
	HIV	3
	Hepatitis B	7
	Hepatitis C	2
	Lyme disease pre-pregnancy	1
Drug dependency (no hepatitis C)		**16**
	Methadone in pregnancy	11
	Alcohol in pregnancy	2
	Cocaine in pregnancy	1
	Cannabis in pregnancy	2

Cardiac		47
	ASD repaired	1
	AVSD	1
	Mitral valve prolapse	2
	Pulmonary valve stenosis	2
	Aortic dilatation	3
	Coarctation of aorta (1 repaired)	2
	Aortic stent	1
	Tricuspid regurgitation	1
	Pulmonary valvuloplasty	1
	Sick sinus syndrome	1
	Brugada syndrome	1
	Long QT syndrome	9
	SVT	4
	Cardiac ablation	1
	Loop recorder for syncopal episodes	1
	Atrial fibrillation in pregnancy	2
	Atrial fibrillation pre pregnancy	2
	CPVT	1
	Wolf Parkinson White	2
	Cardiomyopathy HOCM	5
	Dilated cardiomyopathy	1
	Congenital Mobitz syndrome 11	1
	Pre pregnancy MI and cardiomyopathy	1
	POTS	1
Gastrointestinal Tract		**54**
	Ulcerative colitis	24
	Crohn's disease	15
	Bariatric surgery	10
	Hirschsprung's disease	1
	Bulimia	1
	Chronic Pancreatitis	2
Liver		**4**
	Autoimmune hepatitis and cirrhosis	1
	Alpha 1 anti trypsin deficiency	1
	Liver transplant	2
CNS		**80**
	Epilepsy	51
	Multiple sclerosis	22
	Idiopathic intracranial hypertension	2
	Cavernous sinus mass	1
	Spina bifida occulta	1
	Myasthenia Gravis	1
	Myoclonic dystonia	1
	Spinal ependymoma multiple tumours	1

Vascular		**22**
	Essential hypertension	13
	Prior brain haemorrhage	1
	Coiled cerebral aneurysm	1
	Cerebral AVM pre pregnancy	1
	CVA pre-pregnancy	4
	Demyelination affecting upper limbs	1
	IgA vasculitis	1
Connective tissue disorders		**55**
	Rheumatoid Arthritis	20
	SLE	10
	Sjögren's disease	6
	Juvenile inflammatory arthritis	3
	Ankylosing Spondylitis	2
	Psoriatic Arthritis	5
	Behçets disease	2
	Undifferentiated & mixed Connective Tissue Disease	3
	Systemic sclerosis	1
	Anti Ro antibody positive only	2
	Ehlers Danlos syndrome	1
Respiratory		**7**
	Cystic fibrosis	1
	Obstructive sleep apnoea	1
	Severe asthma	3
	Sarcoidosis	2
Renal		**11**
	Renal transplant	1
	Chronic kidney disease stage 2	5
	Chronic Pyelonephritis	1
	Persistent proteinuria new in pregnancy	1
	PUJ obstruction	1
	Adult polycystic kidneys	1
	Nephrostomy tube for hydronephrosis in pregnancy	1

Oncology		**6**
	Lip SCC in pregnancy	1
	Lung cancer pre pregnancy	1
	Breast cancer in pregnancy	3
	Melanoma in pregnancy	1
Miscellaneous		**16**
	Bipolar disorder	
	Broncho-oto-renal syndrome	
	Congenital adrenal insufficiency	
	Conns syndrome	
	Cutaneous sarcoid	
	Family history Malignant Hyperthermia	
	Hyponatraemia and seizure postpartum	
	Kippel Trenauney syndrome	
	Melnick Needles syndrome	
	Moya moya sundrome	
	Osteogenesis imperfecta	
	Otosclerosis with piston surgery	
	Spontaneous urticaria	
	Total hip replacement	
	Autoimmune thyroiditis	
Overall Total		**541**

Maternity Outpatient Clinic

Dr John Murphy, Consultant Obstetrician & Gynaecologist (retired) with his wife Anne and daughter, Annabel Murphy, CMM2 Holles Clinic.

Activity remains at a high level in both the public Holles Clinic and semi-private Fitzwilliam Maternity Clinic.

Holles Outpatient Clinic

There was a great deal of activity in the Holles Clinic this year with dedicated input from Midwifery, Obstetric and Administrative teams.

There were over 20,000 new and follow up attendances at the clinic with a building interest in our Midwifery clinic offering. Midwifery-led clinics accounted for 11% of the appointments which is excellent and representative of the combined effort of the obstetric team to support our Midwives and parents to access Midwifery-led care. To meet the demand, there is at least one Midwifery clinic running every day and one on a Wednesday evening to facilitate women with excellent feedback.

We introduced a formal dating scan for our Midwifery booking clinics in conjunction with our colleagues in the Fetal Medicine Unit last year and this year, we have been able to extend this service to our women attending evening booking clinics. We have also been able to successfully trial our dating scan for women booking into the Consultant clinics and look forward to rolling this out to all Consultant-led booking clinics in 2023.

We continue to aim to improve the patient experience and have spent great time focusing on our dedicated appointment times and referrals of suitable patients to the Satellite and Midwifery led clinics. Wait times and clinic experience remain at the forefront of our goals for the coming year and we have introduced some new initiatives to enhance same. We have just launched an official 'virtual' element to our booking visit to try to reduce wait times for women and provide the 'history taking' part of the visit through the telehealth medium. This has been led by Lisa Courtney with the administration team and is proving very successful with the women who have so far participated in the roll out. We are trialling a 'self-check-in' service for women attending some of our antenatal clinics and hope that following a successful trial, we will be able to bring this to all Holles Clinics.

Our successful Daisy Clinic continues to grow weekly having recently been taken over by Staff Midwife Anna Lyons who continues to build excellent relationships with our teen parents and help guide them through their pregnancy with the assistance of the Multidisciplinary team. This clinic is facilitated by

Dr Orla Sheil in partnership with the Dietetic, Medical Social Work and Education teams.

Our 'TLC Clinic' continues to provide an invaluable service to women who require extra support in their 1st Trimester following miscarriage. This clinic has matured since its inception and is led by CMM1 Valerie Seymour under the guidance of Prof. Cathy Allen and in partnership with the NMH Bereavement Team; this clinic has so far supported over 140 couples.

The postnatal 'Poppy Clinic' offers quality and continuity of care to patients who experience complications during the pregnancy and in the postnatal period. Up to 25 mothers are seen in the clinic each week. Referrals are from within the Hospital, GPs, PHNs and other maternity hospitals. This is run by Caroline Brophy, Advanced Midwife Practitioner and Dr Laoise O'Brien, Consultant Obstetrician and Gynaecologist and further information can be found in The Postnatal Poppy Clinic section.

As the medical complexity rates increase, the number of specialist clinics offered by the hospital continues to grow. Specialist clinics include maternal medicine, haematology, pre-term birth, endocrine, diabetes and the pain management clinic. Joint clinics between the Obstetric team and Consultants from St Vincent's University Hospital are offered including cardiology, neurology, rheumatology, respiratory, hepatology and gastroenterology. As part of the multidisciplinary care offered by the Hospital, social workers, dieticians, mental health staff and physiotherapists, work as part of the team offering care to the increasing number of mothers with complex medical, mental health and social issues. As part of the assisted care pathways, we have dedicated midwifery-led clinics offering patients midwifery-led care and support in conjunction with their medical teams. Clinical Midwife Specialist Celine O'Brien works alongside the Maternal Medicine obstetric team to offer patients access to midwifery-led care while also meeting their complex medical needs.

Annabel Murphy, Holles Outpatient Clinic CMM2.

Fitzwilliam Maternity Clinic

The Fitzwilliam Maternity Clinic (semi-private package) offers antenatal Consultant-led care. The clinic is located at the Merrion Square entrance of the Hospital. There were over 7,500 new and follow up attendances at the clinic during the year. There is an initial midwifery booking clinic with a first trimester ultrasound scan and the consultant clinics are held in the afternoons. The semi-private package is a combined care scheme where antenatal visits alternate between the patients GP and their clinic consultant. Women generally have six appointments with their Consultant or one of their team in the Fitzwilliam Maternity Clinic and four visits with their own GP. Patient satisfaction and understanding our patient's needs was our priority focus in 2022 and we are constantly looking at strategies to improve the patient journey. Particular emphasis has been placed this year on reducing wait times, improving our booking process and upgrading our clinic facilities.

Rosie Byrne, Fitzwilliam Maternity Clinic Manager.

Summary of Obstetric Clinic Attendances

	Consultant led clinics	Midwives Clinics	Pearse St Clinics	Specialist Clinics*	Fitzwilliam Clinics	Total
(New) First Visits	2,946	354	317	1,008	2,866	7,491
Follow Up Visits	11,690	1,148	0	3,197	5,713	21,748
Total Attendances	14,636	1,502	317	4,205	8,579	29,239

**Specialist Clinics: Diabetes (exc Virtual), Adolescent, Haematology, Postnatal Follow up, Pre-term birth, Endocrinology, Maternal Medicine. Does not include Community Midwifery, Nutrition, Satellite or Private Clinics.*

Multiple Pregnancy

Total Mothers Delivered	6815	
Total Babies Born	6948	
Type	**No. of Births**	**No. of Babies***
Twins	126	251
Triplets	4	12
Quads	0	0
Totals	**130**	**263**

**refers to all babies born ≥500g and/or 24 wks.*

	Spontaneous Labour	Induction of Labour	Elective Caesarean Section	Total
Dichorionic Diamniotic % Caesarean Section	16 9/16 (56.3%)	20 3/20 (15%)	58 58/58 (100%)	94 70/94 (74.5%)
Monochorionic Diamniotic % Caesarean Section	7 2/7 (28.6%)	1 1/1 (100%)	23 23/23 (100%)	31 26/31 (83.9%)
Monochorionic Monoamniotic *% Caesarean Section*	*0* *0/0 (0%)*	*0* *0/0 (0%)*	*1* *1/1 (100%)*	*1* *1/1 (100%)*
All Twins % Caesarean Section	23 11/23 (47.8%)	21 4/21 (19%)	82 82/82 (100%)	126 97/126 (77%)

Multiple Pregnancies per '00 Deliveries	1.91	*(n=130/6815)*

Perinatal Deaths	**Number**
Antepartum Deaths	0
Early Neonatal Deaths	2
Congenital Anomalies	2
Total	**4**

Delivery Method of Perinatal Deaths	**Number**
Caesarean Sections	3
Spontaneous Vaginal	1
Totals	**4**

Perinatal Deaths by Chorionicity*	Number	
Dichorionic Diamniotic	3	*(n=187)*
Perinatal mortality rate per '000 DCDA babies	16.0	
Monochorionic Diamniotic	1	*(n=62)*
Perinatal mortality rate per '000 MCDA babies	16.1	
Monochorionic Monoamniotic	0	*(n=2)*
Perinatal mortality rate per '000 MCMA babies	0.0	

**Babies born >=500g*

Corrected perinatal rate per '000 twin births	8	*(n=2/251)*
Nulliparous Deliveries	46	*(n=2911)*
Incidence per '00 nullip dels	1.6	
Perinatal Deaths	4	
Caesarean Sections	3	
Neonatal Encephalopathy/HIE	0	
Multiparous Deliveries	51	*(n=3904)*
Incidence per '00 multip dels	1.3	
Perinatal Deaths	0	
Caesarean Sections	0	
Neonatal Encephalopathy/HIE	0	

Prof Peter McParland (left), Consultant Obstetrician & Gynaecologist and Director of the Fetal Medicine Department who retired in 2022 with Dr Stephen Carroll, Consultant Obstetrician & Gynaecologist.

Perinatal Mortality: Early Neonatal Deaths (2)

Case	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
1	25+3	700	Female	C-Section	1, 2, 3	1	NICU	No	No	Chorio-amnionitis	Pulmonary hypoplasia, PPROM from 18 weeks, severe metabolic acidosis, extremely preterm twin.	No
2	27+3	930	Male	Sponta-neous breech with MSV	3, 4, 6	1	NICU	No	No	MCDA	Pulmonary hypoplasia, oligohydramnios, prematu-rity, MCDA twins with TTTS.	No

Perinatal Mortality: Congenital Anomalies – Livebirths (2)

Case	EGA	BW (gms)	Gender	Delivery method	Apgars (1, 5, 10 mins)	Age at death (days)	Place of death	External Referral	IUGR	Placental Histology	Cause of death	PM
3	27+3	860	Male	C-Section	6, 4	1	DR Death	Yes	No	DCDA. Low grade FVM.	Genetic syndrome iden-tified.	No
4	27+3	1240	Male	C-Section	3, 5, 6	7	NICU	Yes	No	DCDA.	Pulmonary hypoplasia, pulmonary hypertension, urinary tract anomaly; bilat-eral hydroureteronephro-sis, prematurity, VLBW .	No

Comment: Both neonatal deaths were associated with prematurity. In the case (1) PPROM occurred at 19 weeks' gestation following delivery at 25 weeks gestation. In the second case (2) spontaneous preterm labour occurred at 27 weeks' gestation.

5 Year Table: TWINS	2018	2019	2020	2021	2022
Number of Cases	150	125	134	149	126
Twin Babies	300	246	266	298	251
Incidence per '00 deliveries	1.9	1.6	1.9	2.2	1.9
Perinatal Deaths	8	7	5	11	4
Perinatal rate per '000 twin babies	26.7	28.5	18.8	36.9	8
Caesarean Section	119	80	100	100	97
Caesarean Section Rate	79%	64%	75%	67%	77%

Dr Stephen Carroll, Consultant Obstetrician & Gynaecologist.

Perineal Clinic

The Perineal Clinic continues to provide a valuable service to patients and clinicians. Its remit is the assessment of women with pelvic floor injury post-delivery and in particular, the assessment of women who have had an anal sphincter tear [OASIS]. It is held every Wednesday morning in the Gynaecology Clinic and once a month, a complex pelvic floor clinic is held in St Michaels Hospital, along with Ms Ann Hanly, Consultant Colorectal Surgeon and Dr Gerry Agnew, Consultant Urogynaecologist. Dr Conor O'Brien provides an extremely valuable service to us in assessing patients with suspected pudendal neuropathy and his neurophysiology assessments provide clarity in terms of management options.

The majority of our patients are postnatal and will have been previously assessed in the Postnatal 'Poppy' Clinic at 6 weeks postnatal, if they have delivered in the NMH. We also see these patients at 6 months postnatal. This length of time after delivery is optimal as transient, common symptoms will have disappeared and healing of the sphincter will be complete. Persistence of symptoms at this stage and a weak sphincter necessitate further intervention, which will always include physiotherapy. The importance of the physiotherapy services in managing these women cannot be overstated.

In 2022 we resumed the practice of seeing antenatal patients with a previous OASIS injury. This visit allows for re-assessment and counselling regarding subsequent mode of delivery. We had stalled this practice for a number of years but in keeping with UK units we have re-instated it and we feel it provides a valuable service for both patients and clinical staff alike.

Patients undergo a comprehensive assessment of pelvic floor function with a focus on bowel control and anal sphincter function. All patients undergo endoanal ultrasound, which is the gold standard in terms of imaging for anal sphincter tears. We remain the primary tertiary referral centre for such assessment although there are other similar clinics in Cork, Galway and Rotunda. We are the only dedicated Perineal Clinic offering a comprehensive assessment which includes imaging of the sphincter and for this reason almost half of our referrals are from external sources.

As we would hope, there has been a significant improvement in the outcome for patients following an OASIS injury over the past 5 to 10 years. This is undoubtedly to do with the OASIS training which is now mandatory for all Obstetric and Gynaecology trainees. Physical outcomes are significantly better and the findings on endoanal ultrasound are improved.

The Maternal Newborn Clinical Management System, MN-CMS, presents some challenges regarding documentation of the grade of tear. In view of the litigious nature of this area of obstetrics, we strongly advocate thorough documentation of all aspects of delivery and in particular the performance pre and post repair of a rectal examination.

Education of staff remains vitally important regarding the recognition of such tears and we continue to provide exposure and training both within the clinic setting and also in academic arenas. Education, however, does require extension to the women attending for antenatal care and ultimately delivery. The concept that everything will be exactly the same after delivery is, if anything, gaining traction. We spend a considerable amount of our time in the clinic educating women about the normality of their clinical findings and discussing how childbirth will inevitably have some impact on both vaginal and pelvic floor function. For many of our patients this is new news. To lay this deficit at the feet of midwives and obstetricians is unfair as it is reflective of a wider societal perception of entitled perfection. Nonetheless we are beholden to present a realistic view of childbirth and if we don't, when expectations fall short, it will certainly land at our door. Antenatal education is key, along with improved skills for doctors and midwives alike in explaining events surrounding delivery. Poor communication is often at the heart of grievances and while it may seem easier in the short run to avoid confrontation, it rarely works out well in the long run. Being open and honest with women is vital and the area of OASIS injury is one area that necessitates it.

Dr Myra Fitzpatrick, Consultant Obstetrician & Gynaecologist.
Linda Kelly, AMP Women's Health & Urodynamics.

	2017	2018	2019	2020	2021	2022
Appointments offered	440	391	375	310	300	330
Attendances	343	301	282	241	256	235
New referrals	238(69%)	213 (71%)	198 (70%)	175 (73%)	175 (68%)	187(67%)
Follow-ups	105(31%)	88 (29%)	84 (30%)	66 (27%)	81 (32%)	74(31%)
Did Not Attend	97(28%)	90 (23%)	93 (25%)	69 (22%)	44 (15%)	67(28%)

Placenta Accreta Spectrum

Placenta Accreta Spectrum (PAS) refers to a range of clinical conditions characterised by abnormal placental adherence to the uterine wall. The incidence of PAS has increased substantially from 0.8 per 1,000 deliveries in the 1980s to 3 per 1,000 deliveries in the past decade, largely attributed to a rising global caesarean section rate.[2] The condition is associated with significant maternal morbidity.

The PAS multidisciplinary team (MDT) service was established in The National Maternity Hospital in June 2017. This service provides care to patients of NMH and Rotunda and also accepts external referrals nationwide. To date, over 60 women with PAS have been cared for by the MDT.

"The Ladies Springtime Lunch in aid of Placenta Accreta Ireland took place in March 2022 and a wonderful day out was had by all attendees!"

On average 4 cases are discussed at each MDT (range 2-8). In 2022, 9 women with PAS were cared for by the PAS MDT. This included 8 caesarean hysterectomies and 1 uterine conservation procedures. Of these, 44% (n = 4) were external referrals. Table 1 provides a summary of these 9 cases managed within the MDT in 2022. The median inter quartile range (IQR) gestation at delivery was 34+2 weeks (32+1 – 35+0). Most women had an elective delivery (N = 7, 77.8%). The median (IQR) estimated blood loss (EBL) was 1675mls (725–6650mls). Less than half of women required a blood transfusion (N=4, 44%).

All women were offered input from allied healthcare professionals including social work, perinatal mental health, physiotherapy, and lactation support as well as information about the Placenta Accreta Ireland Support Group.

Table 1. Overview of PAS procedures

Case	Age	Parity	Place of Delivery	Elective/ Emergency	Gestation	Procedure +/- IR	Anesthesia	Estimated Blood loss (ml)
1	49	2	NMH	Elective	35+1	Caesarean hysterectomy	GA	500
2	35	3	NMH	Elective	34+2	Caesarean hysterectomy + Aortic balloon	GA	1675
3	37	2	NMH	Emergency	22+1	Caesarean hysterectomy	GA	11000
4	38	3	MMUH	Elective	32+2	Caesarean hysterectomy + Aortic balloon	GA	950
5	35	3	MMUH	Elective	34+0	Caesarean hysterectomy + Aortic balloon	GA	1000
6	30	1	MMUH	Elective	33+6	Caesarean hysterectomy + Aortic balloon	GA	500
7	39	2	Rotunda	Elective	35+3	Caesarean hysterectomy	Regional/GA	11000
8	30	2	Rotunda	Emergency	32+1	Caesarean hysterectomy	Regional/GA	2300
9	41	0	Rotunda	Elective	38+5	Caesarean section	Regional/GA	2000

Caesarean Scar Pregnancy

Caesarean scar pregnancy (CSP) is a precursor to severe PAS and both conditions exist as part of a common disease spectrum. The true incidence of CSP is unknown with reported rates in literature varying from 1:800 to 1:2656. Although relatively uncommon its incidence is increasing in line with increasing caesarean section rates.

In 2022, three women with CSP were managed within the PAS MDT. One case was undiagnosed and presented with a uterine rupture at 15 weeks' gestation. The remaining two cases were diagnosed under 8 weeks gestation and there was no fetal heart present. One case was managed medically, and the other with suction curettage. The case managed medically was cared for by her local team and is not included below.

Table 2: Caesarean Scar Pregnancy Overview

	Place of care	Age	Parity	Risk factors	Gestation	Management	EBL ml	Outcome
1	SVUH	35	1+0	1x LSCS	15+2	Presented with uterine rupture at 15+2 weeks gestation Midline laparotomy, uterine conservation	5400	MRI at 6 months showed no residual defect. Followed up in PAS postnatal clinic.
2	Rotunda	37	4+0	4x LSCS	8+0	ERPC under ultrasound guidance	400	Uncomplicated antenatal course Ultrasound at 4 months after ERPC – no haematoma

Prof Donal Brennan, Consultant Obstetrician & Gynaecologist.

Postnatal Poppy Clinic

The Postnatal Maternal Morbidity Clinic (The Poppy Clinic) is led by Consultant Obstetrician Dr. Laoise O'Brien and Advanced Midwife Practitioner (AMP) Ms. Caroline Brophy

The Poppy Clinic is a model of care unique to The National Maternity Hospital and was established in 2014. The clinic provides a service that bridges the gap in postnatal follow up for women who experience morbidity during the antenatal, intrapartum or postnatal periods. Nearly 800 new mothers attended the service last year with a DNA rate reduced to 8.1%. The service offers 3 clinics per week – a Consultant-led Clinic on Friday and AMP Clinic on Tuesday and Thursday.

The service continues to evolve with the introduction of new sub clinics during the year:
Postnatal Anemia Surveillance Clinic (Hb < 8 g/dl): Postnatal mothers who are discharge from hospital with a HB <8 g/dl return at 2 weeks postnatal for repeat Hb and assessment of wellness & recovery. Over 50 women attended in last year

Away from Home: mothers who are outside the greater Dublin area who have delivered at the NMH. These neonates are in NMH NICU or a Children's Hospital – TSH, OLHSC with Mothers staying in hospital accommodation. They have limited or no access to their Public Health Nurse or GP. Thirty five mothers attended in 2022.

The Postnatal Clinic and ward rounds are run with advice and guidance from Dr Susan Knowles, Consultant Microbiologist.

All referrals are triaged by a Consultant or Advanced Midwife Practitioner and timely appointments are arranged for the appropriate clinic.

Beibhinn Grace.

Referral Source

NMH:
- Midwives (Midwives, CMMs, CMWs CMSs, AMPs)
- Obstetricians (SHOs to Consultants),
- MDT – Social work, Perinatal Mental Health, Physio

Community:
- PHN
- GPs
- Community physios

External Hospital: The Poppy clinic accepts referrals from all hospital within the Ireland East Hospital group. Reason for referral are -protracted perineal pain, hyper granulation tissue

Self-referral: as the clinic is becoming more visible women are self-referring to the clinic

The service has a close working relationship with members of the hospitals multidisciplinary teams and external support services
- Perinatal Mental Health
- Consultant Microbiologist
- Social Work
- Physiotherapy
- Perineal Clinic
- Urogynacology Service
- General Gynae,
- Anaesthetics
- Psychosexual Counsellor

External: Public Health Nurses, Wound Clinic St Michaels Hospital, Radiology at St Vincent's Private Hospital & Colorectal Surgeon at St Michaels.

Education & Research

The Poppy Clinic is a dynamic model of Outpatient Postnatal Care unique to the National Maternity Hospital, providing holistic and time-sensitive care to women.

Education is a priority of the Poppy Service providing Healthcare professionals with the awareness and tools to offer timely and relevant care to this vulnerable group of new mothers.

Research and audit continue as the service evolves: imminent studies include Hidden Hemorrhages, an audit the Poppy's Postnatal Anemia Surveillance Clinic and review of the Away From Home Clinic.

Referral Criteria

	Attended	Did Not Attend	DNA rate
2013	122	30	19.7%
2014	425	106	20.0%
2015	411	96	18.9%
2016	505	107	17.5%
2017	544	171	23.4%
2018	621	148	19.2%
2019	667	125	15.8%
2020*	720	89	11.6%
2021	856	116	11.9%
2022	786	69	8.1%

Clinic Activity

Indication	Appointment
PPH > 1.5 L	6 weeks
Hb < 8.gldl	2 weeks
OASIS (3rd & 4th degree tears)	6 weeks
Perineal Wound	As required
Protracted Perineal Pain	Up to 6 months
Dyspareunia	Up to 6 months postnatal
Previous Perineal Trauma	During current pregnancy +/- 6 weeks postnatal
Caesarean Section Wounds	As required
Obstetric Complication – severe PET, Hypertension	As required
Placenta Pathology	As required
Other PN Concerns	Referral reviewed
Away from Home	Within 2 weeks
Debriefing – focused, morbidity related: LSCS under GA	6 weeks to 1yr
Postnatal Readmission	Seen as outpatient and followed up in clinic
Postnatal Ward Rounds	Weekly on Friday, daily review as required

Caroline Brophy, Postnatal Maternal Morbidity AMP.


James Hamilton.

Preterm Birth Clinic

The Preterm Birth Clinic provides dedicated & multidisciplinary antenatal care to women at increased risk of spontaneous preterm birth.

We have expanded our role in preconceptual counselling & bereavement support for women and families affected by spontaneous preterm birth and mid-trimester loss.

Obstetric Outcomes

In 2022, 178 women delivered that had their antenatal care the Preterm Birth Clinic. 174 delivered a liveborn infant at The National Maternity Hospital. 3 woman had a mid-trimester loss <23+0 wks.

27 women delivered in 2022 having had a McDonald or Shirodkar cerclage placed during her pregnancy. Eight women were delivered in 2022 that had an abdominal cerclage in place. A further 8 women had a laparoscopic transbdominal cerclage sited in 2022.

Dr Siobhan Corcoran, Consultant Obstetrician & Gynaecologist.

Obstetric Outcomes

Total	178
Livebirths >23+0 wks gestational age	174
Stillbirth > 23+0 wks gestational age	1
Midtrimester Losses 14-23+0 wks	3
Gestational Age at Delivery of Livebirths - Range	28+3 – 41+5 wks
Nullip	46/178
Multip	132/178
CS rate	67/175
Operative Vaginal Delivery	16/175 (9.1%)
Spontaneous Vaginal Delivery	90/175 (4.6%)
Livebirths Delivery <34 weeks	8/175 (4.6%)
Livebirths Delivery 34+1-36+6 wks	17/175 (9.7%)
Livebirths Delivery 37+0-42/40 wks	149/175 (85.1%)

McDonald/Shirodkar Cerclage	27
• Mid trimester losses in this group	2
• Livebirths in this group	25
• Range of GA of Livebirths in this group	28+3 – 41+3 wks
Abdominal Cerclage	**8**
• Mid trimester losses in this group	0
• Livebirths in this group	8
• Range of GA of Livebirths in this group	37+2 – 38+4 wks
Arabin pessary	**4**
• Midtrimester losses in this group	0
• Livebirths in this group	4
• Range of GA of Livebirths in this group	36+4 – 40+2 wks

Shoulder Dystocia

Definition: Shoulder dystocia is diagnosed at vaginal delivery when the anterior shoulder fails to deliver on the first attempt with routine axial traction. Included also are the deliveries that proceed to either internal manoeuvres or delivery of the posterior arm without an attempt at routine axial traction

	Nullips	Multips	Total
No of Shoulder Dystocia Cases	**19**	**19**	**38**
Incidence in Spontaneous and Operative vaginal deliveries	*19/1813* 1.0%	*19/2661* 0.7%	*38/4474* 0.8%
Spontaneous labour	10	8	18
Induction of labour	9	11	20
Spontaneous vaginal delivery	7	14	21
Operative vaginal delivery	12	5	17
Birthweight ≥ 4Kg	7	10	17

Single Cephalic Vaginal Deliveries Birthweight ≥4Kg	Nullips	Multips	Total
Spontaneous Vaginal	113	437	550
Operative Vaginal	96	22	118
C-Section	149	200	349
	358	659	1017
Incidence in Single Cephalic Vaginal Deliveries Birthweight ≥4Kg	7/209 3.3%	10/459 2.2%	17/668 2.5%

Procedures to Assist Delivery of Shoulders	Nullips	Multips	Total
McRoberts	0	5	5
Suprapubic Pressure	0	4	4
McRoberts & Suprapubic Pressure	10	5	15
McRoberts & Suprapubic Pressure & Internal Rotation	2	0	2
McRoberts & Suprapubic Pressure & Delivery of Posterior Arm	3	4	7
McRoberts & Suprapubic Pressure & Internal Rotation & Delivery of Posterior Arm	1	0	1
McRoberts & Internal Rotation	0	0	0
McRoberts & Posterior Arm	2	1	3
McRoberts & Internal Rotation & Delivery of Posterior Arm	1	0	1
Internal Manoeuvre Only	0	0	0
Total	**19**	**19**	**38**

Position of Head at Delivery	Nullips	Multips	Total
ROT	5	8	13
LOT	13	11	24
Not recorded	1	0	1
Total	19	19	**38**

Maternal Complications	Nullips	Multips	Total
PPH ≥ 1000ml	6	3	9
Third or fourth degree tear	0	0	0

Neonate Complications	Nullips	Multips	Total
Apgars ≤ 7 @ 5 mins	6	2	8
Encephalopathy	1	0	1
Brachial Plexus Injury	6	2	8
Fracture	2	1	3

Comment:
The incidence of shoulder dystocia overall is 0.8% (1.0% in nulliparous women and 0.7% in multiparous women).

The incidence of shoulder dystocia in babies delivered vaginally weighing ≥ 4.0kg is 2.5% (3.3% in nulliparous women and 2.2% in multiparous women).

BPI	Nullips	Multips	Total
No. of Cases	**10**	**4**	**14**
Associated Shoulder Dystocia	6	2	8
Incidence Per overall deliveries	10/2910 0.3%	4/3905 0.1%	14/6815 0.2%
Spontaneous labour	6	1	7
Induction of labour	4	3	7
Spontaneous vaginal delivery	6	3	9
Operative vaginal delivery	4	0	4
C-Section (post-instrumental)	0	1	1
Birthweight >= 4Kg	4	2	6
Incidence in Spontaneous and Operative vaginal deliveries	10/1813 0.6%	3*/2661 0.1%	13*/4474 0.3%
Incidence in Single Cephalic Vaginal Deliveries Birthweight >= 4Kg	**4/209 1.9%**	**2/459 0.4%**	**6/668 0.9%**

**incidence does not include 1 BPI case that was a C-Section.*

Comment:
Brachial plexus injuries (BPI) are reported as any case identified prior to discharge. Reporting systems for the presence of BPIs at or after 6 months are not always easy to identify and therefore verify the continual presence of a BPI. The reporting of BPIs should be standardised as most of them resolve. Of the BPIs recorded in 2022 all but 3 had resolved by 6 months (one other infant continues to improve but is not yet 6 months of age).

I would like to thank Kim Ryan, CMM2 MNCMS, Cillian Power, Data Analyst, Judith Nalty, Physiotherapy Manager and Dr Anne Twomey, QRPS Director, for their help with this section.

Dr Michael Robson, Consultant Obstetrician & Gynaecologist.

Smoking Cessation Service

The Smoking Cessation Service began in 2020 when the HSE Tobacco Free Ireland Programme and the National Women and Infants Health Programme received funding from Sláintecare Integration Funding for a one year pilot to deliver *Smoke Free Start*: a dedicated onsite stop smoking service for pregnant and postnatal women. Due to the success of the project, the service was made permanent and is now in its 3rd year supporting women to cease smoking. The service was also extended to include all women attending gynaecology services and women with babies in the Neonatal Intensive Care Unit. Education is an important element of the role and this includes supporting student midwife education in collaboration with UCD.

Smoking is the most important preventable cause of adverse pregnancy, fetal and neonatal outcomes. For women who smoke, who are pregnant (or planning to become pregnant) and following childbirth, stopping smoking is the single most important thing they can do to protect their health and the health of their baby and families.[1]

Quitting smoking is difficult for everybody, and unfortunately, it is no easier for women trying to quit during pregnancy. The Smoking Cessation Midwife works collaboratively with women in developing and implementing a plan to quit smoking. Providing evidence-based support and nicotine replacement therapy increases the chance of successfully quitting by 4 times.

The service aims to effectively support smoking cessation and improve pregnancy and birth outcomes, physical and psychological health and quality of life for women and their families and reduce health inequalities.

National Clinical Guidelines

On the 19th January 2022 the Department of Health launched new National Clinical Guidelines to Help People Stop Smoking. Importantly, pregnant women were identified as a priority group. These new guidelines describe an improved model of stop smoking care for women who are pregnant, which reflects the best available current evidence and for the first time recommends safe, effective behavioural and pharmacological supports that can be offered to women who want to quit smoking when pregnant.

Breath Carbon Monoxide Testing

In line with these guidelines, Breath Carbon Monoxide (BCO) testing has been introduced at booking visits for all women in the maternity clinics with an implementation plan to introduce BCO testing across all areas in 2023.

Thanks to the hard work and dedication of the management and staff in the maternity outpatient clinics, the BCO testing has been effectively implemented and been well received by women attending the departments.

There has been a 25% increase in referrals to the service since the introduction of BCO testing. This ensures that women who smoke are being offered and referred to the appropriate services.

Staff Smoking Cessation Initiative

On the 6th of December the Smoking Cessation Service, supported by the Occupational Health Department, held a successful staff health promotion initiative to support staff to stop smoking. 180 staff completed the Smoking Cessation Service Quiz and over 100 people had their Breath Carbon Monoxide levels checked. 20 staff referrals were sent to the community HSE Quit supports.

Orla Bowe, Smoking Cessation CMM2.

1. Chamberlain, C., *et al.* (2017) 'Psychosocial interventions for supporting women to stop smoking in pregnancy', *Cochrane Database of Systematic Reviews,* 2017(2), pp. 1-55.

Orla Bowe, Smoking Cessation CMM2.

Termination of Pregnancy

The National Maternity Hospital was one of the first units nationally to provide termination of pregnancy (TOP) after expansion of the service in 2019. The hospital provides care under each of the four legal provisions for TOP care (<12 weeks, Maternal, Maternal Emergency and Fetal). Options for surgical and medical TOP care are given to all women <12 weeks gestational age and, gestation dependent, to those with maternal or fetal issues.

The majority of people attending for TOP care remain those less than 12 week's gestation (71%), followed by fetal indication (25%) and maternal (4%). These rates have remained consistent over the four years that expanded TOP care has been provided in the hospital

Over half (56%, mostly <12 weeks) underwent a surgical TOP and the remainder (43%, including the majority of Section 9 and 10 indications) were medical. For both, extensive multidisciplinary input is required to provide safe, respectful, compassionate care to the women and their families. Teams involved include Obstetrics, Maternal Fetal Medicine, Midwifery, Nursing, Anaesthesiology, Bereavement, Chaplaincy and Perinatal Mental Health (Psychology and Psychiatry).

First trimester service: <12 weeks gestation

In 2022, as per previous years, most women had only one visit to clinic. Of these, some women chose to continue in their pregnancy following attendance in the clinic, often requiring many hours of discussion with clinic staff members. Some women attended who, on examination and ultrasound investigation, were over 12 week's gestation and unable to avail of a TOP under Section 12 of the Act.

Women under the age of legal consent are also seen by the Medical Social Work Team; mandatory referrals are made to Tusla. Some women have also required the input of the Sexual Assault Unit, the Gardai (if allegations of assault), or the Genito-urinary medicine teams (if positive for sexually transmitted infections).

Women attending for first trimester TOP are given the option between medical (MTOP) and surgical (STOP) based on woman's preference and medical need. For MTOP, women are admitted directly to a single room on the Gynaecology ward. Over half will complete the TOP within six hours and the remainder require an overnight stay to complete. For STOP, women are also admitted directly to a single room in the Gynaecology ward. Most are discharged post procedure within six hours of admission.

Many (over half of the clinic attenders) attended the clinic following 'unsuccessful' community TOP – that is, that they had a persistent positive pregnancy test after the community TOP. Many of these women had a positive pregnancy test due to retained products of conception and underwent an ERPC. A small minority had an ongoing pregnancy and attended the clinic for consideration of repeat TOP (usually choosing surgical).

TOP for Maternal Medical Conditions

Four women underwent TOP due to a maternal medical condition that met the criteria for the Act. Most were seen either in the Maternal Medicine or TOP clinic, and all were seen by consultants in Maternal Fetal Medicine. Planning for TOP for these reasons involves the input of multiple specialities to provide safe and respectful care. We continue to be grateful to our General Medical and Speciality colleagues in St Vincent's University College for their input into the care of this complex group.

TOP for fetal abnormalities

Thirty six women underwent TOP in NMH in 2022 where Section 11 criteria were met. Please see the Fetal Medicine chapter for further details.

Ongoing research

Mr Brendan Dempsey, working with us in the National Maternity Hospital/UCD Perinatal Centre, submitted and successfully defended this PhD thesis exploring the experience of healthcare providers following the expansion of the termination of pregnancy care. Brendan has published the following papers in 2022, with more to follow as he completes this research project.

Prof Mary Higgins, Consultant Obstetrician & Gynaecologist.

Ultrasound and Fetal Medicine

Valerie Spillane, CMM3 Antenatal Outpatient & Ultrasound Services, with Valerie Small in the Fetal Medicine Department.

The National Maternity Hospital Fetal Medicine Department provides a comprehensive service for early pregnancy assessment, ultrasound scans throughout pregnancy, Fetal Medicine Consultations and gynaecological ultrasound.

In 2022 the Fetal Assessment Unit workload remained extremely busy with a total of 33,181 (35,111 in 2021) official NMH pregnancy ultrasound scans performed and recorded on the Viewpoint System. Included in the above are 1,904 gynaecology scans (10% increase on 2021); this does not include the additional gynaecology scans performed by the Consultant Radiology service in the Department. There is a daily early pregnancy assessment service and all antenatal patients are offered an anatomy scan at 20-21 weeks with a detailed patient information leaflet. In addition to performing scans, fetal assessment staff provide a number of additional services for our patients, including CTG monitoring, phlebotomy, preparation, attendance and assistance at invasive procedures, patient counselling, departmental audits, clinical guideline development, bereavement counselling and liaising with ancillary services.

The Fetal Medicine Department provides a referral service for fetal medicine opinions and we are delighted to receive referrals from every obstetric department in the country. The service is provided by 7 sub-specialists in Maternal and Fetal Medicine and 3 Clinical Midwife Specialists in Fetal Medicine. There are 9 dedicated Fetal Medicine sessions attended by a fetal medicine specialist weekly; as a result, patients can be seen within 1-2 working days of referral as required.

Fetal Medicine Services available include:

- Early Pregnancy Assessment
- Prenatal diagnosis including Amniocentesis, Chorion Villus Sampling, Cordocentesis
- Fetal echocardiography
- Paediatric Cardiology (Prof Colin McMahon and Cecelia Mulcahy CMS)

- Fetal MRI (Prof Gabrielle Colleran, Dr Ian Robinson and Dr Niamh Adams)
- Fetal Neurosurgery Service (Mr John Caird, Mr Darach Cummins and Ms Tafadzwa Mandiwanza)
- Antenatal Neonatology Consultations
- Perinatal Genetic and Genomics Service (Dr Samantha Doyle)
- Fetal Therapy: Chest shunts / Fetal blood transfusion
- Rhesus Disease Management
- Management of Complicated Multiple pregnancy, including Laser ablation for TTTS
- Placental insufficiency assessment
- Fetal Medicine therapy for psychological support (Dr Clare Flahavan)
- Assessment of Placenta Accreta spectrum

Prenatal Screening/Diagnosis

The demand for prenatal diagnosis and screening, and in particular non-invasive prenatal screening (NIPT/Harmony) continued to increase with a total of 2246 NIPT screens performed in 2022. Table 1 and Figure 1 at the end of this chapter outline these trends over the last ten years.

It is interesting to note that 48% (Figure 2) of the hospital population were 35 years of age or more (compared with nearly 34% 10 years ago) and 11.8% of those were aged 40 or more – exactly double of what it was 10 years ago in 2013. 35% of all nulliparous deliveries were aged 35 or older. There continues to be no formal local or national policy on which patients should be offered prenatal screening tests. The adoption and implementation of a nationally agreed equitable prenatal screening/diagnosis programme is needed; the responsibility for funding and implementation for this lies with the HSE/NWHIP.

Non-Invasive Prenatal Testing (NIPT)

NIPT (Harmony) was introduced in June 2013 and the numbers of patients availing of this test has rapidly increased with this trend highly likely to continue as the test becomes more affordable. Currently this test is not state or hospital funded and is unlikely to be in the near future. There was a falloff in first trimester screening numbers reflecting the superiority of NIPT as a screening test. A total of 2246 NIPTs were performed with 15 screen positive results for aneuploidy (T21, 8; T18, 7; T13, 0;). Figure 3 outlines the trends of numbers attending for NIPT at the end of this chapter.

The number of prenatal diagnostic procedures carried out was 147, with 54 CVS's and 93 amniocentesis performed.

The majority of prenatal diagnostic testing was carried out when there was an ultrasound suspicion of an abnormality. Table 2 outlines the indications for amniocentesis/CVS over the past ten years and Table 3 outlines the various abnormalities detected by these procedures. In total 76 out of 147 (52%) of those undergoing diagnostic yielded abnormal results.

Table 4 outlines the ultrasound anomalies diagnosed using the RCOG/RCR classification for the last 10 years. There were a total of 322 abnormalities detected by ultrasound. In addition, there were 76 anomalies diagnosed on prenatal testing giving a total of 398 congenital abnormalities for the year. The majority of diagnoses within the hospital population are made by midwife sonographers/radiographers and are usually seen within 24 hrs by a fetal medicine consultant where appropriate. We continue to see an increase in the number of external referrals and if these are deemed urgent they can usually be seen within 24 – 48 hours. There is a daily high risk clinic which is staffed by a consultant in which these patients can be seen. Where appropriate genetic testing, surgical, neonatal and genetic counselling is arranged pre-delivery and the patient usually attends the fetal medicine unit for the remainder of the pregnancy.

The weekly perinatal meeting continues to be an excellent forum for multi-disciplinary discussion of these complex cases. These meetings are attended by obstetricians, maternal fetal medicine specialists, neonatologists, a geneticist, paediatric radiologists, pathologists and a microbiologist, midwifery and nursing staff, laboratory staff, social workers and medical students. We also provide a fetal cardiology clinic in conjunction with Professor Colin McMahon, Paediatric Cardiologist. In addition to these specialist clinics there are daily neonatal consultant-led clinics where couples with complex cases meet with the neonatologist and discuss the ongoing management and anticipated care following birth.

Termination of Pregnancy from Fatal Fetal Abnormalities/Life Limiting Conditions (FFA/LLC)

2022 was the fourth year since the Health (Regulation of Termination of Pregnancy) Act 2018 was passed into law and permitted access to abortion in Ireland. There were 36 patients seen at The National Maternity

"This approach to a complex but relatively rare fetal problem is an excellent example of a joint collaborative management strategy that successfully optimises care for these patients."

Hospital who met the criteria for FFA/LLC under Section 11 of the Act and underwent termination of pregnancy. The NMH terminations take place in a private room in the middle of a busy ward which is suboptimal and does not give appropriate privacy.

Whilst the absolute numbers are not large, the time and workload that each of these sensitive cases entails is considerable. There are often multiple visits involving screening, ultrasound diagnosis, discussion of diagnostic procedures, interpreting results, genetic or other specialist consultation, informing patient of results, neonatal input and consideration of options before further visits and their admission. Information is given in a clear balanced manner about their options and that they will be fully supported in whatever path they choose. Not all couples with FFA/LLC choose termination of pregnancy and these couples are followed up in the Fetal Medicine Unit with a care pathway outlined for the remainder of the pregnancy and delivery with appropriate psychological, bereavement and chaplaincy support. At all times we endeavour to keep general practitioners and referring clinicians informed. We are indebted to Barbara Cathcart and Heather Hughes, who largely coordinate all of the above in a very calm, sensitive and efficient manner. Dr Claire Flahavan, Perinatal Therapist, continues to offer a much needed and valuable support service for couples who find themselves in these very distressing situations with excellent patient feedback.

Fetal Cardiology Programme

(Dr Siobhan Corcoran)

The Fetal Cardiology Service is staffed by Professor Colin McMahon and Ms Cecelia Mulcahy. A table representing the types, referral source and genetic indication is at the end of this section.

Dublin Fetal Therapy Group

(Prof Fionnuala McAuliffe and Dr Stephen Carroll)

Since 2010, the fetal therapy teams at the National Maternity Hospital, Dublin, and the Rotunda Hospital Dublin have collaborated jointly for the management of all cases of twin-to-twin transfusion syndrome referred to either centre. This has resulted in a single team approach to all such cases, regardless of which of the two hospital locations at which such patients are seen. During 2022, a total of 14 cases of severe twin-to-twin transfusion syndrome were managed by the Dublin Fetal Therapy Group by means of fetoscopic laser ablation of placental vessels. Amongst these 14 pregnancies, 8 resulted in survival of both fetuses, and one resulted in survival of one fetus, overall 19/28 babies (67%) survived. By the end of 2022, the group had treated 290 fetuses with laser surgery for severe TTTS, with at least one survivor occurring in 78% of cases (226/290). These results are consistent with the results at the major international centres providing this advanced fetal therapy. This approach to a complex but relatively rare fetal problem is an excellent example of a joint collaborative management strategy that successfully optimises care for these patients. The results from our national fetal therapy programme were published during 2022.

