National Diabetes in Pregnancy Audit 2023

Ireland is experiencing a sustained rise in diabetes complicating pregnancy, particularly Type 2 diabetes (T2DM) and gestational diabetes (GDM), driven by increasing maternal age, obesity, and changing population demographics.

259
pregnancies audited in 2023

53.3%
involved Type 1 diabetes

43.6%
involved Type 2 diabetes

90.6%
CGM/Flash CGM use in Type 1 diabetes

The 2023 National Diabetes in Pregnancy Audit (NDIP) highlights:

- Increasing prevalence of pre-gestational diabetes in pregnancy
- Rising BMI and obesity rates among pregnant women with diabetes
- Persistently poor pregnancy preparedness and low pre-pregnancy clinic attendance
- Improved glycaemic management and expanding diabetes technology use
- Continued high neonatal morbidity, particularly SCBU admissions and Caesarean section rates
- A need for earlier intervention, community-based care, and targeted prevention strategies

Average BMI

Type 1 diabetes	Type 2 diabetes
28.15	34.8

SCBU Admissions

Type 1 diabetes	Type 2 diabetes
56.4%	24.7%

C-Section Rates

Remained high across both groups

Obesity & Weight Gain

Obestiy and inter-pregnancy weight gain continue to increase

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE

National Diabetes in Pregnancy Audit 2023

Background & Context

Diabetes in pregnancy includes:

- Pre-gestational diabetes (Type 1 or Type 2 predating pregnancy)
- Gestational diabetes mellitus (GDM)
- Diabetes first detected during pregnancy

Associated risks:

Miscarriage

Congenital abnormalities

Preterm birth

Caesarean delivery

Neonatal intensive care admission

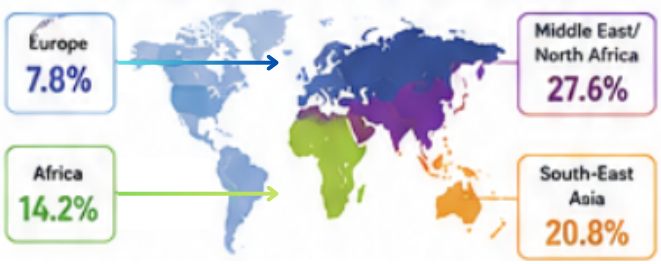
Maternal & neonatal morbidity

The rising prevalence of obestiy and Type 2 diabetes means maternity services are facing increasing clinical complexity and resource demand.

International Trends

Global rates of gestational diabetes continue to rise.

Standardised GDM Prevalance by Region



Increasing maternal age is a major driver of gestational diabetes and Type 2 diabetes in pregnancy

International studies show substantial increases in pre-gestational diabetes in pregnancy over recent decades.

Role of National Audit

19 maternity units nationally

18 units provide care to women with diabetes in pregnancy

16 units provide data to the NDIP Audit

The NDIP Audit aims to:

- Improve national diabetes pregnancy surveillance
- Support service planning
- Benchmark hospital performance
- Intensify treatment targets
- Identify opportunities for targeted intervention
- Improve quality of care

Facilitates collaboration between endocrinologoy, obstetric, neonatal, primary care, and public health services.

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE

National Diabetes in Pregnancy Audit 2023

Type 1 Diabetes Findings

Demographic Trends

Women with Type 1 diabetes are becoming older and heavier over time.

Metric	2016-2020	2023
Average age (years)	31.7	32.6
Average BMI	26.8	28.15
BMI 30-35	12.8%	20.3%
BMI 35-40	3.4%	10.1%

Weight gain during pregnancy increased substantially

6.7 kg → **12.0 kg**

2016-2020 2023

Technology Use

90.6%

CGM/Flash CGM use

17.4%

Inuslin pump use

18

Hybrid closed-loop users

Pregnancy Preparedness

Metric	2016-2020	2023
Pre-pregnancy clinic attendance	32.9%	18.8%
Folic acid use	48.9%	57.2%

Although formal pre-pregnancy clinic attendance is low, improving folic acid uptake may suggest that some pre-pregnancy counselling is reaching women outside specialist services.

