



The National Maternity Hospital
ANNUAL REPORT 2024

Reproductive Medicine & Surgery

THE NATIONAL MATERNITY HOSPITAL FERTILITY HUB

The National Maternity Hospital Fertility Hub is one of six Regional Fertility Hubs in Ireland and provides advice, investigation and treatment for eligible couples with infertility.

The Fertility Hub is led by Dr David Crosby, Consultant Obstetrician and Gynaecologist and following their appointments in 2023, Dr Maebh Horan, Consultant Obstetrician and Gynaecologist and Dr. Niamh Joyce, Aspire Fellow in Reproductive Medicine, joined the team. The team is supported by our Clinical Nurse Specialists, Ms Michelle Barry, Ms Jenny O'Donnell and Ms Jess Dowdell and Administrative support, Ms Catherine Dunne and Ms Maria Castro.

The fertility hub caters for couples seeking fertility investigations and treatment. The hub can also refer eligible couples for publicly funded Assisted Human Reproduction (AHR) treatments including Intrauterine Insemination (IUI), In Vitro Fertilisation (IVF), or Intracytoplasmic Sperm Injection (ICSI).

There were 1,256 referrals to the NMH Fertility Hub in 2024 (Figure 1). This is a significant increase in the number of referrals compared with 2023 data (n=722 referrals).

Of these referrals, there were 765 eligible couples referred to the hub in 2024. Table 1 gives a breakdown of the hub clinical activity in 2024.

Publicly funded Assisted Human Reproduction (AHR)

Following the launch of the public AHR programme in September 2023, 46 couples were referred for AHR between September and December 2023. Of these couples, 38 have completed their cycles, with 15 resultant pregnancies. There were 255 eligible couples who were referred to private providers for AHR treatment in 2024. This figure continues

to grow. We will present the 2024 AHR outcome data in the 2025 annual report.

Reproductive Surgery

The number of reproductive surgery procedures performed by our service in 2024 is outlined in Table 2.

“The fertility hub caters for couples seeking fertility investigations and treatment. The hub can also refer eligible couples for publicly funded Assisted Human Reproduction (AHR) treatments including Intrauterine Insemination (IUI), In Vitro Fertilisation (IVF), or Intracytoplasmic Sperm Injection (ICSI).”

The National Maternity Hospital and Merrion Fertility Clinic are the only centres in Ireland who together perform laparoscopic oocyte retrievals. For a small subset of women, it can be the only approach to allow access to the ovary to retrieve eggs, for example in the presence of cervical cancers, a laparoscopic approach can be safer for the patient. There were four laparoscopic oocyte retrievals carried out in 2024.

MERRION FERTILITY CLINIC

The number of referrals to Merrion Fertility Clinic remained strong in 2024, reflected in a 5% increase in the number of oocyte retrievals performed at 973, the highest number to date. The number of fertility preservation cycles, increased by 40%, with 224 egg collections performed for this reason. The demand for diagnostic semen analyses grew by 14%.

Pre-Implantation Genetic Testing

Following the introduction of the pre-implantation genetic testing (PGT) service in late 2023, there was a continued growth in the demand for this service, which made up 17% (n=186) of the cycles performed in 2024. The percentage of biopsied embryos identified as euploid is consistent with international standards, verifying the high standards maintained by our laboratory.

Male Factor Multidisciplinary Meeting

During 2024, Merrion Fertility Clinic established the first national bi-monthly multidisciplinary reproductive andrology meeting. This is attended by our reproductive medicine team and two specialist consultant andrologists. Patients are reviewed and may be referred for a standard surgical sperm retrieval (SSR) at Merrion Fertility or a specialised microsurgical testicular sperm extraction (Micro-TESE) procedure under the care of andrology. This is a newly established service where sperm are removed from the testis with the aid of an operating microscope. Embryology staff are present in theatre to examine the tissue for the presence of sperm. The tissue is then transported back to Merrion Fertility AHR laboratory for cryopreservation and storage.