Ryan GA, Finnegan C, McAuliffe FM, Malone FD, Müllers SM, Corcoran S, Mulcahy C, Dalrymple J, Donnelly J, Walsh J, McParland P, Martin A, Carroll S, Kent E Fetoscopic Laser Ablation for Twin-to-Twin Transfusion Syndrome: A 15-year Review of Perinatal Survival. Ir Med J. 2022 May 25;115(5):595.

National Fetal Neurosurgery Programme

(Prof Fionnuala McAuliffe, Dr Clare O'Connor)

There are weekly fetal neurosurgical clinics with Mr. Darach Crimmins, Mr John Caird, Ms Tafadzwa Mandiwanza, the Neurosurgery specialist nurses from Children's University Hospital, Temple St and Heather Hughes and Barbra Cathcart fetal medicine midwives. Cases are presented to a multidisciplinary team at our weekly perinatal meeting, with ultrasound and fetal MRI images presented and discussed. Following MDT the patients are seen and jointly counselled by the neurosurgery and fetal medicine teams. Women with pregnancies with fetal spina bifida are offered referral

to Leuven Belgium to explore the option of fetal NTD repair, where appropriate.

Mr Crimmins, Mr Caird and Ms Tafadzwa request that all fetal cases in Ireland being referred to Leuven, Belgium for consideration for fetal spina bifida repair be referred to this clinic to facilitate the postnatal care.

Dr Gabrielle Colleran, Dr Niamh Adams and Dr Ian Robinson review the fetal MRI images and provide an excellent service.

In 2022 34 individual cases were seen and assessed at the clinic, though a number of other cases were discussed at the fetal neurosurgery multidisciplinary rounds, without the patient being seen in clinic.

Details of cases seen in the joint clinic with one diagnosis per patient are: sixteen fetal spina bifida (two underwent fetal repair in Leuven, Belgium), four occipital encephalocele, eleven ventriculomegaly, one case with arachnoid cyst, one posterior fossa cyst and one dandy walker spectrum.

This service is coordinated by Heather Hughes and Barbra Cathcart. The programme receives referrals from all over Ireland and is the only clinic of its kind in Ireland.

Ryan GA, Start AO, Cathcart B, Hughes H, Denona B, Higgins S, Corcoran S, Walsh J, Carroll S, Mahony R, Crimmins D, Caird J, Robinson I, Colleran G, McParland P, McAuliffe FM.Prenatal findings and associated survival rates in fetal ventriculomegaly: A prospective observational study. Int J Gynaecol Obstet. 2022 Dec;159(3):891-897.

Start AO, Ryan GA, Cathcart B, Hughes H, Higgins S, Corcoran S, Walsh J, Carroll S, Mahony R, Crimmins D, Caird J, Colleran G, McParland P, McAuliffe FM. Severe fetal ventriculomegaly: Fetal morbidity and mortality, caesarean delivery rates and obstetrical challenges in a large prospective cohort. Prenat Diagn. 2022 Jan;42(1):109-117.

Haemolytic Disease of the Newborn

Routine antenatal prophylaxis with Anti-D at 28 weeks was introduced in May 2015 and should further reduce the number of cases seen (see Pathology & Laboratory Medicine Chapter). There were 4 pregnancies that required 11 transfusions and all had good outcomes. The table above outlines the numbers attending for IUT over the past ten years. This hospital has been generally recognised as the national referral centre for this disease for many years.

Education/Appointments

Teaching and education is an integral part of our work within the department for both midwifery and medical staff and students. The Fetal Medicine Unit continues to play an active role in teaching with both UCD and RSCI undergraduates in attendance. NCHDs are encouraged to attend for basic training by observing initially, followed by hands on experience. We contribute to the clinical and theoretical components of the MSc and Graduate Certificate Ultrasound Courses in association with UCD.

Congratulations to Shauna Cawley who successfully completed the MSc in Ultrasound at UCD. Valerie Spillane CMM3 won 2nd prize at the NWIHP Quality & Safety Conference for a poster competition 'Point-of-care Ultrasound in Midwifery Clinics'.

We are delighted to welcome Lucy McShane Midwife, Lucy Collender Radiographer and Elaine Radford Midwife who joined the FAU staff in 2022. Congratulations to Katie Callaghan on her appointment as administrator to the fetal medicine team and to Michelle Greene Midwife who has been appointed to an NWIHP funded post as a CMM 1 to the Fetal Medicine Team.

We continue to be recognised for full sub-specialty training in Maternal Fetal Medicine by the RCOG making this the only centre in Ireland for full training and this year Dr Fiona O'Toole continued her training.

The workload of the unit remains busy in both volume and complexity. I would like to acknowledge the stewardship and contribution to ongoing development by Valerie Spillane (CMM3) and to all the team who every day go above and beyond to provide a safe, high quality and compassionate service to women and families.

Finally, 2022 marked the retirement of Prof. Peter McParland, the longstanding Director of Fetal Medicine in NMH who worked tirelessly to establish, develop and expand the Fetal Medicine Department to such a high standard. Peter leaves behind him a legacy of a commendable work ethic, excellent clinical skill and above all great kindness in advocating for patients and staff alike. We will miss his collegiality and sensible advice and we wish him the very best in his retirement.

Dr Jennifer Walsh, Director of Fetal Medicine Department.

Table 1: Prenatal Screening (excluding triple tests) and invasive diagnostic procedures

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
First trimester screening	824	979	822	478	380	340	275	199	177	184
NIPT (Harmony)	74	268	526	783	1183	1519	1818	2127	2159	2246
Amniocentesis	121	105	101	91	90	105	126	118	126	93
Chorionic Villus Sampling	89	57	44	56	58	64	49	49	53	54
Total	**1108**	**1409**	**1493**	**1408**	**1711**	**2028**	**2268**	**2493**	**2515**	**2577**

Figure 1: *Prenatal Screening (excluding triple tests) and invasive diagnostic procedures*

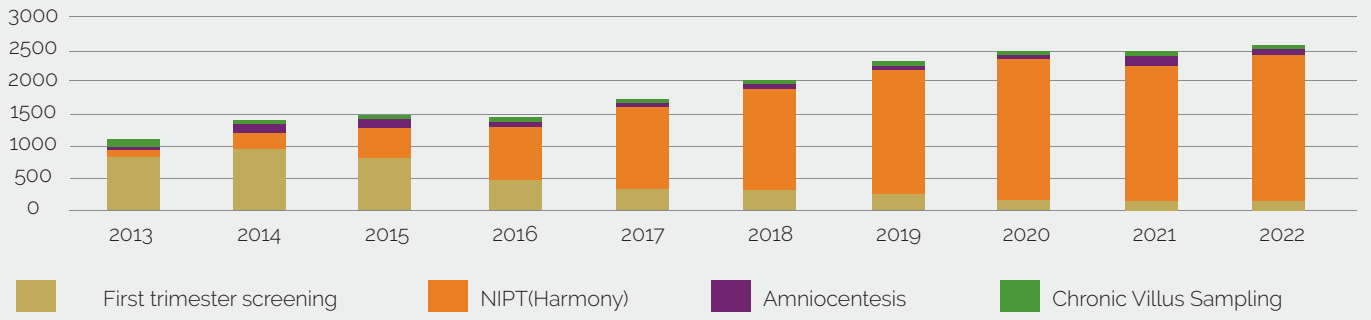


Figure 2: *Age Range of Mothers Delivered (*Aged >= 35 years includes those aged 40+)*

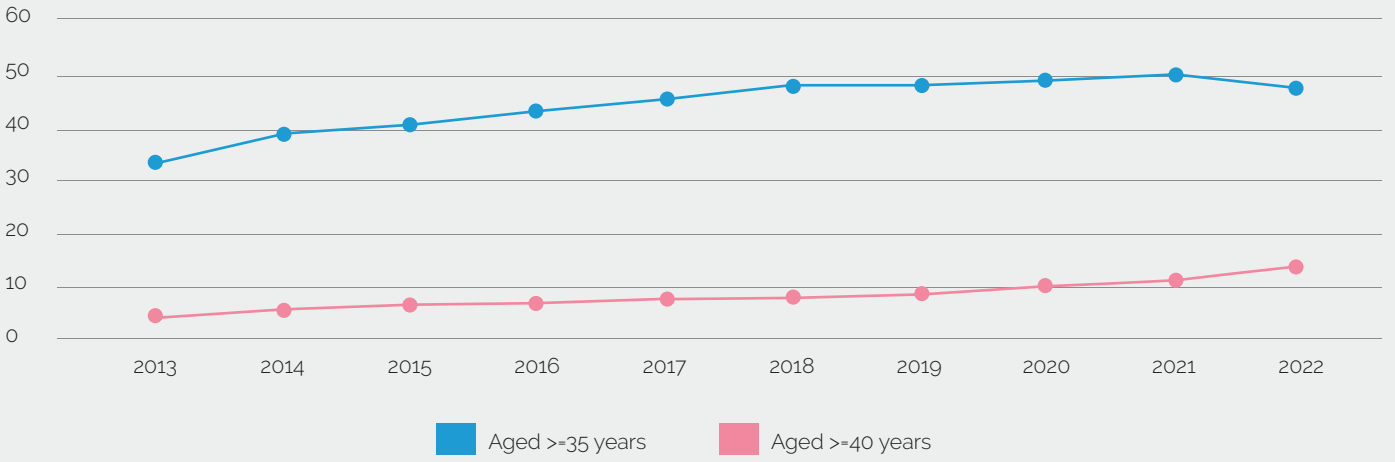


Figure 3: *Non-Invasive Prenatal Testing increasing since its introduction in 2013*

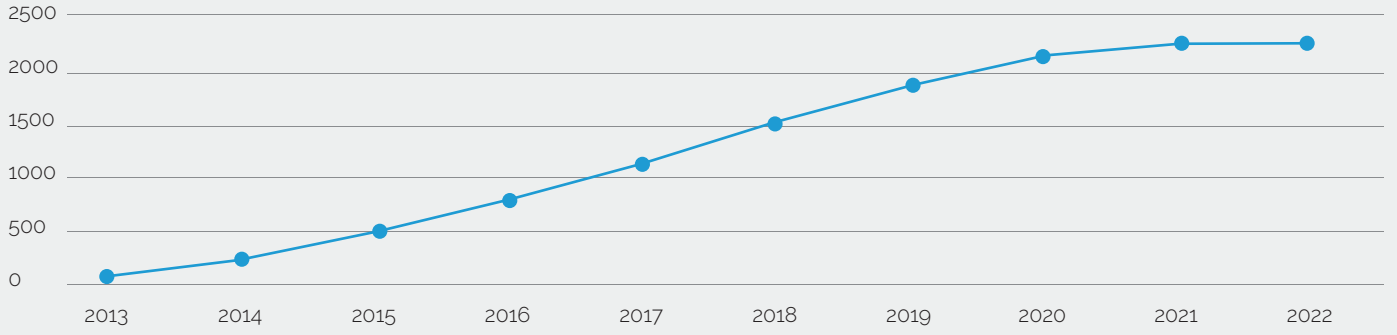


Table 2: Indication for Prenatal Diagnosis (Amniocentesis and CVS))

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Maternal age	10	2	3	3	0	1	2	0	0	0
Abnormal fetal ultrasound	82	87	83	74	79	103	113	106	108	100
Positive screening test	59	40	31	37	45	37	36	44	37	21
Previous chromosomal abnormality/carrier of translocation	22	10	11	16	10	6	9	3	13	2
Previous non-chromosomal genetic syndrome	23	18	12	13	12	9	8	8	7	13
Miscellaneous	14	5	5	4	2	13	7	6	10	11
Total	**210**	**162**	**145**	**147**	**148**	**169**	**175**	**167**	**175**	**147**

Table 3: Abnormalities Detected by Prenatal Testing

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Trisomy 21	26	31	23	28	33	28	39	39	31	22
Trisomy 18	13	13	18	17	18	15	23	22	16	25
Trisomy 13	8	9	4	5	1	8	8	9	8	2
Other aneuploidies	9	11	16	6	10	17	19	9	12	19
Non chromosomal genetic abnormality	8	5	3	8	3	2	0	4	1	8
Total	**61**	**69**	**64**	**64**	**65**	**70**	**89**	**83**	**68**	**76**

Table 4: Abnormalities Detected based on RCOG/RCR classification

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
CNS (excluding choroids plexus cyst)	75	53	66	52	47	89	87	77	62	58
Head and Neck (including hygromata)	14	25	36	58	42	51	48	58	58	58
Cardiovascular system (excluding echogenic foci and untreated arrythmias)	75	65	94	78	73	50	62	82	79	66
Renal (excluding pelvic dilatation of <10mms)	60	47	45	36	46	34	45	35	46	45
Abdominal contents (including anterior abdominal wall defects and excluding echogenic bowel)	34	32	33	41	37	24	25	24	30	34
Skeletal	18	22	26	24	23	26	23	25	23	34
Thoracic (excluding cardiac abnormalities)	12	24	7	14	15	16	5	1	11	12
Others	37	24	27	40	42	49	40	42	34	15
Total	**325**	**327**	**334**	**343**	**325**	**339**	**335**	**354**	**343**	**322**

Table 5: Intrauterine Transfusions (IUT)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
No. of patients requiring IUTs	7	8	4	7	8	4	5	6	2	4
No. of IUTs	17	16	8	14	13	5	6	7	2	9

Fetal Cardiology Programme

Lesion	Number of cases	Referral from NMH	Referral from Peripheral Units	Antenatal diagnosis of genetic abnormality
Atrial Bigeminy	1	1	0	0
Atrial Septal Defect	-	-	-	-
Atrial Ventricular Septal Defect	8	1	7	5
Aortic Stenosis (Critical)	2	0	2	0
Aortic stenosis (Mild)	1	0	1	0
Biventricular hypertrophy	2	1	1	0
Coarctation of the Aorta	2	0	2	2
Complex Heart Defect	2	2	0	2
Congenital Heart Block	1	0	1	0
Heterotaxy	1	1	0	0
Left SVC to Coronary Sinus connection	1	1	0	0
Right ventricular hypertrophy	2	0	2	0
Premature Atrial Contractions	3	3	0	0
Right Aortic arch	4	0	4	0
RV/LV disproportion	5	2	3	0
Supraventricular Tachycardia	3	3	0	0
Taussig Bing Anomaly	1	1	0	0
Tetralogy of Fallot	4	3	1	1
Transposition of the Great Arteries	5	3	2	
Tricuspid atresia/ dysplasia/regurgitation or stenosis	2	0	2	0
Truncus Arteriosus	5	3	2	3
Ventricular Septal Defect	11	4	7	
Total	**66**	**29**	**37**	**13**

(Dr Siobhan Corcoran)

The Fetal Cardiology Service is staffed by Professor Colin McMahon and Ms Cecelia Mulcahy. The data is presented in a "One patient, one diagnosis" fashion. Some of these patients also had extracardiac anomalies.

Gynaecology Outpatient Services

Anne Beirne, CNM1 and Dr Rachel Elbert, Registrar, Merrion Fertility Clinic, in the Gynae clinic.

Gynaecology Outpatient Services provides an extensive range of general and specialised gynaecology services in order to meet women's gynaecological health needs. These include general gynaecology care, urogynaecology, fertility, complex menopause, premature ovarian insufficiency, adolescent care, oncology, rapid access menorrhagia, perineal, transgender services, colposcopy, DES clinic, hysteroscopy, recurrent miscarriage and a pessary clinic.

Gynaecology outpatient clinics run from 0800-1800 hrs with 3 sessions per day, delivering an efficient service, maximising clinic capacity within current infrastructural constraints. Over 10,000 patients attended the Clinic in 2022. The number of virtual appointments equated to 16% of all appointments, continuing the trend of offering greater convenience for patients while also enhancing operational efficiency. The DNA rate was was 12%, an increase of 2% from the previous year; issues with text messaging reminder services contributed to the increase.

Early in the year, the National Maternity Hospital entered a shared care arrangement with the National Gestational Trophoblastic Disease Treatment and Advisory Centre, CUMH for ongoing management of patients diagnosed with molar pregnancy. Formerly, this service was provided by the Gynaecology Team supported by Dr David Fennelly. A total of 31 patients were cared for via this shared care arrangement. Access to patient information via MN-CMS on both sites supported this change in practice.

The expansion of Gynaecology Outpatient Services in 2022 included the establishment of the Fertility Hub which was funded by the National Women & Infants Health Programme. It is led by Dr David Crosby, Consultant Obstetrician and Gynaecologist with nursing and administration support. Michelle Barry was appointed as Clinical Nurse Specialist in Fertility.

Oher areas of expansion included the establishment of a Gynaecological Pain Clinic with particular focus in providing care to patients as part of the National Mesh Complications Service. Dr Kirk Levins is the Consultant in Pain Medicine for this service.

In 2023 we will continue to focus on reducing waiting list times and advancing new and existing services. Funding has already been secured for the development of a new Ambulatory Gynaecology area in 2023.

The ability to fill vacant staff posts in a timely manner continues to be a challenge in delivering the gynaecology outpatient services during the year. Acknowledgment must therefore be given to all staff involved in providing gynaecology outpatients services, including administration, nurses/midwives, doctors and allied health services. Their support has made it possible to continue to provide this essential service.

Helen Thompson, Gynae Clinic CMM3.

Colposcopy

The ongoing demands of the CervicalCheck screening programme, using the more sensitive HPV test resulted in an increase in new referrals to the service during a year in which the service again saw more new patients than in any of the previous ten years.

Considerable credit is again due to the team for the dedicated response to these demands. Women were seen from 8am to 7pm with clinics running five days per week using a combination of nurse and consultant led clinics.

The service saw a large increase in the number of referrals during the year with 3,922 women referred because of an abnormal screening test. Of these, 1,128 (29%) had normal cytology and a persistent HPV positive test in line with the new screening programme guidelines for HPV testing. Of the others, 2,417 (62%) had low-grade cytology and 362 (9%) women were referred with a high-grade cytological abnormality.

Appointments were allocated according to the grade of cytological abnormality aiming to work within the timeframes suggested by the CervicalCheck quality standards. Despite the ongoing pressure on the service, efforts continued to meet the targets for the waiting times for new referrals. During the year, 347 out of the 362 (96%) of women with suspected high-grade disease were offered appointments within the recommended four weeks after the receipt of the referral letter. For the 2,417 women with suspected low-grade disease, 2,274 (94%) were offered appointments within the recommended eight weeks and 1074 (95%) of women with normal cytology and persistently positive HPV infection were offered an appointment within the recommended eight weeks.

Women attended 7,259 colposcopy appointments during the year, 2,864 as new visits and 4,394 for a follow up visit. Continued improvement was noted in the number of appointments that were unattended without prior notice (DNA or did not attend). This year the rate of 3.9% for the service was well within the recommended standard of <10% reflecting the value of contacting the women by telephone in advance of her appointment to confirm pre-assessment details regarding COVID-19 infection. The figure for new appointments was 2.6% compared to 4.5% for follow-up appointments.

Clodagh Cunniffe, Medical Scientist, Biochemistry

The actual number of follow up appointments during the year increased by 500 compared to the previous year despite the earlier discharge for surveillance in the community for those who were HPV negative. This may be in part explained by the continued change in the age profile of the women attending following the introduction of HPV testing. While most women were aged between 25 and 55 years with a mean age 37 years, 504 women were aged between 55 and 60 (9%) while 336 (3%) women were aged 61 years or older. Fifty women were aged less than 25 years and 410

were over 57 years. This increase in post-menopausal women represents a real challenge for colposcopists because of the high proportion of women with a type 3 transformation zone (TZ). It is notable that a type 3 TZ was noted in 69% of women aged fifty and over while a type 1 TZ was described in 63% of women aged less than forty. This poses a significant management challenge in the context of a persistently positive HPV infection in this older cohort of women.

Of the 2,864 new patients who attended at colposcopy, 2,695 patients were referred following an abnormal screening test and 229 were referred for clinical reasons. Improved triage in the gynaecology clinic led to a continued decline in the numbers of women with clinical symptoms being seen at colposcopy during the year ensuring increased capacity for referrals with an abnormal screening test.

Of the 2,695 women attending for the first time with an abnormal screening test, 261 (10%) of those seen were referred with high-grade cytological abnormalities (high-grade squamous intraepithelial lesions (HSIL)) or worse. The referral smear demonstrated a low-grade abnormality in 1,667 women (62%) and 767 (28%) women attended with normal cytology and a repeatedly positive HPV test.

A diagnostic punch biopsy was performed in 3,088 cases and 762 excisional procedures were performed. Excisional treatments included 754 Large Loop Excision of the Transformation Zone (LLETZ) procedures (all but two performed as an outpatient), 15 knife cone biopsies and two hysterectomies. In addition, 269 ablative procedures were performed in selected women using cold coagulation. The histology results are recorded in the table below; 1,488 biopsies recorded a diagnosis of high grade abnormalities including 27 cancers and 27 cases of adenocarcinoma in situ. While some of these represent two biopsies for some women, these results confirm the increased yield of high-grade histological abnormalities because of the more sensitive screening HPV test.

In 72 women, the LLETZ was performed at the first visit (select and treat) and no Cervical Intraepithelial Neoplasia (CIN) was detected in 10 cases (14%); one woman aged 36 was referred for clinical reasons. The other nine women were over fifty years; six were referred with low-grade cytology, two with persistent HPV positivity with normal cytology and one woman was HPV positive with inadequate cytology. A type three transformation zone was found in 8 (80%) of these women all but one were aged more than 50 years. In older women, the presence of a type 3 Transformation Zone (TZ) limits the value of the colposcopic assessment and balancing the risk of overtreatment with the risk of missing occult high grade CIN or cancer in this group of women remains an ongoing challenge.

Treatment at the first visit should be avoided in women with suspected low-grade abnormalities. Of the 1667 women referred based on an abnormal screening test and low-grade cytology, 16 underwent an excision at the first visit (1%) which was well within the target of <10%.

There was continued improvement in 2022 in the waiting times for results of tests performed at colposcopy Changes to the result management system during the year resulted in a marked improvement with overall compliance with the four-week standard between the date of the test and generating the results letter achieving 91%.

Clinical pathological CPC review meetings continued monthly with review of the cytology, colposcopy and histology findings and these continue as a valuable addition to our service.

The multidisciplinary colposcopy clinical governance committee met regularly and reviewed the quality of our service. The colposcopy information management system again provided most of the figures for this year's report and continues to be important in delivering improved communication of results and treatment plans. Structured training continued to be provided for trainees under the auspices of the British Society for Colposcopy and Cervical Pathology (BSCCP) which included regular web-based tutorials were held in preparation for the BSCCP Objective Structured Clinical Examination (OSCE) examination.

Prof Gráinne Flannelly, Consultant Obstetrician & Gynaecologist.

Outpatient Attendances

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
New attendances	2443	2147	2154	2304	2317	2307	2294	1384	2506	2864
Total attendances	9867	8189	8938	8710	7994	7959	7467	5558	6348	7259

Treatments

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
LLETZ	849	875	858	921	795	709	691	443	654	754
Knife Cone	35	36	33	49	41	24	29	10	17	15
Ablation	5	5	28	232	253	271	294	142	264	269
Total	**889**	**916**	**919**	**1202**	**1089**	**1081**	**1014**	**595**	**941**	**1138**

Administrative Standards CervicalCheck

	NMH	Target
Proportion of women referred with high grade smear seen within four weeks	96%	>90%
Proportion of women referred with a low-grade smear seen within eight weeks	95%	>90%
Proportion of appointments which were unattended without notice	3.9%	<10%

Clinical Standards CervicalCheck

	NMH	Target
Proportion of LLETZ as outpatients	99%	>80%
Proportion of women with CIN on histology of excisional specimens	90%	>85%
Percentage of women referred with low grade abnormality treated at the first visit	1%	<10%
Proportion of women treated at the first visit with CIN on histology	86%*	>90%
Proportion of women admitted as inpatient following treatment	1%	<2%
Proportion of results letters sent within 4 weeks of the clinic visit	91%	>90%

Pathology Diagnoses*

Histology	Diagnostic biopsy	Excision
Adenocarcinoma in-situ	8	6
CIN uncertain grade	42	4
CIN1	1265	229
CIN2	605	210
CIN3	406	224
Inadequate	75	0
Invasive cancer	11	16
Normal/Viral changes	600	73
Other	7	0
Polyp	4	0
VAIN1	16	1
VAIN2	27	0
VAIN3	8	2
VIN1	6	0
VIN2	5	0
VIN3	9	0
Total	**3088**	**762**

**Number of biopsies performed and number of biopsies analyzed by pathology are not the same in any given time. As in previous years, the most severe abnormality is used for coding - a minority of cases have both squamous and glandular lesions present.*

Gynaecology Oncology

The gynaecological oncology service continued to develop during another busy year. The service is based between St Vincent's University Hospital (SVUH) and The National Maternity Hospital (NMH) and is part of the UCD Gynaecological Oncology Group (UCD-GOG). This group incorporating The NMH, UCD, the Mater Misericordiae University Hospital (MMUH) and St Vincent's University Hospital is the largest Gynaecological Oncology Group in the country serving over two million people.

Our 'new' Cancer numbers were 165 this year which is a slight decrease from 2021. The bed crisis continued to affect the health service in general; thankfully our elective cancer surgery admissions to SVUH were transferred to beds in St Vincent's Private Hospital (SVPH) post-operatively. This was essential and without access to the private hospital beds we would not have been able to deliver care for these additional women. It is a model of care that serves the campus and the patients very well.

Sarah Belton and Louise Comerford were the specialist nurses during 2022. Louise was instrumental in establishing the Cancer Survivorship service as part of the Women's Health Initiative, running across MMUH, SVUH and NMH and has now moved to new challenges; we thank Louise for all her hard work and wish her well for the future. We were successful in recruiting a very well qualified replacement and welcome Sharon Glynn to the team. The work of our specialist nurses is essential in providing a quality experience for our patients.

Treatment Services

Almost all major surgery is now carried out at SVUH and diagnostic surgeries are carried out at NMH. Radiotherapy is provided mainly at St Luke's Hospital as well as SVUH. Medical oncology services are provided at SVUH. A limited number of patients who are suitable for peritonectomy and HIPEC (heated intraperitoneal chemotherapy) are treated in the Mater Hospital. The UCD-GOG group delivers the largest publically funded robotic surgery program in Ireland.

Multidisciplinary Structure

Every woman with a new diagnosis of gynaecological cancer was discussed at a MDT meeting in 2022. There were 25 MDT meetings in 2022 at which 499 women were discussed. The comparable number was 254 in 2018 which was a 96% increase in 3 years.

Results

2022 was a busy year for the service with 173 new cases of gynaecological cancer diagnosed. The anatomical site of the cancers was broken down as follows:

Endometrial Cancer remains our most common cancer. 68 patients were treated during the year. The vast majority by minimally invasive surgery. The DaVinci robot system and the expertise of Mr Ruaidhri McVey has really helped treat the patients with higher BMIs.

Unfortunately, **Ovarian Cancer** continues to be the biggest challenge for the unit. The numbers continue to rise with 55 people diagnosed this year. These patients need a multi-disciplinary approach and we get great support from Dr Fennelly and the medical oncology team in SVUH. **Cervical Cancer** was diagnosed in 35 women. This is an increase from 28 last year. Six cases of new primary malignant vulval cancer were diagnosed in 2022.

As well as a nurse-led Survivorship service, we now also have an ANP-led Gynae Oncology Family History service. This clinic was established in 2022 and provides a new, innovative approach to the care of women with BRCA 1 and BRCA 2 germline alterations, to manage their ovarian cancer risk reduction strategy. It is the first clinic of its kind nationally.

Dr Donal O'Brien, Consultant Obstetrician & Gynaecologist.

	2019	2020	2021	2022
Cervical Cancer	23	25	28	35
Endometrial Cancer	50	57	69	68
Ovarian Cancer	65	55	59	54
Vaginal/Vulval Cancer	10	7	4	6
Ovarian/Endometrial Cancer	2	2	0	0
Primary Peritoneal Cancer	2	21	15	2
Total New Cancers	**152**	**167**	**175**	**165**
Recurrences	*Not known*	*28*	*12*	*28*

Ambulatory Gynaecology

Rita Brady with Sophie Breslin, Student Nurse, Gynaecology Ward.

The Ambulatory Gynaecology service at The National Maternity Hospital provides an important diagnostic and treatment facility for women with a range of gynaecological presentations. We provide a rapid access pathway for women presenting with postmenopausal bleeding. We see and treat women who have abnormal uterine bleeding, intrauterine polyps and fibroids. Other indications for referral include retrieval and insertion of intrauterine devices and fertility and miscarriage investigations. We have also treated a number of women who have retained products following medical or surgical management of miscarriage.

There are 4.5 clinics per week led by Dr Venita Broderick (clinical lead), Dr Zara Fonseca Kelly, Dr Nita Adnan, Dr Laoise O'Brien, Dr Fiona Martyn & Dr Lucia Hartigan. Many women are seen and treated in one visit.

We are fortunate to have Ms Niamh Murray, Advanced Nurse Practitioner Candidate in outpatient hysteroscopy, working with us. Our aim is to develop nurse-led clinics in the future. The service is supported by administration staff, nursing staff and health care assistants.

In 2022 an additional clinic was commenced in response to increasing demand for the service. There was an increase of 20% in the number of referrals in 2022 (1,369). Over 1,000 hysteroscopy cases were performed in the outpatient setting. Approximately 20% were operative cases including hysteroscopic polypectomy and hysteroscopic retrieval of intrauterine devices. 13% of women were referred for treatment under general anaesthetic. Patient satisfaction with the service is high.

Monthly reports on key performance indices pertaining to the service are returned to NWHIP.

Our service is supported by the Gynaecology Oncology service at St Vincent's University Hospital (SVUH). 19 women were diagnosed with cancer (endometrial and cervical) and were referred to the multidisciplinary team at SVUH.

We are currently working on a plan to develop a new dedicated ambulatory gynaecology facility on the hospital site. Funding for this project has been secured. This will provide more modern and comfortable facilities which will enhance the patient experience.

Dr Venita Broderick, Consultant Obstetrician & Gynaecologist.

Paediatric and Adolescent Gynaecology

Paediatric and Adolescent Gynaecology (PAG) services provide specialist care to children and adolescents aged 0-18 years.

The PAG service at NMH is led by Dr Orla Sheil and Dr Venita Broderick. Anne Beirne CNM1 with a special interest in adolescent gynaecology works alongside us.

Two clinics are held per week where we see girls aged 12+. Children and adolescents and their families travel from all over Ireland to access these specialist services.

80% of referrals are from general practitioners. Approximately 10% of referrals come from Children's Health Ireland (CHI) Crumlin with the remainder referred from other hospital consultants from around the country. We are supported by our gynaecology clinic nurses. We have access to imaging both in NMH and at SVUH with younger patients having imaging at CHI Crumlin.

The majority of referrals are for adolescent menstrual problems (82%). Other common reasons for referral include pelvic pain (2%) and ovarian cysts (2%) We also see girls with rare conditions such as congenital anomalies of the reproductive tract and premature ovarian insufficiency.

Many of the young girls attending the adolescent Gynaecology clinics, and especially those with congenital anomalies have complex needs. The impact of these diagnoses both on the adolescent and the adolescent's family is significant.

A small number of adolescents with complex congenital conditions requiring reconstructive surgery are referred to University College Hospital, London under the Treatment Abroad Scheme.

We work closely with paediatric colleagues at Children's Health Ireland (CHI) Crumlin. We form part of a national multidisciplinary team managing children born with complex congenital anomalies such as the Disorders of Sexual Differentiation.

A number of young girls attend the clinic to discuss the possibility of fertility preservation eg post chemotherapy. We work closely with colleagues at The Merrion Fertility clinic in caring for these patients.

In addition we provide continuity of specialist care for women diagnosed with complex congenital conditions in childhood and in adolescence.

Young women up to age 25 who present with a variety of gynaecological issues such as abnormal uterine bleeding, pelvic pain and symptoms suggestive of PCOS also attend this service.

We contribute to undergraduate education programmes in both UCD and RCSI. Basic specialist trainees and higher specialist trainees attend our weekly clinics. We are regularly involved in GP education days, in house educational sessions as well as interdisciplinary teaching at CHI.

We plan to continue to develop our services in 2023. Funding has been received from NWHIP which will help us to develop our service as well as contribute to the establishment of a PAG service at the new National Children's Hospital.

Dr Venita Broderick, Consultant Obstetrician & Gynaecologist.

Clinic attendances aged <18 yrs

Clinic attendances	New Patients	Return Patients	Virtual Appointments new and return	Total
2022	196	130	112	**438**
2021	171	89	95	**309**
2019	100	81	-	**181**
2018	77	81	-	**159**
2017	88	87	-	**175**

DNA rate 11%

Total Clinic Numbers

Clinic attendances	New Patients	Return Patients	Virtual Appointments new and return	Total
2022	358	299	198	**855**
2021	427	316	236	**979**
2020	374	173	137	**823**

DNA rate 15%

Reproductive Medicine

Reproductive medicine services, including assisted reproduction services, were facilitated and provided by specialists at The National Maternity Hospital (NMH), Merrion Fertility Clinic (MFC), St. Michael's Hospital (SMH) and our satellite clinic in Galway.

A. Public Fertility Hub

The Fertility Hub is a publicly funded service for fertility work-up and investigation at The National Maternity Hospital. Funded by the HSE as part of the new infertility model of care, the NMH hub is led by Dr David Crosby, Consultant Obstetrician & Gynaecologist, Ms Michelle Barry, CNS Fertility Specialist and Ms Catherine Dunne, Fertility Administrator. Ovulation induction services were initiated in September 2022, with plans to develop this further to include all areas of assisted reproductive technology (ART), including IVF. Outcome data from the NMH Fertility hub will be presented in the 2023 Annual Report. Reproductive Surgery activity is outlined in Table 1.

B. Activity levels at Merrion Fertility Clinic continue to increase

Referrals to Merrion Fertility Clinic increased by 42% from 2020 to 2021. This rate increased by an additional 6% into 2022. Oocyte vitrification cycles, preserving female fertility, increased by 43% in 2022, following an increase of 143% from 2020 to 2021. The number of IVF / ICSI treatment cycles also increased dramatically from 2020 to 2021, the increased activity level was maintained in 2022. Other services such as diagnostic semen analysis and surgical sperm retrieval remained stable (Table 2: Five year activity levels).

C. Telehealth and patient e-learning digital platform

Video patient consultations and telemedicine continued throughout 2022, in line with mitigation strategies and enhanced infection control. In-person consultations are anticipated to resume in early 2023.

D. CHKS accreditation

In September 2022, Merrion Fertility Clinic were accredited by CHKS. This accreditation is awarded to healthcare organisations whose processes and standards meet internationally recognised best practice, legislation and regulatory requirements.

E. Hysterosalpingo-contrast-sonography (HyCoSy) scanning

In September 2022, a weekly HyCoSy scanning clinic for patients was introduced by MFC Clinical Lead, Dr Renato Bauman. This is a specialist scan where dye is injected into the fallopian tubes to investigate tubal or uterine anomalies. The HyCoSy scan can be used as an alternative to hysterosalpingogram (HSG) in many patients who require tubal patency testing.

F. The Childhood Cancer Fertility Project (MFC and Irish Cancer Society)

The Childhood Cancer Fertility Project was launched jointly with the Irish Cancer Society (ICS) in August 2020. MFC was successful in securing grant funding from the ICS for a three-year project (2020-2023) to develop and provide fertility preservation for children, adolescents, and young adults. A sperm and egg freezing service for post-pubertal adolescents about to undergo gonadotoxic treatment is now well established and the post-treatment assessment and treatment clinic established for survivors of childhood cancer was extended in 2022 to include young women up to the age of 26 years.

G. Assisted Human Reproduction Legislation and Funding

Legislation regarding assisted human reproduction (AHR) has been drafted by the Department of Health, with the aim of providing regulations around the provision of assisted reproduction in Ireland. As of December 2022, the proposed AHR Bill (29 of 2022) has been presented to the Oireachtas and is at the third stage. In 2022, the Minister for Health also committed €10 million towards state-funded assisted reproductive treatments, such as IVF. This funding is anticipated to begin in late 2023.

Clinical Activity

Clinic appointments

Dedicated NMH clinics for reproductive medicine, encompassing infertility, endometriosis, PCOS etc in 2022 reported a total of 266 first visits, 188 return appointments and 191 telephone consultations. 49 women/couples were seen at the recurring miscarriage clinic, as well as 32 telemedicine consultations, while 21 women/couple were seen at the mid-trimester miscarriage clinic, with 5 telemedicine consultations. At Merrion Fertility Clinic, in 2022 there were 1,081 new consultations and 1,654 return consults. A breakdown of Reproductive Surgery performed in The NMH can be seen in Table 1.

Assisted Reproduction, Merrion Fertility Clinic

Five year activity levels for assisted reproduction at the Merrion Fertility Clinic can be seen in Table 2. Conscious sedation was provided by Consultant Anaesthetists for all oocyte retrievals and surgical sperm retrievals.

Clinical pregnancy rates increased in 2022 across all age groups (Chart 1. 2022 Clinical Pregnancy Rates by Maternal Age). Clinical pregnancy is defined as per ESHRE (European Society for Human Reproduction and Embryology) i.e. fetal heart, fetal pole or a clear pregnancy sac are seen on ultrasound at 6 to 8 weeks gestation. Biochemical pregnancies (positive pregnancy test only) are not included but ectopic pregnancies and miscarriages are. The rate per embryo transfer for ages up to 39 years sits between 44% and 45%. This falls to 36.4% in the 40-41 age group, and to 28.1% in the 42-43 year old age group.

The mean age of women

The mean age of women undergoing fresh IVF/ICSI cycles at Merrion Fertility Clinic fell slightly to 37.1 years in 2022. The percentage of those starting cycles of treatment at 40 or older was 27.5%, representing a slight drop from the 30.1% of patients 40 years and older starting treatment cycles in 2021.

Elective single embryo transfer (eSET)

Merrion Fertility Clinic has continued to uphold a strong ethos of single embryo transfer. In 2022, 70% of all transfers were single embryo transfers, with a clinical pregnancy rate of 3% higher than the overall clinical pregnancy rate for the clinic. A further subset of these patients had additional embryos to freeze. Patients in this group, the "elective" single embryo transfer group, eSET, made up 42% of all transfers, and had a clinical pregnancy rate of 55%, 13% higher than the clinic average. Following on from this policy, the multiple pregnancy rate at Merrion Fertility Clinic remains low at 6.6% overall.

Frozen embryo transfer (FET) cycles.

Many patients undergoing Assisted Human Reproduction (AHR) will have a transfer of an embryo that has been cryopreserved for a period of time. In some cases this is following the birth of a child from a fresh transfer, following a negative outcome from a fresh transfer or possibly they were not in a position to have a transfer following their fresh collection. In 2021, we saw a significant increase in the clinical pregnancy rate following frozen embryo transfer. This was maintained through 2022 and now stands at 52.9%. This is higher than the clinical pregnancy rate for fresh transfers. This can be explained in part by the fact that only good or top quality embryos are frozen, where fresh transfers can include fair quality embryos.

Intrauterine Insemination (IUI): The number of partner IUIs carried out at Merrion Fertility Clinic in 2022 remained stable from 2022, with a clinical pregnancy rate of 7.5%. This figure rose to 16% where donor sperm was used.

Donor sperm treatments

Merrion Fertility Clinic commenced a donor sperm service in 2018. The service has been growing since and now makes up approximately 6% of IVF/ICSI treatment cycles.

Livebirth rates

Livebirth rates are the best marker of success in assisted human reproduction. Live birth rates for patients who had a fresh transfer in 2021 are 26%. When considering patients who had a transfer of a frozen embryo the rate rose to 36%. This is an increase of 10% on the rate recorded for live birth following a frozen embryo transfer in 2020. Livebirth rates following IUI was 12% for treatment carried out in 2021.

Female fertility preservation.

As indicated in Table 2, the number of oocyte vitrification cycles provided by Merrion Fertility Clinic has increased rapidly since its introduction. A small number of patients have returned to use their oocytes and the clinical pregnancy rate for 2022 was 50%.

Child, Adolescent and Young Adult (CAYA) Fertility Preservation Services

AYA Males: Seventeen adolescent males (<18 years) were referred to MFC in 2022 for sperm cryopreservation services before undergoing gonadotoxic treatment or surgery for cancer (16 patients) or autoimmune disease (1 patient). Diagnoses included: glioma, Hodgkin's lymphoma, Burkitt's lymphoma, osteosarcoma, acute myeloid leukaemia (AML) and rhabdomyosarcoma. Of these 17 boys, 17 attended the clinic, 12 produced a semen sample and all 12 had sperm of suitable quality for freezing (mean of 8 straws frozen per patient).

AYA Females: Seven adolescent females (<18 years) were referred to MFC in 2022 for oocyte vitrification before undergoing gonadotoxic cancer therapy.

Oncology diagnoses included osteosarcoma, Hodgkin's lymphoma and Ewing's sarcoma. All seven of these young women had a successful egg freezing cycle within a mean of 14 days (range 9-30 days) from first visit to the clinic, with a mean of 15 oocytes per patient cryopreserved for future use.

Female survivors of CAYA cancer, who had previously received gonadotoxic treatment as part of their cancer therapy, are also eligible for fertility assessment and oocyte vitrification through the Childhood Cancer Fertility Project. Five female survivors attended MFC in 2022 for an initial fertility consultation, while eight young women attended for a follow-up fertility consultation and ovarian reserve testing. Four female survivors (mean age 24 years) had a successful oocyte vitrification cycle, with a mean of 6 oocytes cryopreserved for future use.

Research

The Reproductive Medicine Department maintains an active and productive research portfolio, collaborating with scientists in Irish academic institutions and other teaching hospitals, and is a member of the UCD Perinatal Research Centre. MFC employs a full-time Head of Research, and two Clinical Research Fellow posts exist for higher training in Reproductive Medicine & Surgery, with both fellows undertaking higher degrees. MFC also hosts and mentors a number of MSc students.

Research at MFC is aimed at improving knowledge, expertise and care pathways in the field of reproductive medicine. Our studies span a range of topics, from basic mechanistic biology to clinical translational research. In 2022, researchers at MFC also worked closely with collaborators at several of Ireland's leading academic research institutions, including University College Dublin and Trinity College Dublin, on the following research projects:

- Innate immune factors, endometrial receptivity and infertility (Funding: Grant for Fertility Innovation, Merck)
- Endometrial microbiome and infertility (Funding: Grant for Fertility Innovation, Merck)
- Glycome analysis in endometriosis (NIBRT collaboration. Funding: Horizon 2020, Marie Curie International Fellowship)
- Ovarian reserve in childhood cancer survivors
- Impact of the COVID-19 vaccine on male sperm parameters and inflammatory markers.
- Knowledge and attitudes among patients and healthcare providers towards proposed Irish assisted human reproduction (AHR) legislation

Publications are in the Published Research section.

Dr David Crosby, Consultant Obstetrician & Gynaecologist, NMH Reproductive Medicine Department Head and Merrion Fertility Clinic Clinical Director

Dr David Crosby, Consultant Obstetrician & Gynaecologist, NMH Reproductive Medicine Department Head and Merrion Fertility Clinic Clinical Director, Catherine Dunne, Admin Support, Michelle Barry CMM2, Dr Sorca O'Brien, ASPIRE Fertility Fellow.

Tables and Charts

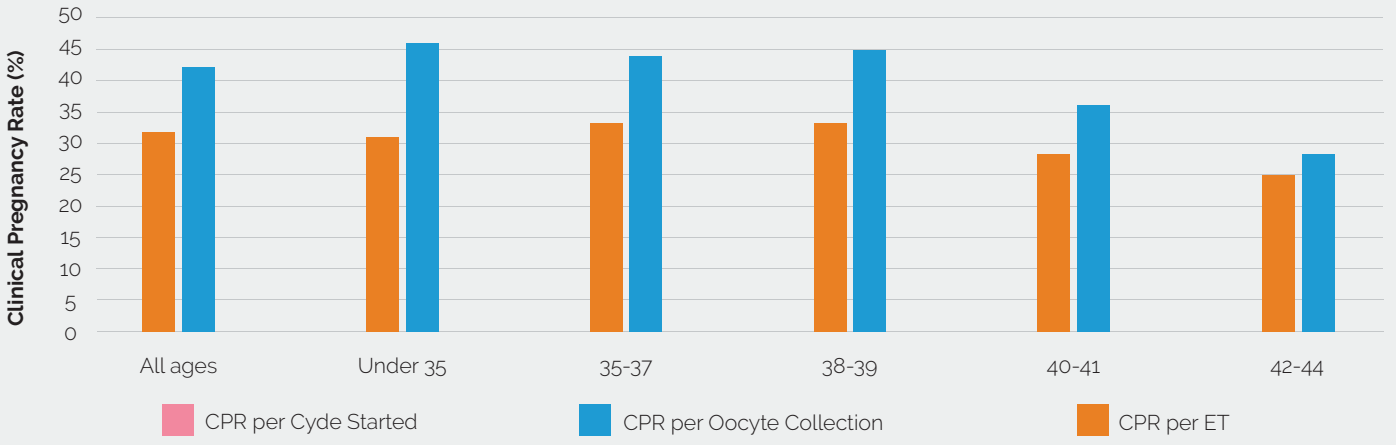
Table 1: Reproductive surgery under General Anaesthetic

Hysteroscopy – operative and diagnostic	240
Operative laparoscopy	62
Diagnostic laparoscopy	107
Myomectomy	6
Total laparoscopic hysterectomy	5

Table 2: Assisted Reproduction, Merrion Fertility Clinic: Five-year activity levels

Year	Semen analyses	Surgical Sperm Retrievals	IUI (completed)	IVF/ICSI (Completed to oocyte retrieval)	Frozen embryo transfer cycles (Completed to embryo transfer)	Oocyte vitrification Completed to oocyte retrieval)
2018	1459	2	85	407	301	40
2019	1412	6	91	399	334	49
2020	1172	9	60	413	236	46
2021	1426	10	140	609	376	112
2022	1395	9	142	621	367	160

Chart 1: 2022 Clinical Pregnancy Rates by Maternal Age



Urogynaecology

Karen Sherlock, CMM3 Theatre and Gynae Inpatient services, Bronwyn Redmond, CMM2 Infection Control, Maggie Bree, CMM2 Theatre.