Glycaemic Management (HbacA1c mmol/mol)

Metric	2016-2020	2023
Pre-pregnancy HbA1c	61.9	57.9
First trimester HbA1c	58.2	52.9
Third trimester HbA1c	46.8	44.5

Key Takeaways:

- ~20% missing outcome data in some cohorts
- Persistent poor pregnancy prepardness
- Continued difficulty achiveing optimal glycaemic targets

Maternal & Neonatal Outcomes

Delivery Outcomes

Vaginal delivery	**20%**
Emergency CS	**34.5%**
Elective CS	**39.1%**

Neonatal Outcomes

Macrosomia	**29.1%**
SCBU admissions	**56.4%**
Congenital abnormalities	**0.9%**

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE

National Diabetes in Pregnancy Audit 2023

Type 2 Diabetes Findings

Rising Prevalence

Type 2 diabetes represents an increasing proportion of diabetes pregnancies

Metric	2016-2020	2023
Type 2 diabetes pregnancies	35.6%	43.6%

Obesity & Weight Gain

4.7 kg → **7.7 kg**

2016-2020 2023

Medication use before pregnancy

GLP-1 agonists	2.7%
SGLT2 inhibitors	1.8%
DPP4 inhibitors	0.9%

Potentially suboptimal use of impactful therapies in an obese and overweight population.

Demographic & Ethnic Trends

Ethnicity	2016-2020	2023
Caucasian	63.6%	40.7%
Asian	18.9%	36.3%
Black	6.9%	9.7%

The ethnic profile of women with Type 2 diabetes in pregnancy has changed significantly, highlighting the need for culturally responsive care and increased healthy equity. Further research is needed to understand outcome variation and barriers to care.

Pregnancy prepardness (HbacA1c mmol/mol)

Measure	2016-2020	2023
Pre-pregnancy HbA1c	61.9	57.9
First trimester HbA1c	58.2	52.9
Third trimester HbA1c	46.8	44.5

Key Takeaways:

- ~20% missing outcome data in some cohorts
- Persistent poor pregnancy prepardness
- Continued difficulty achiveing optimal glycaemic targets

Maternal & Neonatal Outcomes

Delivery Outcomes	2016-2020	2023	Trend
Macrosomia	13.9%	5.2%	↓
LGA	41.7%	22.7%	
SCBU admissions	35.3%	24.7%	
Congenital abnormalities	5.1%	3.1%	

C-section rates remain high. Vaginal birth rates decreased. ~50% of women required hospitalisation during pregnancy

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE

National Diabetes in Pregnancy Audit 2023

Emerging Priorities

- Improve pre-pregnancy engagement and planning
- Address rising obesity in pregnancy and inter-pregnancy weight gain
- Expand equitable access to diabetes technology
- Strengthen community based care pathways
- Improve national audit completeness and data quality
- Support earlier intervention before conception

Implications for Health Services

- Increased demand for specialist antenatal diabetes clinics
- Greater need for obesity and diabetic services
- Rising neonatal and SCBU resource utilisation
- Workforce implications for endocrinology and maternal medicine
- Stronger integration between primary care, maternity services, and specialist diabetes teams
- Shift toward community-based care and collaboration with local providers

Audit Considerations and Limitations

- Incomplete audit reporting in some cohorts
- Variation in centre participation
- Relatively small sample sizes in 2023
- Evolving national audit coverage
- Possible underestimation of true national prevalence

As participation and data completeness improves, future audits will provide a more comprehensive understanding of trends and outcomes.

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE

National Diabetes in Pregnancy Audit 2023

Summary

The NDIP 2023 audit demonstrates that Ireland is facing a growing burden of diabetes in pregnancy, particularly Type 2 diabetes associated with obestiy and demographic changes.

While improvements in diabetes technology uptake and glycaemic management are encouraging, significant challenges remain:

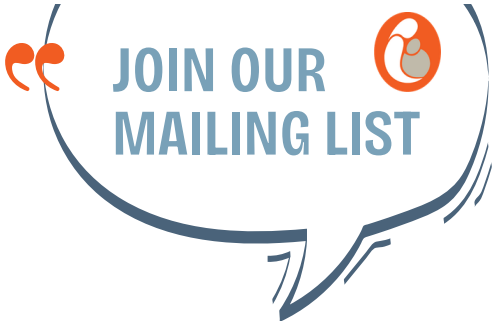
- Rising obesity
- Poor pregnancy prepardness
- Peristently high intervention rates
- Ongoing neonatal morbidity
- Substantial healthcare resource implications

The audit highlights the importance of national data infrastructure in identifying trends, benchmarking services and informing future maternal health policy and service development.

Thank you to all maternity units, diabetes teams and clinical staff for their ongoing commitment to data collection and improving outcomes for women and babies.