Fertility Study Day

On the 18th October 2024, we proudly hosted our first Fertility Study Day with speakers from The National Maternity Hospital, Merrion Fertility Clinic and external allied fertility specialists. We were delighted to welcome healthcare professionals both in person and online for a day filled with insightful presentations and engaging discussions. Feedback from attendees has been overwhelmingly positive, with many highlighting how enjoyable and informative the day was. A heartfelt thank you to the team at The National Maternity Hospital, our speakers and our sponsors for their invaluable support in making this event possible.

Figure 1: NMH Fertility Hub Referrals 2024

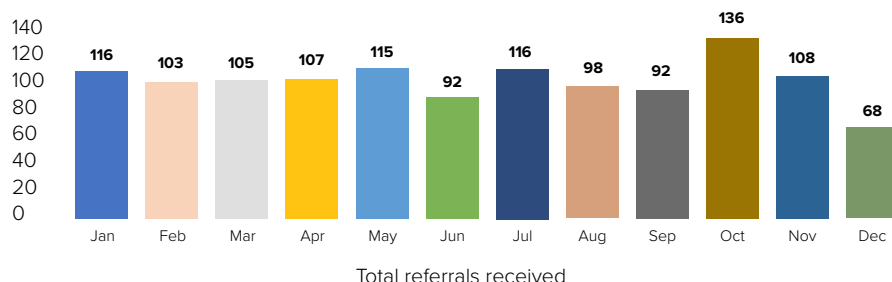
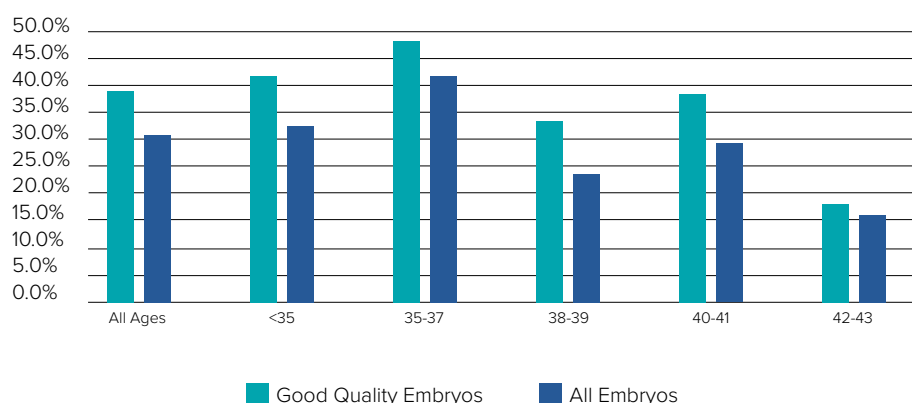


Figure 2: 2024 Clinical Pregnancy Rates per Embryo Transfer by Maternal Age for Fresh IVF and ICSI Cycles



Assisted Reproduction Outcomes, Merrion Fertility Clinic

Fresh embryo transfer cycles

Clinical pregnancy rates (defined by the European Society for Human Reproduction and Embryology (ESHRE 2019) per embryo transfer for patients under 37 years, with a good quality embryo was 45% in 2024. This rate decreased as expected with advancing female age, giving an overall clinical pregnancy rate for all patients having a good quality fresh embryo transferred in 2024 of 38.8% (Figure 2).

Frozen embryo transfer (FET) cycles

An excellent cryopreservation programme is an essential element of an AHR clinic. It allows for the safe preservation and storage of blastocysts in the event that a fresh transfer is not possible. It also supports a successful

single embryo transfer programme.

The clinical pregnancy rate for patients having a frozen embryo transfer (FET) cycle during 2024 was 47%, with a multiple pregnancy rate of just under 2%. Survival rates for vitrified blastocysts thawed remain excellent at 98%.

Live birth rates

Live birth rates are the best marker of success in AHR but are reported one year later than clinical pregnancy rates. The live birth rate for patients under 37 who had a fresh transfer in 2023 was 30%. Live birth rates for patients who had a FET was 32%. These rates all relate to untested embryos and are in line with the most recent data published by the Human Fertility and Embryology Authority in the UK, HFEA, for the treatment period 2021-2022.