As the effects of COVID-19 reduced in 2022, the department saw an increase in urodynamic appointments and surgical cases. Despite the ongoing pause in the use of the TVT procedure, we continue to offer women the choice of other surgical procedures such as bulking agents, fascial slings and colposuspensions after failed conservative therapy.

The hospital continued to offer a tertiary led Urogynaecology service which saw expansion in both clinical and administrative personnel. Some of this expansion was due to our designation as one of the two Irish centres dealing with mesh complications. This year we had 107 patients attending our mesh service with 46 new and 61 patients seen for follow-up. The establishment of the mesh complications service has involved the initiative of a multi-disciplinary team of experts to discuss and plan the management of complex cases. We have been very fortunate with the support and participation we have received from our Consultant Urology colleagues, Mr James Forde from Beaumont and Ms Lisa Smyth from Tallaght Hospitals, as well as our Consultant Pain Specialist, Dr Kirk Levins.

The hospital was instrumental in drawing up the new Department of Health guidelines for the management of utero-vaginal prolapse, urinary stress incontinence and management of mesh complications. These have now been approved by the Institute of Obstetrics and Gynaecology and the DoH and should see a more streamlined management of patients with these conditions.

The Urodynamics team work alongside the Urogynaecology team to provide diagnostic tests (Uroflow, Urethral Pressure Profilometry and Cystometry) for women attending with urinary incontinence. The team also educate, support and follow-up women who present with urinary retention in the antenatal, postnatal and postoperative period. This includes teaching bladder management techniques such as clean intermittent catheterisation, double voiding and on occasion management of long-term indwelling catheters. Multidisciplinary team working is important for women with continence issues and we work closely with our colleagues in the physiotherapy department and the pelvic floor centre in St Michaels Hospital, Dun Laoghaire.

Prof Declan Keane, Consultant Obstetrician & Gynaecologist.

Urodynamic Clinic Attendances			
	2019	2020	2021
Consultant Led			
New	540	733	656
Return	870	817	896
Total Attendances	**1410**	**1550**	**1552**
DNA Rate	19%	12%	11%
Advanced Midwifery Practitioner (AMP) Led			
Total Attendances	**123**	**161**	**174**
DNA Rate	6%	17%	XX
Urodynamics Performed	91	143	207
Flow Studies	27	36	22
Self Catherisation	14	10	12
Bonano Catheters	1	0	0
Nurse Led Urogynaecology Referrals Source			
Consultant NMH	91	142	205
Consultant Elsewhere	0	1	2
Total Referrals	**91**	**143**	**207**
Nurse Led Urodynamics Diagnosis			
Normal Urodynamic Studies	9	27	19
Urodynamic Stress Incontinence	41	43	88
Mixed Incontinence	16	16	36
Hypersensitive Bladder	0	1	1
Overactive Bladder	23	0	50
Voiding Disorder	0	0	2
UTI No UDS – MSU Taken	1	0	1
Other	1	8	10
Total Diagnosis	**91**	**95**	**207**

Anal Sphincter Repairs			
	2019	2020	2021
Third degree tear	83	76	52
Fourth degree tear	3	5	5

Surgical Procedures	*2022*
Cystoscopy	110
Posterior repair	56
Injection of bulking agent	56
Botox injection therapy	49
Anterior repair	43
Vaginal hysterectomy	26
Other perineal repair	17
Pelvic floor repair (A+P)	12
Excision of mesh exposure	9
Colposuspension	7
Repair of 4th Degree Tear	4
Evacuation of haematoma - vaginal	3
Pubo-fascial sling	3
Injection of perineum	3
Sacrospinous fixation/Vault repair	3
Vault prolapse repair – vagina	2
Urethral dilation	2
Labial reduction	1
Cystoscopy and bladder distension	1
Colpocleisis	1
Excision of vaginal septum	1
Labial reduction	1

Anaesthesia, Pain Medicine and High Dependency Care

Mr Pat McCann, Deputy Chairman, Prof Fionnuala McAuliffe, Consultant Obstetrician & Gynaecologist and Dr Ingrid Browne, Consultant Anaesthesiologist.

Dr Siaghal Mac Colgáin was Director of Anaesthesia for 2022. Two substantive consultants joined the department in January following successful interview in January 2021, Dr Robert ffrench-O'Carroll and Dr Nikki Higgins. Dr Kirk Levins, our dedicated Pain Consultant with a special interest in pelvic pain, joined the department in January. Dr. Kevin Mc Keating retired in February.

There were 9 anaesthesia NCHDs in the department from January - July and 15 from July-December 2022.

Operating Theatre Activity

The Department of Anaesthesia continued its high level of activity in 2022. The total number of procedures performed in theatre was 4,399 (an increase of 85 on 2021 however, we remain below our pre-pandemic levels of approximately 4,600).

Analgesia for Labour and Delivery

A wide range of multi-modal labour analgesic options were utilised by mothers including both non-pharmacologic (relaxation therapy, aromatherapy, TENS) and pharmacologic methods (nitrous oxide inhalation, intramuscular opioids and neuraxial techniques). Intravenous remifentanil PCA during labour was also available but there were no recorded users.

Post-Partum Anaesthesia Review

This service was established in 2021. We endeavor to review every postnatal patient that had an anaesthetic intervention with a review rate over 90% in 2022.

Epidural Rate

MN-CMS recorded a total of 3,518 epidurals. Subtracting the number of mothers who had a 'pre-labour' caesarean section from total delivered gives us the closest approximation of mothers who commenced actual labour and thus potentially had an opportunity to request epidural analgesia.

In February, we introduced programmed intermittent epidural bolusing (PIEB) and in May we converted exclusively to PIEB. Patients receive a 5mls bolus of low dose 0.125% levo-bupivacaine and fentanyl 2 mcg/ml at 45minute intervals and a 5mls patient bolus option with a 10minute lockout interval. In certain circumstances, combined spinal epidural (CSE) or continuous spinal analgesia modalities were employed.

1,064 (approximately 45%) were elective.

Post Dural Puncture Headaches (PDPH) and Epidural Blood Patches

There were 33 epidural blood patches performed in 2022, of these 5 were repeated

Not all patients who had accidental dural puncture developed PDPH.

Not all patients who had PDPH had recognised dural puncture.

Not all patients with PDPH had epidural blood patch.

High Dependency Unit (HDU)

There were 146 instances of patients requiring overnight stay in HDU in 2022

The most common reasons for HDU admission were:
Haemorrhage 45%
Hypertensive disease of pregnancy 27%
Sepsis 7%
Other 21%

There were 9 patients transferred from HDU to St Vincent's University Hospital for further specialist care including 5 patients for critical care and 2 for interventional radiological procedures.

Outpatient Clinics

The Anaesthetic High Risk Clinic was held three to four times per month and a variety of patients were reviewed for obstetric and gynaecology pre-assessment. In 2022 a total of 151 new patients & 40 return patients were reviewed. Some patients are also reviewed at the weekly multidisciplinary high risk meeting and our newly established Pre-Assessment Clinic (PAC).

Pre-Assessment Clinic

The pre-assessment clinic (PAC) endeavours to pre-assess all patients requiring an anaesthetic. In 2022 1338 patients we pre-assessed. 375 had virtual consults and 963 had in person reviews, of these 42 were obstetric patients.

Pain Medicine Service

The chronic pain medicine service continued to welcome multidisciplinary referrals from within house, from consultant obstetric, anaesthetic and pain medicine colleagues, physiotherapists, midwives and from primary care physicians in the community.

95 patients attended for first time evaluation and 76 return patients were reviewed.

Invasive interventions in the form of local anaesthetic, local anaesthetic and steroid injection and radiofrequency neuromodulation were provided in the operating theatre for 104 patients an increase of over 500% from 2021.

Mode of Anaesthesia for C-Section on MN-CMS

	Total Delivered	Pre-labour C-Section	Epidural	Rate %
Nullip	2911	429	1937	78% (1937/2482)
Multip	3904	1064	1581	40% (1581/3904)
Total	**6815**	**1493**	**3518**	**66% (3518/5322)**

Mode of Delivery after Epidural Analgesia

	SVD	Instrumental	C-Section
Nullip	863 (45%)	565 (29%)	509 (26%)
Multip	1359 (86%)	118 (7%)	104 (7%)

Mode of Anaesthesia for C-Section on MN-CMS

	N	%
Spinal	1695	72%
Spinal/Epidural	20	1%
Epidural	558	24%
General	68	3%
Total	**2341**	

Post Dural Puncture Headaches (PDPH) and Epidural Blood Patches

Total Rate of Epidural Blood Patches for Epidurals	0.8%
Total Rate of Epidural Blood Patches for Spinals	0.06%

Data collated from MN-CMS, Theatre Database & Audit Projects.

Dr Siaghal MacColgain, Consultant Anaesthesiologist.

The Maternal and Newborn Clinical Management System

The MN-CMS Team: Molly Vinu, CNM2, Sive Cassidy, CMM3, Kim Ryan, CMM2, Alphonsa Pius, CMM2.

The Maternal and Newborn Clinical Management System (MN-CMS) has been live in the National Maternity Hospital since January 2018. The Electronic Health Record (EHR) covers maternity, newborn and neonatology, gynaecology and colposcopy services thereby providing a paperless EHR for the hospital. The ethos of MN-CMS is 'patient centred, clinically led' and the team work closely with the HSE National MN-CMS Team and the other participating maternity hospitals to support, manage and upgrade the system.

Apart from patient documentation, MN-CMS enables medication prescribing and administration, ordering and viewing laboratory investigations and electronic communication with general practitioners. It also interfaces with other specialist systems such as fetal cardiotocograms (Fetalink), theatre (Periop Doc) and anaesthetic records (SN Anaesthesia), ultrasound (Viewpoint), colposcopy (Mediscan) and the Integrated Patient Management System (iPMS).

Creating and maintaining user access as well as user training are essential functions of the MN-CMS Team. MN-CMS training is provided in our computer training facility. All new and returning users require training and in the last year the team trained 311 staff, including doctors, midwives, nurses, allied health professionals, students and administration staff to use MN-CMS. In 2022, after 2 years of COVID-19 restrictions, the team returned to full classes for MN-CMS training, but also continued to use the MN-CMS online teaching tools available on HSELand.

The MN-CMS Team, along with Oracle Cerner Application Managed Services (AMS), supports the 24 hr availability of the system and ensures the most efficient use of the electronic chart thus ensuring that patient and healthcare providers get the maximum benefit from the system. The team provide support by phone and email as well as face-to-face support which are all essential parts of any large electronic system. Pager, phone and 'at the elbow' support is available

Dr Sam Doyle, Consultant Geneticist with Sive Cassidy, MN-CMS CMM3.

Monday to Friday, while phone support, provided by Cerner AMS, is available out of hours. The local team also provide cover outside of core working hours for any planned downtime or upgrade to the system.

One of the great challenges of healthcare is routine data collection and a concise but complete record of care. This documentation serves as an integral measure of care quality, and improvement of documentation is a primary focus of the MN-CMS Team. Throughout 2022, the team have undertaken detailed daily and monthly data quality monitoring in order to set and maintain good quality standards of documentation.

In August, the team released an 'MN-CMS Dashboard' in collaboration with Fionnuala Byrne, Information Officer. The Dashboard is released monthly and shows information about births in the hospital for the previous month, including total births, mode of delivery, patient category and various other interesting pieces of information. The Dashboard is emailed to all staff and is displayed on information screens in the hospital for all to see. Feedback has been very positive, especially from non-clinical staff members who previously may not have had access to such information. As information collected in MN-CMS is shared more widely, the benefits of electronic data capture and dissemination are being realised and requests for new dashboards for specific areas of the hospital have been received and are in development.

As far as the future is concerned, the MN-CMS EHR continues to evolve through a centralised national structure. In 2022, a decision was made nationally to move MN-CMS from HSE data centres in Dublin to a Remote Hosted Option (RHO) in Sweden. At the same time a full upgrade to the latest code version of Powerchart as well as upgrades to iBus, 724 and Fetalink are planned to take place. By the end of 2022 work was well underway and the upgrade project is on schedule for completion in Q3 2023. We look forward to being able to facilitate greater enhancements after the upgrade, dependent on clinical priorities, national agreement and available resources.

The MN-CMS Team continues to work with all areas of the hospital to get the most from our EHR. Our aim is to support and guide users on every aspect of MN-CMS to achieve the maximum benefit for our patients and all healthcare providers.

Sive Cassidy, MN-CMS CMM3.

Emergency Department

On the 31st January 2018, The National Maternity Hospital opened a dedicated Emergency Department, providing a 24 hour / 365 emergency service for pregnant, postnatal and gynaecology patients. This is a purpose built facility and replaces a service that had been spread across many clinics in many locations; the move is a very positive improvement in the care of these women who present to the hospital at a difficult time.

The new space consists of a triage room and four treatment rooms. Each room is equipped with diagnostics allowing for the full episode of care to be completed in the one room. This ensures that each woman has privacy while being assessed, examined and cared for.

Since January 2019, following the Health (Regulation of Termination of Pregnancy) Act 2018 this facility also provides 24 hour / 365 emergency service for women following termination of pregnancy.

The unit is now in operation for over five years and usually sees almost 1,000 emergency a month for a range of conditions including reduced fetal movements, hyperemesis, hypertension, early pregnancy pain/bleeding, postnatal complications and many gynaecological emergency presentations. With the increase of gynaecological services provided at the Hospital over the last year, the Emergency Department has seen an increase in gynaecological admissions; on average up to ten percent of Emergency Department presentations are Gynae related. The staff in the Emergency Department also provide a telephone service for women and GP's. This service is an invaluable resource for women reassuring them and ensuring that they are cared for in the most appropriate setting at the most appropriate time for their complaint.

The COVID-19 pandemic continued to have an impact on the service during the year. All COVID-19 antenatal, postnatal and gynaecological women were cared for in the department thus having an impact on the normal flow of women attending the department due to the necessary decontamination of each room after use many times throughout the day.

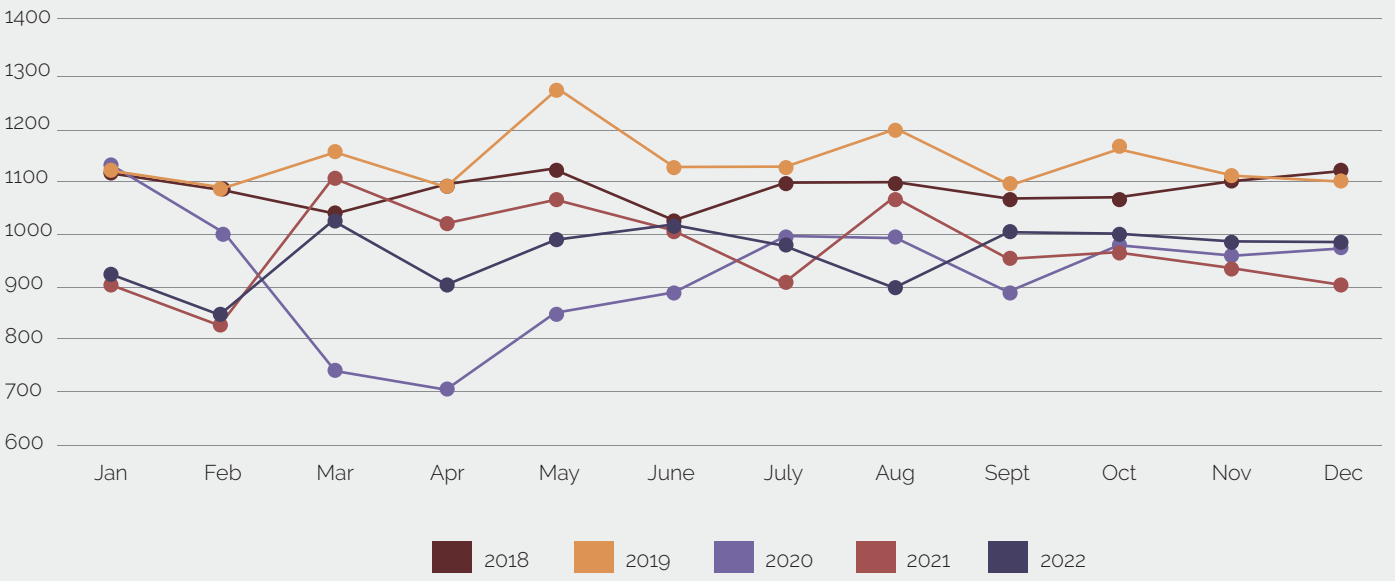
Emily Flynn, Emergency Department CMM2.

Justine Campbell with her newborn baby son Euan in the NICU.

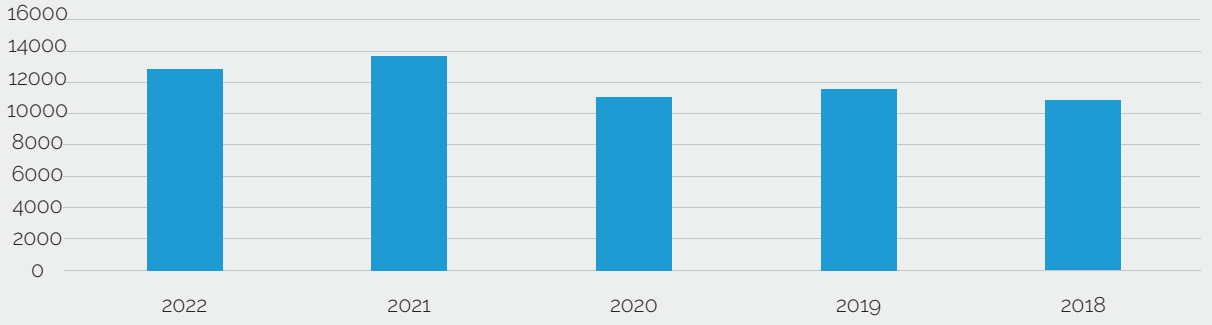
Activity: The decrease in attendances is as a direct result of the pandemic.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2022	941	866	1023	903	978	1031	1005	914	1024	1007	978	972	10832
2021	911	842	1099	1015	1061	1011	915	1110	955	966	929	900	11714
2020	1132	1003	749	709	840	887	994	998	888	989	956	970	11115
2019	1127	1074	1156	1074	1271	1132	1129	1207	1104	1155	1088	1080	13597
2018	1115	1076	1036	1079	1119	1010	1111	1108	1076	1181	1077	1109	13097

Emergency Room Attendences 2018 to 2022



Annual Attendances 2018-2022



Perinatal Mental Health

Prof Anthony McCarthy, Consultant in Perinatal Mental Health.

In 2022, more than 1 in 7 women who gave birth at NMH were seen by the Perinatal Mental Health team (PMH). With 6,815 births recorded in NMH, 1,285 were referred to the team and 1,200 attended for first appointments.

The team was finally completed in 2022 with the addition of a Senior Occupational Therapist, Fidelma Shortall who joined the other members of the team:

- Prof Anthony McCarthy: Consultant in Perinatal Psychiatry. (Retired from his full time post in December 2022 and Dr Chai Jairaj was Locum Consultant for December)
- Dr Ralph Twomey: Senior Registrar in Psychiatry
- Dr Aoife Menton Senior Clinical Psychologist
- Adele Kane Senior Mental Health Social Worker
- Megan O'Malley Clinical Nurse Specialist
- Elaine Smyth Clinical Nurse Specialist
- Georgina Mulligan Mental Health Midwife
- Deirdre Mulligan Mental Health Midwife
  Ieva Neilande Administrator

Now that we had a full team complement, we were able to care for women up to one year post-delivery rather than 6 months. As with so many services, the pandemic triggered teams to work in different and sometimes novel and blended ways. For the PMH team, these included increased use of telemed and telephone triage of referrals. The mental health midwifery team developed and continue to run online mental health education classes monthly. These are both antenatal and postnatal groups and both mothers and fathers are invited to attend. For the first time, members of the team did home visits as part of their follow up for particularly vulnerable young women.

The mental health midwives are also involved in education for direct entry midwives, and both student and qualified public health nurses. The team regularly facilitate Intern midwives in their specialist placements. Georgina Mulligan is also actively involved in developing the Mental Health component of the development of National Antenatal Education Standards.

Dr Aoife Menton designed and developed a new Pregnancy After Loss Group. This is a 4 module group, run in collaboration with Bereavement, to help address the key anxieties and other issues faced by women who are pregnant again after experiencing a previous loss in pregnancy. Two Psychologists in Clinical Training were facilitated in completing their final year placements with the Perinatal Mental Health team. Dr Menton and Dr Ralph Twomey delivered training to PHNs on PMH.

All members of the team are involved in education.

Adele Kane remains involved in teaching Social Work students in both Trinity and UCD. In addition she is co-chair of the Dublin City Infant Mental Health network. Prof McCarthy and Dr Twomey were involved in the teaching of medical students from UCD and RCSI.

The team are also involved in ongoing training and development. Four members of the team received external funding to complete the Newborn Behavioural Observation Training facilitated by Brazelton Institute. This is being used to support the relationship between mothers and their newborns. Megan O'Malley is undertaking a Masters in PMH in UL. Elaine Smyth stated her training in the Nurse Prescribing Course.

Under the National Specialist Perinatal Mental Health Service (SPMHS) model of care, which has a "Hub and Spoke" structure, the team continue to support or three spoke maternity units in Wexford, Mullingar and Kilkenny. We provide a virtual outpatient clinic for patients attending the Maternity Unit in Wexford who have been triaged by the Mental Health Midwife there. In addition, Dr Aoife Menton provides education and support to the mental health midwives in the three sites.

Prof McCarthy and Adele Kane are board members of the SPMHS National Oversight and Implementation Group.

Prof Anthony McCarthy, Consultant in Perinatal Mental Health.

Pathology and Laboratory Medicine

The laboratory service covers the scope of Pathology and Laboratory Medicine with Biochemistry, Blood Transfusion, Haematology, Histology and Microbiology laboratories. The service is provided 24/7 in accordance with clinical need. In addition, a microbiology service is provided for the Royal Victoria Eye and Ear Hospital. In addition to tests provided 'in-house' the department manages specimens referred to reference laboratories.

Accreditation of the services to ISO 15189 was retained in 2022 through an on-site inspection. Extensions to scope were added and the accolade of flexible scope was retained and expanded to include the Microbiology department

We gained and lost staff during the year. Mrs Mary Anderson retired from her post as Senior Medical Scientist in Blood Transfusion after 42 years' service to the hospital. Ms Aoife Reynolds was acting Chief in Blood Transfusion while Natalie Keogh was on leave. Ms Carly Keegan was appointed as a Senior Medical Scientist in Blood Transfusion. Ms Marie Culliton was seconded from her post to join the HSE after 18 years' service to the NMH. Her position was filled by Damian Lally as Acting Laboratory Manager. Philip Clarke was acting Chief Medical Scientist in Biochemistry while Catherine Doughty was on leave. Ms Sinead Corry left Biochemistry while Ms Clodagh Cunniffe joined the team. Ms Catherine O'Neill went to Beaumont Hospital. Ms Sinead O'Brien joined the haematology laboratory as a Senior Medical Scientist. Ms Shannon Diggin and Ms Rosanna Sheridan left Microbiology to take up employment opportunities abroad. Ms Ellen McCourt and Ms Órla O'Donnell joined the team. Mr Roy Canette retired from the Anatomical Pathology lab while Ms Mary McAlinden retired from the NMH after 42 years, her position was filled by Ms. Edel Connolly. All medical scientists are compliant with statutory regulation requirements.

Olukayode Charles Adeyemi, Medical Scientist, Biochemistry.

Clinical Activity

Sample requests dropped from 196,253 in 2021 to 187,557 in 2022, mainly due to the reduction in requests for COVID-19 testing. During 2022 improvements were made in optimising use of IT in laboratory management and data analysis. The Blood Transfusion laboratory continued to work with clinicians on implementing of national guidelines for massive haemorrhage. The ROTEM analyser was integrated with a laboratory point of care IT system. Please refer to Figure 1 (Laboratory Requests Summary 2015 to 2022) and Figure 2 (Change in workload (%) 2022 vs 2021).

Successes and Achievements

The Electronic Crossmatch (EXM) was implemented in the NMH in January 2022. The EXM involves replacing the conventional Serological Crossmatch with a computer system to check donor/patient records for selection and release of ABO/D compatible blood. It is anticipated that 82% of NMH patients are eligible for the EXM. Since its introduction, crossmatch turnaround times for eligible patients have been reduced from 1 hour to approximately 3-5 minutes.

Mr Olukayode Adeyemi and Mr Andrew O'Keeffe completed their Masters in BioMedical Science from the University of Ulster, Coleraine. Ms Gwen Connolly presented a poster on "Moraxella Keratitis: Investigating Emerging Pathogenicity through Clinical and Microbiological Findings and Whole Genome Sequencing for Virulence Determinants" at the 2022 ECCMID conference in Lisbon, Portugal.

Challenges

The department provides a multidisciplinary 'on call' service which is staffed by two medical scientists every day. Training scientists to provide this service and ensuring that their competence is retained by 'update' training is a challenge particularly with staff working flexible rosters.

Plans for 2023

- Advance plans for infrastructural reconfiguration in Anatomic Pathology and in Biochemistry.
- Continue close co-operation and drills with clinical staff on responding to massive haemorrhage.
- Implementation of the guideline for antibody check at 28/40
- Development of the Near Patient Testing Steering Group.
- Maintaining the on-call rota with two biomedical scientists.
- Discussion of appropriate and safe laboratory space in the proposed co-location of The NMH on the St Vincent's University Hospital Campus at Elm Park.

Quality Management

The Department of Pathology and Laboratory Medicine is committed to promoting and providing the highest quality diagnostic and consultative services for all its users and to the implementation of The National Maternity Hospital mission statement. These commitments are defined within the Laboratory Quality Policy. The department defines and audits the quality management system to ensure compliance with the ISO 15189 standard.

Activity

The Department of Pathology and Laboratory Medicine maintained accreditation across all disciplines to the ISO 15189 standard, in addition to being awarded an extension to scope for additional tests. By successfully retaining the flexible scope of accreditation system, the laboratory was able to provide an uninterrupted accredited service as quality improvement initiatives were introduced. The laboratory submits an Annual Report for Blood Transfusion to the Health Protection Regulatory Agency (HPRA) documenting the activity for the previous year and reports of blood usage, wastage and planned changes within the department. The 2022 report was successfully submitted and accepted by the HPRA.

Successes and Achievements

A number of service delivery improvements were implemented in 2022 which expanded the suite of accredited tests provided by the laboratory. This was achieved with a combination of engagement with the flexible scope of accreditation system, in addition to assessment of change management projects by INAB during our annual surveillance visit. Additions to our scope are detailed in the departmental reports. The laboratory has a well embedded formal change management system. The laboratory raises changes on Q-Pulse when opportunities for service improvement arise, subsequently enhancing the quality of the laboratory testing provided to the patient. The laboratory is committed to providing a quality laboratory testing service to support excellent patient care. Internal and external audits of our service are completed annually to ensure that all

aspects of our service are compliant with relevant ISO standards, EU Directives and best-practice guidelines. Opportunities for improvement are identified and incorporated into follow up audits. All areas of the quality management system are audited on an annual basis. Please refer to Figure 3 (Audits performed in the Department of Pathology and Laboratory Medicine 2022).

A laboratory user satisfaction survey was issued to all laboratory users in October 2022 to gain an understanding of what service users think about the medical laboratory service provided. Of the respondents who gave a score, 87% gave the laboratory's overall service a satisfaction of Level 3 or above. A report was generated, and the laboratory will use the action plan from this report, in addition to the established Annual Management Review, to improve our service to our users and provide better care for the patients of The National Maternity Hospital.

Plans for 2023/2024:

- Maintenance of INAB accreditation service.
- Implementation of the new ISO 15189:2022 accreditation standard into the laboratory Quality Management System.
- Verification and implementation of new equipment and tests across all departments.
- Consider further expansion of the flexible scope of accreditation system to Blood Transfusion and Anatomic Pathology.
- Standardisation of the POCT service.
- Continued focus on CPD and reflective practice.

Biochemistry

The Biochemistry Department provides an extensive range of Biochemistry, Endocrinology and specialised fetal monitoring for both the NMH and other hospitals.

Clinical Activity

The Endocrinology service continues to expand with introduction of Progesterone analysis. The verification of a new gentamicin assay is now available on lithium heparin samples and no longer needs to be batched.

Successes and Achievements

- Verified and upgraded to a new Gentamicin EMIT 2000 assay and added to flexible scope.
- Verified and Introduced Serum Indices testing for routine chemistry analysis
- Reinstated CSF Glucose and Protein to our scope of ISO 15189 accreditation.
- Verified and Introduced routine in house Progesterone testing
- Verification of automated lipaemia, icterus and haemolysis checks on the Beckman Coulter AU680 analyser was also successfully completed and implemented by the Biochemistry laboratory.

Plans for 2023

- Verification and upgrade to new Free T4 assay
- Verification and addition of Procalcitonin testing to repertoire to aid in diagnosis and monitoring of Sepsis and improve antibiotic stewardship
- Expand the in-house Biochemistry and Endocrinology test repertoire further
- Upgrade both general chemistry and endocrinology analysers to include a backup analyser for both platforms to minimise downtime.
- Verify and introduce a number of Point of Care Ketone Meters
- Establish a NPT steering group and begin the process of achieving ISO accreditation for all Point of Care analysis in NMH.

Blood Transfusion

The service includes: the investigation of blood group and antibodies, provision of blood and blood products, supporting the prevention and management of Haemolytic Disease of Foetus and Newborn through detection and monitoring of antibodies and the provision of routine Antenatal Anti-D prophylaxis. Following review of results of foetal RhD screens analysed in the Irish Blood Transfusion Service (IBTS).

Clinical Activity

The introduction of the cell free DNA testing to establish foetal RhD status has led to a significant reduction in the administration of antenatal prophylactic anti-D both for potentially sensitising events and for the routine prophylaxis at 28 weeks. Continued monitoring of obstetric haemorrhage by a multidisciplinary team has led to significant reduction in use of blood and blood products.

Successes and Achievements

- Implementation of Electronic Crossmatching for routine and out of hours use
- Implementation of Blood Stock rotation with St. Vincent's University Hospital.
- Verification of electronic link with IBTS for reporting of Fetal RhD screening completed to aid in a faster turn-around time for results
- Installation and verification of new Blood Stock fridge

Plans for 2023

- Go live with the introduction of electronic reporting of Fetal RhD screens from IBTS.
- Verification of titre score method (for patients at 28 weeks gestation who have received prophylactic Anti-D Ig initially) - aim to reduce referrals to the IBTS for Anti D Quantitation.
- Implementation of NCEC Guidelines for Unexpected Intraoperative Life Threatening Haemorrhage.
- Introduction of 28-week Group and Antibody Screen testing for all antenatal patients.
- Procurement of two new blood group and antibody screening analysers.

Haematology

The haematology laboratory investigates blood disorders and is critical for the detection and management of anaemias, sepsis and coagulation disorders. In addition, Kleihauer tests are used to estimate fetomaternal haemorrhage.

Successes and Achievements

- Introduction of the XN-2000 FBC analyser. This has led to a reduction in rejections for insufficient samples and an improved TAT for Haemoglobin results.
- In conjunction with the Clinical chemistry laboratory, the reference ranges were updated to include pregnant / non-pregnant and trimester specific ranges where appropriate.
- A new D-dimer protocol was verified due to a HRPA notice
- A new Malaria kit was verified for use as the previous kit was discontinued

Plans for 2023

Complete verification and introduce the new Sysmex XN FBC analyser

- Review of manual white cell differential procedure for adults and neonates and provision of advanced results for sepsis monitoring
- Introduction of PLT-F parameter to aide in the provision of accurate platelet count especially at very low levels.
- Update the Coagulation analyser in order to provide accurate fibrinogen, PT and APTT results and expansion of coagulation service to include Lupus anticoagulation testing.
- Procurement of an analyser for provision of improved haemoglobinopathy screening to comply with guidelines and to link this with the Biochemistry plan for provision of HbA1c.

Histology

The histology provides a diagnostic service examining tissues arising from surgical specimens taken in theatre, outpatients, placentas and a perinatal pathology service.

Clinical Activity

During 2022 outpatient activity rose to a record level, impacting on department turnaround times.

Successes and Achievements

- Increased capacity to perform Immunohistochemistry testing through the introduction of additional equipment and streamlining of testing procedures.
- Installed and verified new processing equipment to support the processing of the increasing workload.
- Review of storage capacity for 30 years of blocks and slides completed. Safe and secure offsite storage now in use.
- Reconfiguration of equipment area completed to allow space for the installation of a new HE600 staining module.
- Maintenance of ISO 15189 accreditation status.
- Continued participation in the NQAIS quality program.
- Continued participation in external EQA programs such as Nordi QC and Neqas with added participation in the Neqas Tissue Diagnostic Scheme.
- Participated in the training of TUD students

Plans for 2023

- The department continues to work with the Executive Management Team and the Ireland East Hospital Group to seek appropriate facilities.
- The department plans to continue streamlining the IHC process and methods in 2023 to allow additional throughput of cases.
- Explore ancillary techniques and the possible introduction of same.
- Expand the available voice recognition services.

MICROBIOLOGY

Service Overview

The Microbiology laboratory provides a routine bacteriology testing and molecular microbiology service for both the National Maternity and Royal Victoria Eye and Ear Hospitals. Surveillance reporting is provided for both hospitals

Clinical Activity

In addition to provision of the routine service 2022 was dedicated to expanding our testing repertoire on the various molecular testing platforms available in our laboratory.

Further to this, the ongoing re-evaluation of current testing services provided and updating them to better reflect current requirements. Surveillance reports for MRSA colonisation, rectal screening, influenza rates and blood stream infections are provided to guide infection control. Regular reporting of Sars-CoV-2 testing and infection rates is supplied to the HSE.

Successes and Achievements

- Accreditation of BioFire FilmArray for the rapid (PCR) identification of designated pathogens from positive blood cultures.
- Accreditation of Xpert NxG assay on GeneXpert as confirmatory PCR testing of MRSA from bacterial isolates.
- Verification of VITEK MS Maldi-TOF for the identification of yeast.
- Verification of Sars/Flu/RSV assay on GeneXpert for combined testing for Sars-CoV-2, Influenza A, Influenza B and RSV from patient samples.
- Verification of BioFire FilmArray and Aus Diagnostics analysers the for the detection of Influenza A, Influenza B and RSV from patient samples.
- Verification of additional antimicrobial agents, as per EUCAST 2022 updates.

Plans for 2023

- Seek accreditation for Sars-CoV-2, Influenza A, Influenza B and RSV testing on GeneXpert., BioFire FilmArray and Aus Diagnostics analysers.
- Seek accreditation for identification of yeast isolates on VITEK MS Maldi-TOF.
- Introduction and verification of in house testing for Chlamydia trachomatis / Neisseria gonorrhoeae / Trichomonas vaginalis / Mycoplasma genitalium testing on the Aus Diagnostics platform.
- Introduction and verification of BioFire FilmArray Gastrointestinal panel for the detection of gastrointestinal pathogens from stool samples.

Damian Lally, Laboratory Manager (Acting).

Figure 1: Laboratory Requests Summary 2015 to 2022

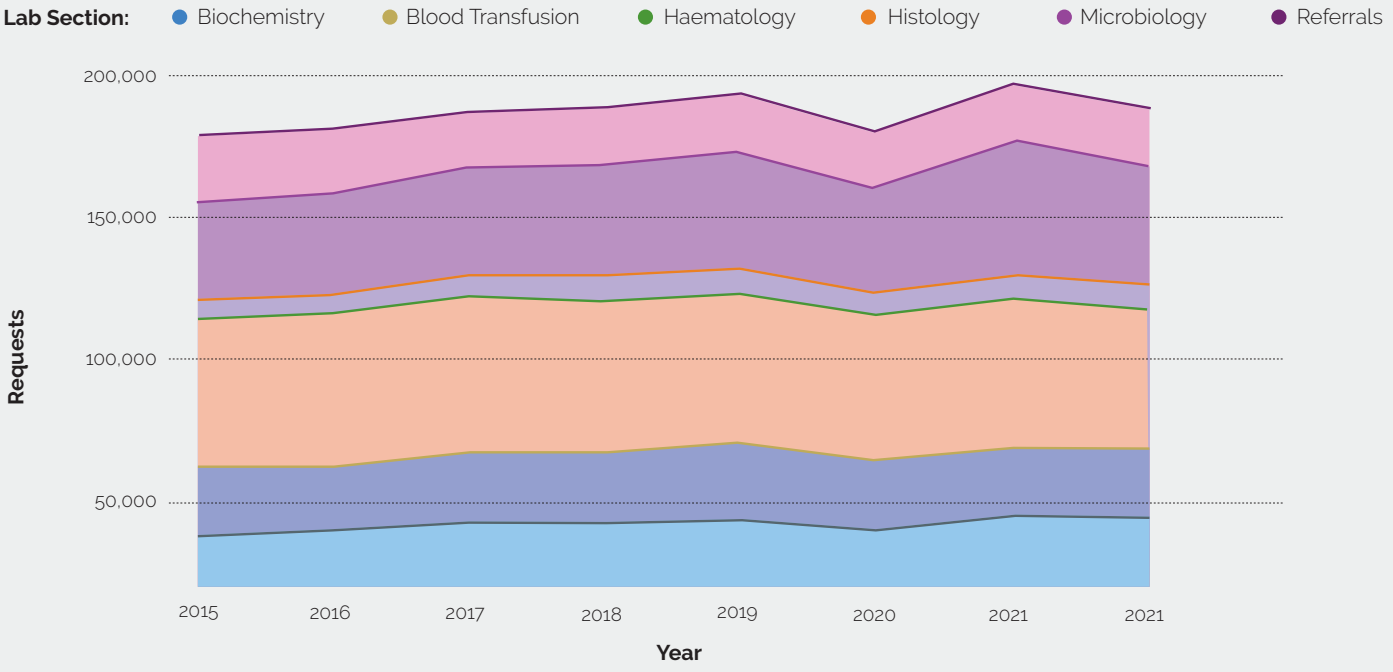


Figure 2: Change in workload (%) 2022 vs 2021

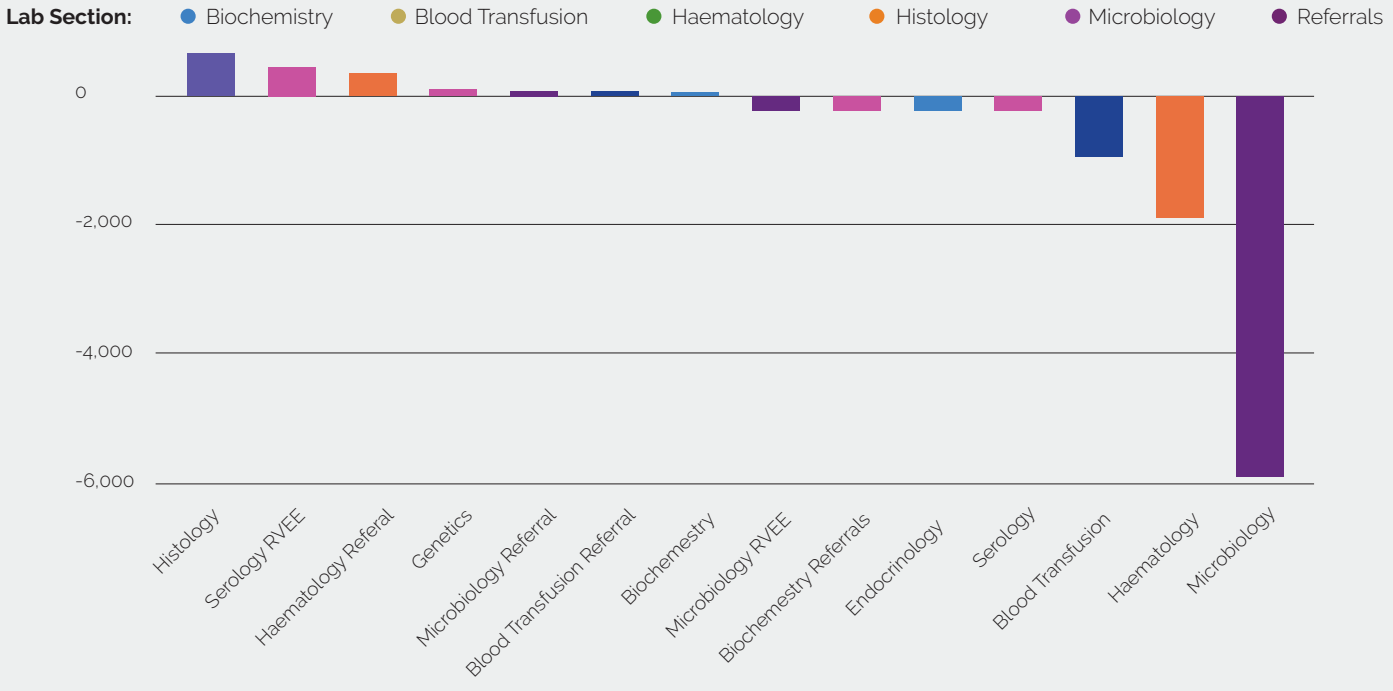
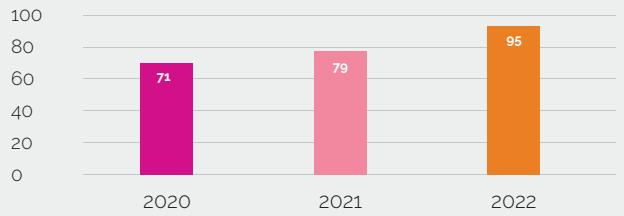


Figure 3: Audits performed in the Department of Pathology and Laboratory Medicine 2022



Pre-Assessment Clinic

The Pre-Assessment Clinic was set up in June 2020 to test patients for COVID-19 in advance of surgery. As it evolves, it has greatly improved the efficiency of the theatre service and reduced the number of patients who fail to attend for surgery. The clinic is led by a Clinical Nurse Manager with support from an Anaesthetic Consultant and an Anaesthetic Registrar.

The objective is to enhance the clinical care of patients by conducting timely assessments, identifying health issues and arranging prompt treatment. This leads to a reduction of cancellations and a reduced bed occupancy prior to surgery.

Timing of appointments is arranged by administrative staff; the clinic aims to facilitate discussion regarding the surgical procedure. The appointment also allows for improvement of patient education and reduces risk by allaying any concerns. A new electronic referral pathway which has been introduced will enable consent to be obtained at the clinic and documented in the chart. This has helped reduce incidents where no consent is visible and therefore reduce time delays in theatre also.

At the clinic, general checks of blood pressure, temperature, pulse oxygen saturation and respirations are performed. Height and weight are recorded giving a BMI score. Blood tests are taken as necessary and an ECG tracing of the heart is performed if indicated. Swabs and other screening requests are taken if necessary.

1,338 patients were assessed in total: 963 of these attended in person and a further 375 patients who underwent minor surgical procedures were assessed virtually. Of the 963 assessed in person, 921 women were seen for full surgical work up with a further 42 women assessed prior to their elective caesarean section.

The table below gives the monthly activity of the clinic for the year 2022.

The clinic continues to see all gynaecological cases and patients for caesarean who are considered high risk. In 2023, a pre-assessment visit for all women booked for an elective caesarean section is planned.

Ann Rath, Assistant Director of Midwifery & Nursing.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gynae procedure	56	104	93	77	90	97	62	91	90	70	55	36	921
Swab pre-LSCS	12	10	6	6	7	1	-	-	-	-	-	-	42
Total Clinic Assessments	**68**	**114**	**99**	**83**	**97**	**98**	**62**	**91**	**90**	**70**	**55**	**36**	**963**
Total Virtual Assessments	**16**	**20**	**32**	**35**	**38**	**25**	**36**	**33**	**38**	**38**	**42**	**26**	**375**

Central Decontamination Unit

The Central Decontamination Unit (CDU) is the area within the hospital that all Reusable Invasive Medical Devices (RIMD) are re-processed. The aim of the CDU is to prevent a Healthcare Associated Infection (HAI) and to ensure patient equipment is available and sterile for use at all times. This is achieved through the following processes: Cleaning, Disinfection and Sterilisation. We are committed to the highest level of quality in the decontamination of RIMD. Sterility assured reprocessing of RIMD is achieved through adherence with Decontamination Policies, Procedures and Guidelines.

Achievements

All decontamination equipment is serviced and validated quarterly by external suitably qualified engineers, and all validation reports are sent to an external Authorised Decontamination Expert for review and sign off.

In 2022, the hospital purchased two Washer Disinfectors and one Ultrasonic Irrigator which replaced older models. This equipment is vital in the role of successfully decontaminating RIMD.

Darren Fitzpatrick, Deputy Decontamination Manager.

All staff are up to date on mandatory training and manual handling. The CDU Manager and Deputy attended the annual Irish Decontamination Institute study day in Cork in late October.

Activity

Activity levels continue to remain high year on year. In total 33,345 packs were sterilised in 2022. Monthly totals are shown below.

303 non-conformance / complaints were recorded for the year, which was 0.9% of production; each non-conformance was followed up with the necessary action and closed out.

Challenges

The department needs to be re-configured urgently to comply with Decontamination Standards.

There was 295.5 hours' downtime for the year, which was a significant rise due to aging washer disinfectors and a persistent issue with the autoclave that took some time to detect and resolve.