References

- Wang H, Li N, Chivese T, Werfalli M, Sun H, Yuen L, Ambrosius Hoegfeldt C, Powe C.E, Immanuel J, Karuranga S, Divakar H, Levitt N, Li C, Simmons D, Yang X. (2022), IDF Diabetes Atlas: Estimation of Global and Regional Gestational Diabetes Mellitus Prevalence for 2021 by International Association of Diabetes in Pregnancy Study Group's Criteria,. Diabetes Research and Clinical Practice, Volume 183, 109050, ISSN 0168-8227, https://doi.org/10.1016/j.diabres.2021.109050.
- Coton SJ, Nazareth I, Petersen I. (2016). A cohort study of trends in the prevalence of pregestational diabetes in pregnancy recorded in UK general practice between 1995 and 2012. BMJ Open 2016;6:e009494. doi: 10.1136/bmjopen-2015-009494
- Dugalic S, Petronijevic M, Vasiljevic B, Todorovic J, Stanisavljevic D, Jotic A, Lukic L, Milicic T, Lalić N, Lalic K, Stoiljkovic M, Terzic-Supic Z, Stanisavljevic T, Stefanovic A, Stefanovic K, Vrzic-Petronijevic S, Macura M, Pantic I, Piperac P, Jovanovic M, Cerovic R, Djurasevic S, Babic S, Perkovic-Kepeci S, Gojnic M. Trends of the Prevalence of Pre-gestational Diabetes in 2030 and 2050 in Belgrade Cohort. Int J Environ Res Public Health. 2022 May 27;19(11):6517. doi: 10.3390/ijerph19116517. PMID: 35682099; PMCID: PMC9180675.
- Newman, C., Egan A.M, Ahern T, Al-Kiyumi M, Bacon S, Bahaeldein E, Balan G, Brassill M.J, Breslin E, Brosnan E, Carmody L, Clarke H, Coogan Kelly C, Culliney L, Davern R, Durkan M, Elhilo K, Cullen E, Fenlon M, Ferry P, Gabir A, Guinan L, Hanlon G, Heffernan M, Higgins T, Hoashi S, Kgosidialwa O, Khamis A, Kinsley B, Kirwan B, James A, Kyithar P, Liew A, Malik I, Matthews L, McGurk C, McHugh C, Moloney Y, Murphy MS, Murphy P, Nagodra D, Noctor E, Nolan M, O'Connor A, O'Connor E, O'Halloran D, O'Mahoney L, O'Shea T, O'Sullivan EP, Peters M, Roberts G, Rooney H, Sharma J, Smyth A, Synnott M, Tarachand B, Tighe M, Todd M, Towers M, Tuthill A, Mahmood W, Yousif O, Dunne FP, (2022), Retrospective national cohort study of pregnancy outcomes for women with type 1 and type 2 diabetes mellitus in Republic of Ireland, Diabetes Research and Clinical Practice, Volume 189, 109947, ISSN 0168-8227, https://doi.org/10.1016/j.diabres.2022.109947.
- Egan, A. M., Brassill, M. J., Brosnan, E., Carmody, L, Clarke, H., Coogan Kelly, C., Culliney, L., Durkan, M., Fenlon, M., Ferry, P.,Hanlon, G., Higgins, T., Hoashi, S., Khamis, A. Kinsley, B., Kinsley, T., Kirwan, B., Liew, A., McGurk, C., McHugh, C., Murphy, M. S., Murphy, P., O'Halloran, D., O'Mahony, L., O'Sulllivan, E., Nolan, M., Peter, M., Roberts, G., Smyth, A., Todd, M., Tuthill, A., Wan Mahmood, W. A., Yousif, O., P Dunne, F., the National Diabetes in Pregnancy Audit working group. (2020). An Irish National Diabetes in Pregnancy Audit: aiming for best outcomes for women with diabetes .Diabetic Medicine. Diabet. Med 37 12; 0742-3071. https://doi.org/10.1111/dme.13923, https://doi.org/10.1111/dme.13923



STAY INFORMED

Suscribers will receive:

- Updates on the publication of reports.
- Notifications on upcoming events hosted by the NPEC.
- New highlights and developments.
- Invitations to participate in research studies and surveys.
- Newsletter/ Data brief

SCAN & SUSCRIBE

Contact us :

- npec@ucc.ie
- +353 (0)21 420 5053
- www.ucc.ie/en/npec
- Dept. of Obstetrics & Gynaecology, 5th Floor, CUMH, Wilton, Cork

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE