HealthTech Innovation of the Year Award (Product or Service)

In 2022 a multi-sectoral, interdisciplinary project team was established to develop and implement the **MN-CMS Antenatal Visit (ANV) Medication Inbound Messaging Project.** This innovation was achieved under the leadership of Emma Flaherty, Senior Informatics Pharmacist and Eileen Burke, Senior Project Manager in collaboration with hospital pharmacists, GPIT, GP vendors, the Healthlink team and Oracle-Cerner.

The quality improvement project optimised MN-CMS EHR capabilities to accept and file medication and vaccine information provided by the GP as part of the electronic ANV Shared Care messaging via Healthlink. This is the first project nationally to develop a process for standardisation of medication-related information between GP systems and an EHR - an essential building block for the development of an Irish Summary Care Record as envisaged by Sláintecare.

Background In 2020, a pathfinder project enabled the bi-directional exchange of clinical information for ANV Shared Care messages between MN-CMS sites and GPs in structured electronic format, via Healthlink. This addressed the healthcare challenge of timely communication which supports enhanced patient safety and provides visibility of patient care information between the primary care and acute sectors.

It was quickly identified that the medication information in the ANV Shared Care messages inbound to MN-CMS was inconsistent across the 4 GP vendor platforms. This would have led to the non-standardised medication information recorded in the patient's EHR which would carry potential clinical risk. In order to mitigate this challenge, the following requirements were identified:

- Standardisation of the medication and vaccine electronic message to a consistent format with defined headings and structure regardless of the originating GP system
- Provide this information in a standardised format in the patient's EHR

The key objectives of this innovation:

- Reduce avoidable harm from medications by improving medication safety at transitions of care – a key priority for the World Health Organisation (WHO)
- Enhance patient care and improve health outcomes by developing automated, clear, relevant and timely communication of medication and vaccine information between GPs and

MN-CMS

- Enable staff, in the provision of antenatal care in MN-CMS sites, to have full oversight of vaccines administered and medications prescribed and discontinued by the GP within the previous 12 months
- Implement Health Information and Quality Authority's (HIQA) recommendation to focus on improving medication safety by using the electronic solution to reduce time spent by clinical staff on medication-reconciliation
- Ensure that the medication details in the ANV Shared Care messages inbound to MN-CMS allows the automated acquisition of GP medication information
- Provide support to clinical staff completing medication reconciliation by automating one source of medication information and facilitate the documentation of the most accurate medication history possible to support improved patient safety and care
- Enhance clinical audit and research through standardisation of medication information in alignment with Slaintecare Strategic Action 10, which advocates integrated patient-centered care and improving data, research and evaluation capabilities

This quality improvement goal to address this healthcare challenge and improve health outcomes leveraged technology by:

- Utilising bi-directional Health Level 7 (HL7) messaging, via Healthlink, for ANV Summaries between GP systems and MN-CMS sites
    - Implementing HL7 messages, version 2.4 format, with Extensible Markup Language (XML) encoding, in conformance with the HIQA GP messaging Standard
    - Using the OBX and OBR segments of HL7 messaging, in advance of the implementation of a National electronic drug file for Ireland which will enable the use of discrete fields.
- Defining the structure, format and inclusion criteria of the medications and vaccine information to be exchanged
- Developing detailed specification and statement of work which enabled project progression, while ensuring the quality of the solution delivered
- Conducting rigorous testing phases, ensuring the validity of the solution

Measurable positive impact on health outcomes:

ANV Shared Care messaging enables seamless, clear, relevant and timely communication of clinical information between GPs and MN-CMS replacing the combined antenatal card or the paper record previously held by women attending antenatal services. The outcome of this project provides further improvements in communication between GPs and MN-CMS by standardising medication and vaccine information in the patient's EHR to improve medication safety at transitions of care. It is a key priority of the WHO to reduce avoidable medication-related harm and is a quality improvement goal for the MN-CMS Programme.

From a baseline of inconsistent medication information with no vaccine information, sent via Healthlink from GP ICT systems into MN-CMS the following benefits have been realised:

- ✓ **Enhanced communication – improving patient outcomes**
- Clinical staff using MN-CMS have instant access to the details of medications prescribed, discontinued and vaccines administered to antenatal patients by their GP, supporting safer care
- As the pregnancy progresses, the medications list is updated to include any new medications

prescribed by the GP, discontinued by the GP, or vaccines administered
- Once the ANV Shared Care messaging process has been initiated, patient medication information from GPs is accessible 24/07, i.e. it is no longer restricted by GP office

✓ **Medication Reconciliation Efficiencies and Measurable Positive Impacts on Health Outcomes**

- Reduces avoidable harm from medications by improving medication safety at transitions of care – a key priority for the World Health Organisation (WHO)
- It is in keeping with national and international best practice i.e. using 2 sources of information for medication histories
- The automated acquisition of the GP source of medication information supports efficiencies in the medication reconciliation process for staff in maternity services at the MN-CMS EHR sites
- It reduces the communication workload on GP practice staff
- The implementation of this solution enables further innovation, e.g. the development of research capabilities to identify medications a patient is on pre-pregnancy and during pregnancy and the possible impacts of these medications
- This project is in alignment with Slaintecare strategic Action 10 by supporting integrated patient-centered care while also improving data, research and evaluation capabilities:
    - supporting integrated patient-centered care with its availability of standardised medication information from different GP vendor systems
    - enhancing clinical audit and research capabilities through the standardisation and availability of reportable medication data to provide measureable impacts on Health outcomes

✓ **Reducing Healthcare cost**

- Improving operational efficiency by enhancing communication between GPs and MN-CMS EHR
- Value for money is achieved through:
    - The automated acquisition of the GP source of medication information facilitates the paperless documentation of the most accurate medication history possible for over 500 patients per week
    - Reducing the requirement for paper resources which also supports environmental sustainability
    - Replacing the requirement to contact GPs directly, saving a conservative estimate of 10 – 30 minutes per patient, if the GP surgery was accessible i.e. during limited office hours only, as evidenced during the validation process - saving > 80 – 240 hours/week

Scalable potential

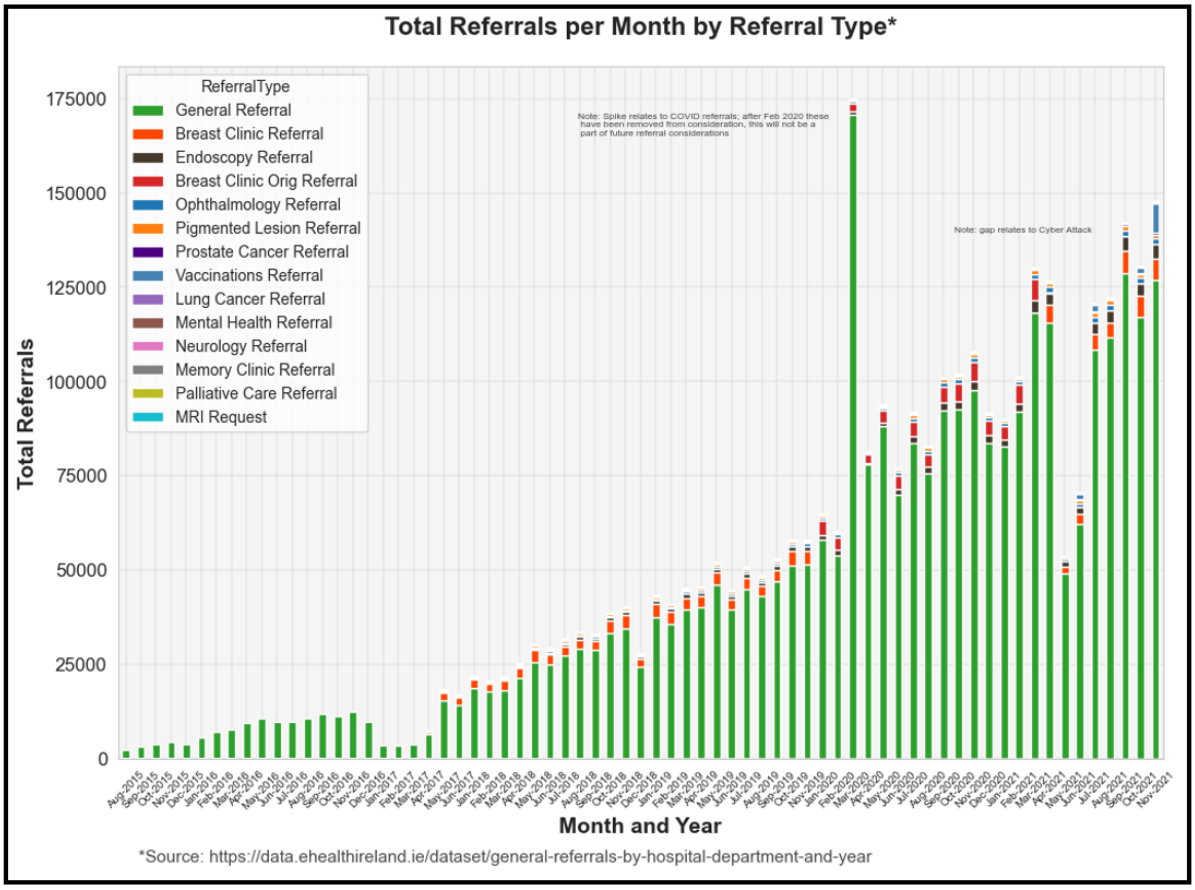
This service has the potential to be scaled up across disciplines and is potentially transformational for the Irish Health Service.

Better information supports more efficient and effective clinical decisions, this project enhances patient care by developing clear, relevant, timely and automated communication of medication and vaccine information between GPs and MN-CMS. There are approximately sixty thousand births in Ireland annually which will benefit from this improved communication once MN-CMS is fully rolled out.

Implementing Health Information and Quality Authority's (HIQA) recommendation to focus on improving medication safety by using our electronic solution to reduce the time spent by clinical staff on medication reconciliation is a national requirement.

Scalable potential

- This optimisation project for messaging between GP systems and MN-CMS developed into a pioneering, pathfinding project to enhance the semantic interoperability between the GP systems and an EHR
- No other system in the Irish market has developed these medications information capabilities
- All 19 maternity facilities will have this information for their patients when they adopt MN-CMS
- Semantic understanding - The area of medication and vaccine information is complex and the absence of a national drug file generates further complexity, ensuring clear understanding among all parties is essential for future scalability and was central to this project
- This solution is the foundation upon which further innovation is unlocked i.e. potentially use the GP as a consistent, accurate source of medication information for all patients being referred into acute care to ensure seamless medication reconciliation at transitions of care:
    - Using the HIQA approved eReferrals solution, a GP can submit a referral electronically directly from their practice management system to the hospital in question using the HIQA approved referral form and immediately receive an acknowledgement confirming receipt of same.
    - Graph 1 depicts the number of eReferrals sent by GP's each month which could benefit from having a comprehensive medication history included as developed by this project
- This would save clinical staff time (GP's and staff in acute care) spent on obtaining and supplying a medication history for <u>all</u> patients in Ireland.



Graph 1 – The datasets show the number of e-referrals per hospital departments sent by GP's.