Quality/Risk

- A departmental risk register is in place on and there are escalation procedures should this be necessary.
- Chemical Risk Assessments are reviewed annually
- Manual Handling Risk Assessments are reviewed annually

Audits

The following audits took place during the year:

- Daily Quality Control Audit
- Quarterly Environmental Monitoring
- Weekly Automatic Control Test
- Monthly Key Performance Indicators
- Monthly Hygiene Audits

Infection Control

Four Environmental Monitoring audits took place in 2022 where we sampled the air and surfaces from all rooms and water from the reverse osmosis water treatment unit: the results were good and were discussed at the quarterly Infection Control meeting.

Pam Hutchings, CDU Manager/Decontamination Lead.

Quality, Risk and Patient Safety

Quality

Throughout 2022, the Quality Department developed and led both new and continuous improvement initiatives across the NMH in conformance with departmental and hospital objectives. This was achieved through day-to-day operational activities and underpinned by the following governance entities:

- Clinical Governance Executive Committee: meeting monthly to review and approve the identification and implementation of evidence-based standards, policies, procedures and guidelines and assure compliance with all statutory and regulatory requirements.
- Quality, Risk and Health and Safety Committee: meeting monthly to assure operational quality and patient safety through continuous monitoring, evaluation and improvement.

The services of the Quality Department are data-driven and underpinned by three core data management systems:

- Patient Feedback Management System (supporting excellence in Patient Advocacy).
- Quality Improvement Registry.
- Audit Management System.

Externally, the Quality Department continue to represent the hospital at the Ireland East Hospital Group (IEHG) Quality and Patient Safety Forum and as a member of the Acute QI Learning Set.

Particular Quality Department activities during 2022 included:

- Continued improvement of all quality management systems.
- Coordination and facilitation of the National Healthcare Communication Programme across NMH.
- Proactive involvement with community partners to enhance integration, coordination and seamless delivery of care. This included GP Liaison Committee meetings (x4) and Patient Voice Group meetings (x3).
- Coordination and management of NMH Information evening on Menopause for GP's in June (blended).
- Coordination and management of NMH's Annual GP Study Day in November (blended).
- Contributions to Patient Safety Awareness Week.
- Management of all Patient Feedback (139 written complaints: 25 x Level 1; 114 x Level 2;
- 10 x direct patient meetings).
- Implementation of Quality and Safety Walk-rounds (Emergency Department, Merrion Wing).
- Ongoing management of online NMH and NICU Patient Experience Surveys. Paper versions were also introduced in 2022 to increase survey responses.
- Ongoing document control and management through continuous updating and use of the Q-Pulse.
- Development of eLearning content for the NMH online learning platform (Totara).
- Development and involvement in Consultant Mandatory training (x2 face-to-face).

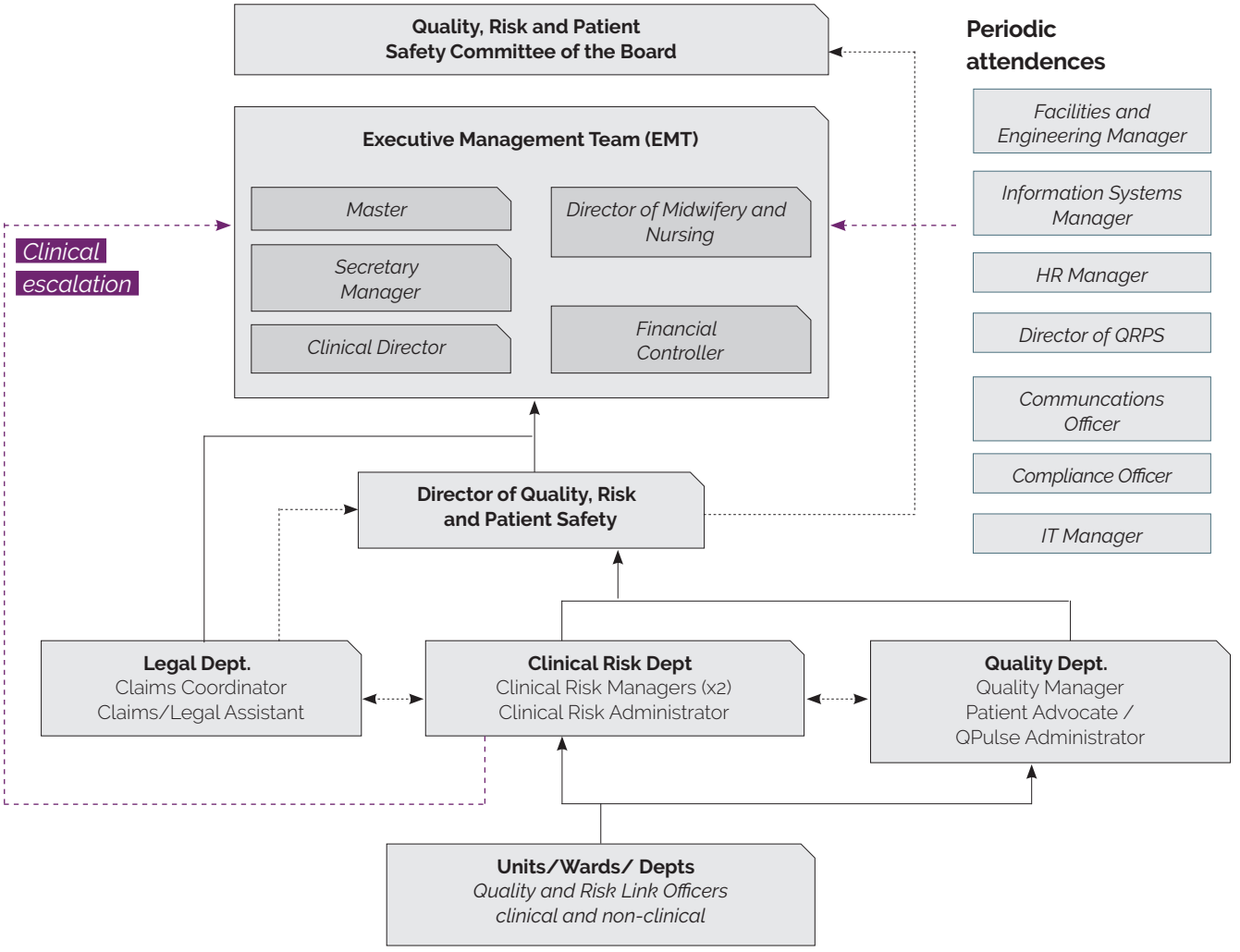
"...the 'pillars' of clinical governance ..... all underpinned by the solid foundations of systems awareness, team working, ownership, leadership and collaborative team working of staff, patients, patient families and members of the public."

Governance

Clinical governance, a component of healthcare governance, continues to be the framework through which we are accountable for continuously improving the quality and safety of our services and safeguarding high standards of care by creating an environment in which clinical care will flourish. This requires the implementation and management of the 'pillars' of clinical governance - effective service provision, risk management, patient experience, communications, resource management, strategy and learning - all underpinned by the solid foundations of systems awareness, team working, ownership, leadership and collaborative team working of staff, patients, patient families and members of the public. Such implementation and management is evolving towards an effective Patient-NMH professional partnership.

Figure 1 presents the NMH's QRPS and related roles structures with Figure 2 presenting committee/group governance structures.

Figure 1: NMH QRPS and Related Roles Structures.
(***Please note:*** *the dashed lines indicate critical sharing of information rather than reporting*)

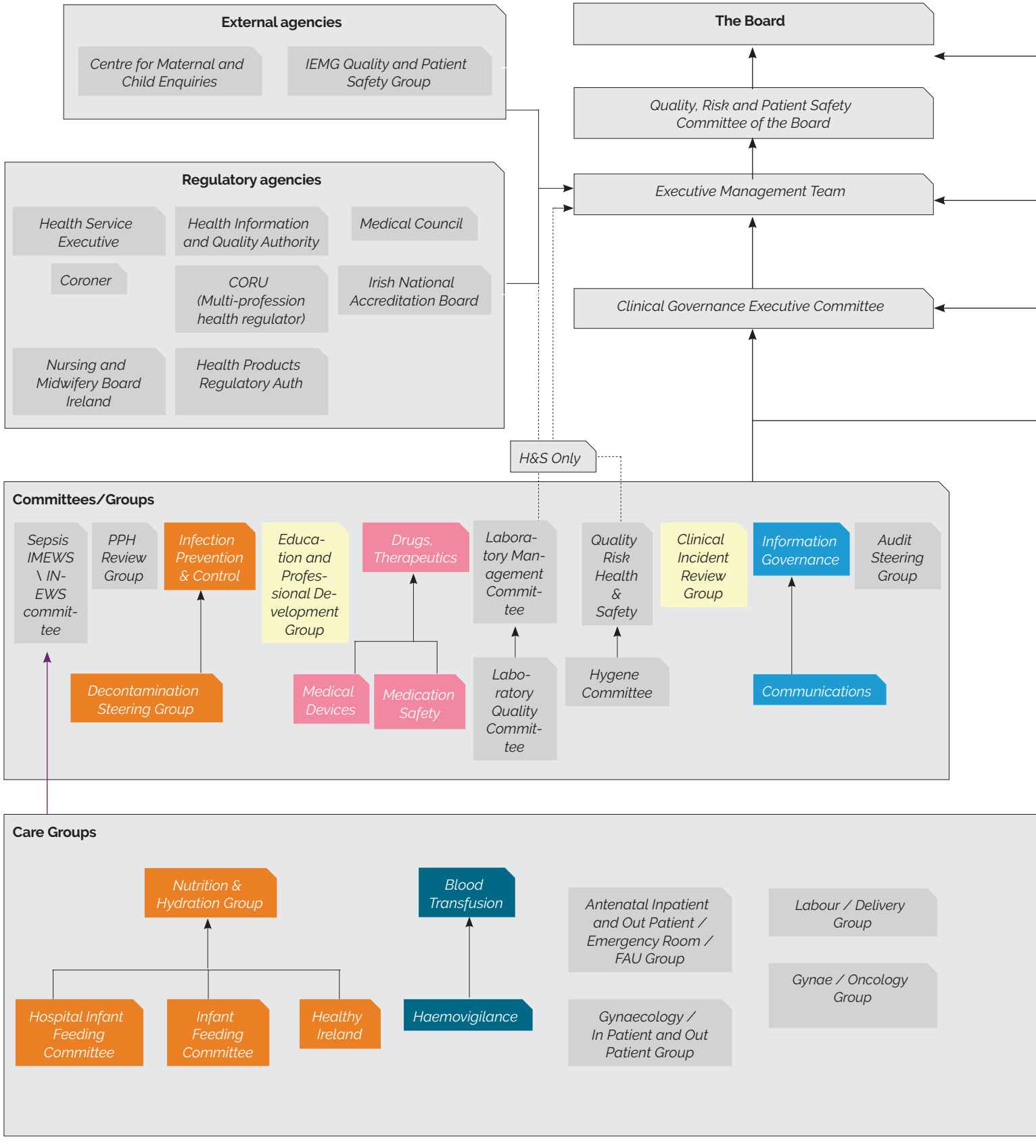


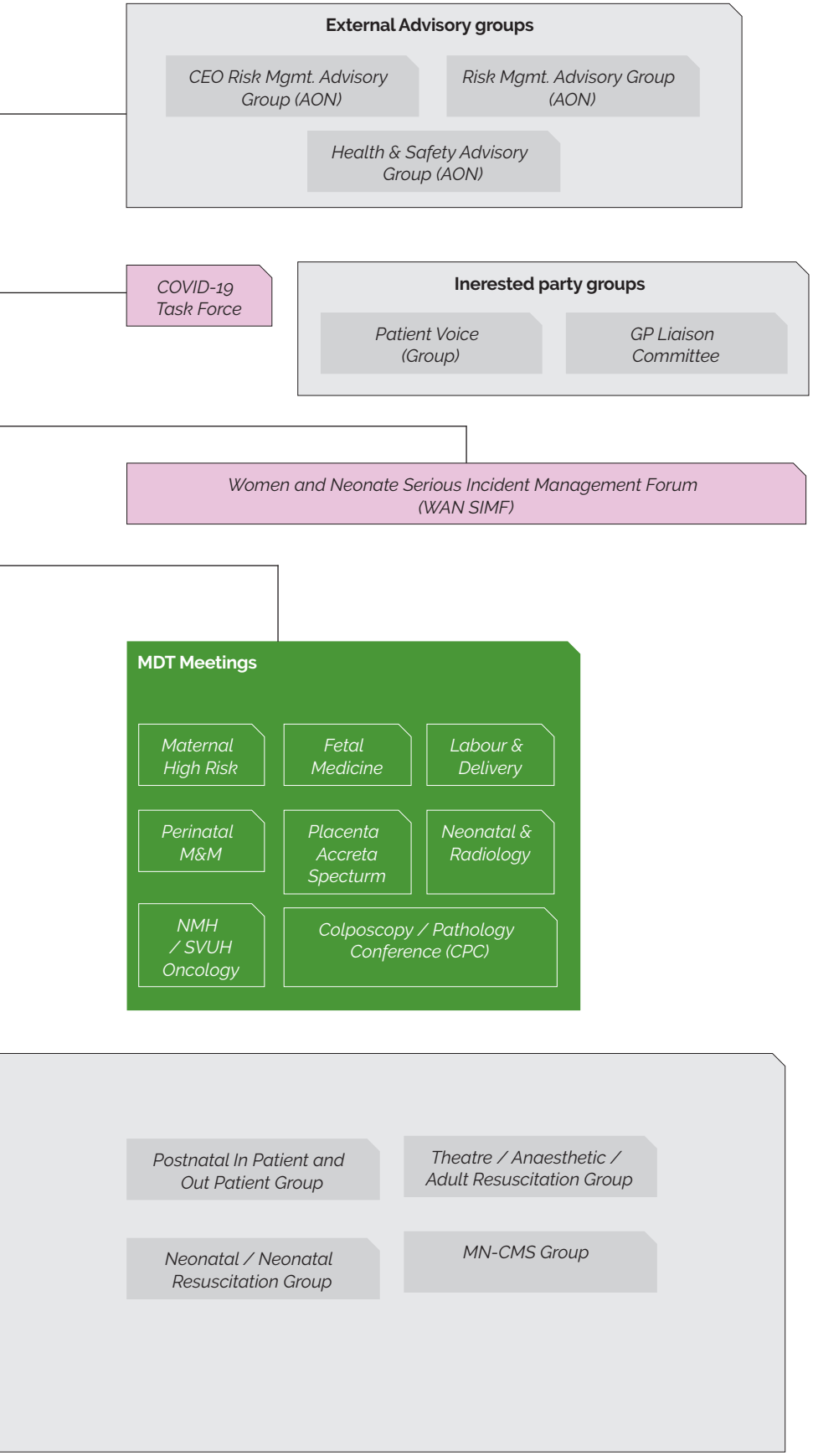
Within the Committee/Group Clinical Governance structures (Figure 2), a key component is the Clinical Governance Executive Committee (CGEC) which is responsible for:

- The continuous monitoring and management of the quality and safety of our services by ensuring the integration of evidence-based clinical governance practice into frontline clinical practice.
- Increasing awareness of our key clinical challenges (risks and opportunities).
- The dissemination of key learning experiences.
- Encouraging and fostering a culture of quality, safety and excellence.
- Providing leadership and management oversight of clinical governance in the NMH.
- Determining the strategic development of clinical governance in alignment with broader NMH strategies.
- Ensuring continuous quality improvement through audit, review and management of "lessons learned".

The CGEC, chaired by the Master, meets on a monthly basis with membership including the Clinical Director, Director of Midwifery/Nursing, Secretary/ General Manager, Director of Neonatology, Director of Anaesthetics, Consultant Histopathologist, Consultant Microbiologist, Consultant Obstetricians and Gynaecologists, Clinical Risk Managers, Assistant Directors of Midwifery and Nursing, Director of Quality, Risk and Patient Safety, Quality Manager, Information Officer and Clinical Practice Development Coordinator.

Figure 2: Committee/Group Governance Structures





During 2022 within our clinical governance structures, our Clinical Governance Executive Committee met monthly (N=12) and was supported by our Clinical Incident Review Group, meeting fortnightly with responsibility for on-going, multi-disciplinary, critical review of reported clinical events to underpin high standards of care.

Woman and Neonate Serious Incident Management Forum

The Woman and Neonate Serious Incident Management Forum (WaN SIMF) was established in October 2022 and met on three occasions.

The forum aims to:

- further develop and provide a robust process of accountability in relation to the management of Serious Adverse Incidents & Serious Reportable Events (SREs) in the Women & Neonates' Services at The National Maternity Hospital (NMH).
- improve the quality of care and safety for all women and infants in the NMH through proactive risk management processes.
- promote hospital-wide learning from incidents and to recommend improvements to protocols, policies and guidelines as a result.

Clinical Incident Management

The Clinical Incident Review Group (CIRG), reporting into the CGEC and chaired by the Clinical Director, is responsible for the on-going critical review of a range of clinical incidents which meets HSE Category 2 triggers (as defined by the HSE Incident Management Framework 2020) to facilitate the development of strategies for continuous quality improvement, maximise learning and to create and foster innovative changes to enhance patient care and safety.

The Group meets fortnightly with a core membership including the Clinical Director (Chair), Director of Midwifery/Nursing, Consultant Obstetrician and Gynaecologist(s), Neonatology/Paediatric Registrar(s), Obstetrician and Gynaecologist Registrar(s), Clinical Risk Managers, ADOM/Ns, Clinical Midwife Manager(s), Director of Quality, Risk and Patient Safety, Quality Manager and Clinical Practice Development Coordinator (other expert members are invited to attend as is determined by the incidents under review).

During **2022**, the CIRG met on **24** occasions reviewing **823** Category 2[2] incidents out of a total of **1,389** clinical incidents reported.
[**Note 1: 497** Category 2 incidents were reviewed by CIRG delegation (to Consultants, Assistant Masters

and PPH Review Group - formerly PPH Audit Group) plus 26 Category 1[1] incidents were reviewed by the Perinatal Mortality and Morbidity meeting.]

[**Note 2**: The remaining **566** incidents were classified as Category 3[3] incidents and reviewed by the Clinical Risk Managers.]

[1]Category 1 incidents are clinical incidents rated as major/extreme in conformance with NMH and HSE Risk Impact Assessment.

[2]Category 2 incidents are clinical incidents rated as moderate in conformance with NMH and HSE Risk Impact Assessment.

[3]Category 3 incidents are clinical incidents rated as minor/negligible in conformance with NMH and HSE Risk Impact Assessment.

Clinical Risk Management

The Clinical Risk Department manage operational risk and contributes to the management of corporate risk in full compliance with the HSE Risk Management Policy leveraging our cloud-based Risk Management System (RMS).

Claims Management

In close collaboration with the State Claims Agency (SCA), the Legal Department manages the following types of claims - where clearly related to an incident:

- Clinical.
- Coroner's cases (from initial notification through to final resolution ensuring all claims/Coroner's cases are managed in a thorough and timely fashion in order to facilitate early decision-making in relation to liability and strategy - in close collaboration with, and support from, the Clinical Risk Department.).

The Legal Department coordinated **20** new claims during **2022** out of a total of **85** on-going cases. **18** cases were closed in 2022.

Clinical Governance Collaboration and Other Activities

As part of the Clinical Governance function, the Clinical Risk Department and Legal Department., work collaboratively to provide integrated, high quality clinical risk and legal management services delivered with understanding, compassion, integrity and respect. Together the departments also provide integrated day-to-day operational management of all NMH risks and incidents in compliance with appropriate legal and regulatory requirements (e.g. the State Claims Agency (via NIMS), HIQA, the HSE and the IEHG) as well as the critical support and management for staff involved in Coronial and legal processes. This includes the management and reporting of HSE Serious Reportable Events (SREs) on a quarterly basis (n=11). Additionally, the Clinical Risk and Legal Departments also significantly contributed to both external and internal professional development and training during 2022.

Other related clinical governance activities during **2022** included:

- Completed step-by-step introduction of direct electronic incident reporting via the Clinical Incident Management System (facilitated by Zoho Creator). As of the end of 2022, 100% of clinical wards/units are direct electronic incident reporting.

Many thanks to all colleagues across the hospital for contributing to the management of clinical risk, incidents and claims.

3: OVERALL SUMMARY DATA FOR ADDITIONAL RECORDED IN RISKS 2022

Risk activity	Number	
	2022	2019-2022
Additional Operational Risks recorded	39	524[4]
Corporate risks recorded	1	12 active (23 total)
Risks escalated within governance structures[5] (Operational and Corporate)	11	237
Risks inactivated/obsoleted (Operational and Corporate).	31	179

[4] The present Cloud based Risk Management System was developed and introduced in 2019.

[5] A quality improvement initiative was launched in September 2021 changing escalation of Operational (*High/Moderate Inherent Evaluation*) governance to the

Clinical Governance Executive Committee.

Aedamair, Gavin and baby Beibhinn Grace (DesignWorks Photography)

Health & Safety

The National Maternity Hospital Health and Safety Department is dedicated to ensuring the safety, health and wellbeing of all our patients, staff, visitors and contractors. This is achieved by promoting and facilitating a safety conscious culture to ensure a safe environment and place of work in line with best practice.

The impact of COVID-19 has been felt across the hospital and many activities were restricted to mitigate against the threat. Three hundred and ten individuals attended twenty-two Health and Safety Training sessions during the year which were favourably received by all. The induction program for staff is further complemented by the mandatory study day which is open to both clinical and non-clinical staff. This runs online regularly throughout the year and ensures all staff have an opportunity to refresh their health, safety and emergency procedures awareness. In addition, online training is also available for staff, through Totara.

Fire Safety Consultants provided training for fifty of our fire wardens in 2022. The hospital liaises closely with the Dublin Fire Brigade. Staff were involved in the main mock evacuation conducted in July. It was beneficial to revert to the standard mass evacuation model which had being impacted due to COVID-19 restrictions. Ski sled and patient hoist awareness training is also provided during manual handling and two new videos were created for training purposes.

Contractor Management remains a key focus area especially in light of COVID-19 and recent developments. Additional minor capital projects undertaken improve site facilities and patient safety in the long term. These additional construction require the effective implementation of contractor management controls. Managers in control of the workplace and our contractors work together to ensure safe systems of work are in place and are working effectively.

The Annual Accident Review was conducted and there were a number of initiatives during the year to raise staff awareness of these hazards. All staff are engaged in working proactively with managing these risks to ensure a safe working environment for all our patients, visitors and staff.

Sincere thanks to all employees proactively working as a team to improve the safety culture within the Hospital. Thanks also to all members of the Quality, Risk, Health and Safety Committee which met on twelve occasions during 2022 and thanks also to the Safety Representatives and Lead Worker Representatives, Support Services Teams, Nursing & Midwifery and clinical teams.

Kevin Kenny, Portering Services.

"Managers in control of the workplace and our contractors work together to ensure safe systems of work are in place and are working effectively."

While 2022 has been a busy year it is likely that 2023 will be more challenging given the current facilities constraints, scheduled projects and financial environment.

Martin Creagh, Health & Safety Officer.

Occupational Health

Annabel Murphy, CMM2 Holles Clinic and Orla Bowe CMM2 Smoking Cessation.

2022 saw another busy year in the Occupational Health (OH) Department which continues to provide a proactive service to all staff to maintain good health and wellbeing within the workplace.

Key services include pre-employment health assessments, sickness absences reviews, vaccinations, pregnancy, night worker, ergonomics assessments and first aid incidents.

We had another very busy winter-summer with COVID-19 numbers very high until July 22 (see breakdown on chart below) We continued to do PCR tests until the introduction of Antigen tests in April 2022.

The Occupational Health Department were delighted to assist both the HSE and IEHG with the launch of their 2022-2023 staff flu campaign and welcomed UNICEF ambassador Stephen Rea to the hospital in late September.

This year NMH staff were offered a joint Flu and COVID-19 vaccination on a two day roll out in October. While the uptake for the COVID-19 vaccine was low at 28%, the flu campaign continued to run to February with a very successful 87.1% of staff being vaccinated.

The breakdown of the NMH staff detected with COVID-19 in 2022:
Staff with COVID-19 Detected in NMH by PCR: 196
Staff with COVID-19 detected by Public health: 83
Antigen test: 332
Total Staff COVID-19 Detected: 611

We are continuing to use the CARAI tool for pregnancy assessment which prohibits these staff to work with known COVID-19 positive patients.

Consultations with the OH GP rose to 259 and there was a big rise in consultations with the OH Nurse to 856 as we re-introduced the Keystone eye test to all staff; this is now included it in our pre-employment assessments.

We continue to do our night worker assessments on a yearly basis and we have recorded 45 staff who fall into this category.

We continue to monitor our Occupational Blood Exposures and provide education for all new staff members which has reduced our numbers.

Our ergonomic assessments are proven very successful as staff can see the benefits of using the self –assessment form and seeing reminders of the correct positioning at desks plus eye and stretch exercises which are sent out by email on regular basis.

The HSE Employee Assistance Programme programme is still utilised at high numbers as many staff still have huge challenges both professionally and personally in their lives so this helps contribute to keep staff at work. The introduction of the 'drop in clinic' affords staff to come over to OH for an impromptu chat if they need a supportive ear or help to guide them in the right direction.

Infection Surveillance, Prevention and Control

The Infection Prevention and Control (IPC) team work alongside other healthcare staff to ensure that all measures are taken to reduce and prevent healthcare associated infection through education, audit, surveillance, consultation, posters, leaflets and the development of policies/guidelines. Antimicrobial stewardship and minimising development of antimicrobial resistance is a key goal of the IPC team.

The team contributes to multi-disciplinary committees including Infection Prevention and Control Committee, Drug & Therapeutics Committee, Quality Risk & Patient Safety Committee, Decontamination Steering Group, Hygiene Committee, Sepsis and iMEWS Committee, NMH Audit Steering committee, Clinical Governance Executive and the COVID-19 Taskforce.

CLINICAL OUTCOMES

Sepsis and Septic Shock

- Seven women developed maternal sepsis in 2022 (1.03 per 1000 maternities compared to 0.52 in 2021, 0.83 in 2020, 0.51 in 2019 and 0.88 in 2018).
- One woman developed septic shock and six had sepsis.
- Five infections were antenatal at 16, 19, 24, 31 and 40 weeks gestation. Two were postnatal following deliveries at 34 and 39 weeks. All women survived.
- The organisms identified were *E. coli* (4) and one each of anaerobes, Group B *Streptococcus* and varicella-zoster virus.

Blood Stream Infection (BSI) and Meningitis

- The rate of neonatal early onset group B streptococcal (GBS) disease was 0 per 1000 births in 2022 compared to 0.38 in 2021, and 0.27 in 2020. The rate of all laboratory confirmed organisms causing neonatal early-onset sepsis was 0.57 per 1000 births in 2022, compared to a rate of 0.64 in 2021.
- There were 13 neonatal healthcare associated, late-onset blood stream infections in 2022. Five coagulase negative *Staphylococcus*, 3 *E.coli*, 1 *Candida albicans* and 4 other gram negative bacilli. In addition, there were 2 neonatal community acquired late onset BSI; 1 *E.coli* and 1 *Streptococcus pneumoniae*.
- Four infants were diagnosed with meningitis in 2022; one *Enterobacter cloacae,* one *E. coli* and two culture and PCR negative.
- There were 20 BSI in adult patients of which 7 occurred during the antenatal period, 7 intrapartum and 6 postpartum. The organisms identified were GBS (8), *E. coli* (6), anaerobic bacteria (2), *Streptococcus pneumoniae* (1), *Streptococcus* species (1), *Enterococcus faecalis* (1) and *Klebsiella pneumoniae* (1). Six (30%) of these were Healthcare associated infections (HCAI).

Device Associated Infection, Surgical Site Infection and Clostridium difficile

- The central line associated blood stream infection (CLA-BSI) rate in the NICU was 2.14 per 1000 catheter days in 2022 compared to 5.37 in 2021.
- The ventilator associated pneumonia rate in the NICU was 1.93 per 1000 ventilator days in 2022 compared to a rate of 4.62 in 2021.
- The CS-SSI was 5.77% in 2022; 4.86% following elective CS and 6.53% following emergency CS. This compares to 5.0-5.56% in 2021; 4.2-4.9% following elective CS and 5.75-6.14% following emergency CS.).
- There were 2 cases of *Clostridium difficile* infection in 2022, one of which was a HCAI; which is a rate of 0.3 per 10,000 bed days,

"Antimicrobial stewardship and minimising development of antimicrobial resistance is a key goal of the IPC team."

Multi-Drug Resistant Organisms (MDRO)

- There were no MRSA bloodstream infections (BSI) in 2022.
- MRSA was detected in 7 infants. Of these 7 infants, 2 were hospital-acquired colonisation. Five were detected colonised on admission.
- MRSA was detected in 47 adult patients. Six developed an MRSA infection and 41 patients were colonised. Forty three were community-acquired MRSA and 4 were HCAI.

- There were 1966 CPE screens in 2022. There were 3 CPE cases identified in 2022. One was rectal colonisation in an adult and the other 2 were related infections: 1 in an adult placental swab/ HVS and the other was a BSI in the baby born to the positive mother. None of the cases were hospital acquired.
- There was no vancomycin-resistant *Enterococcus* (VRE) BSI in 2022. VRE was detected in 3 adult patients and 10 neonatal patients, 9 of which were associated with an outbreak in the NICU in Q2- Q3.
- In the neonatal unit, 7 infants were colonised with gentamicin resistant gram negative bacilli and 8 were colonised with ESBL. Three infants were colonised with gram negative bacilli that were both ESBL and gentamicin resistant.

COVID-19

- 4,375 PCR tests for SARS CoV-2 were performed in NMH in 2022, of which 369 (8.4%) were positive. This compares to 10169 SARS CoV-2 PCR tests performed in 2021, of which 215 (2.11%) were positive.
- 146 (39.6%) positive results from NMH laboratory testing were adult patients, 1 (0.27%) neonate, 219 (59.3%) staff and 3 others (0.81%).
- Six HCAI patient infections occurred during 2022.
- Two patient outbreaks occurred in January and February 2022.
- Two staff outbreaks occurred in March 2022.

IPC Audits and Education

- Hand Hygiene
- Due to switching to a new training platform in the NMH, the hand hygiene report is not available for 2022, therefore, benchmarking is not possible with the previous years.
- Hand hygiene audits results:
- Q1-2: 96% compliance with process. 15% non-compliance with a barrier to hand hygiene (e.g. wrist and hand jewellery, nail varnish).
- Q3-4: 93% compliance with process. 14% non-compliance with a barrier to hand hygiene.
- The HPSC have not been collating information on alcohol gel consumption, however internal monitoring of consumption has continued. Total alcohol gel use for 2022 was 1821L, compared to 2021 = 2562L; 2020 = 3466L; 2019 = 1893L.
- Compliance rate for Peripheral Vascular Catheter care bundle is 87% and for Urinary Catheter care bundle is 95%.

Annual Audits:

- GBS flagging: 658 patients were positive for GBS. 40% of them were flagged in electronic health record. KPI is agreed by ward managers to improve this practice. All positive patients are tracked and flagged when required by infection control team.
- GBS screening audit: 438 charts were randomly audited for GBS history checks at the booking assessment. 78% of the patients were asked for the GBS status in previous pregnancy.
- MRSA audit: 82% of pregnant patients identified as a Healthcare Worker were screened for MRSA before delivery. 4% of them were positive for MRSA and 9 who reached to 36 weeks' gestation were decolonised before delivery.
- Chlamydia screening audit in antenatal women <25 years' old at booking: 441 women were eligible to be tested, 90% were tested and 5% were positive.
- CPE screening audit: 542 charts were randomly audited for CPE risk at the booking assessment. 86% of the patients were assessed for CPE risk.
- Isolation audit: 167 patients required isolation as inpatients. 94% of these patients were immediately isolated upon admission.

Antimicrobial Stewardship

- Antimicrobial consumption figures for 2022 were not available at the time of writing. For 2021 overall consumption was 32.22 DDD/100 BDU*, showing antibiotic consumption figures returning to pre-2020 levels (2019 = 33.12 DDD/100 BDU). *(*defined daily doses per 100 bed days used. This is the WHO convention for reporting antibiotic consumption)*
- Prevalence of antimicrobial prescribing during the national Point Prevalence Survey in 2022 was 18%, in line with average antimicrobial prescribing in recent years. The majority of antibiotics prescribed (83%) were for prophylactic indications which is in line with the types of antibiotic protocols utilised within the hospital.
- A total of 26 patients (adults and neonates) were prescribed carbapenems, 92% were approved by Microbiology or were in line with NMH antimicrobial guidelines.
- The adult antimicrobial guidelines were reviewed in their entirety and the policy was updated. The antimicrobial monographs for NICU were all reviewed and updated.

Achievements

- Shideh Kiafar, IPC ADOM was awarded a scholarship to the Midwifery PhD programme in UCD. Her research will be a part-time over 6 years on pyrexia in labour infection calculator.
- The Royal College of Physicians of Ireland training body approved NMH/RVEEH as a training site for a Microbiology specialist registrar post, which commenced in July 2022.
- Sepsis guideline was updated by a multi-disciplinary group. Continue multi-disciplinary PROMPT education and training.
- Antimicrobial drug focus newsletters commenced.
- Review of asymptomatic bacteriuria and antenatal pyelonephritis between NMH and Rotunda hospitals.
- Review of vancomycin therapeutic drug monitoring in neonates.
- Introduction of routine placental culture for preterm infants <32 weeks gestation.
- Increased audits were performed as the infection control team expanded with Bronwyn Redmond, CMS joining in February and Dr Elaine Houlihan in July.
- Maintenance of microbiology laboratory ISO15189 accreditation and extension to scope for molecular assays.
- On-going contribution to management of COVID-19.
- Contribution to National guideline development group for Group B Streptococcus and Varicella-Zoster in pregnancy.

Service Development Plans for 2023

- Introduction of routine antenatal screening for hepatitis C.
- Introduction of routine group B Streptococcal screening for antenatal women who are allergic to penicillin.
- Trial post-caesarean section dressing removal at 24 hours.
- Expand HSE hand hygiene auditors in NMH.
- Maintain surveillance, audits, education, training and policies, guidelines and leaflet updates.
- Submit business case for second NMH/RVEEH consultant microbiologist to HSE.

Infection Control Team.

Katie Dunne, Staff Midwife, and Dr Sara Ahmed, Registrar in Anaesthesiology in the High Dependency Unit.

Haemovigilance

The main aim of Haemovigilance is to promote safe and effective transfusion practice in our hospital. Compliance with Blood Transfusion quality standards is a key performance indicator of transfusion safety for patients. The haemovigilance service participates within the overall Laboratory Quality Management system. There is one whole-time Haemovigilance Officer (HVO) and 0.4 Consultant Haematologist providing the Haemovigilance service.

Successes / Achievements / Reports

- NAB (ISO 15189) Accreditation achieved for 2022 (*Audits/Quality/Guidelines/Education/Reporting/CPD)*
- 100% Traceability of blood components and products as required by European Blood Directive 2002/98/EC
- 13 reports were filed to National Haemovigilance Office (NHO) in 2022 (*3 Mandatory, 6 non-mandatory and 4 WBIT)*
- The root cause analysis of adverse events and implementation of preventative action contributes to safety within the blood transfusion process.
- Continued participation in internal multidisciplinary clinical team in the implementation of the new National Transfusion Advisory Group (NTAG) guidelines for life threatening haemorrhage
- Attendance and participation at various pertinent Blood Transfusion (BTC & PPH/Anti-D) and quality (QMT & QA) committees

"The root cause analysis of adverse events and implementation of preventative action contributes to safety within the blood transfusion process."

Mandatory Haemovigilance Education Programme

- IUse of on line E-Learning system "Totara" for NCHD Induction was successfully continued in 2022
- IUse of Blood Transfusion E-Learning *(learnpronhs/uk*) system and "Totara" was continued for Midwifery/Nursing staff and Midwifery Students.
- Delivery of targeted haemovigilance education to other staff groups (MCA & Portering staff) involved in the transfusion chain process

Grateful thanks is expressed for receipt of the necessary data on completion of haemovigilance education by staff from HR, Midwifery/Nursing Education, Administration and Portering services departments. This data is used to assess compliance rates. The use of Totara system has greatly contributed to monitoring of haemovigilance education compliance rates

Specific Blood track training for blood track users (L1) is continued with thanks to local L2 Trainers (CSF/Senior Midwifery staff) (train the trainer- L2 trained by HVO). Staff are enabled on the database by HVO which allows access to the controlled blood fridges.

Plans for 2023

- Maintain current Haemovigilance service
- To maintain ISO15189 (INAB Accreditation)
- Various policies to be reviewed/written and updated
- To participate in the National Transfusion Advisory Committee (NTAG) working groups (Patient Blood Management, Life threatening Haemorrhage, Neonatal Components, Regional Transfusion Committees, Haemovigilance Special interest group (HV/SIG)
- To promote the appropriate use of blood and blood products and to participate in implementation of the new NTAG guidelines as they become available
- Continue to monitor transfusion practice
- Continue to monitor mandatory haemovigilance education compliance

Bridget Carew, Haemovigilance Officer.

Clinical Nutrition and Dietetics

Clinical Nutrition & Dietetics Team

The Department of Clinical Nutrition and Dietetics provides a dietetic service for patients under the care of maternity, neonatal and gynaecology services. The department has developed an ABC model for service delivery to support nutritional interventions for women and babies across the broadest range of requirements. We incorporate appropriate use of digital platforms and relevant technology into service delivery.

We underwent several staffing changes as 2022 progressed, with Catherine Shortall, Eimear Ryan and Rachel Sheane taking up dietitian positions elsewhere and Lillian Murtagh leaving for new ventures after 10 years with the department in a part-time capacity. We are grateful for their contributions to the service and wish them well in their new roles. Sarah Louise Killeen took up additional hours in her clinical position and Jessica Calderia joined the maternity/gynae team from South Africa. Two postgraduate dietitians completed their clinical practice placement at NMH and a dietetic assistant was employed on a temporary basis to support the clinical team. National changes to contracted working times from July had further implications for the total available hours within the department.

Maternity, Diabetes, Gynaecology

The use of telehealth and digital technology is integrated into dietetic practice for adults attending our service. A mixture of face-to-face, video and telephone consultations facilitated women's access to dietetics. Antenatal classes for first time parents were re-imagined in 2022 as part of a multidisciplinary effort between Antenatal Education, Physiotherapy, Pharmacy and Dietetics. Comprehensive information on nutrition in pregnancy is now offered as part of an expanded suite of Wellbeing in Pregnancy classes with the antenatal education team. The Hollestic App for nutrition and meal planning in pregnancy continues to be a popular resource for women attending the NMH, and is downloaded throughout Ireland and as far afield as Australia.

Complexity of care was a feature of dietetic management for nutrition in pregnancy during 2022. The novel IRIS (Intravenous fluids, Rest, Insight, Support) day ward service for women with hyperemesis continued to be refined throughout the year, in collaboration with the MDT, and the prioritisation of women with inflammatory bowel disease, post bariatric surgery and eating disorders increased referral numbers for those indications.

The online 'Nourish and Nurture' program for young mothers is an ongoing development.

The service for women with diabetes in pregnancy and gestational diabetes continued to be in high demand, with increased numbers as a proportion of pregnancies booked to the NMH (data presented in the report from the Diabetes Team). Dietetic video consultation as part of the weekly Virtual Clinic for women with gestational diabetes is a significant commitment, and collaborative working with specialist diabetes midwives supports timely interventions for women requiring treatment to manage their blood glucose in pregnancy. Wearable tech devices such as continuous glucose monitors (CGM) and continuous subcutaneous insulin infusion pumps (CSII) facilitate blood glucose control for women with pre-gestational diabetes, with readings requiring effective interpretation to support appropriate specialist dietetic advice.

In spite of a number of vacancies, due to a number of factors, the maternity service was maintained overall, but prioritised for 1 to 1 consultations according to risk. A waiting list was also opened for gynecology referrals. It is anticipated that in 2023 we will feel the impact of the deferred service.

Neonatology

Dietitian consults continue to be dominated by babies born very preterm or very low birth weight (VLBW) and others with feeding or growth issues admitted to the Neonatal Unit. The complexity of patients and the nutritional challenges encountered, continued to increase. A dominant issue in 2022, was staff shortages. Two vacant posts necessitated a curtailment in service provision and reduced input into various projects and initiatives as acute clinical care was prioritised.

The dietitian-led class for parents of babies discharged from the Neonatal Unit remained suspended due to the reduced attendance noted in 2021. This was replaced by one-to-one patient consultations, resulting in greater patient engagement. Unfortunately, capacity to facilitate this was limited by understaffing and is for review in 2023.

Individualised parenteral nutrition (IPN) as a proportion of all PN ordered, remained low at 4%, with standardised PN (SPN) accounting for the remaining 96%. The PRIME/PRIME-B initiatives supporting maternal milk provision and breastfeeding continued and we are delighted to report sustained improvements. In our audit of nutrition and growth amongst babies born very preterm or VLBW, for the cohort of inborn babies (n=116) who received feeds (n=110), the number who received maternal milk remained high at 99% (99% in 2021); and for those who received oral feeds (n=70), the number who breastfed was maintained at 72% (72% in 2021). These achievements are associated with enhanced outcomes for babies and their families, and again huge thanks is due to the multidisciplinary support provided and to the mothers and their families who work hard to achieve this success.

The team also contributed to the multidisciplinary ACoRN (Allied Care of at Risk Newborn) specialist programme, which introduced a development focused weekly ward round and post-discharge follow-up clinic, which together with other initiatives to support parents and staff to optimise babies' development.

Further details of nutrition and growth amongst babies in the Neonatal Unit are included in the Annual Neonatal Report published separately.

Other Activities

- **Education**: BSc Midwifery (UCD), MSc Nutrition & Dietetics (UCD), Post-graduate Diploma Neonatal Nursing RCSI), public health nurse training at NMH.
- **Professional groups:** Diabetes Interest Group (INDI), Neonatal Dietitians Ireland Group, Maternity Dietitians Ireland.
- **Representation on national groups**: HSE Neonatal and Paediatric Parenteral Nutrition Advisory Group (RMC), HSE Baby Friendly Initiative Standards Group (RMC), National Clinical Program for Diabetes and the National Women and Infants Health Program (SC), HSE Infant Feeding Oversight Group (RMC), HSE Dietitian Prescribing Technical Working Group (RMC), HSE Neonatal and Paediatric Parenteral Nutrition Procurement Group (RMC), HSE Clinical Guidelines Expert Advisory Group (SC).
- **Contribution to Hospital committees**: Nutrition and Hydration Committee (SC, RMC), Healthy Ireland Group (SC, HMCC), NMH Strategy Group (SC), the Infant Feeding Steering Committee (RMC), the Infant Feeding Committee (RMC). Our administrator coordinates health promotion campaigns for the NMH Healthy Ireland program.

Research Abstracts Presented

- McCarthy R. Killeen SL, Gowan R, Ryan E, Haughey

O, Shortall C, Cushion R, Timely maternal milk for improved neonatal outcomes, The Irish Nutrition and Dietetic Research Symposium, February 2022.
- Sheane R, O'Toole F, A Quality assessment of clinical guidelines for the management of iron deficiency anaemia (IDA) during pregnancy using the AGREE GRS instrument.
- Curran SB, Murtagh L, Killeen SL, McHale H, Bennett M, Sheehy L, Doherty J, O'Brien EC. The Iris Clinic: Protocol for the evaluation of a new clinic for women with Hyperemesis Gravidarum, The Irish Nutrition and Dietetic Research Symposium February 2022.
- Gowan R, McCarthy R, Aminudin N, Exploring practice in re-establishing feeds post NEC, A survey of current practice in Irish Neonatal Units, British Association of Perinatal Medicine Annual Conference September 2022; and The Irish Paediatric Association Annual Conference December 2022.

Sinead Curran & Roberta McCarthy, Senior Dieticians.

Maternity Dietitian Activity 2022*

(Data Source: *MN-CMS)*

Patient Type	Location	Total
Adult		665
	Outpatient	4134
Total		**4799**

** Not including antenatal Nutrition in Pregnancy classes or Tus Maith High BMI class*
Data reported from MN-CMS records from 2022 onwards. Data reported in previous annual reports from iPMS.

Neonatal Dietitian Contacts and Activity

	2017	2018	2019	2020	2021	2022
Babies with birth weight ≤1.5 kg or ≤31/40 weeks gestation - *based on year of birth*[a]	181	160	140	152	148	136
Inpatient dietitian contacts[b]	n/a	n/a	n/a	1269	1530	2113
Outpatient dietitian contacts[c]	230	171	n/a	199	410	390

Number of unique patients seen in 2022: Inpatients, n=213[b], Out-patients, n=83[b]. Each unique patient involves multiple dietitian contacts. The outpatient non-attendance rate reported was 6.5%[c].
[a]Dietetic data. [b]MN-CMS data.
[c]Dietitian data for the years pre 2020; Integrated Patient Management System (iPMS) data from 2020.
There have been ongoing challenges ensuring accuracy of data reported from iPMS and MN-CMS and so data regarding patient contacts should be interpreted with this in mind. We continue to work on ensuring the reliability of future data.

Clinical Engineering

The Department of Clinical Engineering continue to provide a designated, coordinated approach to the management of Medical Devices and Equipment (MDE) throughout the NMH and to advise the Executive Management Team (EMT) on all matters related to the standardised coordinated management of MDE within the NMH. The department's objective is to ensure a safe, high quality service for its service users to enable better outcomes for patients.

2022 saw further Hospital and HSE investment in MDE with the procurement of 253 new and replacement medical devices, bringing the total number of in-service devices to 3032. This was a combination of the hospitals equipment replacement program, expansion of services and emergency replacement of irreparable MDEs. The department continued to maintaining its high level of in-house preventative maintenance with 70% of MDE maintained internally. The department's adoption of the HSE guidelines and policies with respect to MDE continues, as the national implementation of the Medical Devices / Equipment Management Policy is rolled out, including the introduction of the new Medical Device Regulations.