Single embryo transfer

Merrion Fertility Clinic continues to

promote a strong single embryo transfer policy. Patients who have a single embryo transferred now make up 81% of fresh transfers. The overall multiple pregnancy rate for the clinic remains very low by international standards, at 2.4%.

“We were delighted to welcome healthcare professionals both in person and online for a day filled with insightful presentations and engaging discussions.”

Child, Adolescent and Young Adult (CAYA) Fertility Preservation Services

AYA Males: Twenty-six adolescent males (<18 years of age) were referred in 2024 for sperm cryopreservation services before undergoing gonadotoxic treatment or surgery for cancer or autoimmune disease. Of these 26 males, all 26 attended the clinic at least once, 24 produced a semen sample and 21 had sperm of suitable quality for freezing (mean of 7 straws frozen per patient). Nine AYA males were also referred post-gonadotoxic treatment or post-hematopoietic stem cell transplant (HSCT) as survivors, for routine semen analysis and fertility consultation.

AYA Females: Seven adolescent females (<18 years of age) were referred in 2024 for consideration of oocyte vitrification before undergoing gonadotoxic cancer therapy. Four young women started and completed a successful egg freezing cycle within a mean of 17 days from first visit to the clinic, with a mean of 13 oocytes (range 5-16) 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. Thirty-one female survivors of CAYA cancer attended in 2024 for an initial fertility consultation, while fourteen young women attended for a follow-up fertility consultation and ovarian reserve testing. Twelve female survivors (mean age 21 years) had at least one successful oocyte vitrification cycle, with a mean of seven 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. Merrion Fertility Clinic employs a full-time Head of Research, and Clinical Research Fellow posts exist for higher training in Reproductive Medicine & Surgery, with fellows undertaking higher degrees. Merrion Fertility Clinic also hosts and mentors a number of MSc students. Research 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 2024, our researchers 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
- Endometrial microbiome and infertility
- Glycome analysis in endometriosis (NIBRT collaboration)
- Follicular microenvironment in low ovarian reserve (Funding: Ferring)
- Ovarian reserve in childhood cancer survivors (Funding: Irish Cancer Society)

- Knowledge and attitudes among patients and healthcare providers towards proposed Irish assisted human reproduction (AHR) legislation

Assisted Human Reproduction Legislation

In June 2024, the Health (Assisted Human Reproduction) Act was signed into law by the President of Ireland, Michael D Higgins. Though it is now part of the legal framework, no part of the Act has commenced meaning none of its provisions are legally in force. To function, the AHR Act 2024 requires the establishment of the Assisted Human Reproduction Regulatory Authority.

Merrion Fertility Clinic has reviewed the provisions of the Act to ensure our practice is in line with the Act. This will prevent any major disruption to service delivery once the Act is commenced.

Future

In 2025, we look forward to continuing to develop the relationship between The National Maternity Hospital and Merrion Fertility Clinic to the benefit of patients. We

are very grateful to all the wonderful staff and patients who continuously make this possible, and we are very excited about the next steps in our journey as a leading Irish Reproductive Medicine Service.

Dr David Crosby, Head of Reproductive Medicine Department, NMH & Clinical Director, Merrion Fertility Clinic.



Dr David Crosby, Consultant Obstetrician and Gynaecologist, Head of Department of Reproductive Medicine, NMH & Clinical Director, Merrion Fertility Clinic

Table 1: Clinical Activity

Total referrals to the hub	1256
Total accepted referrals	765
New consultant appointments	433
Follow up consultant appointments	369
Nurse led clinics	346
Fertility outpatient hysteroscopy clinics	26
Ultrasounds performed	188
AMH ovarian reserve tests performed	423

Table 2: Reproductive surgery under General Anaesthesia

	2023	2024
Hysteroscopy – Operative and Diagnostic	318	210
Operative laparoscopy	60	124
Diagnostic laparoscopy	82	65
Myomectomy	8	9