With the ongoing infrastructural projects of the Hospital on the current site, and its proposed co-location to St Vincent's University Hospital campus at Elm Park, Clinical Engineering participated on several committees providing advice on all aspects on the management of MDE including risk assessment and cost effectiveness. Some projects include the introduction of women and infant simulation equipment for training and education, an NICU infusion pump upgrade and a clinical evaluation in Labour and Birthing Unit in an effort to standardise the Hospital's SpO2 monitoring. Other committees and projects that required departmental involvement include the major upgrade work to the National Maternal Newborn Clinical Management System (MN-CMS), the implementation of the NMH Strategic Plan and participation in the development of National Tenders on behalf of the HSE. The department also represents the Hospital on several external committees such as the BEAI (Biomedical / Clinical Engineering Association of Ireland) and the Health and Social Care Professions Expert Group and has continued its close working relationship with the National Neonatal Transport Program.

Department members continue to keep up to date professionally in order to maintain an appropriate level of competence by participating in many internal and external lectures / presentations and by furthering their academic qualifications in order to up skill due to the rapidly evolving nature of medical technology and the ever increasing risks in cyber security.

2022 saw the departure of Ms Maighread Gallagher from the department to take up a new role in Letterkenny and saw the introduction of Mr Mark Power to the department.

I would like to take this opportunity to thank Mr Vasanth Pillai, Ms Maighread Gallagher, Mr Oleg Shrolik and Mr Mark Power for their ongoing commitment and dedication to the NMH and its service users.

Eoghan Hayden, Head of Clinical Engineering.

Alexander Hamilton with Vanessa Winn, Dietitian.

Medical Social Work

The Medical Social Work Department began 2022 with 258 active social work cases and received a further 775 referrals throughout the year. Total workload for 2022 = 1,033 cases. The 'Breakdown of Workload' is in the table below with 'Other' referring to many areas of work including crisis pregnancy, relationship difficulties, poor attendance for antenatal care, teen pregnancy, limited supports, mental health, bereavement.

Greater Accessibility

Our Department is one of a small number of Medical Social Work Department's (MSW) in the country currently offering a MSW service to patients twelve hours a day, six days a week. This makes our service much more accessible for patients and means our service is available to support Hospital staff in dealing with high risk situations that can arise outside of normal working hours.

Breakdown of Workload

Neonatal Unit Admission	176
Fetal Anomaly Diagnosis	82
Domestic Violence	67
Addiction	64
Inclusion Health	151
Other	493
Total	**1033**

The largest volume of referrals to the MSW continues to be for families with babies admitted to the Neonatal Unit and families with an antenatal diagnosis of a fetal anomaly. The Medical Social Worker completes a psychosocial assessment and offers intensive emotional support to these families. Inclusion Health is the next largest area of work with comprises homeless families, Ukrainian families and other families seeking international protection.

Support to Maternity Units of the Ireland East Hospital Group (IEHG)

A MSW service was offered to 65 families who attended from maternity units within our IEHG, Wexford (21), Mullingar (28) and Kilkenny (16). In 2022 these Maternity Units gained approval for a maternity social worker in each unit which will be formally supported by our MSW team. The MSW service is Mullingar began in November 2022 and works closely with our department, while recruiting in ongoing in Wexford and Kilkenny. This service enables continuity of care for families whose care is transferred to the NMH. The IEHG referrals are mainly for parents whose babies are admitted to the Neonatal Unit or to families who receive an antenatal diagnosis of a fetal anomaly. They often require not only intensive emotional support, but also significant practical support when travelling from a long distance for hospital care.

High Risk Caseloads

The MSW Department offers a specialist service to women experiencing domestic violence in pregnancy. In 2022, 65 women and their children were supported by this service. The department made 31 new referrals to Tusla due to child protection concerns. Of the 65 families: 15 were already known to Tusla due to the level of risk to their children, ten experienced homelessness as a direct result of their experience of domestic violence and Gardaí were actively involved in supporting 39 of these families in relation to their experiences of violence. The MSW supported 9 families in accessing refuge accommodation. The MSW Department continued to work closely with the Women's Aid Maternity Project and referred 20 women directly to their Outreach Support Service.

The MSW Department offers a specialist service for women with addiction and in 2022, 64 women were supported by this service. Due to the level of risk 26 of these families were referred to Tusla. Women received intensive support and as a result most babies were discharged home with their parents with a robust safety plan in place however 6 babies were placed in alternative care.

Inclusion Health

In 2022 our department offered a specialist service to 151 women who met the criteria for support in relation to 'Inclusion Health', a new initiative in the three Dublin Maternity Hospitals since 2021 which was developed in recognition of the impact of homelessness and inadequate housing on children's health. The aim is to deliver an integrated health care approach to homeless pregnant women. Of the 151 women, 77 were homeless, 32 were Ukrainian families and the remainder were seeking International Protection from other countries.

Laura Harrington, Head Medical Social Worker.

Pharmacy

Áine Toher, Senior Pharmacist in Medication Safety & Informatics.

The overall aim of the pharmacy department is to ensure safe, effective and economical use of medicines and to support education, training and research in The NMH. The department purchases, supplies and dispenses medicines for inpatient and outpatient use. The department consists of pharmacists, as well as pharmacy technicians and an intern pharmacist, who work together to ensure patients receive the highest quality pharmaceutical care possible. Pharmacists provide a clinical pharmacy service for the NICU, maternal medicines clinic and antimicrobial stewardship and where possible the gynaecology, antenatal and postnatal wards, ensuring safe and effective use of medications. This is achieved through review of patients' charts using the Maternity Newborn Clinical Management System (MN-CMS) along with the performance of medication history checks and reconciliation at ward level. Pharmacists play a central role in the continuing development and optimisation of the electronic prescribing functionality of the MN-CMS, devoting a significant amount of resources to the provision of induction and ongoing training for clinical staff.

The Chief Pharmacist plays a central role in providing the Drugs and Therapeutics Committee with up to date information on drug expenditure, new products, and medication policies, procedures, protocols and guidelines, while notifying the committee of cost implications associated with changes in clinical practice. The Chief Pharmacist is also a member of the Research Ethics Committee. The NMH Medication Safety Programme is led by a Senior Pharmacist who chairs the multidisciplinary Medication Safety Committee. This committee is responsible for developing and implementing a 5-year strategy, along with an annual workplan. Activities include dissemination of medication safety newsletters and alerts, oversight of medication-related audits and quality improvement initiatives, along with an extensive programme of induction and ongoing training for all clinicians. Senior pharmacists are members of multi-disciplinary teams in the Maternal Medicines Clinic, NICU and Infection Control.

Pharmacy Activity

The pharmacy team continued to adapt to meet the unprecedented demands due to the COVID-19 pandemic whilst maintaining essential services for staff and patients. Pharmacy played an essential role in the delivery of The NMH COVID-19 vaccination programme, re-establishing a reconstitution station in October in the NMH vaccination clinic to allow for administration of the first new formulation mRNA COVID-19 booster vaccine Comirnaty® BA.1. For the second year running the department provided an eight-month training programme for a 5th year pharmacy intern Sarah Cullen. Along with many other departments in the hospital, the return to pre-Haddington Road working conditions of 35 hours per week placed strain on a service that has been established based on a 37 hour working week. Despite this, and along with a reduction in the overall pharmacist WTE cover from 5.5 in 2021 to 5.0 in 2022, the level of clinical pharmacy activity was maintained at 2021 levels as per the table below. Of note however, due to constantly expanding demands placed on pharmacy staff, it has been a challenge to provide a regular medicines history and reconciliation service in antental, gynaecology and postnatal areas. A medium term plan to utilise pharmaceutical technicians to perform this duty is underway. In line with a reduction in overall activity in the hospital, the number of medications dispensed by the pharmacy department decreased to 23,324 which is a drop of 13% compared to 2021, as per the table on page 181..

DRUGS AND THERAPEUTICS / MEDICATION SAFETY COMMITTEES

Medication Safety

Where possible and taking into consideration the demands placed on NMH by the COVID-19 pandemic, the Medication Safety Programme continued to implement the 5-year (2019-2023) medication safety strategy through use of the annual work plan.

Eight medication safety or medication-related audits were conducted in 2022:

- Post-operative and post-procedural oxycodone usage in obstetric / gynaecology patients – February
- Administration of intravenous antibiotics within 1 hour of delivery, for women who have had an operative vaginal delivery – May
- Administration and management of anti-seizure medications by clinicians – July
- Vancomycin dosing and therapeutic drug monitoring levels in NICU – August
- Antimicrobial Point Prevalence Survey – September
- Registered midwife/nurse prescribing – December
- VTE assessment documentation and compliance audit using the MEG app VTE audit tool – monthly
- Emergency trolley reviews – July and November
- Multi-Centre Emergency Department Antimicrobial Stewardship Audit – August

Medication safety training sessions held: 16 for medical staff, and 1 for midwifery/nursing.

Twelve quality improvement projects performed included: Safe Storage in IV Fluids Room, Supply from Pharmacy and Storage of Benzodiazepines / Z-Drugs in Clinical Areas, Safe Supply of Non-Stock Medication to Clinical Areas, NICU Drug Formulary, Pharmacy Staff Training Manual, High-Alert and NMBA (Neuromuscular Blocking Agent) Labelling System, Safe Administration of Morphine Sulphate 10mg/mL in Theatre, Antibiotic Drug Focused Newsletter, Recovery Unit Medication Top-up Service, Medication Management in Women with Epilepsy, MN-CMS Medication History and Reconciliation Training Videos, Emergency Trolley Pharmacy Management

Medication policies, procedures, protocols, guidelines: 10 new were approved, 23 were updated

Antimicrobial Stewardship

Antimicrobial consumption figures for 2022 were not available at the time of writing. For 2021 overall consumption was 32.22 DDD/100 BDU*, showing antibiotic consumption figures returning to pre-2020 levels (2019 = 33.12 DDD/100 BDU). (**defined daily doses per 100 bed days used. This is the WHO convention for reporting antibiotic consumption*)

- Prevalence of antimicrobial prescribing during the national Point Prevalence Survey in 2022 was 18%, in line with average antimicrobial prescribing in recent years. The majority of antibiotics prescribed (83%) were for prophylactic indications which is in line with the types of antibiotic protocols utilised within the hospital.
- A total of 26 patients (adults and neonates) were prescribed carbapenems, 92% were approved by Microbiology or were in line with NMH antimicrobial guidelines.
- The adult antimicrobial guidelines were reviewed in their entirety and the policy was updated. The antimicrobial monographs for NICU were all reviewed and updated.

Medication Incident Reporting

The reporting of incidents is of value as the data collected can be analysed to identify trends or patterns in relation to risk, and resulting recommendations for improvement can be shared with frontline staff. Online medication incident reporting became live in all areas in 2021 hosted through a secure cloud-based programme. This system superseded the paper-based report form, allowing for greatly enhanced analysis of incident reports and trends. 145 medication incident reports were submitted in 2022 compared to 214 in 2021; see figure below. This decline in incident reporting is likely reflective of a decrease in incidents relating to absence of documentation of diclofenac suppository administration in the Delivery ward following expansion of midwife prescribing in that area. The majority of reports were completed by pharmacy staff (58%) Although the proportion of reports from midwifery/nursing increased to 41% (from 15% in 2020 and 38% in 2021), reporting from medical staff remained very low, decreasing from 2% in 2021 to 1% in 2022. There is a need to raise awareness of the importance of medication incident reporting among medical staff. The proportion of incident reports defined as "near miss" continued to increase from 5% in 2020 to 11% in 2021 and 15% in 2022 reflecting a heightened awareness of the importance of learning from near misses.

- Analysis of incident reports found that:
- Incidents most commonly occurred at the point

of administration (41%) followed by prescribing (30%), and storage (18%)

- 'Medication not prescribed' and "medication storage error" were the most common reasons for a report at 13% each, followed by 'dose incorrect/ unclear' at 12%.
- Antimicrobials accounted for the highest percentage of reports (18%), followed by tinzaparin (9%), home medications (9%), diclofenac (6%), and opioids (6%).

David Fitzgerald, Chief Pharmacist.

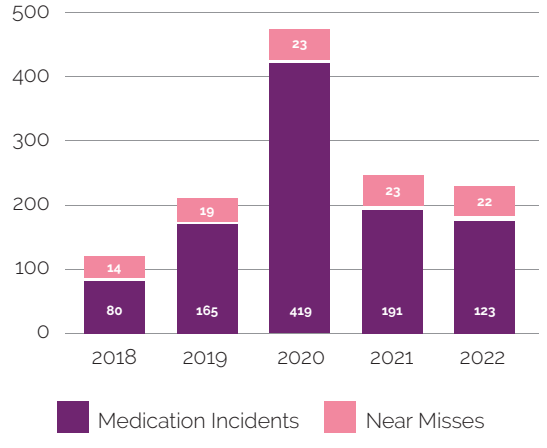
Clinical Pharmacy Reviews Performed	2018	2019	2020	2021	2022
Number	15587	13548	21232*	15134	15227

**The figure for clinical pharmacy reviews in 2020 was inflated due to absence of other duties for clinical pharmacists. At the height of the pandemic there was very little scope for projects, quality improvements, audits, and limited changes/updates to policies. Due to this, pharmacists had significantly more time to perform clinical reviews of patients' charts. In addition, a 0.5 WTE pharmacist left in August 2020, bringing the pharmacist staffing down from 5.3 to 4.8 WTE. The figures for 2021 and 2022 represent the normal baseline level of activity.*

Clinical Pharmacy Activity	Clinical Pharmacy Reviews Performed	Pharmacy Review Activities	Activity Rate per Review (%)
Antenatal Ward	2,083	471	23
Gynae Ward	200	58	29
Postnatal Ward 1	3,031	421	14
Postnatal Ward 2	560	115	21
Postnatal Ward 3	513	99	19
Maternal Medicine Clinic	1,714	421	25
NICU	5,008	614	12
Antimicrobial Stewardship	1,931	475	25
MN-CMS Prioritisation Review	187	20	11
Total	**15,227**	**2694**	**18**

Medication Incident Reports 2018-2022 by type.

Medication incidents



Maternity Services, Diabetes in Pregnancy and Gynaecology Services

Physiotherapy

Physiotherapy Team

The Physiotherapy Department had another busy year in 2022 with over 4,010 new patient referrals. Our referral activity remains consistent since the introduction of MN-CMS. This demand drives the shape of our service leading to our increased provision of group classes to try and reach our service users in a timely way. 2022 commenced with us having a whole time equivalent of 7 WTE's. During the year Ciara Ryan returned from maternity leave while Laura O'Sullivan left on a year's leave of absence allowing us to retain the expertise of Sarah Mullins. We continue to provide a 0.5 service to the Pelvic Floor Centre located in St. Michael's Hospital which is ably led by Lesley-Anne Ross who successfully sought funding for two additional Senior Physiotherapists from NWHIP to resource their service.

The Physiotherapy Team provide:

- A referral based Physiotherapy service to all inpatients Monday-Friday.
- An outpatient clinic offering appointments Monday-Friday for musculoskeletal conditions and issues relating to pelvic floor dysfunction.
- A neonatal service within the NICU and an outpatient service Monday-Friday.
- Ongoing delivery of the hospital antenatal and postnatal education programmes alongside our NMH colleagues
- Undergraduate placements for UCD Physiotherapy Students.
- A range of education sessions to facilitate early assessment and timely access to physiotherapy services e.g. Pelvic Girdle Pain Class, Pelvic Floor Care Class, Little Feet, Big Steps Class & Healthy Bodies after Birth Class
- A service to the multidisciplinary Pelvic Floor Centre team based in St. Michaels Hospital every Monday and Wednesday.

We continue to initiate all adult referrals with a telehealth assessment to complete all subjective information gathering and dissemination of first line advice and guidance having a library of NMH resources at our disposal

Clinical Activity

Department activity is reviewed under 3 headings: Obstetrics, Gynaecology and Neonatology. Patients are seen either as inpatients, on the obstetric (pre and postnatal), gynaecology or neonatal units, or as outpatients in the Physiotherapy Department. Some patients may require just one visit while others may require a number of treatment sessions. Our Physiotherapy Department is located on the 2nd floor of 65 Mount St. There was a total of 4,010 new patient referrals in 2022.

Physiotherapy in Obstetrics

Obstetric Assessment and Treatment: We offer outpatient physiotherapy to all of our obstetric patients as well as providing an inpatient physiotherapy service. We treat a range of musculoskeletal and pelvic floor conditions across the childbearing year.

As you can see in the chart at the end, the bulk of our obstetric patients are referred with back and pelvic pain. In order to facilitate reaching these patients in as timely a way as possible we run virtual Back & Pelvic Care information sessions every Thursday from 11am - 12 noon. We run a monthly virtual Pregnancy Wellbeing Class focusing on physical care during pregnancy on the 2nd Friday of every month. We also run a weekly virtual postnatal class every Friday at 11am - 12.30pm titled Health Bodies after Birth Class to reach our postnatal Mums. The attendance at these classes surpasses the numbers we reached when they were held in person.

Physiotherapy in Gynaecology

We run an outpatient gynaecology physiotherapy clinic treating patients with pelvic floor dysfunction. We also review those inpatients admitted for major gynae surgery. We run a virtual Pelvic Health Class as a first-line for all triaged referrals to the Urogynae clinic to improve our timely reach to women referred to this service. We commenced the provision of pessary management of Pelvic Organ Prolapse to our service with the upskilling of members of the team and hope to extend it to all in 2023.

Physiotherapy in Neonates

As we continued to have a temporary Senior Neonatal Physiotherapist, Eithne Lennon, to assist with the neonatal outpatient caseload, our Clinical Specialist, Joanne Egan, had more time to spend working within the NICU. We hope to make that a permanent post in 2023 as it is crucial to the delivery of the service.

Judith Nalty, Physiotherapy Manager.

5 Year Overview of Patient Referrals

Year	2018	2019	2020	2021	2022
Physio Referrals	4116	3836	3370	4148	4010

Obstetric New Patient Referral Reasons (n=2881)

		%
Pelvic Girdle Pain	1242	43%
Other	728	25%
Urinary Incontinence	247	9%
DRAM	163	6%
Coccyx pain	107	4%
OASIS	109	4%
Carpal tunnel syndrome	108	4%
Respiratory	9	-
Pelvic floor pain/dyspareunia	25	1%
Urinary Urgency	21	1%
Pelvic Organ Prolapse	50	2%
Faecal Incontinence	15	-
C-section complications	13	-
Thoracic/rib pain	21	-
Faecal Urgency	6	-
Urinary Retention	6	-
Prev OASIS symptomatic	7	-
Prev OASIS asymptomatic	4	-

Gynaecology New Patient Referral Reasons (n=549)

		%
Bladder & Bowel Dysfunction	372	68%
Prolapse	51	9%
Routine Post Op Advice	82	15%
Pelvic Pain/Dyspareunia	37	7%
Mobility Assessment	1	-
Respiratory Assessment	2	-
Previous OASIS	4	1%

Neonatology New Patient Referral Reasons (n=580)

		%
Neurodevelopmental	269	45%
Talipes	143	25%
Brachial Plexus Injury	14	4%
Radial Nerve Palsy	1	<1%
Upper limb fractures	8	1%
Developmental Dysplasia of Hip – requiring Pavlik harness	16	5%
Other	5%	13%
Head & neck Assessment	87	7%

Psychosexual Therapy

The Psychosexual Therapy Clinic continues to be very active with referrals being received from General Practitioners and hospitals throughout the country as well as from clinics within The National Maternity Hospital including gynaecology, fertility, postnatal, physiotherapy, menopause, oncology and consultant clinics.

As in previous years, there remains a lengthy waiting list of people to be seen.

The main concern presenting for women continues to be vaginismus, whereby penetration is not possible. Other concerns include dyspareunia (painful intercourse), lack of desire and anorgasmia (inability to achieve orgasm).

A blended approach to counselling work continued throughout 2022, offering clients the option to attend online or face-to-face in the clinic.

2022 saw the welcome addition of a trainee Psychosexual Therapist, Corinne Henry-Bezy.

Corinne is a qualified general nurse from University College Dublin with a background of medical ward nursing in renal and respiratory conditions. Corinne is presently undergoing a part time MSc in Psychosexual Therapy since 2020 with the University of Central Lancashire, Preston, UK and will continue to work with clients under supervision until the end of 2023.

Lectures to Medical Students continued throughout the year as well as participation in a Study Day for GPs delivered online and an information session delivered to the Mental Health Team in the Rotunda Hospital.

These all remain important in increasing awareness about sexual difficulties and help available.

164 new referrals were received in 2022: 75 referrals came from a waiting list from 2021 and 15 cases continued therapy from 2021.

Meg Fitzgerald, Psychosexual Counsellor.

Dysfunctions Presenting	
Female	
Vaginismus	111
Dyspareunia	64
Inhibited Sexual Desire	29
Anorgasmia	18
Male	
Erectile Dysfunction	5
Delayed Ejaculation	2
Unconfirmed	23
Total	**252**

Referral Sources	
Consultant/NMH Staff	118
General Practitioners	64
Other Agencies/Hospitals	50
Self-Enquiries	20
Total	**252**

Outcome	
Engaged in weekly/fortnightly therapy or brief intervention	68
Cancelled or did not avail of initial contact	46
Placed on waiting list for 2022	99
Referred to private clinic	20
Referred to external/local PST services	19
Total	**252**

Radiology

Dr Clare O'Connor, Consultant Obstetrician & Gynaecologist, Heather Hughes, CMS Ultrasound, Dr Helen Bartels, Placenta Accreta Clinical Research Fellow, Barbara Cathcart, CMM2 Fetal Medicine.

Paediatrics

The Department of Paediatric Radiology was established in 1984 and has evolved over the years to provide a range of ultrasound and radiographic services to the hospital's paediatric patients.

Services Provided for Paediatric Patients

General radiographic examination on neonates admitted to the Neonatal Unit and for infants attending the outpatient clinics if required. The majority of this work is portable radiography.

- Fluoroscopic gastrointestinal contrast studies.
- Ultrasound and doppler service.
- Ultrasound examinations for developmental dysplasia of the hip.
- MR examinations for infants up to one year of age.
- Fetal and placental MR examinations in pregnant patients.
- CT examinations via The Children's University Hospital, Temple Street, D1.

The National Fetal MRI service is based in The National Maternity Hospital and accepted Fetal MRI referrals from the 6 hub hospitals of the Rotunda, Coombe, GUH, UHL, CUMH and Royal Jubilee Hospital, Belfast along with neonatal MRI referrals.

Services Provided for Adult Patients

- General radiographic examinations.
- Hysterosalpingograms and selective fluoroscopic examinations.
- Limited ultrasound service. Referrals are currently limited to patients referred by National Maternity Hospital consultants. The types of examinations are limited to upper abdominal examinations and transabdominal and transvaginal pelvic examinations. Emergency ultrasound (including doppler ultrasound) examinations are performed at St. Vincent's University Hospital.
- Elective and emergency CT examinations via The Radiology Department, St. Vincent's University Hospital.
- MR examinations via the Department of Radiology, St. Vincent's Private Hospital. Examinations include staging of cervical cancer and uterine cancer, MR characterization of ovarian masses and MR urography.
- Interventional radiology procedures via the Department of Radiology, St. Vincent's University Hospital. Procedures include emergency nephrostomy and abscess drainage.

A total of 7,211 examinations were performed in 2022. Adult services: 910 adult examinations were performed of these 152 examinations were hysterosalpingograms and 579 ultrasounds were performed. 179 other adult examinations were performed including x-rays and gynae MRI.

6,301 paediatric examinations were performed. 1,822 were hip ultrasound and 439 cranial ultrasounds were performed. 621 other examinations were performed including x-ray, fluoroscopy and other ultrasounds, (renal, abdominal, chest, soft tissue, vascular). 535 MRIs were performed of which 268 were fetal MRI examinations.

Radiology Team

Compliance & Data Protection

Compliance

The National Maternity Hospital is a Section 38 hospital and therefore the regulatory environment is complex. Annual compliance reporting is required both to our main funder, the HSE, as well as to the Charities Regulator among other authorities. Compliance and Governance are essential elements of the dealings of the Executive Committee (The Board) of the Hospital. Together with staff members, the sub-committees are following compliance and governance issues closely and reporting on a regular basis to the Executive Committee making sure that we are compliant with all relevant rules and regulations.

For the second year we reported our compliance in relation to the Charities Regulator's Code of Governance. In addition, corporate governance procedures, including Board arrangements and responsibilities, are mapped against the Code of Practice for the Governance of State Bodies and the HSE Code of Governance. All members of The Board have also participated in refresher seminars on corporate governance issues.

In an Annual Compliance Statement, we furnish our compliance status to the HSE in areas such as governance, finance, procurement, risk management, taxation and remuneration. We also report our compliance with the provisions of the Service Level Agreement with the HSE (an extensive document covering services of the Hospital contracted to the HSE).

Data Protection

The Data Protection Officer is responsible for implementing and maintaining a Data Protection Management System with a framework for ensuring that the Hospital meets its obligations under the General Data Protection Regulation (GDPR) and national associated legislation. We have a Data Protection Management System in place that is in compliance with GDPR and our staff are 'data privacy/ GDPR' aware with knowledge and understanding of how it affects their day-to-day role as well as the need to ensure that data protection is considered in all our planning. During the year an internal audit of the Data Protection function was carried out. No high risks were detected and the four medium ones that have been are being addressed.

Subject Access Request (SAR)

An individual has the right to access any electronic or manual information that the Hospital holds about them. The Hospital will provide them with a copy of their personal data held by the Hospital on request free of charge within 30 days from the date the request is made. A system is in place to ensure that all requests are actioned, quality checked and sent out within the 30 days' period allowed by the law. The number of requests have been steady over recent years, with over 50% of requests submitted by solicitors on behalf of their clients. During the year we responded to more than 1000 requests, the majority being from patients requesting information directly (Administrative Request).

Training

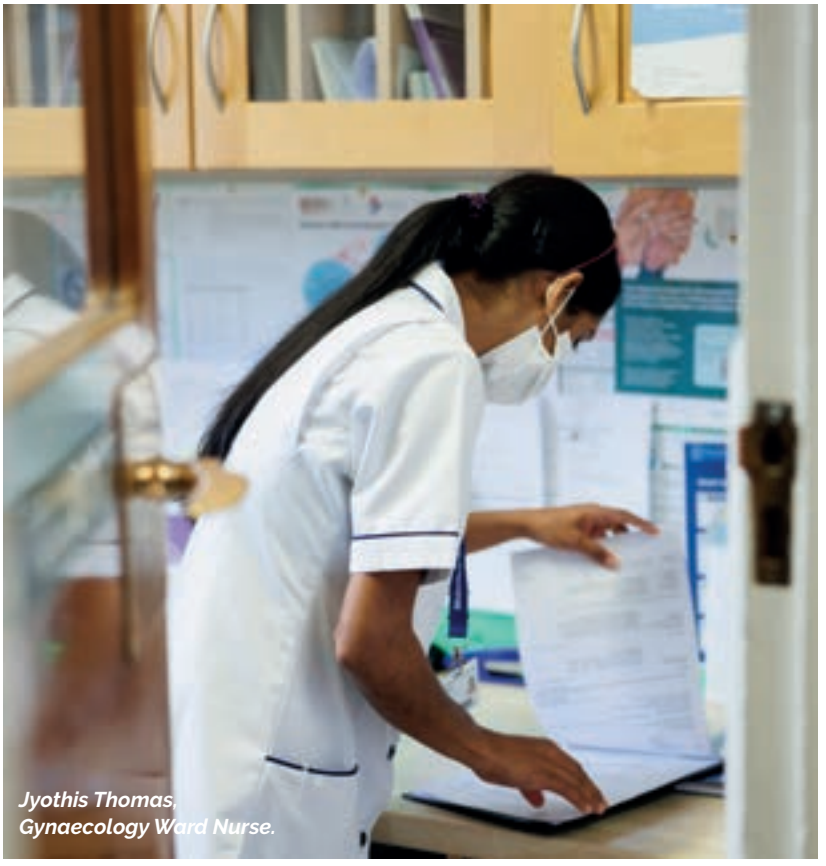
Staff training is a crucial part of protecting data privacy and is required under GDPR. Data protection training is mandatory for all staff bi-annually, in addition to data protection training for all incoming staff. The data protection training is done online which is the measure put in place to help us comply with the law. In addition, raising awareness of data protection is an integral part of the induction programme.

Breaches

Most of the internal data breaches reported are as a result of increased awareness of what constitutes data breaches and the various data protection courses available to staff. NMH staff are well aware of the need for transparency and the need to ensure due process in reporting and in dealing with data breaches. There is an internal on-line system to report data breaches to make it easy and transparent. Last year we had 45 reported data breaches in the Hospital. Significant breaches are reported to the Data Protection Commission and reviewed and if need be, internal practices are improved to avoid future breaches.

Carl Alfvag, Compliance and Operations Manager/Data Protection Officer (Acting).

Hospital Inpatient Enquiry



Jyothis Thomas, Gynaecology Ward Nurse.

The Hospital Inpatient Enquiry (HIPE) system collects information on hospital day cases and inpatient activities in Ireland. The HIPE system and associated coding will determine the invoicing and future budget of the hospital.

In 2022, there were a total of 16,839 discharges recorded on HIPE. HIPE staff review the electronic patient record and extract principal diagnosis and procedures. Medical classification codes are then assigned as per ICD-10-AM 10th Edition or Turbo Coder (e-book). A principal diagnosis and up to 29 additional diagnosis as well as a principle procedure and up to 19 additional procedures. These are then grouped into a DRG (Diagnostic Related Group) which categorises patients into groups based on clinical similarities and resource consumption. They are then exported monthly to the Healthcare Pricing Office (HPO) with a strict 30 day deadline. The hospital budget will be set based on agreed/commissioned Activity Based Funding target levels and monies will only be provided when activity is carried out and invoiced i.e. coded. See table below for 2022.

Liz Mahon, HIPE Coordinator.

Description	Total	%	ALOS	Inpatient Bed Days	Day Case	Average Age	Inpatient WU	Day Case WU
Obstetrics	13446	79.8	2.3	25043	2591	33	5859	2414435
Gynaecology	2208	13.1	2.3	1004	1765	47	623	1614524
Neonatology	1091	6.5	8.2	8889	0	0	2231	0
Anaesthetics	94	0.6	0.5	1	92	47	0	54988
Total	**16839**	**100**	**3.3**	**34937**	**4448**	**32**	**8714**	**4083947**

WU = weighed unit

Human Resources

HR Team.

Human Resources

The Human Resources Department (HR) provide a corporate Human Resources and Pension Management service across the Hospital for Medical, Midwifery & Nursing, Allied Health Professionals, Management/Administration and Support Services. HR is also involved in a number of corporate initiatives across the Hospital. The HR team supported the Executive Management Team and various Department Heads in providing advice and guidance on good practices optimising employee relations and other issues. The HR Department continue to uphold the principles of accountability, confidentiality and trust. We currently have 9.9 WTE staff in the HR Department. (1.5 WTE staff dedicated to Pensions)

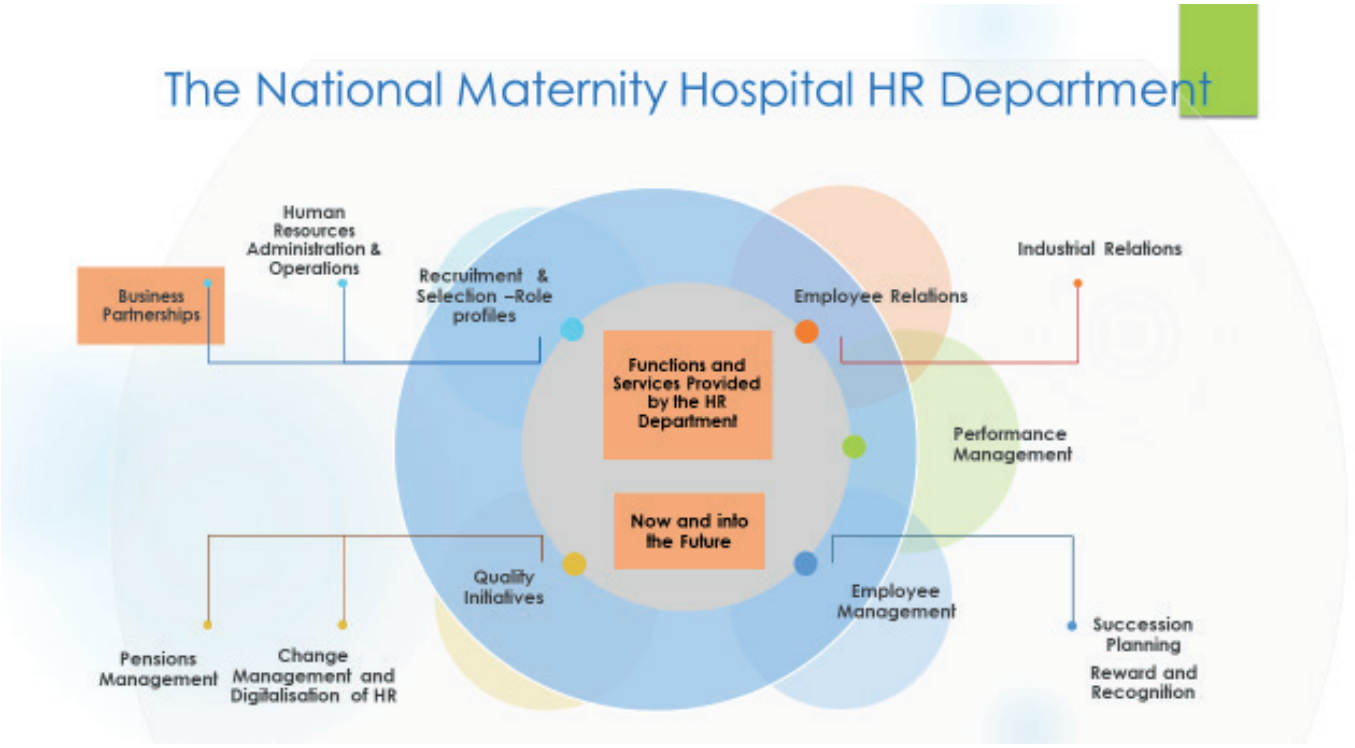
Figure 1 provides an overview of the functions and the Services of the HR Team.

Talent Retention

It is evident that the biggest challenge for HR professionals continues to be people related: recruiting new talent, retention of current employees, succession planning, training and development. Monitoring and analysing employee turnover will help identify areas for improvement. HR take the lead in examining how best to enhance the Hospital Employee Value Proposition and ensure it is well communicated. The HR Department provide quarterly reports on HR Activity to the People and Organisation Committee and The EMT. The Hospital has received approval for a number of development posts in areas such as Fetal MRI, Infertility Programme, Mesh, Colposcopy and other aspects of the Maternity Strategy.

Recruitment

A large number of recruitment competitions in 2022 reverted back to face to face interviews in Quarter



2, while keeping in line with national guidelines. The Hospital are developing and establishing new services in line with the Maternity Strategy including in areas such as Menopause, Fertility, Genetics, Mesh and, and developing and expanding existing services such as Radiology (MRI), Perinatal Mental Health, Dietetics, Physiotherapy, Medical Social Work, Colposcopy and Neonatology. These developments and the additional staff required, have been supported by funding from the National Women and Infant's Health Programme.

The Hospital has encountered some challenges in recruiting various staff with relevant skill requirements particularly in Midwifery & Nursing. The Hospital is continuing to look at creative ways of attracting staff. A National taskforce is due to be set up to assist with the shortages in the Midwifery & Nursing area. Accommodation costs in Dublin has proved to be a barrier for recruitment.

The National Maternity Hospital HR Department have participated in Recruitment Fairs organised by the Ireland East Hospital Group (IEHG) in Dublin as well as various cities in the UK and this is an opportunity to establish links with other countries to attract staff to the Hospital. The Hospital has its own international contacts and use agency services to recruit international Midwifery & Nursing staff. Our people, culture and alumni are our greatest asset and we plan to leverage our reputation to attract and retain staff.

Pensions Management in HR

The NMH as an organisation is fully compliant with the Single Public Service Pension Scheme (SPSPS) across the three key areas of statutory responsibility (Section 43 of the Act). The National Maternity Hospital was requested to be represented on the Single Scheme Compliance Forum Group to assist other Hospitals with compliance. This is a very positive development for the Hospital as all Hospitals are trustees of this scheme.

The pension area has seen an increase in the number of staff retirements in 2021, 2022 and this trend looks set to continue into 2023.

SUCCESSES AND ACHIEVEMENTS

COVID-19 Recognition Payment

COVID-19 Recognition payment was paid to staff in scope in recognition of their contribution to the Hospital during the Covid Pandemic between March 2020 and June 2021. This was well received by the relevant staff.

A Retirement gathering

This was arranged in Quarter 4 of 2022 to celebrate all the staff who retired during the COVID-19 pandemic. The gathering was well attended and was a wonderful opportunity for staff to meet again.

Information and Consultation Agreement

The HR Department completed the 5 year review on The National Maternity Hospital Information and Consultation agreement following consultation with all staff and union groups. The National Maternity Hospital have regulatory obligation under the provision of the Information and Consultation Act 2008 to have an agreement in place setting out communication channels and framework. The existing collective bargaining with trade unions continue separately and unaffected.

HR Information Systems

There was an upgrade to the Totara e-learning system and Softwork's HR system.Governance of the Totara e-learning system and cleansing of data in both systems is currently being finalised but this has greatly helped our gathering of data for reporting information. The plan for 2023 is to have all our Totara e-learning training records available for Managers plus an overview of training at a corporate and local level. The Hospital will review the option of integrating the HR systems with payroll processes.

Blended Working Policy

A Blended Working Policy was created following the work life balance and Miscellaneous Provisions Bill December 2022: The Hospital aim to introduce it formally in 2023.

Performance Achievement

This was introduced in late 2021 and the Hospital continue to promote this at local level as it contributes to staff retention and development.

Training for Staff

The IT Department arranged training for staff in 2022 to upskill in Excel and Microsoft Office with an external provider. Dignity at Work Training was arranged with an external provider for the Key Contact people in line with the new policy and this was also supported by HSE training.

Staff Retention Initiatives

Staff at the Hospital who reach 25 years' service are awarded 5 extra day's holidays as a once off recognition of their dedication and loyal service to the Hospital. This will continue on a yearly basis for staff.

People and Organisation Committee

This was formed in Quarter 3 (4 meetings held) The Committee will provide strategic oversight and advice on matters to support the people ambitions of the NMH Strategy and provide assurance to the NMH Executive Committee that the HR, People and Organisation related activities are in place and deliver the required outcomes and benefits. The Committee consists of members of the Executive Committee with members having specific expertise; HR attend this meeting with members of the EMT. The committee have set out a plan for 2023 and will look at recruitment challenges, improved documentation of policies and will have an input in relation to the next Hospital Strategy which is due to commence in January 2024.

Challenges Experienced

Industrial Action

An unsettled industrial relations climate due to cost of living increases in quarter 3 of 2022 and the ending of the 1st building momentum national agreement gave rise to threatened strike action from various sectors such as Pharmacy, Forsa, SIPTU and Medical Laboratory Scientist Association (MLSA), as sectoral bargaining continued at a National Level the MLSA went on strike in May for 7 days. The Hospital and staff co-operated well together during this period and were prepared for any emergencies that arose.
New pay arrangements were introduced at a National Level applicable to all staff during the year including the extension of the building momentum agreement and salaries were increased accordingly.

Haddington Road Reversal of Hours

For Administration, Healthcare Professionals, Midwifery & Nursing and Consultants was implemented with effect from 1st July 2022 which reduced the number of hours available for covering shifts. This along with staff leaving the health sector to travel, career progression and move to the country put added pressure on staff vacancies.

HR Quarterly Report Updates The HR Department provide a quarterly HR performance report to the Finance Committee. The highlights of the key performance indicators (KPI's) for 2022 are given in the table at the end.

Absenteeism

The average absenteeism rate for the hospital in 2022 was 4. 8%, but this was acerbated by COVID-19 absence and outside the Hospital, life was getting back to socialising as normal. 3.2% in 2021 was positive due to the roll out of the COVID-19 vaccine and the extreme vigilance of the Hospital staff. The HSE target for absenteeism in normal circumstances is 3.5%. Our overall sick leave figure continues to be in line with the HSE average when COVID-19 is extracted; this is thanks to our dedicated staff and management.

Retirements

As mentioned above 24 members of staff retired in 2022 and each and every one of those staff will be missed by their colleagues and friends. The Hospital will also miss the expertise and knowledge these staff take with them. We wish all our former colleagues a long, health and happy retirement.

Employee Assistance Programme

An independent confidential service provided by VHI for the Hospital.44 employees used the EAP service in 2022, availing of advice on personal and legal matters, counselling sessions etc. This service has proved to be a valuable contribution to staff wellbeing.

Social Activities/Wellbeing

A Hospital Quiz to test staff knowledge, Summer Staff BBQ, Yoga classes, Pride Celebrations in the Canteen, Summer Pantomime, Walk in Clinic in Occupational Health, Wellbeing week (Emotional, Financial, Mental, wellbeing food and nutrition arranged by HR in conjunction with Healthy Ireland Committee), Christmas Dinner, Drive in Movie and the traditional Christmas Pantomime.

We send our sincere condolences to the family, friends and colleagues of Kate Doheny (Bashford) (Staff Midwife) and Sanell Vosloo (Staff Nurse) who sadly passed away in service during 2022; may they rest in peace.

The following former staff passed away in 2022: Dr Breda O'Kelly (Consultant Anaesthesiologist), Peter Cockburn, (Medical Scientist) and Mary Bernie Spillane, Midwifery & Nursing. They will all be remembered for their valuable contribution to the hospital and will be dearly missed by their colleagues, friends and NMH family.

HR Performance Highlights	2021	2022
Recruitment Competitions (Interviews held)	107	188
Staff Headcount (average for the year)	1058	1059
Average Absence Covid and Non Covid	3.7%	4.8%
Retirements (includes 4 staff who have preserved benefits in each year)	25	24

Yvonne Connolly, HR Manager.

Information Technology

The year started with 30 new HP EliteBook Laptops being delivered in February. These Laptops were assigned to users as their primary machine which has helped reduce the number of PCs throughout the hospital. Another 19 HP ProDesk 400 PCs were purchased in September 2022 and this has further reduced the number of Windows 7 PCs from 250 at the end of 2020 to 70 at the end of 2022. The acquisition of these Laptops and PCs was funded by the HSE. The final tranche of this funding will be used in 2023.

The new Virtual Private Network (VPN) System that was installed in September 2021 is now widely used and by the end of the year approximately 140 users were moved over to this system. The old VPN system is now ready to be shut down as all the users were moved over to the new system. The number of Laptops being used now stands at approximately 230.

To keep pace with demand a further increase in the capacity of the main SAN Equipment was completed in April 2022 bringing the overall capacity up to 38 TB. (Was 24TB).

Following on from the cyberattack that occurred against the HSE in May 2021, the IT Department took part in two major security audits: one was performed by Crowe on behalf of the NMH and the second one was performed by Deloitte on behalf of the HSE. In response to the Crowe audit, the following policy documents have been written, approved and uploaded to QPulse: 1) Identity Access and Mgmnt Policy, 2) Privileged Access Mgmnt Policy, 3) Anti Malware Policy, 4) Vulnerability and Patch Mgmnt Policy, 5) Wireless Network Policy, 6) Change Management Policy, 7) Removeable Media Policy, 8) Mobile Device Security Mgmnt Policy, 9) Security Awareness Policy. A full Software List (export from SCCM) was provided to Crowe also as well as a list of attendees for the mandatory Cyber Security Awareness Training (course provided by HSE) provided by HR (approx 500 employees). Password policy changes and tightening will be looked at once the Single Sign On facility (SSO Project) has been implemented.

The Deloitte audit was undertaken to ensure that recommendations by Mandiant Cyber Security, which were made after the cyberattack, had been implemented or if not possible, mitigated.

The three main systems that contributed to protecting the NMH Infrastructure continue to be monitored and kept up to date by Declan Corrigan and Saju George.

1. Juniper Firewalls in conjunction with SKY ATP (Anti-threat Protection)
2. Cisco Ironport for email scanning and filtering.
3. McAfee Anti-Virus Server that continuously monitors and updates Windows 7 PCs; Windows 10 PCs use Microsoft Defender.

In October 2022, the IT Department assisted with the setup of the Fertility Hub in the Ground Floor of 60 Mount Street. Other renovations where IT equipment had to be moved included the First Floor Postnatal Ward (Holles Wing) where the Nurses Office was shut down on 22nd October (re-opened 12th December) and Community Midwives who moved over to the Crosscare Building on 8th November before moving back on 28th December.

Audio visual equipment was upgraded in the Boardroom 4th Floor 65/66 Mount Street by the same supplier that completed the Unit 9A Lecture Theatre and the Main Lecture Theatre 1st Floor 65/66 Mount Street in 2021. The same company, Premier AV, will undertake a similar upgrade for the Midwifery Classroom on the 1st Floor in 65/66 Mount Street in early 2023.

"The Deloitte audit was undertaken to ensure that recommendations by Mandiant Cyber Security, which were made after the cyberattack, had been implemented or if not possible, mitigated."

The network upgrade work to replace the Cisco 4510 in the Basement of 60 Mount Street was delayed as the 2 x New Juniper EX3400 Switches (ordered for another project in August 2021) were only delivered in December 2022. They were installed and tested on 21st December 2022 and throughout January Declan and Saju have been migrating users across without any disruption. The above delay in delivery is still a major problem when ordering any major IT equipment.

The other major enhancement to the network was the migration completed by Government Networks of the NMH WAN links which were moved from NHN to GCN (Government Cloud Network). This changeover was completed on 18th May 2022 and introduced an increase in bandwidth from 100 mbps (NHN) to 1 gbps (GCN) thus giving NMH users a better connection to the HSE hosted systems IPMS and MN-CMS.

The graph below shows the workload trends for the IT Dept continuing on from last year's and starting in November 2017.

- Blue line represents Category 1 (break /fix) items.
- Green line represents Category 2 (password reset) items.
- Red line represents Category 3 (requests for assistance) items.

The impact created by the COVID-19 Pandemic can be seen at the 6th April 2020 whilst the high value for November 2020 was caused by problems with an IPMS Upgrade in September 2020 and problems with a Firewall Upgrade in November.

The drop in Requests logged (red line) during 2022 probably reflects a return of more stable operations after the effects of COVID-19 in 2020 and the cyber-attack in May 2021.

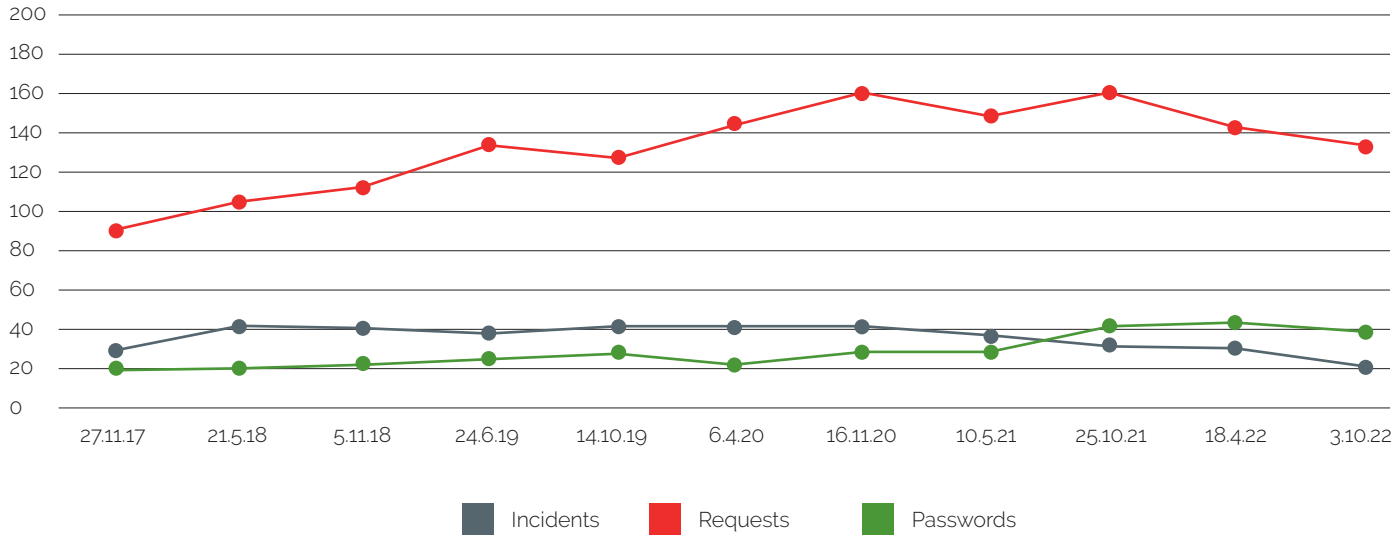
The NMH Email system was also upgraded in 2022. This work was undertaken by Declan Corrigan and Saju George in conjunction with Datapac. The system was upgraded from Exchange 2010 to Exchange 2016 and this work was nearing completion as of Jan 2023. The next upgrade from Exchange 2016 to Exchange 2019 is planned for Q3 2023.

The vacant Grade IV Position was filled in June 2022 by Gibin Babu and he has settled in very well.

MS Office Training was organised by the IT Department during June and July. 9 Microsoft Excel classes and 6 Microsoft Outlook classes held were well attended.

Major remedial work was also completed in CAB-C 3rd Floor where the Communications cabinets had been in a poor state of repair for some time. Work was completed on 22nd July.

Con Grimes, IT Manager



Information Management

Information Management involves retrieving and managing data from one or more sources and arranging it in such a way as to make it relevant and meaningful. Health Information Management is an increasingly important and essential resource: Hospital data from various clinical and administrative systems is validated and analysed in order to produce meaningful reports that are essential both internally and externally, to aid and support decision making, clinical audit, research publications, medical coding and billing.

The recording of clinical data in The NMH has increased substantially with the introduction of the electronic patient record on the national Maternal and Newborn Clinical Management System (MN-CMS). MN-CMS reporting revolutionised clinical data analytics in The NMH but continues to be a substantial challenge with the continued difficulties in developing and rolling out reports from the system. We continue to work with the national MN-CMS Team to maximise our use of reliable reporting from MN-CMS.

Improving information management practices is a key focus for many organisations across both public and private sectors and we are no exception. Generating interest in reporting and outcomes plays a significant role in improving practices and can provide motivation to ensure high quality data is recorded in order to return high quality reporting. However, it is not always simple: daily, weekly, monthly and annual validation checks undertaken on data across many systems takes time and requires the expertise of busy staff in particular the MN-CMS Team, Labour & Birthing Unit Manager, Clinic Supervisors and iPMS Administrators. Efforts become all the more worthwhile as the benefits of high quality reporting are seen.

The Information Management Department consists of Information Officer, Fionnuala Byrne and Data Analyst, Cillian Power who was welcomed to the team in August. The department works closely with the MN-CMS Team, IT, Patient Services and Administrative Departments as well as Allied Health Professionals, Nursing & Midwifery and Medical Staff in the hospital. The prime responsibilities of the department are:

- Extracting and analysing information from hospital information systems to assist local management decisions and highlight changing/emerging trends across all departments.
- Organising Health Service Executive returns.
- Producing hospital activity reports for the Central Booking Committee, Clinical Governance Executive Committee, Executive Management Team, Finance Committee, Quality Risk and Safety Patient sub-committee of The Board as well as the Executive Committee (The Board).
- Coordinating the NMH Irish Maternity Indicator System (IMIS) returns.
- Publishing online the monthly Maternity Safety Statement.
- Coordinating the completion and submission of all eligible perinatal death notification forms to National Perinatal Epidemiological Centre (NPEC).
- Publishing the Hospital Annual Report and the Annual Neonatal Report.
- Managing the submission of all eligible babies to the Vermont Oxford Network.
- Fulfilling ad-hoc, audit and research requests for staff and students.

"Extracting and analysing information from hospital information systems to assist local management decisions and highlight changing/ emerging trends across all departments."

Early in the year, the department was approached by Kim Ryan, CMM2, MN-CMS Team, about developing a dashboard showing various hospital metrics to all staff. After many discussions and iterations, the first NMH MN-CMS Dashboard was launched in August. The Dashboard was created by the department using Microsoft Power BI and is now generated monthly. It gives various information about the births in the hospital for the previous month, including total births, mode of delivery, age range of mothers and patient category among others. The Dashboard is emailed to all staff by the MN-CMS Team and is displayed on information screens in the hospital for staff to see. Following on from the introduction of Power BI to the department, we are looking at new ways of producing old reports to various areas using not only MN-CMS information, but the information we access from all NMH Hospital Systems.

Fionnuala Byrne, Information Officer.

Patient Services

Catherine Dunne, Fertility Hub Administration.

The Patient Services Department is a source of information and channels patient and service user queries in relation to Hospital services to the relevant areas. Service users' needs are constantly changing and we are determined to meet these needs.

Patient Services aims to support the Hospital's departments by providing professional and effective support to both clinical and non-clinical areas throughout the Hospital. In 2022, the department continued to provide administrative services across the Hospital in the following frontline areas:

Admissions, Antenatal Education, Baby Clinic, Bereavement, Birth Notification, Central Booking, Central Dictation, Chart Retrieval, Colposcopy, Community Midwives, Diabetics & Dietetics, Early Transfer Home, Fertility, Fetal Assessment Unit, Genetics, Gynaecological Clinics, Medical Records, Neonatal Unit, Outpatients Clinics, Physiotherapy, Radiology, Satellite Clinics, Social Work Department, Antenatal and Postnatal Wards.

In 2022, the Hospital continued to roll out the COVID-19 Staff vaccination programme with on-site clinics. The Patient Services Department played a key role in this project and was highly rewarding and great to be part of this worthwhile initiative.

During the year we introduced the T-Pro systems for our dictation and patient information services. We plan to roll out these systems further in different areas next year.

Freedom of Information

In 2022, there were 1,491 written requests in total received under the Freedom of Information Act and Administrative Access. This was an increase of 11.5% on the previous year.

Of the 350 FOI requests received 17 were corporate and 333 were personal requests.
85% of these personal requests were for copies of medical records.

I would like to thank the Patient Services Team for their dedication and diligence in 2022.

Finally, I would also like to thank the Executive Management Team for their continued support and we look forward to a rewarding year ahead.

Alan McNamara, Patient Services & FOI Officer.

Purchasing and Supplies

2022 was again another unprecedented year for all staff in the Purchasing & Supplies Department. We faced immense challenges to the supply chain as a result of huge increases in shipping issues/costs, a worldwide shortage of raw materials, the war in Ukraine, new Medical Device Regulations and Brexit. As a result of these issues, we were forced on a number of occasions to seek alternative products for stock/non stock items. The flexibility and understanding of Unit Managers throughout the hospital in relation to these issues was very much appreciated. At all times during this year, we remained focused on the requirements of our Hospital departments and clinics whilst mitigating the impact of these unprecedented market conditions.

Demand for Personal Protection Equipment (PPE) remained high but thankfully the hospital was in a good position regarding supply due to forward buying of stock and the backup of HSE supply. We would like to thank the Tendering Team for coordinating the HSE supply into the hospital.

The annual audit was undertaken in March and as always our full co-operation was provided. This audit is an essential part of what we do in the department to ensure best practice is adhered to at all times.

In July 2022 we said goodbye to James Dunne our Stores Porter who retired after many years with us here in the Purchasing & Supplies Department; he was a great worker with a pleasant disposition and will be missed. We would like to thank James for his hard work and dedication and wish him many years of happy retirement. Thomas Ellis stepped into this role in July 2022; his work ethic and pleasant disposition makes him a very welcome addition to our team. Also in July 2022 we welcomed Dermot McMahon to the Department in the role of Purchasing Office Manager. Dermot brings with him a wealth of Medical product knowledge which has been of considerable help in the daily supply chain challenges we face; he has enhanced our team and we wish him every success in this role

The business of the department is to provide maximum service with minimum risk whilst at all times striving to provide a high quality patient focused service. This would not be achieved without the continued dedication and commitment of all members of the Purchasing & Supplies Team. We would like to thank every member of the department for their hard work and support and we look forward to a successful 2023 and all the challenges it will bring.

Lorraine McLoughlin & Linda Gavin, Purchasing Managers.

Tendering

The objective of the Tendering Department, which works collaboratively with the Coombe Hospital, is to ensure compliance with National and European procurement guidelines for expenditure throughout The National Maternity Hospital (NMH).

Activity and interaction between NMH, Health Business Services (HBS) and the Office of Government Procurement (OGP) continued and when financially advantageous, we benefited by utilising the national frameworks and contracts. A number of significant internal projects ran through 2022, none of which could not have been achieved without the involvement of staff in many departments, we would like to extend our thanks to all those who participated.

2022 was another challenging year in NMH as activity in the hospital continued at a very high level. The requirements for non-contracted items continued to increase, thus providing a challenge period for sourcing, pricing, processing and delivery of goods. However, the year proved that by working together and supporting each other, we can make great things happen. The success that we had in 2022 could not have been met without the dedicated hard work of by our colleagues in the Purchasing & Supplies as well as Stores Departments who supported us wholly throughout the year.

With the continued support of the Executive Management Team, we have been provided with new systems to enable us to collate more comprehensive plans and we are looking forward to working with our all of our colleagues during 2023.

We wish to thank all the team for their continued commitment and hard work over the past year and look forward collaborating again for a successful 2023 and all the challenges it will bring.

James Byrne, Tendering Manager.

Development Project Office: NMH at Elm Park

The team have worked with St Vincent's University Hospital, HSE Estates and Accenture staff, to complete and submit the Final Business Case (FBC) for the project in 2020 for approval. The FBC is currently progressing through the required approvals processes with the Department of Health.

In May 2022 the final wording of the Legal Framework documents for the project was completed and agreed, and approved by Government marking a major milestone for the project.

The Design Team issued the draft Stage 2c report for approval, which when approved will form the basis of the tender for the construction of the new Hospital. NMH, SVUH, HSE Estates and the Design Team have collaborated and inputted in the process to develop this report. It is hoped that the final Stage 2c report is approaching sign off stage by early 2023. The Advanced Enabling Works for the project have been identified and documented and are ready to proceed to tender stage.

Brid Shannon CMM2 and Niamh McDonald CMM1, Labour & Birthing Unit.

Digital Health Steering Group (DHSG)

The DHSG have developed and completed the Digital Health Implementation Plan for the new hospital. In 2022 the group progressed the following work:

- Progressed Capital build alignment, coordinating ICT works with capital build works. The ICT group submitted ICT requirements including network procurement strategy options and Tetra, which are now included in the Stage 2c report.
- The team discussed, reviewed and prepared a 'Green Agenda' and Post Substantial completion timelines documents.
- A Clinical Engagement Group was established and is making good progress reviewing Functional Policies for clinical departments of the NMH.
- As part of the Clinical Engagement Group a number of enabling projects have been identified and are included in the ICT Integrated Plan – eHealth Roadmap.
- eHealth Roadmap presented at local and national level.
- Reviewed and evaluated potential options for Clinical Communications and Collaboration (CCC) solutions for the new hospital.
- The DHSG continue to maintain the DHSG Risk Register, based on the standardised HSE Risk Matrix and Issue Scoring and includes descriptions of risks, mitigation measures, and follow-up discussions.

Members of the NMH at Elm Park Development Team

Phase 1 of the operational readiness was completed in December 2020 and the Project Management Office was stood down at that stage. However, due to ongoing project requirements, many of the staff continue to work on various aspects of the project.

Prof Shane Higgins, Ronan Gavin, Mary Brosnan, Dr Roger McMorrow, Alistair Holland, Dr Orla Sheil, Dr Jenny Walsh, Martin Keane (IEHG), Damian McKeown, Eoghan Hayden, Emmet Travers, Gillian Canty, Martin Creagh, Geraldine Duffy, Sarah McCourt

Rebecca Moriarty and Mikey Devitt with their baby boy Ollie Moriarty-Devitt who was born at just 27 weeks gestational age in The NMH. Ollie then spent 72 days in the NICU. (Little Shadow Photography)

Catering

The Catering Department at NMH has been committed to building strong positive food safety culture for several years. The catering staff is passionate about serving nutritious food that lives up to patient and staff expectations, by providing a choice of locally sourced ingredients, cooked by talented chefs and delivered to patients and staff by a dedicated team.

We can proudly confirm that 2022 was a successful year for our department. Our themed days have been proven to be a popular choice that put a playful spin on trusted favourite meals. The canteen team also worked among various departments in promoting well-being, supporting smoking cessation initiatives, and building antimicrobial resistance awareness during world medication day.

What is more, the department achieved the following goals during the last 12 months:

- Silver Happy Heart Award by the Irish Heart Foundation for our ongoing commitment to a long-term sustainable programme of delivering a well-balanced healthy meal to our patients and consumers.
- ISO 22000:2018 Food Safety Management Systems was retained highlighting the ongoing objective of the Department to improve overall performance in our food safety programme.
- Food Safety Assurance Accreditation Award was achieved by the Catering Department. Food Safety Accreditation Award Night took place in Airfield Estate in Dundrum, where the Department was presented with the Award by CEO of the Food Safety Authority of Ireland, Dr Pamela Byrne.

The department's commitment to training, developing and engaging our workforce in employees' professional development is a key part of the NMH culture. We use online tools such as Totara application, HSELand or face-to-face training sessions to regularly train, improve skills and provide a safe work environment. A number of the team engaged in QQI Level 6 Team Leadership Training which focussed on very strong foundations of people management, organizational skills and communication. Additionally, the department's focus on food safety is reinforced by food safety training offered to each staff member. Our two team members, Damien Frayne and Muireann McColgan, exceeded our expectations and achieved distinction in QQI Level 5 Implementing Food Safety Management Systems and QQI Level 6 Designing Food Safety Management Systems.

In December we said goodbye to Christine Coleman who retired after 19 years of dedicated service to NMH. Christina was a much-loved member of our team and we wish her a very happy retirement.

Our plan for near future aims at building effective, online document systems for catering operations. Additionally, we are modernising ward kitchens and catering equipment to become more efficient, cost-effective and capable of withstanding the pressures of a busy catering operation in healthcare setting.

We would like to take this opportunity to thank all departments for their help and support throughout the year. We would also like to thank all the staff in Catering for their continued hard work and dedication this past year.

Liz Byrne, Catering Manager.

From left to right, Sandra Byrne, Catering (pink), Lisa Hopkins, Hygiene Services, Samantha Larkin, Healthcare Assistant, and Nora Curran, Hygiene Services, who has worked at The NMH for over 40 years!

Chaplaincy

The Chaplaincy Department provide spiritual, emotional, grief and bereavement support to bereaved patients / families who have experienced early miscarriage, mid trimester loss, stillbirth neonatal death and compassionate induction of labour.

Spiritual/Religious and Practical Support

The Chaplaincy Department recognises and values all belief systems in a developing multi-cultural society through co-ordination of appropriate chaplaincy services with representatives and ministers of all faiths and those of none. All services being led by the Chaplaincy Department are viewed through a broad lens therefore delivering a 21st century model of spirituality through providing appropriate support.

Mortuary / Chapel of Rest

The Chaplaincy Department take full responsibility for the management / co-ordination of the mortuary chapel of rest services:

Activity

The table below shows the areas where we have provided support. The chaplaincy office is used as a quiet space providing spiritual, emotional, grief and bereavement support to bereaved families and to staff members. There is also 'other' unspecified and unplanned support provided: this support often occurs informally with staff, patients and their families throughout the hospital. Also included in the 'Other' support, is support provided to families whose baby's death had not been acknowledged in any way in the past. Many years ago the type of bereavement support which we have today, was not available to bereaved families. In some cases, the loss was never spoken about or acknowledged. Sometimes we are contacted by families (NMH patients) who are stuck in their grief work and journey, or siblings who have only learned about their mothers / fathers unspoken loss in their advancing years. In these situations, we offer the bereaved family appropriate emotional, spiritual, sociological support. We also offer the bereaved family an opportunity to attend our remembrance service, including having their baby's details entered into our remembrance book. In some circumstances we have led a very gentle private ritual or prayer service for the bereaved family, if on assessment we feel it would help them to become unstuck in their grief work and journey forward.

Helen Miley, Co-ordinator of Chaplaincy Services.

Remembrance

The Chaplaincy Department organized and led liturgies throughout the year in the Hospital. This year's Remembrance Service took place in St Andrews Church Westland Row which was very well attended.

Helen Miley, Chaplaincy Co-ordinator

Activity Table

	2020	2021	2022
Services - naming / Baptisms/ removals	213	141	143
Stillbirth / IUD	113	113	103
Other support	70	72	75
Early miscarriage	10	7	10
Neonatal death	30	35	38
Termination of pregnancy	14	19	18

Refers to support offered and not actual cases.

Facilities Engineering

The Facilities Engineering Department (FED) would like to welcome the following staff members to the department, Mr. Gearoid O'Toole who started as the Maintenance Supervisor, Mr. Paul Carruthers who has joined us as our Services Coordinator, Mr. Keith Lowry and Mr. Ciaran Richardson who have joined us in the areas of Mechanical & Electrical Building Services. Mr. Jas Mehmedovic who joined us as Maintenance Chargehand, Mr. Luke Farrell (Plumber) and Mr. Derek Walsh (Electrician) who also started as craftworkers in the team. The FED would like to wish new starters and former staff alike, every success in their careers.

The Maintenance Department

2022 has bought ever increasing engineering challenges across our existing aging infrastructures and expanding new sections of the campus. Perhaps the biggest challenge during 2022 has been the retention and recruitment or our greatest resource – our staff. Our thanks to the HR team who have supported us through this difficult transition.

The FED team commenced a trial working system in 2022. As part of this process a number of team members are on site from 07:30 – 20:00 Monday to Saturday inclusive. The initial trial period is for 6 months and may be extended as required.

In previous years COVID-19 presented specific engineering challenges the works required are now shifting to the reversal of engineering measures taken. This work may continue for some time to come and is undertaken in a complex live environment. The relaxation of particular rules around COVID-19 means that non-essential engineering activities are now returning to normal.

The FED completed a number of projects including "de-COVID" works in the main Gynaecology Ward, First Floor Postnatal Ward office, Community Midwifery office, new patient ensuite in the Antenatal Ward and a new Part M Compliant patient ensuite in the First Floor Postnatal Ward amongst many other minor projects. Upgrades were also undertaken on medical gasses manifolds and lift doors.

The team upgraded our Computer-aided facility management (CAFM) system from eREQ to gREQ during 2022 and have completed some 3,992 works requisitions during the year.

NMH Projects

The CAPITA National Conditions Survey of core to planning system and services requirements at the NMH commenced in 2020. This assessment was placed on pause nationally due to the Pandemic and is essential in terms of developing an independent assessment of our systems and infrastructure planning the needed works into the future. We continued our engagements during 2022 with the HSE to advance this report.

A number of key projects were completed and or occupied during 2022. The new Operating Theatre 4 commenced use and a refurbishment of Operating Theatre 1 undertaken.

Planning for a number of essential projects commenced/progressed in 2022. These include Anatomical Labs (concept stage), Bereavement Services (concept stage), a new Lift Core (HSE approved), new Ambulatory Gynae facility (HSE approved), A development of Central Decontamination Unit services (concept stage), Electrical Upgrade (concept stage), Merrion Wing (concept stage), Bathrooms & Office U3 (awaiting approval), First Floor Postnatal Ward Bathrooms (awaiting approval), Fitzwilliam Clinic (concept stage), Holles Clinic (under consideration) and Stores (approved).

Environmental Department

A huge thanks to the staff and management within the NMH for their continued support and assistance in the area of Environmental Management. Efforts continue in the environmental are with the establishment of the 'Green Committee' at the hospital. The Green Committee will advance the NMH environmental agenda into the future.

Neil Farrington, Facilities Engineering Manager.

General Services

Switch Team.

Vita Gloriosa Vita – Life Glorious Life – 2022 was another busy year for the hospital with thousands starting out their new life in our historic *Georgian* building. The planned relocation to new state of the art co-located facility on the site of St Vincent's Hospital continues. In the meantime, General Services work closely with all in NMH to ensure service levels are optimised despite suboptimal infrastructure. Below are updates from some of the General Services Departments.

Tony Thompson, General Services Manager.

Hygiene Services

The Hygiene Services Department maintains the environmental cleanliness of all patient, visitor and staff areas of the Hospital, keeping the facilities clean and safe through the use of the latest technology and through the implementation of cleaning methods that are based upon international best practices.

The department contributes to the hospital's quality improvement initiatives through its participation in Quality and Safety Walk-Arounds, its involvement in the Hygiene Committee, and through its management of the hospital's hygiene audits, which are conducted in conjunction with members of the Nursing team. These audits measure the compliance of the Hospital's clinical and non-clinical hygiene activities against the requirements established by the Health Protection Surveillance Centre. The results help identify necessary improvements to our facilities, processes, and training programs. The department also liaises closely with the members of the House Committee, who conduct independent and unannounced reviews of the hospital's hygiene activities. Many thanks are extended to the members of this Committee for their time and valuable contributions.

In 2022, we continued to focus on training compliance, with an average of 3 working days per person spent ensuring skill-sets meet HSE and NMH requirements. These training programs help maintain the hospital's safety and quality standards, and provide valuable ongoing professional development of our staff.

Over the course of the year, we welcomed Adrian Vacaru, Olga Wardewska, Vuyani Booysen, Julio Araujo, Juanito Badillo, and Alina Pavel to the team.

Mark Anderson, Hygiene Services Manager.

Shane Kennedy, Portering Services.

Switch/Reception

The Switch Team continue to provide a seamless customer focused link between the public and the Hospital. A welcoming smile or voice from the Switch Team is the first contact the public have with the Hospital and we take great pride and pleasure in delivering this in a very professional manner. Following easing of some restrictions after COVID-19, 2022 proved to be a very busy and challenging year the Team in the Switch/Reception were up to the task and look forward to 2023 with renewed determination to continue the provision of our professional, friendly and efficient service.

Kathleen Maguire, Switch Manager.

Portering Services

The Portering Services Department provides an essential frontline service throughout The National Maternity Hospital including dedicated services to the Labour and Birthing Unit, Theatre, Laboratories, Laundry, Front Hall and Stores. The department has continued to support education and training programmes including mandatory training when required as well as developing a new essential 'Emergency Skills Training' course in conjunction with the Labour and Birthing Unit. With the ongoing infrastructural projects of the Hospital on its current site, and its proposed co-location with St Vincent's University Hospital on the Elm Park Campus, the Portering Department participated on several committees providing advice on all aspects of the management of Portering services including risk assessment and cost effectiveness. The department is also represented on several committees such as the Goal 3 NMH Strategic Plan 2019 - 2023 and Goal 2 NMH Strategic Plan 2019 – 2023 as well as the Communications Group.

With the COVID-19 pandemic, the departmental processes evolved with new protocols being developed on a regular basis and a redesign of the main Hospital 'Front Hall' reception. The department also formed part of the multi-disciplinary 'COVID-19 Response Team' used to handle patient transfers and deliver items to patients who could not receive visitors. All staff had to receive training in COVID-19 procedures, particularly with regard to patient transfers. Over the past year Front Hall was issuing over 400 + masks / day to patients, partners, visitors, staff and on average of 20+ transfers of patients / day. It was a busy year also with relocations of different departments throughout the Hospital involving the moving of office furniture.

2022 was another challenging year for all; dealing with the pandemic has been difficult for everyone. I would like to take this opportunity to thank all staff for all their dedication and hard work. With COVID-19 the last number of years have been extremely challenging and I think it is vital that we acknowledge the tremendous work and dedication displayed by our staff who have repeatedly performed above and beyond the call of duty under very challenging conditions. Our staff have overcome the challenges of the Covid-19 pandemic with commitment, motivation and professionalism.

Claudiu Zselemi, Portering Services Manager.

Education

Binu Balakrishnan, Education Administrator.

Education will always be a priority for The National Maternity Hospital (NMH) in order to provide the best possible evidence based care to the women, pregnant women and children attending. NMH is a busy clinical unit with a strong and proud history as a teaching hospital for both undergraduate and postgraduate students in all disciplines: medical, midwifery, nursing, physiotherapy, social work, laboratory science, dietetics and paramedics. As a teaching hospital for both University College Dublin and the Royal College of Surgeons of Ireland, nearly four hundred medical and midwifery students are trained here every year; these range from lectures, tutorials and introduction to clinical practice for Clinical One medical students, six-week placement in Clinical Two medicine, the eighteen-month Postgraduate Midwifery Programme and the four-year Bachelor of Midwifery degree students. Dietetics, nutrition and physiotherapy students are smaller in numbers of trainees, but no less welcome for their contribution and learning within the hospital environment.

Most of the Non-Consultant Hospital Doctors (NCHDs) are registered for training either under the auspices of the Royal College of Physicians (Pathology, Paediatrics, Obstetrics, Gynaecology and Microbiology), the College of Anaesthetists or the Irish College of General Practitioners. The NMH provides training to fulfill the criteria for basic and specialist training in the specialties of obstetrics and gynaecology, anaesthesia, paediatrics and pathology.

Our fellowship programmes in Maternal Fetal Medicine, Labour Ward Management, Maternal Medicine, Placenta Accreta Spectrum, Neonatology and Obstetric Anaesthesia continue to be popular choices for highly trained and motivated trainees. This year, for the first time in Ireland, the hospital was successful in applying for a post CCST ASPIRE Medical Education fellowship. This prestigious fellowship is funded by the HSE National Doctors Training and Planning (NDTP) group through the Royal College of Physicians of Ireland/Institute of Obstetricians and

Gynaecologists. A former assistant master, Dr Maria Farren, was successful in applying for this programme and has proven to be an excellent addition to the multidisciplinary team.

Dr Robert Ffrench O'Connor and Dr Nikki Higgins, both joining as Consultant Anesthesiologists in the NMH/St Vincent's University Hospitals have brought their enthusiasm and experience to further strengthen an already dynamic team. This allowed us to run joint multidisciplinary training sessions with SVUH in both the operating theatre (major obstetric haemorrhage) and Emergency Department (ectopic pregnancy).

This year also brought a return to normality as teaching was increasingly conducted face-to -face. We have learned from the pandemic experience that a blended format of presentations, facilitates staff members to attend. As practical examples of this, the MDT team identified two specific topics to cover in detail in an 'Education Week' in 2022 – Anaphylaxis (November) and Sepsis (September). Each of these weeks took a format that aimed to reach as many clinical staff members as possible, to keep learning local and practical and to make this useful. Virtual teaching sessions were held every morning with practical sessions in different clinics, wards and clinical areas including theatre. Daily emails were sent out, and in November a practical short video of recognition and management of anaphylaxis was added to the online learning platform for the hospital, Totara.

Three PRactical Obstetric Multi-Professional Training (PROMPT) training sessions were held for clinical staff, highlighting yet again the yearly theme of the challenge of providing training while also providing clinical care. Having performed a gap analysis, the aim in 2023 is to provide training every six weeks as a six-month pilot. This would aim to fulfill the requirement for staff for PROMPT multidisciplinary training every two years, as recommended in the maternity strategy 2016 and highlighted again in the pilot study by NWHIP published this year, which NMH participated in. As ever, this simulation teaching is multidisciplinary, with a welcome addition of medical scientists into the simulation teaching as a pilot, which will now continue in 2023.

As well as the gap analysis, other research in Medical Education included a learning needs analysis focused on the needs of nurses and midwives across the hospital, as the largest group of clinical staff members. Top learning needs have now been highlighted with specific educational iniatives to meet these learning needs. Dr Farren is also performing postdoctoral research in transitions in medical education.

Dr Maria Farren (Simulation), Aoife Lennon (Simulation) and Lavanya Lakshmanan (Medical Education) are all completing Certificate/Diplomas in the University of Galway. Dr Daniel Kane (UCD Tutor/SpR in Obstetrics and Gynecology) and Prof Mary Higgins are both completing an MSc in Medical Education, and Dr Daniel Kane was nominated as a Member and Prof Mary Higgins as a Fellow of the Association of Medical Educators. As ever, the popular and well attended RISE meeting (Research and Innovation Symposium Exhibition) has highlighted quality improvements, research and innovation across all staff members in the hospital, both clinical and non-clinical, highlighting why The National Maternity Hospital is a place to be proud to work in.

Dr Susan Knowles must be complimented on her success in getting the NMH approved as a centre for higher specialist training in Microbiology. The first Microbiology SpR, Dr Elaine Holihan, has been an excellent addition to the staff and no doubt will be the first of many excellent future colleagues.

Prof Mary Higgins and Dr. Maria Farren on behalf of the Multidisciplinary Medical Education Committee: N Adnan, V Broderick, C Brophy, I Brown, A Calnan, P Calpin, L Crowley, M Farren, R Ffrench O'Carroll, A Hickey, M Higgins, N Higgins, E Holihan, S Knowles, L Lakshmanan, A Lennon, N O'Riordan, C Pugh, I Shanahan, L Sheehy.

Table 1: Weekly multidisciplinary teaching programme

Monday	Tuesday	Wednesday	Thursday	Friday
Handover and MDT discussion twice a day on Labour ward, every week day and weekend day				
	Fetal Medicine	Maternal Medicine	Emergency care	Labour ward care
			Grand Rounds	

Midwifery and Nursing Education and Practice Development

BSc. Midwifery Graduation Day!

The Education and Practice Development Department is responsible for the organisation and coordination of ongoing education and professional development of both qualified staff and student midwives and nurses at The National Maternity Hospital (NMH). The philosophy of life–long learning is promoted. Staff are supported to participate in educational programmes, conferences, seminars, and study days both internal and external. Several staff are pursuing education at Postgraduate degree, MSc and PhD levels.

In conjunction with the Centre of Midwifery Education (CME), the NMH provides an ongoing continuous professional development programme for nurses and midwives. Due to COVID-19, programmes hosted by the CME were virtual as face-face programmes were cancelled in the interest of public health.

The NMH in partnership with the Higher Education Institutions, strive to maintain a high level of quality Midwifery and Nursing education for all students and qualified staff alike. The aim is to promote high standards of professional education, training and practice and professional conduct among nurses and midwives thus ensuring the safety and protection of the public. In 2022 the NMH continued to provide education and clinical placements for 84 BSc and 24 Higher Diploma Midwifery programmes and provided Maternity Care placements for approximately 220 UCD General and Children's & General Nursing students. Face-to-face classroom education and teaching recommenced in 2022. However, blended learning continued which integrated technology and digital media using virtual classes with traditional instructor-led classroom activities. Ward based education sessions and training, including skills and drills recommenced with over 740 staff attending same.

We were delighted to hold our Midwifery Graduation in person once again on the 9th September 2022 for the Higher Diploma Midwifery programme, and on 6th December 2022 for BSc Midwifery programme. Congratulations to the following midwifery students who were awarded prizes at the 2022 Charter Day: Gold Medals were awarded to Alice Tuthill (Higher Diploma) and Ciara Buckley (BSc). The Elizabeth O Farrell Medals were awarded to Michelle Duffy (Higher Diploma) and Sabine O'Connell (BSc).

Lucille Sheehy, Assistant Director of Midwifery & Nursing – Clinical Practice Development Co-ordinator.

Royal College of Surgeons in Ireland

Deekshe Sammy and Sharouq Almazami, RCSI Medical Students.

Thirty-eight undergraduates from the Royal College of Surgeons in Ireland (RCSI) attended The National Maternity Hospital for their six weeks' rotation in Obstetrics and Gynaecology; nineteen students in January/February and nineteen in February/April. The students learned a great deal during their time in the hospital and provided very positive feedback on their teaching.

The programme was co-ordinated by Prof Declan Keane and Dr Ann Rowan. Ms Miriam Shanley provided administrative support to the students. Teaching is provided by Consultants and various other members of hospital staff. In addition to the intensive obligatory e-learning programmes, the students, while rotating through all areas of the hospital, receive lectures, tutorials and 'hands on' demonstrations.

"In addition to the intensive obligatory e-learning programmes, the students, while rotating through all areas of the hospital, receive lectures, tutorials and 'hands on' demonstrations."

Twenty-five of our students achieved honours in their final Obstetrics and Gynaecology examination at the RCSI. Of these students, twelve were awarded first class honours. Ms Kate Murray was awarded the NMH/RCSI medal for achieving the highest marks amongst the RCSI students who attended The National Maternity Hospital. This excellent performance reflects the enthusiasm of all those taking part in the teaching programme.

In addition, there were four RCSI medical students who attended for clinical electives during the summer, completing further education and research projects. The RCSI and NMH is also funding Dr Nicola O'Riordan's PhD addressing lactate biochemistry and uterine muscle proteomics in dystocic labour.

Prof Declan Keane, Department of Obstetrics and Gynaecology, Royal College of Surgeons and Consultant Obstetrician & Gynaecologist.

University College Dublin Obstetrics & Gynaecology

UCD Obstetrics & Gynaecology at National Maternity Hospital has a large and vibrant teaching programme delivered by Prof Fionnuala McAuliffe, Prof Colm O'Herlihy, Prof. Mary Higgins, Prof Donal Brennan and organised by Ms Stephanie Begley. Tutors Dr Aoife McEvoy, Dr Daniel Kane, Dr Cathy McNestry, provided excellence in teaching throughout the year.

The John F. Cunningham Medal was awarded to Dr Aoife O'Sullivan and the Kieran O'Driscoll Prize to Mr Harry Forde.

We have an energetic and enthusiastic team of researchers ranging from MD to PhD students who are working on many projects spanning all of obstetrics and gynaecology.

Pat McCann, Deputy Chairman with Laura Hennigan who received the A Edward Smith Medal. This is a voluntary written and clinical examination and the Medal is only awarded when merited.

Submission of MD/PhDs

- Dr Grace Ryan submitted her MD entitled 'To investigate the use of Virtual Reality and Augmented Reality in Medical Education.
- Dr Niamh Keating submitted her MD on diabetes research.
- Dr Maggie O'Brien submitted her MSc project on Experiences and outcomes of Gypsy, Roma and Traveller women in pregnancy
- Dr Brendan Dempsey was awarded PhD for thesis entitled "Providers Experiences of Abortion Care".
- Dr Anna Delahunt was awarded PhD for thesis entitled Determinants of appetitive traits in children aged 5 and 9-11 years old: Findings from the ROLO longitudinal birth cohort study

UCD Perinatal Research Centre

(www.ucd.ie/medicine/perinatal, Twitter @ UCDPerinatal)
The centre's work aim is excellence in perinatal research to improve clinical outcomes for mothers and their infants.

Hollestic nutrition smart phone app

We are delighted that a smart phone app developed by the centre in collaboration with Dr Eileen O'Brien and Ms Sinead Curran at Dept of Dietetics at NMH was launched in 2021 for all pregnant women at NMH, nationally and internationally under name Hollestic, available on app store and free to download. It is based on the PEARS randomised controlled trial that found that an m-health lifestyle supported intervention resulted in less gestational weight gain, better sugar levels in mothers and less large for gestational infants. To date it has > 100,000 downloads, with the majority from outside Ireland. This is an excellent example of translation of research into a clinically useful tool for women attending National Maternity Hospital and globally.

Research funding

Welcome Leap Fetal movement monitor, €1,500,000 Prof. Fionnuala McAuliffe co-Principle Investigator (PI)
Science Foundation Ireland Microbe Mom, €3,409,091 Prof. Fionnuala McAuliffe co-PI
National Children's Research Centre ROLO pre-teens, Prof. Fionnuala McAuliffe PI
National Childrens Hospital Foundation Child appetitive traits, Prof. Fionnuala McAuliffe PI
HRB UCD Clinical Trials Centre, €5,339,121 Prof. Fionnuala McAuliffe co-PI
EU Impact Diabetes Bump2Baby, M-Health

supported intervention for women at risk of gestational diabetes €4,000,000 Prof. Fionnuala McAuliffe co-PI
AI-PREMie Science Foundation Ireland: €500,000 Prof. Mary Higgins
AI PREMie Science Foundation Ireland (Role: Society Champion) Seed Phase: €200,000 Prof. Mary Higgins AI for Societal Good Challenge Science Foundation Ireland €1,000,000 Prof. Mary Higgins
Irish Cancer Society Womens Health Initiative 2020 "Women's Health Initiative Cancer Survivorship Project" - (€400,000 direct costs). Subsequent cost extension €200,000 to extend project to 2024. Principal Investigator Donal Brennan
Science Foundation Ireland - Precision Oncology Ireland "Dynamic Modelling of T cell response to immune checkpoint inhibitors in high grade serous ovarian cancer" (€1,265,908 direct costs) Prof. Donal Brennan Co-PI with Prof. Walter Kolch
Irish Cancer Society Immuno-oncology Award "The Role of TIGIT in ovarian Cancer" (€350,000 direct costs) Prof. Donal Brennan Co-PI with Prof. Lydia Lynch
National Covid 19 Biobank 2022 – Prof. Donal Brennan Co Applicant (€2m direct costs)
Irish Cancer Society 2022 "Comparing group-based Compassion Focused Therapy and breathing pattern retraining with Treatment As Usual on the psychological functioning of patients diagnosed with cancer recurrence during Covid 19: a randomised control trial" (€73,000 direct costs) Prof. Donal Brennan Principal Investigator

Awards / Prizes

- 2022 Anna Delahunt PhD student first prize at Irish Paediatric Society annual meeting entitled 'Stability of child appetitive traits and related diet quality 5 and 10 year olds'
- UCD Perinatal Research Centre team won the regional HSE Spark Ignite Ireland regional competition for the development of a web based version of the FIGO nutrition checklist.
- Prof McAuliffe was awarded the highly prestigious International Federation of Gynaecology and Obstetrics FIGO Women's award in recognition for her significant contribution to women's health

Researchers working in Obstetrics & Gynaecology in 2022

- Dr Sarah Louise Killeen, Postdoctoral Fellow
- Dr Aisling Geraghty, B2B Clinical Trials Manager
- Dr Gillian Corbett PhD student
- Dr Fiona O'Toole MD student
- Dr May Loong Tang, PhD student
- David Byrne, research assistant
- Ms Grace Mealy, research assistant
- Ms Niamh Donnellan, research assistant
- Cara Yelverton, PhD student
- Dr Grace Ryan, MD student
- Dr Niamh Keating, MD student
- Dr Marguerite O'Brien: MSc Student
- Ms Sophie Callanan, PhD student
- Mr Brendan Dempsey, PhD student
- Ms Yuhan Du, PhD Student
- Ms Anna Delahunt, PhD student
- Dr Kate Glennon, MD student
- Dr Fionan Donohoe, MD Student
- Romina Silva, PhD student
- Martina Kriedal, PhD student– SBI
- Donagh Egan, PhD Student – SBI
- Dr Vadim Zhernovkov, Assistant Professor – SBI
- Mr Michael Metoudi, Research Assistant – SBI
- Ms Yvonne O'Meara, Project Manager – Survivorship
- Ms Aedin Roberts, CNS survivorship
- Ms Louise Comerford, CNS Survivorship

Research projects

UCD Perinatal Research Centre www.ucd.ie/medicine/perinatal, Twitter @UCDPerinatal was established in 2014 in recognition of the significant size, output and impact of the group. Ongoing research projects are listed below.

ROLO kids

This is a follow-up study at age 2, 5 and 9-10 years of mothers and infants from the ROLO study Randomised control trial of low glycaemic index diet to reduce recurrence of macrosomia.

Collaborators
Dr Sharleen O'Reilly, UCD School of Agricultural and Food Science
Dr Ciara McDonnell, Paediatric Endocrinology, Tallaght Hospital
Prof Cecily Kelleher, UCD School of Public health, Physiotherapy and Population Science
Dr Catherine Mooney, UCD School of Computer Science

Microbiome Mum – role of maternal microbiome in influencing neonatal microbiome and impact of a probiotic on maternal and fetal health

This study examines the inter-relation between mother and baby microbiome and whether a probiotic given to Mum can have positive impacts on maternal and infant health

Collaborators:
Dr Paul Cotter Teagasc
Dr Douwe Van Sinderen, University College Cork
Dr Radka Soldova, NIBRT, UCD

Prepops
This is a randomised controlled trial of probiotic vs placebo in the prevention of preterm birth.

Collaborators:
Dr Paul Cotter Teagasc
Dr Conor Feehily, University of Galway
Prof David McIntyre, Imperial College London
Dr Siobhan Corcoran, NMH

Perinatal Endocrinology Research Group
A number of studies have been performed examining the interaction of vitamin D and lipids on maternal and fetal health.

Collaborators:
Dr Malachi McKenna, Endocrinology, St Vincent's Hospital, Dublin
Dr Patrick Twomey, Pathology, St Vincent's Hospital, Dublin
Dr Rachel Crowley, Endocrinology, St Vincent's Hospital, Dublin
Dr Ciara McDonnell, Paediatric Endocrinology, Tallaght Hospital

Latch-On: Multicentre RCT across 5 Hospitals in Ireland East Hospital Group.

This is an ambitious multicentre randomised controlled trial to support breastfeeding amongst women with BMI > 25 with includes intensive antenatal and postnatal support.

Collaborators
Prof Sharleen O'Reilly, UCD Institute of Food and Health
Prof Mary Brosnan, Ms Lucille Sheely National Maternity Hospital
Dr Denise McGuinness, Dr Barbra Coughlan, Dr Denise O'Brien, UCD School of Nursing, Midwifery and Health Systems

Bump to Baby and me B2B
A multifaceted m health and health coach supported intervention to reduce GDM in at risk women at NMH, Bristol, Granada and Melbourne commenced recruitment, PI Prof Sharleen O'Reilly

FIGO Pregnancy Nutrition and Obesity Initiative
We are developing clinical guidelines and a FIGO nutrition checklist that can be used globally to assist healthcare professionals caring for pregnancy women to advise them about appropriate nutrition before, during and after pregnancy.

Collaborators
Prof Mark Hanson, University of Southampton
Prof Hema Divakar, Divakars Speciality Hospital, Bengaluru, India.

Breastfeeding friendly city indicators
Study ongoing in Penang and Dublin developing indicators that a city is breastfeeding friendly.

Collaborators
Dr Jacqueline Ho, Penang
Amal Omer-Salim, World Alliance Breastfeeding Action

VR baby
We are developing a virtual reality model of pregnancy to enhance medical and midwifery students and trainees experience of learning.

Collaborators
Prof Eleni Mangina, UCD School of Computer Science

Medical Student Teaching
Collaborative project with UCD Psychology studying women's and students' experiences of bedside teaching. Development and Validation of a questionnaire studying women's attitudes towards bedside teaching.

Second Victim
To assess prevalence of second victim in maternity care in Ireland and the impact on clinical staff of adverse outcomes.

IRELAND study
Multicentre RCT in aspirin use to prevent pre-eclampsia in women with pre-gestational diabetes.

Stigma in abortion care providers
Qualitative and quantitative study of service providers views of stigma related to their clinical work.

Ovarian Cancer Immunology
Prof Brennan co-leads a group of 7 scientists (4 PhD Students, 3 post-doctoral scientists) with Prof Walter Kolch in Systems Biology Ireland, UCD School of Medicine, which focuses on cancer immunology with a particular focus on the impact of aberrant intracellular signalling on T-cell activity. He also actively collaborates with Prof Lydia Lynch, Harvard Medical School, with whom he co-supervises a PhD student and post-doctoral scientist also working on ovarian cancer immune response.