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Andrew Downey (Oral Presentation): Laparoscopic oocyte retrievals: a single centre experience (BFS Early Career Clinician Award: shortlisted). Fertility 2024 'Rethinking Reproduction', Edinburgh, 10th-13th January 2024

Andrew Downey: Fertility preservation before cancer treatment: evaluating the experience of young patients and their families. Fertility 2024 'Rethinking Reproduction', Edinburgh, 10th-13th January 2024

Sarah Petch: Ovarian Hyperstimulation Syndrome without Gonadotrophin Stimulation. Fertility 2024 'Rethinking Reproduction', Edinburgh, 10th-13th January 2024

Sarah Petch: Does routine supplementation with LH improve oocyte yield or maturity? Fertility 2024 'Rethinking Reproduction', Edinburgh, 10th-13th January 2024

Sorca O'Brien: Publicly funded fertility services in Ireland; how best to direct resources in a developing service. Fertility 2024 'Rethinking Reproduction', Edinburgh, 10th-13th January 2024

Sarah Petch: Awareness of and attitudes towards fertility investigations and management amongst General Practitioners (Awarded: Best Audit). RISE Symposium 2024, (Research & Innovation Symposium Exhibition), National Maternity Hospital, April 19th 2024

Niamh Joyce: Fertility Considerations for AYA with Cancer: Before, During and after Treatment Adolescent and Young Adults (AYA) Cancer Awareness Week, University Hospital Galway, April 2024

Maebh Horan: Fertility preservation and HSCT. Haematopoietic Stem Cell Therapy (HSCT) Educational Series, CHI Crumlin May 9th 2024

Niamh Joyce: Adolescent fertility preservation of male gametes in the Republic of Ireland: Our experience to date. UK Fertility Preservation Conference, Edinburgh May 22nd-23rd 2024

Niamh Joyce (Awarded: Best Clinical Poster). Establishing a Standard Operating Procedure for Fertility Preservation in Adolescent and Young Adult Male Survivors of Childhood Cancers: Addressing a Gap in Care in the Republic of Ireland UK Fertility Preservation Conference, Edinburgh May 22nd-23rd 2024

Niamh Joyce: Fertility Preservation through Tissue Cryopreservation Longevity Summit, Dublin, June 13-16 2024

Niamh Joyce: Male gamete cryopreservation for adolescent fertility preservation: Our experience to date. Global (ES)GURS-ESAU Conference Antwerp, Belgium 9-11 October 2024

Niamh Joyce: Establishing a Standard Operating Procedure for Fertility Preservation in Adolescent and Young Adult Male Survivors of Childhood Cancers: Addressing a Gap in Care in the Republic of Ireland. Global (ES) GURS-ESAU Conference Antwerp, Belgium 9-11 October 2024

Ciara Nolan: Temporal Trends in Sperm Concentration: A Contrasting Perspective from a Single-Centre Review. Institute of Obstetricians & Gynaecologists and Junior Obstetrics & Gynaecology Society Annual Meeting, 29 November 2024

Ciara Nolan: Perspectives of Obstetricians and Gynaecologists on the Use of Weight Loss Medications. Institute of Obstetricians & Gynaecologists and Junior Obstetrics & Gynaecology Society Annual Meeting, 29 November 2024

Sarah Petch: Live Birth following Laparoscopic Egg Retrieval in a Woman with a Bicornuate Uterus Institute of Obstetricians & Gynaecologists and Junior Obstetrics & Gynaecology Society Annual Meeting, 29 November 2024

Rachel Elebert: Fertility Preservation for Adolescents and Young Adults (AYA) with Cancer – a Patient and Parent Perspective. Institute of Obstetricians & Gynaecologists and Junior Obstetrics & Gynaecology Society Annual Meeting, 29 November 2024

Rachel Elebert: Embryo Development Morphokinetics and Clinical Outcomes in Oocytes with Smooth Endoplasmic Reticulum Aggregates (SERa)