Women's Health Initiative – The Gynaecology Oncology (GO) Cancer Centre
The GO Cancer Centre at the Mater Hospital funded by the Irish Cancer Society supports the delivery of numerous projects in the cancer survivorship arena and is coordinating numerous clinical trials in this area and led the development of the web portal www.thisisgo.ie. The GO Cancer Centre is managed by Ms Yvonne O'Meara and currently includes two MD students, two survivorship nurses. The Centre collaborates with many disciplines including oncology nurse specialists, dietietics, physiotherapy and psycho-oncology

Placenta Accreta Spectrum
The placenta accreta spectrum service is coordinated by a clinical fellow, Dr Helena Bartels who is also completing a PhD focused on multi-omic technology to predict severity of disease. We collaborate with Placenta Accreta Ireland and have been to the forefront of documenting the patient story and lived experience on both a national and international level.

Medical Education ('MedEd') Electives Prof Mary Higgins
We run highly successful electives in Medical Education with medical student participants. As well as students gaining increased knowledge in MedEd theories, student output includes the following:

- A 100-page handbook for final year students reviewing Obstetrics and Gynaecology
- "Obscast" podcast
- Multiple MedEd infographics on subject's that students identified as relevant and under resourced in the standard curriculum
- Presentations at the INHED, AMEE and ASME meetings

Ongoing Gynaecology Clinical Trials

OVHIPEC-2 - stage III epithelial ovarian cancer randomizing between primary cytoreductive surgery with or without hyperthermic intraperitoneal chemotherapy (https://clinicaltrials.gov/ct2/show/NCT03772028) – recruitment ongoing

Menopause after Cancer (MAC) Study – single arm phase 2 examining if the addition of psycho-social support and digital cognitive behavioral therapy (CBT) for insomnia to standard non-hormonal pharmacotherapy can improve quality of life in woen women with menopause and a prior cancer diagnosis (https://clinicaltrials.gov/ct2/show/NCT04766229) – recruitment complete

COMFORT Trial – investigation of the effectiveness of a compassion focused therapy and breathing pattern retraining in reducing psychological distress for people who were diagnosed with cancer 'recurrence' since the beginning of the COVID pandemic. (https://clinicaltrials.gov/ct2/show/NCT05518591) – recruitment ongoing

OASIS-4 – Placebo controlled double blind phase 3 study examing the effectiveness of Elinzanetant for treatment of vasomotor symptoms caused by anti-endocrine therapy in women with, or at high risk for developing hormone-receptor positive breast cancer. (https://clinicaltrials.gov/ct2/show/NCT05587296) – recruitment ongoing

Publications from UCD Obstetrics & Gynaecology in 2022, 67 in total, are listed in the Published Research Section under UCD Obstetrics & Gynaecology

Prof Fionnuala McAuliffe, UCD Full Academic Professor of Obstetrics & Gynaecology, Consultant Obstetrician & Gynaecologist.

Research Ethics Committee

The National Maternity Hospital Research Ethics Committee is both a Local and National Ethics Committee. It is approved by the Department of Health to review National Perinatal Studies. It reviews Obstetric, Neonatal, Anaesthetic, Gynaecology and Perinatal Pathology research.

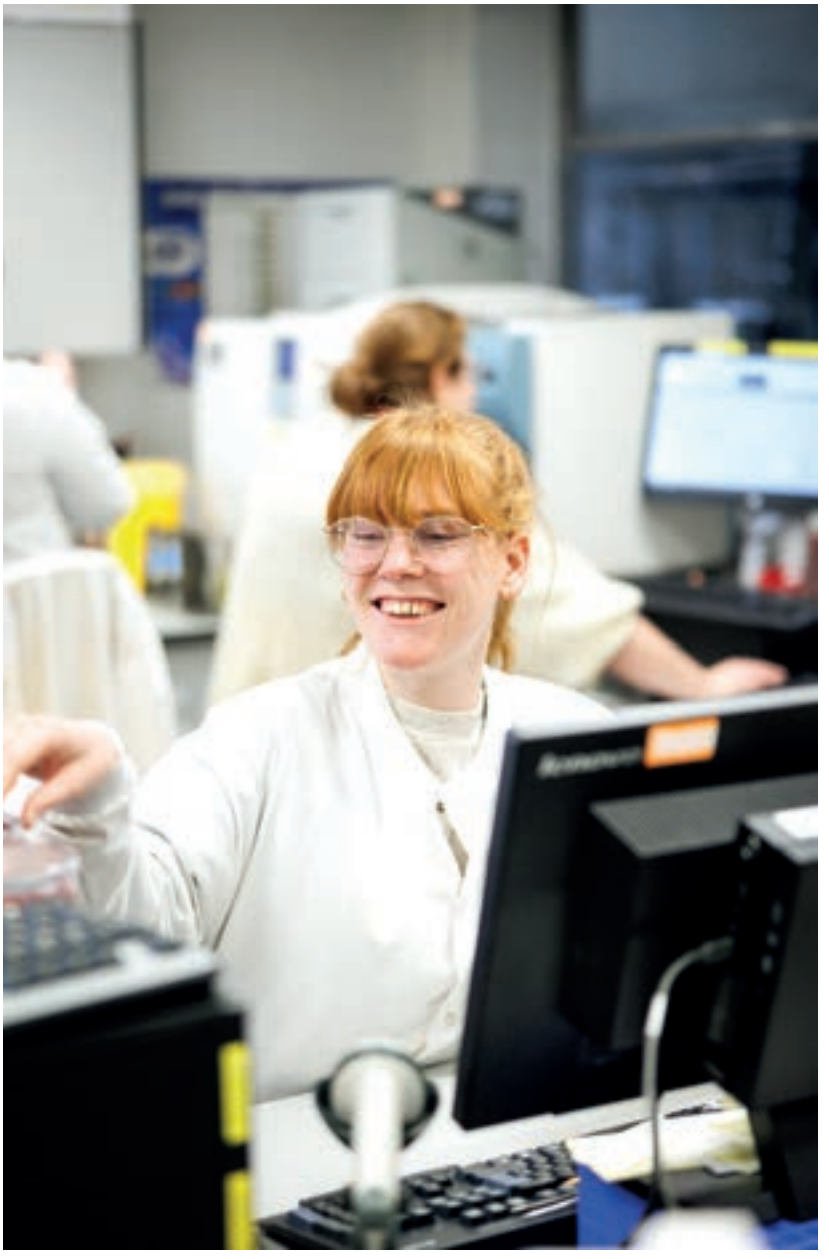
Monthly meetings are held with the exception of August. There is one quarter lay attendance and a quorum is required at each meeting.

Generally, the applications are approved at each meeting; if not approved the Chairman will request clarification on a particular issue. A final decision is always made at the second review of the Committee. The average length of time between receipt of an application and a final decision by the Committee is 4-8 weeks

In 2022 the Research Ethics Committee received 43 new research application proposals. 32 of the applications were approved at first review, 6 needed further clarification. There was 5 Deferred.

We also approved 8 audits within The National Maternity Hospital.

Prof John Murphy, Research Ethics Committee Chair.



Gwen Connolly, Senior Medical Scientist, Microbiology

Healthy Ireland

The Healthy Ireland (HI) Group at The National Maternity Hospital (NMH) aims to support staff and patient wellbeing under the pillars of the national Healthy Ireland (HI) program.

All NMH staff have free access to the WRKIT package to support health and wellbeing.

Activity challenges continued to be popular with NMH staff in 2022 and HI ran both the Marchathon and Walktober annual step challenges. Participants walked and ran an impressive number of steps, and the NMH winners FAU Steppers placed highly in the National Transport Authority overall league table. The annual Cycle Challenge and Light Up Your Bike campaign included popular giveaways and promotions for NMH cyclists.

Nutrition and Hydration week ran in March 2022, and was promoted throughout the hospital and on social media with daily themes, quizzes and prizes. The smoothie stand was a big success with staff enjoying free healthy smoothie samples outside the canteen.

Dietitian students Laura Geraghty and Sora Bucholz with NMH Catering Manager, Liz Byrne, during NMH Wellbeing Week.

This year, HI supported Men's Health Week with the theme 'Mission IS possible', The aim of the week was to heighten awareness of preventable health problems for men of all ages, to support men and boys to engage in healthier lifestyle choices, encourage men and people who support them to engage in early detection and treatment of health difficulties. Staff were given access to their own free 32 page 'Man Manual' from the Men's Health Forum.

In 2022, The Catering Department again achieved the prestigious Silver Award from the Irish Heart Foundation 'Happy Heart at Work' program in recognition of the quality of food and menu offered in the staff canteen. Recipes are modified to reduce salt and fat content to meet the IHF criteria, ensuring that staff heart health is cared for with minimal effort from staff themselves, as most main meals choices are the healthy option.

The NMH Staff Wellness Week in October included a range of events available across the week addressing aspects of physical, emotional, mental and financial wellbeing. Events were available both online and in person across the week with outside speakers on a diverse range of topics co-ordinated by HR and a daily stand outside the canteen with t-shirt and accessories as giveaways. Dietetic students provided a range of healthy recipes with full nutritional analysis and the catering department provided healthy snacks and treats for staff. The annual Wellbeing Quiz had some fantastic prizes for staff and had a great participation rate.

HI activities are supported by NMH staff in addition to their 'day job' to benefit their colleagues wellbeing, and the committee would like to again acknowledge the value of these efforts to the NMH community.

Sinead Curran, Healthy Ireland.

Jan- Feb: HSE stress control program
March: 'Marchathon' Step Challenge; Nutrition & Hydration Week
April: National Workplace Wellbeing Day with HR
June: Men's Health Week
September: Irish Heart Foundation 'Happy Heart at Work'
October: Staff Wellness Week; 'Walktober' Step Challenge
November: Light up your Bike campaign

Financial Statements

Extracts from the Hospital Income & Expenditure Account For the Year Ended 31 December 2022

Income And Expenditure	2022	2021
	€000	€000
Ordinary Income		
Miscellaneous	345	3,270
Treatment Charges	10,828	12,102
	11,173	**15,372**
Ordinary Expenditure - Pay		
Medical NCHD's	7,217	6,457
Consultants	10,405	8,753
Nursing	32,099	29,525
Paramedical	6,962	6,529
Housekeeping	2,822	2,562
Catering	2,474	2,157
Porters	1,347	1,325
Maintenance	603	753
Administration	8,938	8,229
Pensions	4,476	4,629
	77,343	**70,919**
Ordinary Expenditure - Non Pay		
Medicines, blood and gas	2,365	2,588
Laboratory expenses	2,503	1,494
Medical and surgical appliances	4,504	4,891
X-ray expenses	220	165
Provisions/catering	868	739
Heat power and light	500	594
Cleaning and washing	1,028	1,125
Furniture, hardware and crockery	61	93
Bedding and clothing	96	89
Maintenance	554	631
Transport and travel	141	114
Finance	811	626
Bad debt provision	(1,793)	7,255
Office expenses	1,084	710
Education and training	264	142
Computer expenses	802	609
Miscellaneous	1,685	1,719
Depreciation	3,282	3,576
Amortisation	(3,282)	(3,576)
	15,693	**23,584**
Deficit for Year		
Net expenditure	**81,863**	**79,131**
Annual Allocation	84,651	76,006
less amount deferred in respect of fixed asset additions	(1,021)	(3,557)
(Deficit)/Surplus	**1,767**	**(6,682)**

Extracts from the Hospital Income & Expenditure Account For the Year Ended 31 December 2022 (cont'd)

Cumulative Figures	2022	2021
	€000	€000
Surplus / (Deficit) Brought Forward	(2,150)	4,532
Surplus / (Deficit) transferred from Income & Expenditure	1,767	(6,682)
Surplus / (Deficit) Carried Forward	**(383)**	**(2,150)**

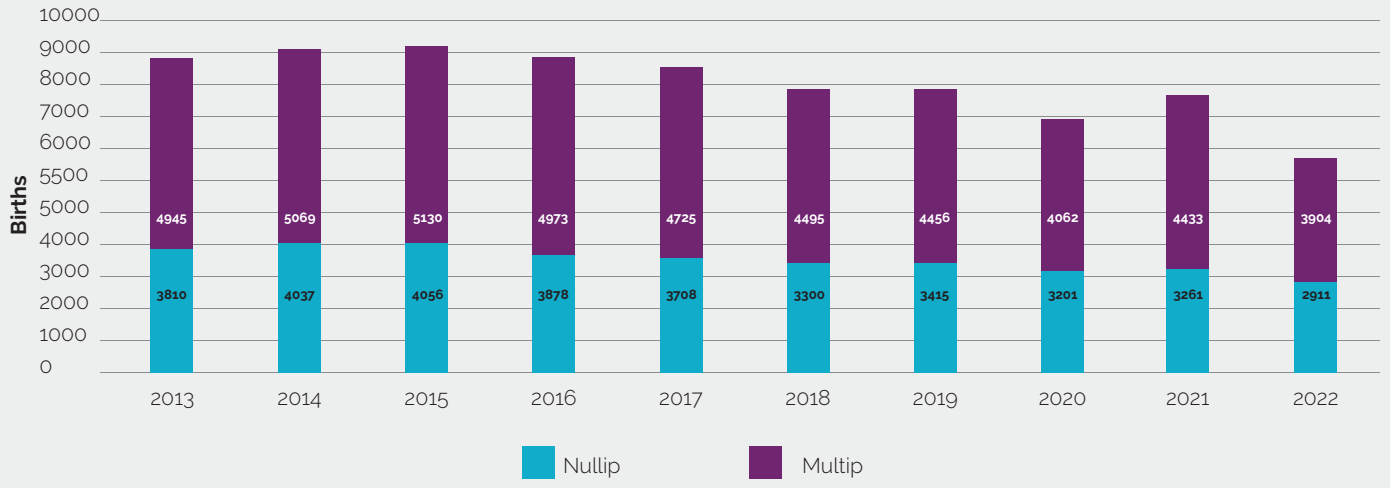
Extracts from the Hospital Balance Sheet as at 31 December 2022

Balance Sheet	2022		2021	
	€000		€000	
Fixed Assets		**74,773**		**76,058**
Current Assets				
Stocks	422		394	
Debtors	10,479		10,793	
Cash & Bank	-		-	
	10,901		**11,187**	
Current Liabilities				
Creditors	(10,605)		(12,658)	
	(10,605)		**(12,658)**	
Net Current Liabilities		296		(1,471)
Creditors *(amounts falling due after more than one year)*				
Deferred Grant		(30,690)		(31,975)
Loans from Funds		(2,187)		(2,187)
Net Assets		**42,192**		**40,425**
Represented By:				
Revaluation Reserve		42,533		42,533
Accumulated Surplus / (Deficit) at end of year		(383)		(2,150)
Other Funds		42		42
		42,192		**40,425**

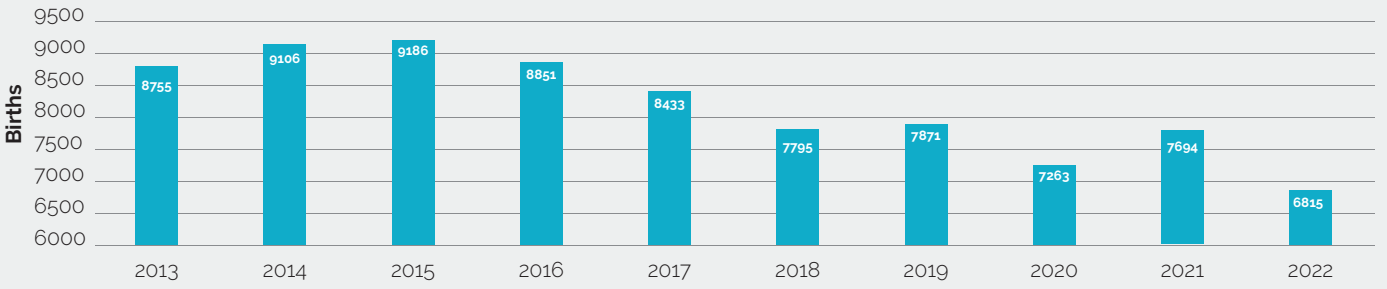
Clinical & Administrative Activity Analysis

Births	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nullip	3810	4037	4056	3878	3708	3300	3415	3201	3261	2911
Multip	4945	5069	5130	4973	4725	4495	4456	4062	4433	3904
Total	**8755**	**9106**	**9186**	**8851**	**8433**	**7795**	**7795**	**7263**	**7694**	**6815**
% Nullip	43.5%	44.3%	44.2%	43.8%	44.0%	42.3%	43.8%	44.1%	42.4%	42.7%

Births by Parity



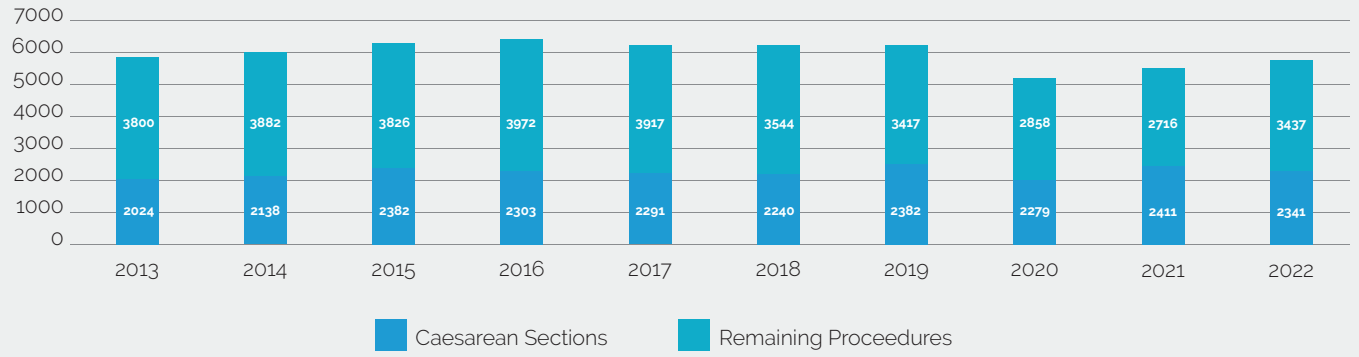
Births



Theatre Activity

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Caesarean Sections	2024	2138	2382	2303	2291	2240	2382	2279	2411	2341
Remaining Procedures	3800	3882	3826	3972	3917	3544	3417	2858	3154	3437
Total	**5940**	**5824**	**6020**	**6208**	**6275**	**5784**	**5799**	**5137**	**5565**	**5778**

Theatre Procedures



Outpatient Activity

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Obstetric*	62127	67411	65888	69157	63688	71454	73855	73642	79753	68535
Gynaecology & Colposcopy	17866	16505	17940	16281	15493	15558	15959	14214	10152	10731
Neonatology	4255	4365	3777	3914	4021	3367	3443	2765	3159	2815
Total	**84248**	**88281**	**87605**	**89352**	**83202**	**90379**	**93257**	**90621**	**93064**	**82081**

** includes sub-specialties. Excludes all unbooked attendances*

Fetal Medicine Department

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Booked Attendances	21360	22835	22829	21746	21309	21539	23679	24779	22207	25001

Inpatient Discharges

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Obstetric	13443	13799	13680	13598	12842	13128	12428	11405	13103	11359
Gynaecology	778	858	749	681	583	502	755	532	710	469
Neonatology	1756	1908	2030	1833	2010	1536	1549	1240	1262	1148
Total	**15977**	**16565**	**16459**	**16112**	**15435**	**15166**	**14732**	**13177**	**15075**	**12976**

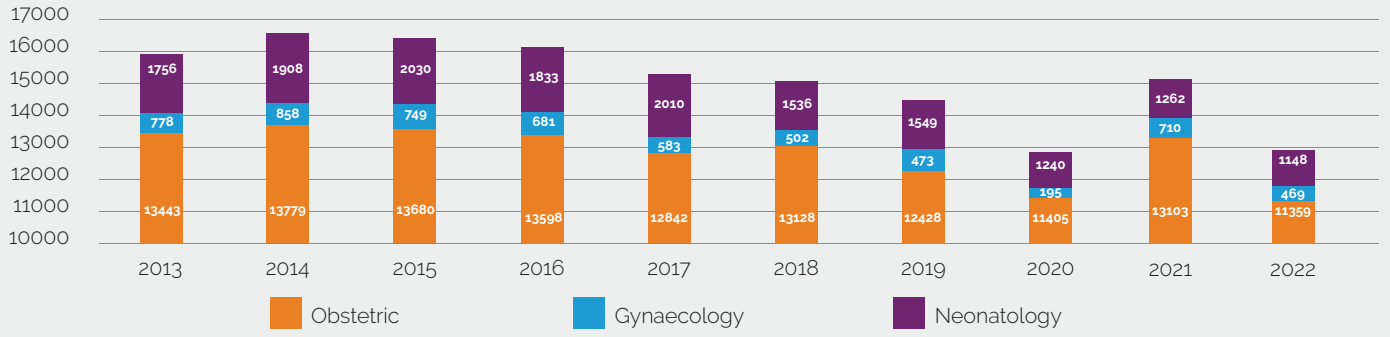
Day Cases

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Obstetric	2187	2232	2041	1879	2035	2014	2550	2466	1964	2239
Gynaecology	1317	1271	1412	1427	1380	1372	1114	531	865	1756
Total	**3504**	**3503**	**3453**	**3453**	**3415**	**3386**	**3664**	**2997**	**2829**	**3995**

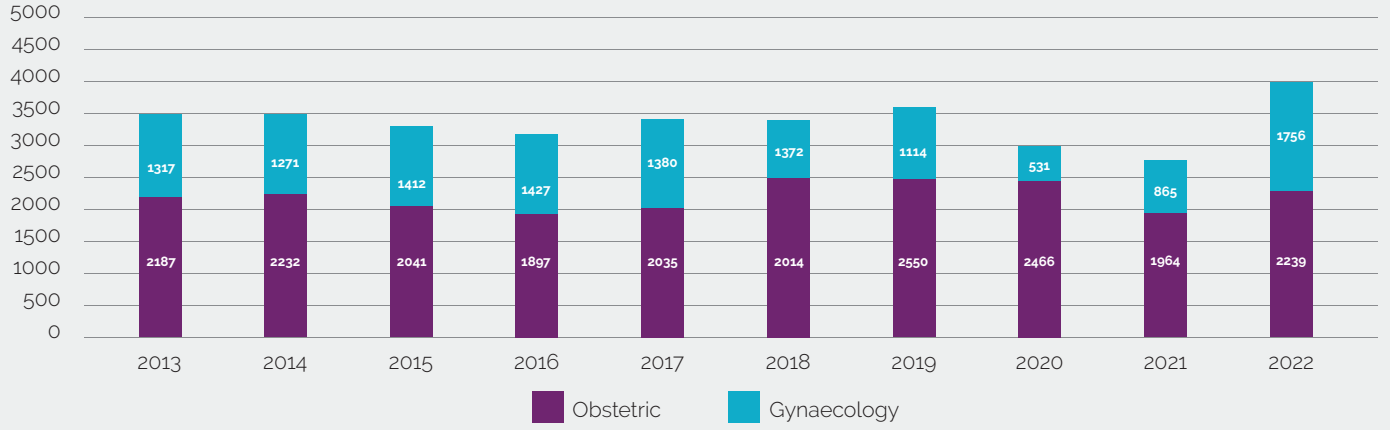
Emergency Room Attendances

	2018	2019	2020	2021	2022
	13101	14146	11115	11442	11827

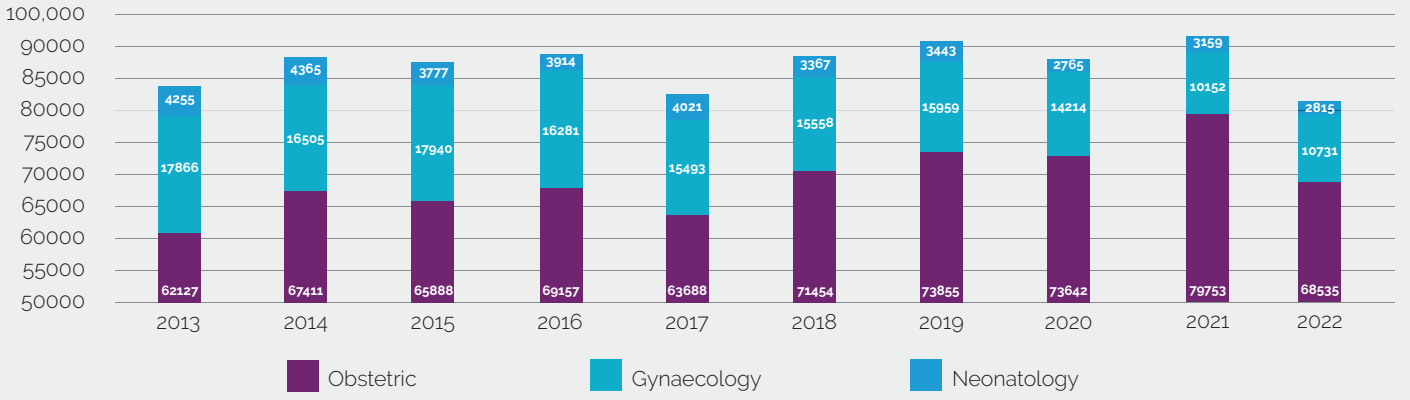
Inpatient Discharges



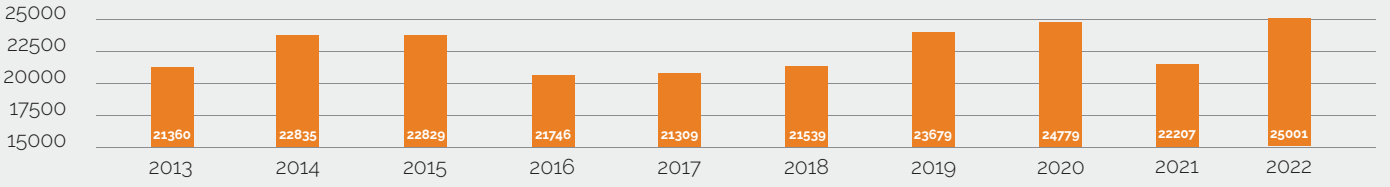
Day Cases



Outpatient Attendences



Fetal Medicine Department Attendances



Statistical Analysis Expressed As Percentages Over 10 Years

Age

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
< 20 years	1.0	0.7	1.0	0.8	1.8	0.7	0.6	0.6	0.4	0.5
20 - 24 years	6.3	5.3	5.1	5.5	4.0	4.1	4.2	4.4	4.2	4.3
25 - 29 years	16.7	15.3	14.7	15.8	12.0	12.0	12.6	11.6	11.0	12.4
30 - 34 years	40.1	39.9	38.4	40.9	36.8	33.5	34.5	34.8	34.5	34.6
35 - 39 years	29.5	31.9	33.1	32.9	36.8	37.9	38.5	37.9	39.2	36.6
40+ years	5.9	6.9	7.7	7.1	8.6	8.2	9.6	10.7	10.8	11.6
Not available	0.5	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0

Parity

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
0	43.5	44.3	44.2	43.8	44.0	42.0	43.4	44.1	42.4	42.7
1,2,3	60.5	60.8	60.0	60.4	60.2	56.3	55.0	54.1	56.2	55.8
4+	2.0	1.9	1.8	1.8	1.8	1.7	1.6	1.8	1.4	1.5

Birthweight

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<500g	n/a	n/a	n/a	n/a	n/a	0.1	0.0	0.1	0.0	0.1
500 - 999	0.7	0.6	0.4	0.6	0.6	0.7	0.8	0.8	0.8	0.8
1000 - 1499	0.7	0.7	0.7	0.7	1.0	0.6	0.7	0.8	0.6	0.8
1500 - 1999	1.2	1.2	1.4	1.4	1.3	1.6	1.0	1.3	1.2	1.4
2000 - 2499	*2.8*	*3.1*	*3.1*	*2.6*	*3.1*	*2.9*	*2.7*	*3.0*	*3.2*	*2.9*
2500 - 2999	10.2	10.3	10.6	10.5	10.3	10.1	10.5	11.0	10.2	12.4
3000 - 3499	29.0	29.5	30.0	30.3	30.1	30.1	30.8	29.6	32.2	33.2
3500 - 3999	36.5	35.6	35.3	36.2	35.7	35.2	35.0	36.2	35.2	33.7
4000 - 4499	15.8	15.8	15.3	14.9	15.0	14.9	15.7	14.7	13.9	12.7
4500 - 4999	2.8	2.9	2.9	2.6	2.7	2.8	2.5	2.3	2.4	1.9
5000+	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.1
Not available	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0

Gestation

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
< 26 weeks	0.4	0.3	0.2	0.4	0.3	0.4	0.3	0.5	0.5	0.4
26 - 29 + 6 days	0.6	0.6	0.4	0.5	0.7	0.8	0.8	0.9	0.6	0.9
30 - 33 + 6 days	1.5	1.5	1.7	1.7	1.7	1.5	1.5	1.6	1.6	1.5
34 - 36 + 6 days	4.3	4.2	4.6	4.5	4.7	4.5	4.0	4.5	4.6	5.2
37 - 41 + 6 days	88.0	88.8	88.9	88.9	88.8	88.0	90.2	89.9	90.6	90.6
42 + weeks	5.2	4.6	4.2	4.0	3.8	4.0	3.2	2.6	2.1	1.4
Not available	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0

10 Year Comparative Table

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Mothers Delivered (inc. < 500g)	9855	10026	10092	9790	9357	8671	8700	8158	8567	7517
Mothers Delivered (>= 500g and/or 24 wks)	8755	9106	9186	8851	8433	7774	7871	7263	7694	6815
Para 0	3810	4034	4052	3878	3684	3271	3415	3201	3261	2911
Para 1+	4945	5072	5134	4973	4759	4503	4456	4062	4433	3904
Nulliparous %	43.5	44.3	44.1	43.8	43.7	42.1	43.4	44.1	42.4	42.7
Maternal Mortality	0	0	0	1	0	0	0	0	0	0
Babies Born (>= 500g and/or 24 wks)	8960	9309	9389	9037	7914	7914	8009	7402	7855	6948
Perinatal Mortality*	64	55	59	53	60	60	74	66	64	53
Perinatal Mortality Rate	7.1	5.9	6.3	5.9	7.6	7.6	9.2	8.9	8.1	7.6
Congenital Anomalies	22	22	21	23	18	26	32	19	19	18
Corrected Perinatal Mortality Rate	4.7	3.6	4.1	3.3	5.3	4.3	5.3	6.4	5.7	5.1
Caesarean Section %	23.1%	23.5%	25.9%	26.0%	27.2%	28.9%	30.3%	31.4%	31.3%	34.3%
Operative Vaginal Delivery %	14.0%	11.1%	12.7%	14.2%	13.0%	13.7%	12.5%	12.7%	12.3%	11.3%
Normal Delivery %	65.9%	65.4%	61.4%	59.8%	59.8%	57.0%	57.2%	55.9%	56.5%	54.4%
Induction %**	26.5%	27.1%	27.6%	28.6%	29.8%	27.8%	31.0%	34.0%	34.4%	38.3%

COMPARATIVE TABLE OF PRE-VIABLE AND HYDATIDIFORM MOLES

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Mothers delivered <500g	999	920	834	842	828	808	809	798	761	632
Hydatidiform moles	19	23	11	27	27	29	14	31	44	24
Ectopic pregnancies	82	92	61	70	69	60	65	66	68	46

PERINATAL MORTALITY ANALYSIS

Births by Mothers' Age on Delivery

	Perinatal Deaths	PNMs %	Rate per '000 Births	Total Births
< 20 years	1	1.9%	27.0	37
20 - 24 years	4	7.5%	13.5	297
25 - 29 years	9	17.0%	10.6	852
30 - 34 years	17	32.1%	7.1	2405
35 - 39 years	16	30.2%	6.3	2547
40 + years	6	11.3%	7.4	810
Total	**53**			**6948**

Births by Parity				
0	24	45.3%	8.1	2967
1,2,3	*26*	*49.1%*	*6.7*	*3875*
4+	3	5.7%	28.3	106
Total	**53**			**6948**

Birthweight				
<500	9	17.0%	900.0	10
500 - 999g	22	41.5%	386.0	57
1000 - 1499g	7	13.2%	122.8	57
1500 - 1999g	4	7.5%	42.6	94
2000 - 2499g	2	3.8%	9.9	202
2500 - 2999g	4	7.5%	4.6	864
3000 - 3499g	3	5.7%	1.3	2308
3500 - 3999g	2	3.8%	0.9	2339
4000 - 4499g	0	0.0%	0.0	880
4500 - 4999g	0	0.0%	0.0	129
5000g +	0	0.0%	0.0	8
Total	**53**			**6948**

Gestation				
< 26 weeks	19	35.8%	612.9	31
26 - 29 + 6 days	19	35.8%	301.6	63
30 - 33 + 6 days	2	3.8%	19.6	102
34 - 36 + 6 days	4	7.5%	11.1	360
37 - 41 + 6 days	9	17.0%	1.4	6297
42 + weeks	0	0.0%	0.0	95
Total	**53**			**6948**

10 YEAR ANALYSIS OF PERINATAL MORTALITY

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Perinatal Deaths	**64**	**55**	**59**	**60**	**60**	**60**	**74**	**66**	**64**	**53**
PNMR per '000 Births	7.1	5.9	6.3	5.9	7.6	7.6	9.2	8.9	8.1	7.6
Antepartum Deaths	**29**	**23**	**24**	**19**	**26**	**27**	**29**	**35**	**27**	**19**
Percentage of Total	45.3	41.8	40.7	35.8	43.3	45.0	39.2	53.0	42.2	35.8
Intrapartum Deaths	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Percentage of Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Early Neonatal Deaths	**13**	**10**	**14**	**11**	**9**	**7**	**13**	**12**	**18**	**16**
Percentage of Total	20.3	18.2	23.7	20.8	16.7	11.7	17.6	18.2	28.1	30.2
Congenital Anomalies	**22**	**22**	**21**	**23**	**19**	**26**	**32**	**19**	**19**	**18**
Percentage of Total	34.4	40.0	35.6	43.4	35.2	43.3	43.2	28.8	29.7	34.0

Infants whose birthweight was >=500g and/or with EGA >=24 wks and liveborn infants who died within 7 days.

10 YEAR ANALYSIS OF PERINATAL MORTALITY EXCLUDING CONGENITAL ANOMALIES

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Births >=500g and/or >=24 wks	9142	8954	9309	9389	9037	8619	7914	8009	7402	7855	6948
Births >=500g and/or >=24 wks less lethal congenital anomalies	9123	8932	9287	9368	9014	8600	7888	7977	7383	7836	6930
Stillbirths	21	29	23	24	19	26	27	29	35	27	19
Stillbirth rate per '000 births	2.3	3.2	2.5	2.6	2.1	3.0	3.4	3.6	4.7	3.4	2.7
Early Neonatal Deaths	11	13	10	14	11	9	7	13	12	18	16
ENND rate per '000 births	1.2	1.5	1.1	1.5	1.2	1.0	0.9	1.6	1.8	1.7	1.9
Total Perinatal Mortality	32	42	33	38	30	34	34	42	47	45	35
Corrected Perinatal Mortality Rate	3.5	4.7	3.6	4.1	3.3	4.0	4.3	5.3	6.4	5.7	5.1

DUBLIN MATERNITY HOSPITALS COMPARATIVE TABLES

Table 1: Patients Attending	
Mothers Delivered >= 500g	6815
Mothers Delivered < 500g	632
Ectopic Pregnancies	46
Hydatidiform Moles	24
	7517
based on histologically confirmed samples	
Table 2: Maternal Deaths	0

Table 3: Babies Born (24 wks EGA and/or >= 500g)	
Singletons	6686
Twins	125
Triplets	4
Quadruplets	0
Total Births	**6815**

Table 4: Obstetric Outcome	**%**
Spontaneous Vaginal Delivery	54.4%
Forceps	1.8%
Ventouse	8.5%
Ventouse/Forceps	0.9%
Total Operative	11.3%
Caesarean Section	34.4%
	100.0%
Induction	2609 (38%)

Table 5: Perinatal Deaths	
Antepartum Deaths	19
Intrapartum Deaths	0
Total Stillbirths	*19*
Early Neonatal Deaths	18
Congenital Anomalies (SBs and ENNDs)	16
Total Perinatal Deaths	**53**

Table 6: Perinatal Mortality Rates		
Overall Perinatal Mortality Rate per 1000 births	53/6948	7.6
Perinatal Mortality Rate corrected for lethal congenital anomalies (18)	35/6930	5.1
Perinatal Mortality Rate corrected for external referrals (7) and lethal congenital anomalies (18)	28/6923	4.0
Overall Perinatal Mortality Rate including late neonatal deaths (6)	59/6948	8.5
Overall Perinatal Mortality Rate excluding external referrals (10)	43/6938	6.2
Perinatal Mortality Rate corrected for lethal congenital anomalies (17) and excluding early deaths and stillbirth external referrals (12)	28/6923	4.0

6 Late Neonatal Deaths and 8 Early/Late Infant Deaths

External referrals = 10: 3 anomalies, 7 normally formed

Table 7: Age of Mothers Delivered	Nullip	Multip	Total	%
< 20 yrs	32	3	35	0.5%
20 - 24 yrs	203	90	293	4.3%
25 - 29 yrs	490	357	847	12.4%
30 - 34 yrs	1179	1175	2354	34.5%
35 - 39 yrs	770	1724	2494	36.6%
40 + yrs	237	555	792	11.6%
Total	**2911**	**3904**	**6815**	**100.0%**

Table 8: Parity of Mothers Delivered	Total	%
Para 0	2911	42.7%
Para 1, 2, 3	3802	55.8%
Para 4+	102	1.5%
Total	**6815**	**100.0%**

Table 9: Body Mass Index (WHO ranges)		%
Underweight: <18.5	114	1.7%
Healthy: 18.5 - 24.9	3353	49.2%
Overweight: 25 - 29.9	1772	26.0%
Obese class 1: 30 - 34.9	782	11.5%
Obese class 2: 35 - 39.9	273	4.0%
Obese class 3: >40	93	1.4%
Not Recorded	428	6.3%
Total Deliveries	**6815**	**100.0%**

Table 10: Ethnicity of Mothers Delivered	Total	%
Irish	4557	66.9%
Any other White background	1225	18.0%
Any other Asian background	471	6.9%
Any other Black background	112	1.6%
Other including Mixed Background	159	2.3%
Irish Traveller	28	0.4%
Not Known	263	3.9%
Total Deliveries	**6815**	**100.0%**

National Census classification

Table 11: Birthweight of Babies Born	Nullip	Multip	Total	%
<500g	3	7	10	0.1%
500 - 999g	31	26	57	0.8%
1,000 - 1,499g	32	25	57	0.8%
1,500 - 1,999g	41	53	94	1.4%
2,000 - 2,499g	107	95	202	2.9%
2,500 - 2,999g	417	447	864	12.4%
3,000 - 3,499g	1045	1263	2308	33.2%
3,500 - 3,999g	933	1406	2339	33.7%
4,000 - 4,499g	311	569	880	12.7%
4,500 - 4,999g	43	86	129	1.9%
5,000g +	4	4	8	0.1%
	2967	**3981**	**6948**	**100.0%**

Table 12: Sex of Babies Born	Nullip	Multip	Total	%
Male	1494	2031	3525	50.7%
Female	1473	1949	3422	49.3%
Not determined	0	1	1	0.0%
Total Babies Born	**2967**	**3981**	**6948**	**100.0%**

Table 13: Gestational Age of Babies Born	Nullip	Multip	Total	%
< 26 weeks	17	14	31	0.4%
26 - 29 + 6 days	29	34	63	0.9%
30 - 33 + 6 days	54	48	102	1.5%
34 - 36 + 6 days	155	205	360	5.2%
37 - 41 + 6 days	2650	3647	6297	90.6%
42 + weeks	62	33	95	1.4%
Total Babies Born	**2967**	**3981**	**6948**	**100.0%**

Table 13: Perineal Trauma after Spontaneous and Operative Vaginal Delivery (SVD & OVD)	Nullip	Multip	Overall
Episiotomy	1007	276	1283
Incidence % of OVDs	55.5%	10.4%	28.7%
First Degree Tear	146	616	762
Incidence % of OVDs	8.1%	23.1%	17.0%
Second Degree Tear	444	831	1275
Incidence % of OVDs	24.5%	31.2%	28.5%
Third Degree Tear*	46	20	66
Incidence % of OVDs	2.5%	0.8%	1.5%
Fourth Degree Tear	4	1	5
Incidence % of OVDs	0.2%	0.0%	0.1%
Intact	166	917	1083
Incidence % of OVDs	9.2%	34.5%	24.2%
Total Operative Vaginal Deliveries	**1813**	**2661**	**4474**

**include Episiotomy with sphincter damage (n=8)*

Table 13(a): Perineal Trauma after Spontaneous Vaginal Delivery (SVD)

	Nullip	Multip	Overall
Episiotomy	447	181	628
Incidence % of SVDs	37.6%	7.2%	16.9%
First Degree Tear	134	605	739
Incidence % of SVDs	11.3%	24.0%	19.9%
Second Degree Tear	417	815	1232
Incidence % of SVDs	35.1%	32.4%	33.2%
Third Degree Tear	30	19	49
Incidence % of SVDs	2.5%	0.8%	1.3%
Fourth Degree Tear	1	1	2
Incidence % of SVDs	0.1%	0.0%	0.1%
Intact	159	897	1056
Incidence % of SVDs	13.4%	35.6%	28.5%
Total Spontaneous Vaginal Deliveries (excl. Operative)	**1188**	**2518**	**3706**

**include Episiotomy with sphincter damage (n=1)*

Table 13(b): Perineal Trauma after Operative Vaginal Delivery (OVD)

	Nullip	Multip	Overall
Episiotomy	560	95	655
Incidence % of OVDs	89.6%	66.4%	85.3%
First Degree Tear	12	11	23
Incidence % of OVDs	1.9%	7.7%	3.0%
Second Degree Tear	27	16	43
Incidence % of OVDs	4.3%	11.2%	5.6%
Third Degree Tear	16	1	17
Incidence % of OVDs	2.6%	0.7%	2.2%
Fourth Degree Tear	3	0	3
Incidence % of OVDs	0.5%	0.0%	0.4%
Intact	7	20	27
Incidence % of OVDs	1.1%	14.0%	3.5%
Total Operative Vaginal Deliveries	**625**	**143**	**768**

**includes Episiotomy with sphincter damage (n=7)*

Episiotomy rate excludes 30 cases that extended to a 3rd or 4th degree tear.

Table 14: Severe Maternal Morbidity	
Morbidity	**Major SMM only***
Major Obstetric Haemorrhage	18
Uterine Rupture	2
Peripartum Hysterectomy	2
Eclampsia	1
Renal / Liver Dysfunction	5
Pulmonary Oedema	0
Acute Respiratory Dysfunction	0
Pulmonary Embolism	2
Cardiac Arrest	0
Coma	0
Cerebral Vascular Accident	1
Status Epilepticus	0
Septic Shock	1
Anaesthetic Problems	0
ICU/CCU admission	8
Other	5
Interventional Radiology (*due to MOH)	1
Total	**45 patients**

Some women had more than one SMM – in this table only the major SMM is reported

Table 15: Neonatal Encephalopathy		
	Inborn	**Outborn**
Neonatal Encephalopathy - with HIE	4	4
Neonatal Encephalopathy - no HIE	3	3
Seizures – No Encephalopathy	3	0
Therapeutic Hypothermia	**7**	**7**

Theatre Procedures

Procedure	Total
Emergency caesarean section	1273
Elective lower segment caesarean section	1068
Evacuation of retained product of concep	559
Hysteroscopy	402
Dilatation and currettage	286
Iucd - fitting of intrauterine contracep	148
Diagnostic laparoscopy	145
Cystoscopy	110
Injection of nerve block	105
Examination under anaesthesia	99
Manual removal of placenta	95
Repair of third degree tear	66
Injection of urethral bulking agent	55
Posterior repair	55
Dye injection at laparoscopy	51
Truclear polypectomy	50
Botox injection therapy	47
Iucd - change of intrauterine contracept	47
Anterior repair	43
Laparoscopic treatment of ectopic pregna	41
Bilateral tubal ligation	36
Blood patch	33
Endometrial ablation	33
Repair of episiotomy	33
Polypectomy	31
Salpingectomy	30
Shirodkar's cervical cerclage	26
Vaginal hysterectomy	26
Cervical smear	25
Bilateral salpingo-oopherectomy	24
Hysteroscopy d&c	20
Cystectomy	19
Iucd - removal of intrauterine contracep	19
Ovarian cystectomy- laparoscopy	19
Total abdominal hysterectomy	19
Hysteroscopy d&c with mirena insertion	18
Laparotomy	17
Forceps delivery	16
Manual removal of retained placenta	16
Cone biopsy of cervix	15
Total laparoscopic hysterectomy	15
Marsupialization of bartholin's cyst/abs	14
Tubal ligation laparotomy	14
Diathermy of endometriosis	13
Perineal repair	13
Laparoscopic bilateral salpingo oophorec	12
Repair of first degree tear	12
Colposcopy	11
Pelvic floor repair	11

Procedure	Total
Repair of second degree tear	11
Open myomectomy	10
Removal of granulation tissue	10
Tubal ligation-laparoscopy	10
Operative laparoscopy	9
Salpingo-oophorectomy	9
Colposuspension	7
Incision & drainage of bartholins absces	7
Incision and drainage of labial cyst	7
Lletz_surg	7
Right salpingectomy	7
Ablation/diathermy endo-laparos	6
Excision of vulval lesion	6
Hysteroscopic myomectomy	6
Insertion of bakri balloon	6
Laparoscopic hysterectomy	6
Operative vaginal delivery	6
Spontaneous vaginal delivery	6
Biopsy of cervix	5
Endometrial biopsy	5
Fenton's procedure	5
Hymenectomy	5
Insertion of abdominal cerclage	5
Left salpingectomy	5
Repair of vaginal tear	5
Replacement of iud	5
Vaginal biopsy mapping	5
Cervical polypectomy	4
Diagnostic hysteroscopy	4
Endometriosis laparoscopic	4
Excision of vaginal lesion	4
Laparoscopic egg retrieval	4
Myomectomy-laparoscopy	4
Removal of ovarian cyst	4
Removal of skin tag	4
Repair of fourth degree tear	4
Tubal clipping	4
Vulval biopsy	4
Adhesiolysis-laparos	3
Biopsy of vulva	3
Dilation of cervix	3
Excision of lesion	3
Excision of vin- vulval intraepithelial	3
Hysteroscopic resection of fibroid	3
Instrumental delivery	3
Laparoscopic drainage of ovarian cyst	3
Laser procedure for twin to twin transfu	3
Myomectomy-laparotomy	3
Oophorectomy	3
Papanicolau smear	3

Procedure	Total
Pubovaginal fascia sling	3
Removal of pessary from vagina	3
Repair of vagina	3
Revision of tvt/tot/tvto	3
Unilat ovarian cystectomy-laparotomy	3
Vulval mapping	3
Abdominal hysterectomy	2
Bilateral tubal ligation laparoscopy	2
Biopsy of labia	2
Caesarean hysterectomy	2
Curettage of uterus	2
Cystoscopy and injection of botox	2
Diathermy	2
Drainage of ovarian cyst	2
Endometrial polypectomy	2
Eua & staging	2
Evacuation of haematoma-vaginal	2
Excision of labial lesion	2
Excision of vain	2
Exploratory laparotomy	2
Gynaecological laparoscopy	2
Incision and drainage of haematoma	2
Laparoscopic dye test of fallopian tube	2
Laparoscopic sterilisation	2
Mesh repair	2
Operative hysteroscopy	2
Peritoneal biopsy	2
Repair of vaginal tear -sn	2
Revision of epis/laceration repair	2
Transposition ovaries-laparoscopy	2
Trial forceps delivery	2
Unilateral oophorectomy	2
Urethral dilation	2
Amputation of cervix	1
Anteroposterior colporrhaphy repair	1
Appendicectomy-laparotomy	1
Assisted breech delivery	1
Biopsy of lesion	1
Biopsy of lesion of vagina	1
Colpocleisis	1
Cystoscopy and injection of bulking agen	1
Diathermy to cervix	1
Division of septum - cervical	1
Division of septum - uterine	1
Division of septum - vagina	1
Drainage of bartholin's abscess	1
Drainage of vulval abscess	1
Endometrial resection	1
Episiotomy	1
Excision biopsy of vulval lesion	1
Excision of bartholin's cyst	1

Procedure	Total
Excision of labial cyst	1
Excision of skin tag	1
Excision of vaginal septum	1
Excision of vulval cyst/abscess	1
Exploration of c section wound	1
Exploratory laparoscopy	1
Hystero resect uterine adhesions	1
Hysteropic resection uterine septum	1
Hysteroscopy and endometrial biopsy	1
Hysteroscopy with endometrial ablation	1
Injection of local anaesthetic	1
Insertion of cervical suture	1
Labial reduction	1
Laparoscopic ovarian biopsy	1
Lymph node dissection	1
Marsupialisation of lesion of vulva	1
Open biopsy of lesion of ovary	1
Partial oopherectomy - laparoscopic	1
Perineal injection	1
Peritoneal washings	1
Posterior colporrhaphy	1
Posterior repair of vagina	1
Procedure abandoned	1
R/o ectopic salpingectomy-laparos	1
Remove cervical cerclage/shirodkar	1
Repair of cervical laceration	1
Repair of labial tear	1
Repair of obstetric laceration	1
Repair of uterus	1
Repair of vaginal laceration	1
Resection of polyp	1
Sacrospinous ligament fixation	1
Salpingostomy	1
Simple vulvectomy	1
Suture of cervix	1
Trachelectomy	1
Transvaginal removal of coil	1
Unilat ovarian cystectomy-laparoscopy	1
Unilat salpingo-oopherect-laparoscopy	1
Unilateral oopherectomy-laparoscopy	1
Unilateral salpingo-oophorectomy	1
Unilateral tubal ligation - laparatomy	1
Uterine myomectomy	1
Vaginal myomectomy	1
Vaginal polypectomy	1
Vault prolapse repair-vaginal	1
Vulvoscopy	1
Total	**5733**

PUBLISHED RESEARCH
Articles, Editorials, Letters

UCD Obstetrics & Gynaecology

Killeen SL, Byrne DF, Geraghty AA, Yelverton CA, van Sinderen D, Cotter PD, Murphy EF, O'Reilly SL, McAuliffe FM. Recruiting and Engaging Women of Reproductive Age with Obesity: Insights from A Mixed-Methods Study within A Trial. Int J Environ Res Public Health. 2022 Oct 24;19(21):13832

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Glossary

ABG	Arterial blood gas
AC	Abdominal circumference
ACA	Anticardiolipin antibodies
ACH	After coming head
aEEG	Amplitude integrated EEG
AFI	Amniotic fluid index
AFV	Amniotic fluid volume
AGA	Appropriate for gestational age
ALT	Alanine aminotransferase
Anaemia	A haemoglobin level of less than 102% g/dl
ANC	Antenatal care
APCR	Activated protein C resistance.
APH	Antepartum haemorrhage Bleeding from the genital tract after 24 weeks gestation
APTT	Activated partial thromboplastin
ARM	Artifical rupture of the membranes to induce labour
ASD	Atrial septal defect
AST	Asparate aminotransferase
AVSD	Atrioventricular septal defect
BBA	Born before admission
BMI	Body mass index
BMV	Bag and Mask Ventilation
BPP	Biophysical profile
BP	Blood pressure
BPD	Biparietel diameter
BPD	Bronchopulmonary dysplasia
BPP	Bio physical profile
BSO	Bilateral salpingo oophorectomy
CCAM	Congenital cystic adenomatoid malformation
CHD	Congenital heart defect
CIN	Cervical intraepithelial neoplasia
CK	Creatine kinase
CLD	Chronic lung disease
CMV	Cytomegalovirus
CPAP	Continuous positive airway pressure
CPC	Choroid plexus cysts
CPD	Cephalopelvic disproportion
CPG	Capilliary blood gas
CPR	Cardiopulmonary resuscitation
CRP	C reactive protein
CSA	Childhood sexual abuse
CSF	Cerebro spinal fluid
CT	Computerised axial tomography
CTG	Cardiotocograph
CTPA	Computed tomography pulmonary angiogram
CVP	Central venous pressure
CVS	Cardiovascular system
CXR	Chest x-ray
D Day	
DCH	Diffuse chorioamnionic haemosiderosis
D/C	Dilatation and curettage
DIC	Disseminated intravascular coagulation
DNA	Did not attend
Domino	Domicillary In Out
DR	Delivery room
DTR	Deep tendon reflex
DVT	Deep vein thrombosis
DWI	Diffusion-weighted images
EBL	Estimated blood loss
Echo	Echocardiogram
ECHO	Extracorpeal membrane oxygenation
ECV	External cephalic version
EDF	Enddiastolic flow
EDV	Enddiastolic volume
EFM	Electronic fetal monitoring
EFW	Estimated fetal birth weight
ELBW	Extremely low birth weight
ET	Endotracheal
ETT	Endotracheal tube
EUA	Examination under anaesthetic
FBS	Fetal blood sampling
FD	Fetal distress
FFP	Fresh frozen plasma
FHH/NH	Fetal heart heard/not heard
FIR	Fetal inflammatory response
FM	Fetal movements
FMF	Fetal movement felt
FMNF	Fetal movements not felt
FSE	Fetal Scalp Electrode
FTA	Failure to advance
FTND	Full term normal delivery
FVM	Fetal Vascular Malperfusion
G and M	Grossly and microscopically
GA	General anaesthetic
GAD	Gestation at delivery
GBS	Group B Streptococcus
GCT	Glucose Challenge Test
GDM	Gestational diabetes mellitus
GIS	Gastrointestinal system
GP	General practitioner
GTT	Glucose tolerance test
GUS	Genitourinary system
Hb	Haemoglobin g/dl
HCG	Human chorionic gonadotrophin
HELLP	Haemolysis elevated liver enzymes low platelets
HFO	High frequency oscillation
HR	Heart rate
Hrs	Hours
HRT	Hormone replacement therapy

HSV	Herpes simplex virus
HVS	High Vaginal Swab
IA	Intermittent auscultation
IDDM	Insulin dependent diabetes mellitus
IHCP	Intrahepatic cholestasis of pregnancy
IMB	Intramenstrual bleeding
IMV	Intermittent mandatory ventilation
INR	International normalised ratio
IOL	Induction of labour
IPP	Intermittent positive pressure
IPPV	Intermittent positive pressure ventilation
ITP	Idiopathic thrombocytopenic purpura
IUCD	Intrauterine contraceptive device
IUD	Intrauterine death
IUGR	Intrauterine growth retardation
IUI	Intra uterine insemination
IUT	Intrauterine transfusion
IVDA	Intravenous drug abuser
IVH	Intra ventricular haemorrhage
IVIG	Intravenous immunoglobulin
L/S	Lecithin/Sphingomyelin
LA	Lupus anticoagulant
LBI	Liveborn infant
LDV	Lactate dehydrogenase
LFD	Large for dates
LFT	Liver function test
LGA	Large for dates
LLETZ	Large loop exision of transformation zone
LMP	Last menstrual period
LMWH	Low molecular weight heparin
LP	Lumbar Puncture
LSCS	Lower segment caesarean section
LSR	Lecithin/sphingomyelin ratio
LUS	Lower uterine scar
LVH	Left ventricular hypertrophy
LVS	Low vaginal swab
MCA	Middle cerebral artery
Mins	Minutes
MIR	Maternal inflammatory response
MRA	Magnetic resonance angiogram
MRI	Magnetic resonance imaging
MROP	Manual removal of placenta
MSU	Mid-stream urinalysis
MSV	Mauriceau smellie veit
MVM	Maternal Vascular Malperfusion
ND	Normal delivery
NEC	Necrotising enterocolitis
NED	No evidence of disease
NER	Neonatal encephalopathy register
NICU	Neonatal intensive care unit
NIPPV	Nasal intermittent positive pressure ventilation
NND	Neonatal death
NO	Nitric oxide
NPO	nil by mouth
N/R	Not recorded
NRCTG	Non reassuring CTG
NS	Normal saline
NSAPH	Non substantial antepartum haemorrhage
NST	Non stress test
NT	Nuchal translucency
NTD	Neural tube defect
OCP	Oral contraceptice pill
OHSS	Ovarian hyperstimulation syndrome
OP	Occipital Posterior
PCB	Post coital bleeding
PCOS	Polycystic ovary syndrome
PCR	Polymerase chain reaction
PDA	Patent ductus arteriosis
PE	Pulmonary embolism
PET	Pre-eclamptic toxaemia
PFA	Plain film of the abdomen
PFC	Persistent fetal circulation
PFO	Patent foramen ovale
PGA	Post gestational age
PIE	Pulmonary interstitial emphysema
PLIC	Posterior limb of the internal capsule
PMB	Post menopausal bleeding
PNW	Postnatal ward
POM	Puncture of membranes to accelerate labour
POP	Persistent occipito posterior position
PPH	Post partum haemorrhage
PPHN	Persistent pulmonary hypertension
PPROM	Preterm pre-labour rupture membranes
PR	Pulmonary regurgitation
PROM	Preterm rupture of membranes
PTX	Pneumothorax
PVL	Periventricular leucomalacia
RBC	Red blood cell
RCC	Red cell concentrate
RDS	Respiratory distress syndrome
RLF	Retrolental fibroplasia
RPOC	Residual products of conception
RS	Respiratory system
RV	Right ventricle
RVH	Right ventricular hypertrophy
SA	Spinal analgesia
SBI	Stillborn infant
SCBU	Special care baby unit
SFD	Small for dates
SFD	Suspected fetal distress
SG	Social group
SGA	Small for gestational age
SIADH	Syndrome of inappropriate ADH secretion
SIDS	Sudden infant death syndrome

SIMV	Synchronized intermittent mandatory ventilation
SMR	Standardised mortality rate
SROM	Spontaneous rupture of membranes
SUA	Single umbilical artery
SVC	Superior vena cava
SVD	Spontaneous vaginal delivery
TAH	Total abdominal hysterectomy
TAH & BSO	Total abdominal hysterectomy and bilateral salpingoopherectomy
TAPVD	Total anomalous pulmonary venous drainage
TAS	Thoracamniotic shunt
TC	True conjugate
TDS	Three times a day
TICH	Traumatic intracranial haemorrhage
TLD	Therapeutic loop diathermy
TOF	Tracheo oesophageal fistula
TR	Tricuspid regurgitation
TTN	Transient tachypnoea of the newborn
TTT	Twin to twin transfusion
TVT	Tension-free vaginal tape
U/S	Ultrasound
UA	Umbilical artery
USS	Ultrasound scan
UTI	Urinary tract infection
VAIN	Vaginal intraepithelial neoplasia
VBG	Venous blood gas
VIN	Vulval intraepithelial neoplasia
VLBW	Very low birthweight
VOD	Vermont oxford database
VON	Vermont oxford network
VP	Ventriculoperitoneal
VSD	Ventricular septal defect
Vx	Vertex
WCC	White cell count
XRP	X-ray pelvimetry

CANDIDACY CHECKLIST FOR NEONATAL THERAPEUTIC HYPOTHERMIA (COOLING)

PATIENT'S NAME: _____ **HOSP. NO:** _____

TIME of BIRTH: _____:_____ hrs. **CURRENT AGE in hours /minutes:** _____ hrs._____ mins.

If current age is greater than 6 hours, call tertiary cooling centre before proceeding.

Directions for the use of this checklist: Start at the top and work through each numbered component. When directed to proceed to the exam, refer to the exam found on page 2. If there is missing data,(such as a known perinatal event and / or Apgar scores) and you are in doubt as to whether or not the patient qualifies for cooling, consult with the tertiary cooling centre promptly to discuss the patient.

**Note: If patient is < 6 hours old and meets the gestation, weight and blood gas criteria and has a witnessed seizure, patient is eligible for 'COOLING' regardless of additional exam findings. Consult the tertiary cooling centre to discuss any questions or concerns.*

Clinical Information	Criteria *(place a tick in the box that corresponds to the patient information)*	Instructions
Gestation	1 ≥ 36 weeks gestation ☐	Go to ⇛ 2 **Weight**
	= 35 weeks gestation ☐	May not be eligible *Contact cooling centre*
	< 35wks gestation ☐	Not Eligible
Weight	2 ≥ 1800 grams ☐	Go to ⇛ 3 **Blood Gas**
	< 1800 grams ☐	Not Eligible
Blood Gas pH = _____ Base Excess = _____ Source: Cord ☐ *Or* 1st infant blood gas at <1hour of life ☐ Arterial ☐ Capillary ☐ Venous Time Obtained: _____ : _____	3 pH < 7.0 *or* Base excess ≥ -16 ☐	Criteria met thus far. Go to **EXAM***
	No gas obtained ☐ *or* pH 7.0 to 7.15 ☐ *or* Base excess -10 to -15.9 ☐	Go to ⇛ 4 **History of acute perinatal event**
	pH >7.15 or Base Excess < 10 ☐	May not be eligible; Go to ⇛ 4 **History of acute perinatal event**
Acute Perinatal Event *(tick all that apply)*	4 Variable / late foetal HR decelerations ☐ Prolapsed / ruptured / tight nuchal cord ☐ Uterine Rupture ☐ Maternal haemorrhage / placental abruption ☐ Maternal trauma (eg. vehicle accident) ☐ Mother received CPR ☐	Any ticked, Go to ⇛ 5 **Apgar score**
	No perinatal event *or* Indeterminate what the event was because of home birth or missing information	May not be eligible; Go to ⇛ 5 **Apgar score**
Apgar Score at 1 minute _____ 5 minute _____ 10 minute _____	5 Apgar ≤ 5 at 10 minutes (yes) ☐	Criteria met thus far. Go to **EXAM***
	Apgar ≤ 5 at 10 minutes (no) ☐ *(no, was 6 or greater at 10 minutes)*	Go to ⇛ 6 **Resuscitation after delivery**
Resuscitation after Delivery *(tick all that apply)* _____ PPV/intubated at 10 minutes _____ CPR _____ Adrenaline administered	6 Continued need for PPV or Intubated at 10 minutes?(yes) ☐	Criteria met thus far. Go to **EXAM***
	PPV/Intubated at 10 minutes?(no) ☐	May not be eligible Go to **EXAM***

This checklist, adapted from the 'STABLE Program', 6th edition, 2013, has been produced by the National Neonatal Transport Programme (NNTP) and endorsed by the Faculty of Paediatrics, Royal College of Physicians, Ireland, in March 2014.

Circle findings for each domain

PATIENT IS ELIGIBLE FOR COOLING WHEN 3 OR MORE DOMAINS HAVE FINDINGS IN COLUMNS 2 OR 3

Domain	1	2	3
Seizures	**None**	**Seizures common:** (focal or multifocal seizures) (Multifocal: clinical activity involving > one site which is asynchronous and usually migratory) Note: If the patient is < 6 hours old and meets the gestation, weight and blood gas criteria and has a witnessed seizure, patient is eligible for cooling regardless of the rest of this exam	**Seizures uncommon:** (excluding decerebration) ***Or*** Frequent seizures
Level of Consciousness	**Normal** **or** **Hyperalert**	***Lethargic*** Decreased activity in an infant who is aroused and responsive **Definition of Lethargic:** • Sleeps excessively with occasional spontaneous eye opening • Responses are delayed but complete • Threshold for eliciting such responses increased • Can be irritable when disturbed	**Stuporous / Comatose** Demonstrates no spontaneous eye opening and is difficult to arouse with external stimuli **Definition of Stuporous:** • Aroused only with vigorous and continuous stimulation **Definition of Comatose:** • No eye opening or response to vigorous stimulation In both stupor and / or coma, the infant may respond to stimulation by grimacing / stereotyped withdrawal / decerebrate posture
Spontaneous activity when awake or aroused	**Active** **Vigorous, doesn't stay in one position**	**Less than active, not vigorous**	**No activity whatsoever**
Posture	**Moving around and does not maintain only one position**	**Distal flexion, complete extension or "frog-legged" position** Term infants with HIE often exhibit • Weakness in hip-shoulder distribution (eg proximal part of extremities) • Distal joints, fingers and toes often exhibit strong flexion • Thumbs strongly flexed and adducted. • Wrists often flexed • Above postures are enhanced by any stimulation	**Decerebrate with or without stimulation (all extremities extended)**
Tone	**Normal** • Resists passive motion **Hypertonic, jittery** • Lowered threshold to all types of minimal stimuli eg light touch, sudden noises • Infant may even respond to his/her own sudden movements	**Hypotonic or floppy,** • Axial hypotonia (ie. head lag) and/or limb hypotonia	**Completely flaccid like a rag doll**
Primitive reflexes	***Suck:*** Vigorously sucks finger or ETT ***Moro:*** Normal: Limb extension followed by flexion with stimulus	***Suck:*** Weak ***Moro:*** Incomplete	***Suck:*** Completely absent ***Moro:*** Completely absent
Autonomic system	***General Activation of Sympathetic nervous system*** ***Pupils:*** • Normal size (-1/3 of iris diameter) • Reactive to Light ***Heart Rate:*** • Normal, > 100bpm ***Respirations:*** • Regular spontaneous breathing	***General Activation of Parasympathetic nervous system*** ***Pupils:*** • Constricted (< 3mm estimated) • but reactive to light ***Heart Rate:*** • Bradycardia (< 100bpm, variable up to 120) ***Respirations:*** • Periodic, irregular breathing effort • Often have more copious secretions and require frequent suctioning	***Pupils:*** • Skew gaze, fixed, dilated, • not reactive to light ***Heart Rate:*** • Variable, inconsistent heart rate, irregular, may be bradycardic ***Respirations:*** • Completely apnoeic, requiring PPV & / or ET intubation and ventilation

Neurological Exam to evaluate candidacy for cooling: If in doubt as to whether patient qualifies for cooling, consult with the cooling centre promptly to discuss the patient.

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Physician in Chemotherapeutic Medicine
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Dr John Holian

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Non-Consultant Hospital Doctors:
Doctors in this list have spent between 3 and 12 months in The NMH. Some doctors may appear under more than one heading if they were employed at different levels during the year.

Specialist Registrars in Obstetrics/Gynaecology
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Dr Nicola O'Riordan, Labour Ward Fellow
Dr Maggie O'Brien, Maternal Medicine Fellow
Dr Helena Bartels, Placenta Accreta Fellow
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Dr Eleanor Burke
Dr Ava McDonald
Dr Nadzirah Muhamed
Dr Elysha Brennan
Dr Conor Ring
Dr Shauna Harte
Dr Jessica Lazar

Dr Sorcha Moore
Dr Edmond Power
Aishling Busher
Dr Bailey Crolwy
Dr Aine English
Dr Mark Glynn
Dr Mansi Shah
Dr Lorna Holcroft
Dr Sabha Joyce Costello
Dr Hufaiza Azam

Specialist Registrars in Anaesthesiology
Dr Padraig Calpin
Dr Darragh O'Reilly
Dr Craig Joyce
Dr Christine Greene
Dr Patrick Yore
Dr Amelia Hogan
Dr Nicholas Di Mascio
Dr Jean Francis Bonnet
Dr Don Walsh

Registrars in Anaesthesiology
Dr Fiachra Morris
Dr Eoin Murray
Dr Jawad Matanis
Dr Mahmoud Mohamed
Dr Zoha Zob
Dr Ahsan Altaf
Dr Muhammad Qasim Awan
Dr Ayat Alzaher
Dr Karen Donnelly
Dr Maeve Egan
Dr Sara Ahmed
Dr Ahmet Bakhet
Dr Mohd Ali Abdelsalam Elshahwabi
Dr Aun Mohammed
Dr Mirza Kazim Ali

Specialist Registrars in Histopathology
Dr Neil Fennelly
Dr Orla Smith

Senior Registrars in Psychiatry
Dr Anisha Devi Bhagawan
Dr Ralph Twomey

Specialist Registrars in Radiology
Dr Niamh Adams

Specialist Registrars in Microbiology
Dr Elaine Houlihan

SENIOR MIDWIFERY & NURSING STAFF

Director of Midwifery & Nursing
Mary Brosnan

Assistant Directors of Midwifery & Nursing – Day Duty
Ann Calnan
Geraldine Duffy
Valerie Kinsella
Ann Rath

Shideh Kiafar (Infection Prevention and Control)
Teresa McCreery (Community Midwifery Services)

Assistant Directors of Midwifery & Nursing – Night Duty
Martina Carden
Eimir Guinan
Bernadette O'Brien (*retired Jun*)
Erica Mullins (*from Jun*)

Assistant Director of Midwifery & Nursing – Clinical Practice Development Co-ordinator
Lucille Sheehy

Advanced Midwife / Nurse Practitioners
Anitha Baby, Triage Services
Sarah Belton, Gynaecology Oncology
Caroline Brophy, Postnatal Maternal Morbidity
Ciara Coveney, Diabetes
Linda Kelly, Women's Health & Urodynamics
Shirley Moore, Neonatology

Candidate Midwife / Nurse Practitioner
Niamh Murray
Linda Smiles

Clinical Midwife / Nurse Managers 3
Gillian Canty, Project Team
Sive Cassidy, MN - CMS
Martina Cronin, Labour & Birthing unit
Carol Pugh, Postnatal Services
Karen Sherlock, Theatre and Gynae Inpatient services
Valerie Spillane, Antenatal Outpatient & Ultrasound Services
Helen Thompson, Gynaecology / Women's Health
Hilda Wall, Neonatal Unit

Clinical Midwife / Nurse Managers 2
Emily Barriga Neonatal Unit
Michelle Barry, Fertility
Theresa Barry, Parentcraft Education
Lisa Brady, Pre-Assessment Clinic
Maggie Bree,Theatre
Carmel Breen, Night Duty
Mariola Buczkowska, Neonatal Unit
Emma Ruth Candeleria, Neonatal Unit
Niamh Carney, Pre-Assessment Clinic
Barbara Cathcart, Fetal Medicine Unit
Michelle Clarke Labour & Birthing Unit
Breda Coronella, Neonatal Unit (retired Jun)
Joanne Courtney, Fetal Medicine Unit
Clodagh Craven, Fetal Medicine Unit
Siobhan Crisham, Theatre / Recovery
Rahel Dalton, Night Duty
Eleanor Durkin, Parentcraft Eduction
Jennifer Fitzgerald, Occupational Health
Carmel Flaherty, Health & Safety Occupational Health
Emily Flynn, Emergency Care Area
Miriam Griffin Postnatal Services
Dana Hardy, Theatre
Bianca Hein Labour & Birthing Unit
Jilby Jacob, Postnatal Services
Jean Kavanagh, Labour & Birthing unit
Jane Langenbach, Labour & Birthing unit
Ann Lopez, Gynaecological Inpatients Services
Emer Kilduff, Night Duty
Sheeba Masih, Labour & Birthing Unit
Mairead Markey, Labour & Birthing Unit
Remy Mathew, Postnatal Services
Deirdre Molloy (Perinatal Mental Health
Georgina Mulligan, Perinatal Mental Health
Annabel Murphy, Antenatal Clinic
Claire McElroy, Gynaecological Clinic
Carolanne McGinley, Labour & Birthing Unit
Helen McHale, Antenatal Ward
Petria O'Connell Baby Clinic
Gwen O'Neill, Labour & Birthing unit
Breid O'Dea, Outpatients Clinic
Rebekah Prabakaran, Neonatal Unit
Anya Phillips Labour & Birthing Unit
Alphonsa Pius, MN –CMS
Bronwyn Redmond, Infection Control
Sara Rock, Neonatal Unit
Kim Ryan, RM MN -CMS
Brid Shannon, Labour & Birthing Unit
Molly Vinu, MN-CMS
Jisha Vijayan, Neonatal Unit
Lorraine White Baby Clinic

Clinical Midwife/Nurse Specialists
Brenda Casey (CMS Bereavement)
Sharon Croke (CMS – Ultrasound)
Sarah Cullen, (CMS Bereavement)
Lisa Hyland, (CMS – Ultrasound)
Niamh Meagher, (CMS – Ultrasound)
Heather Hughes (CMS Ultrasound))
Cecilia Mulcahy, (CMS - Ultrasound))
Elizabeth (Betty) Murphy, (CMS –Ultrasound)
Caroline McCafferty (CNS - Neonatal)
Claire McSharry, (CMS Ultrasound)
Ciara Murphy, (CNS – Neonatal)
Celine O'Brien, (CMS - Maternal Medicine)
Megan O'Malley, (Perinatal Mental Health
Eimear Rutter, (CMS Diabetes)
Elaine Smyth (CNS Perinatal Mental Health)

Community Midwives
Debbie Appelbe
Sarah Byers
Kate Casey
Katie Hearty
Sally Horton
Alice Hoffmeister
Lorna Killick
Clodagh Manning
Roisin McCormack
Bronwyn Nicol
Eimear O'Connor
Fiona Roarty
Nicola Smyth

Clinical Skills Facilitator
Aoife Lennon
Saila Kuriakose
Colette O'Neill
Lavanya Lakshaman

Neonatal Clinical Skills Facilitator
Fidelma Martin
Thankamma Mathew

Neonatal Resuscitation Officer
Laura Eager

Neonatal Transport Co-Ordinator
Blaithin Quinlan

Oncology Nurse Co-ordinator
Louise Comerford

Post Registration Midwifery Programme Co-ordinator
Ann Marie Dunne

Clinical Placement Co-ordinators
Sharon Egan
Orla Gavigan
Avril O'Connell
Elaine Creedon

Haemovigilance Officer
Bridget Carew

Nurse Colposcopists
Gina Baldesco
Dympna Casey
Hazel Catibog
Marie Collery
Natasha Farron Mahon
Siobhan Griffin
Lisa Hughes
Sinead Kausley
Deirdre O'Neill

Smoking Cessation
Orla Bowe

SENIOR ADMINISTRATION STAFF

Secretary/General Manager
Ronan Gavin

Financial Controller
Alistair Holland

Human Resources Manager
Yvonne Connolly

Deputy Human Resources Manager
Caoimhe De Brun

IT Manager
Con Grimes (*Acting*)

General Services Manager
Tony Thompson

Purchasing and Supplies Managers
Linda Mulligan and Lorraine McLoughlin

Patient Services Manager
Alan McNamara

Information Officer
Fionnuala Byrne

Health & Safety Officer
Martin Creagh

Facilities Engineering Manager
Neil Farrington

Tendering Officer, Dublin Maternity Hospital Group (DMHG)
Gwen Montague *(to May)*
James Byrne *(from Jun)*

Compliance and Operations Manager / Data Protection Officer (Acting)
Carl Alfvag

QUALITY, RISK AND PATIENT SAFETY

Director of Quality, Risk and Patient Safety
Luke Feeney *(to Aug)*
Dr Anne Twomey (*from Nov*)

Claims Co-ordinator
Nicole Kennedy

Quality Manager
Rachel Irwin

Clinical Risk
Clare O'Dwyer
Laurence Rousseill

PROJECT PROGRAMME OFFICE NMH AT ELM PARK
Dr Orla Sheil, Joint Clinical Lead
Dr Jenny Walsh, Joint Clinical Lead and Joint Chair, Digital Health
Martin Keane, Project ICT Lead
Damian McKeown, Project Co-Ordinator
Eoghan Hayden, Commissioning & Transitioning Pillar Lead
Emmett Travers, Operations & Business Enablement Pillar Lead
Gillian Canty, Operational Readiness Deputy Lead
Martin Creagh, Co-location Deputy Lead
Geraldine Duffy, People Pillar Lead
Sarah McCourt, Administrator

ALLIED HEALTH PROFESSIONALS

Head Medical Social Worker
Laura Harrington

Senior Medical Social Workers
Ciara McKenna
Sinead Stakelum
Ciara Buggy
Gillian McMurray
Aoife Shannon *(to Jun)*
Ryan Cassidy (*to Oct)*

Medical Social Workers
Deirdre Real *(from Dec)*
Karen McCormack
Doireann Kavanagh
Saoirse Bolger *(to Aug)*
Tina Moley *(from Dec)*

Radiography
Radiographer, Service Manager
Angela Angove *(to Jun)*
Laura Moyles *(from Jun)*

Senior Radiographer
Bernadette Ryan,
Carmel O'Connor
Erica Maughan *(to Jan)*
Lucy Collender *(from Jun)*

Clinical Specialist Radiographer
Clara Nolan
Una Murphy
Carla Groves
Elga Grimes
Margaret Daly

Physiotherapy
Judith Nalty, Physiotherapy Manager

Senior Physiotherapists
Lesley-Anne Ross (Gyn)
Eithne Lennon (Neo)
Sarah Fitzmaurice (Obs)
Laura O'Sullivan (Obs)
Sarah Mullins (Gyn)
Aoife Magner (Obs)

Clinical Specialist Physiotherapists
Jo Egan (Neo)
Aoife Cullen (Gyn)
Ciara Ryan (Gyn)

Consultant Clinical Biochemist
Dr Orla Maguire

Laboratory Manager
Marie Culliton *(to Nov)*
Damian Lally (Acting) (from Dec)

Chief Medical Scientist
Orla McCormack
Anya Curry
Catherine Doughty
Laura Kennedy
Natalie Sabine (Keogh)
Paula Whyte

Surveillance Scientist
Carol O'Connor

Senior Medical Scientist
Mary Anderson (to Jun)
Gwen Connolly
Aoife Reynolds
Philip Clarke
David Mahon
Donal Noonan
Declan Ryan

Central Decontamination Unit Manager
Pam Hutchings

Chief Pharmacist
David Fitzgerald

Senior Pharmacist Medication Safety/MN-CMS
Aine Toher

Senior Pharmacist NICU
Montserrat Corderroura,

Antimicrobial Pharmacist
Louise Delany

Senior Pharmacist Maternal Medicines Clinic
Benedetta Soldati

Senior Pharmaceutical Technicians
Linda Simpson
Rosie Kirwan

Clinical Specialist, Speech & Language Therapist
Zelda Greene

Clinical Psychologist, Neonatal Intensive Care Unit
Marie Slevin

Senior Occupational Therapist, Perinatal Mental Health
Fidelma Shortall *(from Oct)*

Clinical Psychologist, Perinatal Mental Health
Aoife Menton

Senior Mental Health Social Worker, Perinatal Mental Health
Adele Kane

Art Therapist
Claire Flahavan

Psychosexual Counsellor
Meg Fitzgerald

Dietitian Managers
Sinead Curran
Roberta McCarthy

Clinical Specialist Dietitian
Roisin Gowan

Senior Dietitians
Laura Harrington *(from Sept)*
Catherine Chambers
Eimear Ryan *(to Oct)*
Rachel Sheane *(to Dec)*
Orla Haughey *(to Feb)*
Lillian Murtagh *(to Sept)*
Catherine Shortall *(to Mar)*
Sarah Louise Killeen

Chief Clinical Engineer
Eoghan Hayden

Senior Clinical Engineer
Maighread Gallagher *(to Mar)*
Vasanth Pillai
Oleg Shrolik
Mark Power *(from Jul)*

Sonographer
Erica Maughan

SENIOR SUPPORT SERVICES

Portering Services Manager
Claudiu Zselemi

Assistant Portering Services Manager
Glenn Kynes

Hygiene Services Manager
Mark Anderson

Catering Manager
Elizabeth Byrne

Assistant Catering Managers
Beata Banach
Martina Guiney
Michael Lennon *(from Jul)*
Paul Humphreys
Marta Jankowska

Engineering
Sean Murray, Senior Ass. Technical Services Officer *(to Mar)*
James McGovern, Maintenance Supervisor *(to May)*
Gearoid O Toole, Maintenance Supervisor *(from May)*
Ciaran Richardson, Engineering Building Services Assistant *(from Sept)*
Keith Lowry, Engineering Building Services Assistant *(from May)*
Bozena Wrobel- Paprota, Engineering Services Coordinator
Tatjana Bokanova, Environment

Chaplaincy
Helen Miley
Angela Neville Egan

Definitions

Approach to Data Presentation in Clinical Report
Presentation of data in the individual cases is now recorded in tabular form. An explanation of placental terminology is provided in appendix 1. Individual cases are categorised according to the disease process that caused death. Many cases will have multiple pathologies and multiple potential causes of death, and the sequence leading to these is given in the final (diagnostic) line.

The approach taken in cases with potentially competing causes of death is that analysis of this data enables calculation of hospital mortality in infants without a lethal or potentially lethal congenital anomaly.

IUGR can be variously applied to infants at the 3rd, 5th or 10th centiles. The third centile is the one shown to correlate best with perinatal mortality. The reference ranges for centiles given in this report are those published by the Child Growth Foundation (UK) (updated 2002).

Maternal death: Death of a patient, booked or unbooked, for whom the hospital has accepted responsibility, during pregnancy or within six weeks of delivery whether in the hospital or not.

Stillborn infant: A baby with birthweight greater than or equal to 500g and/or 24+0 wks estimated gestational age, who shows no signs of life at delivery.

Early neonatal death: A baby born alive with birthweight greater than or equal to 500g and/or 24+0 wks estimated gestational age, who dies within 7 days.

Perinatal mortality rate: The sum of stillbirths and early neonatal deaths per 1,000 total births whose birthweight is greater than or equal to 500g and/or 24+0 wks estimated gestational age.

Corrected perinatal mortality rate: The sum of stillbirths and early neonatal deaths per 1,000 total births whose birthweight is greater than or equal to 500g and/or 24+0 wks estimated gestational age excluding congenital anomalies.

Gestation: The best estimate is the duration of gestation using the first day of the last normal menstrual period and early ultrasound as appropriate in the clinical circumstances.

Preterm: Less than 37 completed weeks.

Postdates: 42 weeks or greater.

Prolonged labour: Labour more than 12 hours - nulliparous.

Labour length: Duration of time spent in the labour ward.

Blood Gases: Capillary, Arterial and Venous Blood gases given in order pH, Partial Pressure of Oxygen (PO_2), Partial Pressure of Carbon (PCO_2) and Base Excess (BE).

PATHOLOGY

Thrombophilia screen
Prothrombin Time, INR, APTT, Thrombin Time, Fibrinogen, Lupus Anticoaguloant screen - (Lupus anticoagulant, anti-cardiolipin antibodies, beta-2 glycoprotein 1 antibody), Anti Thrombin Three, Protein C, Protein S Free, Modified APCR (FVLeiden mutation if appropriate).

Postmortem
The perinatal autopsy involves external examination of body, with appropriate photographs and X-ray. Internal examination includes inspection of cranial, thoracic and abdominal cavities with removal and weighing of organs: organs are retuned to the body before release. Samples are taken for subsequent processing and histologic examination. Extent of sampling of tissue such as spinal cord, nerve and muscle depends on clinical details and on the extent of maceration. The autopsy includes swabs for culture from body cavities and washings for virology. Tissue is frozen for fat stains and may be used for assessment of metabolites. Cytogenetic analysis and where indicated, microarray, may be performed on ether skin or placental tissue. The placenta is reported in conjunction with the autopsy, and maternal blood results are also evaluated in reaching a diagnosis. The quality of the report is benchmarked against standards set in the Faculty of Pathology, RCPI QA/QI programme.

A provisional anatomic diagnosis is issued within two working days (except in Coroner's cases, where it is not issued), and the final report is usually within 8 weeks. Occasional cases take longer due to complexity and/or the necessity for external consultations.

Placental pathology

A triage system is in place for placental examination. The entire placenta is submitted to the laboratory:

a) from cases of Caesarean section
b) from cases born in the delivery ward, where there is an abnormality of pregnancy, labour, delivery or the neonatal period.

In other cases, the placenta is kept refrigerated for seven days and retrieved if an indication for analysis becomes apparent.

Data from analysis of cases of Perinatal morbidity or mortality is returned in an anonymised fashion to the National Perinatal Epidemiology Centre, UCC, where it is pooled with data from other maternity units and national trends and benchmarks are published. The terminology used is the same consensus terminology as that used by NPEC (Khong TY et al). Some of these terms are expanded on below.

Maternal vascular malperfusion (MVM)

This is a spectrum: at the less severe end is mild accelerated villous maturation, then ischemic villous crowding and latterly infarction, also referred to as uteroplacental insufficiency (UPI). Increasingly, terms such as "shallow implantation" are being used to explain the pathogenesis. Expected findings in a case of severe PET would be a small placenta with recent and old infarcts, located centrally and peripherally in the parenchyma. Atherosis is fibrinoid change in vessels, seen in about half of cases of PET and occasionally in other conditions eg connective tissue disease.

Hypoxic membrane lesions

Laminar decidual necrosis may be regarded as an acute hypoxic lesion, and microcystic change in the chorion as a chronic hypoxic lesion.

Meconium

When present in large quantities, meconium may cause necrosis of muscle cells in the walls of chorionic vessels and possibly lead to vasospasm and ischaemia.

Chorangiosis

More vessels than normal are seen in terminal villi. It may be present as a primary finding or as a reaction where adjacent villi have been destroyed by villitis, and is suggested to be a marker of chronic hypoxia.

PATTERNS OF INFLAMMATION

Chorioamnionitis

The terms "maternal inflammatory response" and "fetal inflammatory response are used with each being staged and graded according to consensus guidelines. There is an association between a severe fetal inflammatory response and brain damage in both term and pre-term infants.

Maternal-fetal immune interaction.

This may be manifest as any or all of villitis, intervillositis, chronic chorioamnionitis and deciduitis.

Villitis

Rare cases of villitis are due to infection eg CMV, but most are of unknown aetiology and are immunologically mediated. Villitis is graded as low-grade or high-grade. Overall, villitis is seen in 10% of placentas; high-grade villitis occurs in < 2% and is associated with an adverse perinatal outcome. Villitis may cause damage to fetal vessels in the placenta and this is associated with neurologic damage in term infants. It may recur in subsequent pregnancies.

Intervillositis

Chronic histiocytic intervillositis is relatively rare, but is over-represented in the cases in this report. It is associated with growth restriction and perinatal loss, with a mean gestation of loss of 25/40. It is more common in patients with immune dysregulation, and is likely to recur in subsequent pregnancies.

THROMBOSIS AND HAEMORRHAGE

Fetal vascular malperfusion (FVM)

Occlusions of the fetoplacental circulation are manifest by: extensive avascular villi, obliterated stem arteries, haemorrhagic villitis, and occlusive thrombi. The term fetal thrombotic vasculopathy is also used. High-grade FVM, in particular, is associated with neonatal encephalopathy.

Non-occlusive mural fibrin thrombi

These are found in large fetal vessels in approx 10% of placentas. They are more common in cases with FTV and abnormal coiling; they reflect impaired fetoplacental flow, but the significance of isolated ones in smaller stem vessels is at present unclear.

Cord coiling
The cord normally has one coil per 5cm. Both hypo- and hypercoiled cords are associated with IUGR, fetal death, cord stricture, thrombosis and an abnormal response to labour.

Abruption and retroplacental haemorrhage (RPH)
RPH may be identified on pathologic examination of the placenta, but have been clinically silent. Conversely, dramatic clinical abruption may leave no changes in the placenta. In many cases RPH causes compression infarction of the placenta.

Diffuse chorioamniotic haemosiderosis (DCH)
This is diagnosed by the presence of haemosiderin-laden macrophages in the membranes and/or chorionic plate. Such placentas are more likely to show circumvallation, old peripheral blood clots and green discoloration. Clinically, DCH is associated with chronic vaginal bleeding, multiparity and smoking. Blood and breakdown products are released into the amniotic fluid. Oligohydramnios, IUGR and a lower gestational age at delivery have been found more commonly in cases with DCH. Persistent pulmonary hypertension and dry lung syndrome are more common in these neonates. DCH may represent chronic peripheral separation of the placenta, possibly from marginal venous bleeding (rather than the arterial bleed of abruption).

ABNORMAL PLACENTAL DEVELOPMENT

Delayed/abnormal villous maturation
This is where the placenta has failed to develop appropriately for gestational age, partially or completely. It is a poorly understood entity, and is associated with diabetes. It is associated with an increased risk of stillbirth. Some cases may receive a descriptive diagnosis eg abnormal maturation or variable villous maturation where there is a mixed picture, with some areas showing delayed maturation and other areas accelerated maturation. The term "distal villous immaturity" is also used.

Increased perivillous fibrin
Localised increases in fibrin are common, but a diffuse increase, sometimes in a pattern called "maternal floor infarction" is associated with an adverse outcome.

Placental weight
In general, the term placenta weighs between one sixth and one seventh of the infant's weight, but a wide range of placental weights is seen in normal infants. The weight is given in the cases discussed where it is felt to be markedly abnormal. Fetoplacental weight ratio (median of around 7 at term) are sometimes used. Updated September 2018

Khong T Yee, Mooney EE, Ariel I et al. Sampling and definition of placental lesions. Amsterdam Placental Workshop Group Consensus Statement. Arch Pathol Lab Med 2016;140:698-713.

Appendix 2: Classification of indications for caesarean section in spontaneous labour or after having had labour induced

Fetal reason
Caesarean section for fetal indication before any oxytocin has been given.

Dystocia
Inefficient uterine action/inability to treat/fetal intolerance
Problem is inadequate progress with no fetal problems until oxytocin is started.

Inefficient uterine action/inability to treat/overcontracting
Problem is inadequate progress but oxytocin does not reach maximum dose as per protocol in unit because of overcontracting uterus.

Inefficient uterine action/poor response
Problem is inadequate progress which does not improve after being treated with the maximum dose of oxytocin according to the protocol in the unit.

Inefficient uterine action/no oxytocin
Problem is inadequate progress which for whatever reason has not been treated with oxytocin.

Efficient uterine action/CPD/POP*
Adequate progress (1cm/hr) and in nulliparous women would need to have been treated with oxytocin) but vaginal delivery not possible.
*In multiparous women the term CPD/POP is replaced with obstructed labour.

CLASSIFICATION OF INDICATIONS FOR INDUCTIONS OF LABOUR

Fetal reasons
Includes all indications for induction that are carried out for the benefit of the fetus.

PET/Hypertension
Includes all indications for induction that are carried out for hypertensive disorders.

Post Dates
Includes all inductions that are carried out specifically for 42 weeks gestation or greater.

SROM
Includes all inductions for spontaneous rupture of the membranes

Maternal reasons/Pains
Includes all indications for induction that are carried out for the benefit of the mother including pains not in labour

Non medical reasons/Dates< 42 weeks
Includes all indications for inductions where there is no absolute medical indication or for dates but less than 42 weeks

The National Maternity Hospital Annual Report 2022

Photography in the Report

Images in the report are from a mix of professional photography, press releases, the NMH Staff Newsletter and photos staff and families have allowed us use and we are grateful to have them all.

COVID-19 guidelines were adhered to during the various stages of the pandemic.

Print & Design
Printcomp

Project Managed by Fionnuala Byrne, Information Officer

The Linen Guild
The National Maternity Hospital

The Linen Guild is a discretionary charity founded in 1912 which provides emergency assistance to mothers and babies in need who attend The National Maternity Hospital.

It is a 100% voluntary charity organisation. All members are volunteers who give willingly of their time and share our common objective of wanting to help mothers and newborn babies in difficult circumstances at a vulnerable time.

We are self-funding through donations and a variety of fund raising initiatives during the calendar year. 100% of all the money raised go directly to help mothers and babies who need emergency financial and practical support.

thelinenguild@gmail.com

NMH Foundation
Helping Holles Street

The NMH Foundation exists to raise vital funds for the National Maternity Hospital, with a focus on advancing maternal and neonatal health in Ireland. We raise vital funds to invest in research, to provide vital equipment and technology within the hospital, and to support the work of the care teams and support services caring for mothers and tiny babies. The NMH Foundation is helping babies to arrive, survive and thrive.

NMH Foundation, The National Maternity Hospital, Holles Street, Dublin 2

foundation@nmh.ie | 01 637 3372 | www.nmhfoundation.ie

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