Project Summary: The MN-CMS National Programme Team, under the leadership of Emma Flaherty, Senior Informatics Pharmacist and Eileen Burke, Senior Project Manager with the engagement of hospital pharmacists, GPIT, GP vendors, the Healthlink team and Oracle-Cerner ensured the success of the **MN-CMS Antenatal Visit (ANV) Medication Inbound Messaging Project**.

In 2023 this project optimised MN-CMS 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, which is an essential building block for the development of an Irish Summary Care Record as envisaged by Sláintecare.

In recognition of its success it was shortlisted for the Digital Transformation Project of the Year at the Tech Excellence Awards 2023.

Background: In 2020, a pathfinder project between GPIT, GP vendors, Cerner and MN-CMS EHR 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 led to enhanced patient safety and visibility of patient care information between the primary and acute sectors.

It was identified that the medication information in the ANV Shared Care messages inbound to MN-CMS was inconsistent across the 4 GP vendor platforms. This led to a non-standardised format of medication information recorded in the patient's EHR which carried potential clinical risk. An MN-CMS National team and GP Vendor working group was established to implement a solution.

The key objectives were to:

- Reduce avoidable harm from medications by improving medication safety at transitions of care – a key priority for the World Health Organisation (WHO).
- Implement 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.
- Ensure that the medication details in the ANV Shared Care messages inbound to MN-CMS allow 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.

The business requirements were to:

- Allow 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.
- Standardise the vaccine and medication information to allow consistency regardless of the originating GP system.
- Provide this clinical information in a standardised format in the patients EHR.

These translated to the following functional requirement:

Changing medication details from an inconsistent approach to a consistent and standardised format with defined headings and structure to medications, which the GP has prescribed or discontinued and vaccines administered in the previous 12 months.

Project Description

The vision for this project was to enhance patient care by developing automated, clear, relevant and timely communication of medication and vaccine information between GPs and MN-CMS.

This quality improvement goal & vision was achieved technically by:

- Utilising bi-directional Health Level 7 (HL7) messaging, via Healthlink, for ANV Summaries between MN-CMS sites and GPs.
- Implementing HL7 messages, version 2.4 format, with Extensible Markup Language (XML) encoding, in conformance with the HIQA GP messaging Standard.
- Defining the structure, format and inclusion criteria of the medications and vaccine information to be exchanged.
- Developing a detailed specification and statement of work which enabled project progression, while ensuring the quality of the solution delivered.

The Project utilised Prince 2 Project Management Methodology leaning into agile development and testing approaches in the delivery of a single solution approach from 4 GP vendor platforms.

Engaged, committed stakeholders played a critical role in the success of this implementation.

The stakeholders included:

- MN-CMS National Team
- Pharmacists from MN-CMS Sites
- Local Back Office Managers
- eHealth Acute Delivery Division
- eHealth and Disruptive Technology
- Healthlink
- GPIT
- Clanwilliam
- Complete GP

Following stakeholder identification, the iterative phases of the project included workflow elicitation, design, development, testing and validation, communications, training, change management, implementation, go live, adoption and capturing lessons learned. The project team worked through constraints and dependencies, surpassing or mitigating the numerous challenges which arose to ensure successful implementation.

Challenges included:

Technology:

- A national drug file does not yet exist in Ireland; this prevents medication information from being processed in discreet fields. Instead the OBX and OBR components of the HL7 message are utilised. Rigorous phases of testing and validation ensured that this challenge was mitigated.
- Working with multiple GP systems, Healthlink, Cerner and MN-CMS, 6 different systems in total to ensure the transfer of standardised medication information. Workshops, walk-throughs and constant team communication paved the way through this challenge.
- Detailed training materials, video and quick reference guides were created to mitigate any challenges to new ways of working. A comprehensive approach to communications, which were consistent, clear and targeted, further assisted in this transition.

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 was essential to overcoming this challenge. It was mitigated through rigorous communication, meetings and iterations of requirements.

External factors:

- The timelines for this project were impacted by a number of unforeseen external factors, COVID-19, the HSE Cyber Attack and priority given to time-sensitive National Programme work. The resilience of the Project Team to re-engage following each set back was central to the mitigation of this challenge.

Surpassing multiple challenges led to a successful project implementation and ensured the realisation of numerous benefits as outlined below:

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.

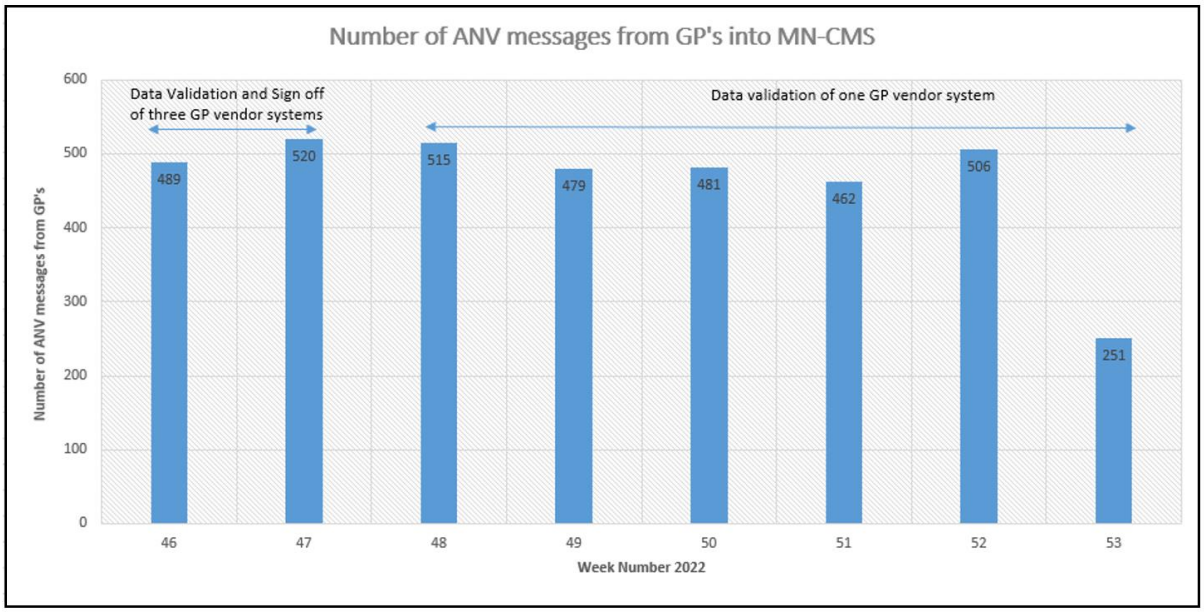
From a baseline of inconsistent medication information with no vaccine information, sent via Healthlink from GP ICT systems into MN-CMS the following benefits have been realised:

Enhanced communication

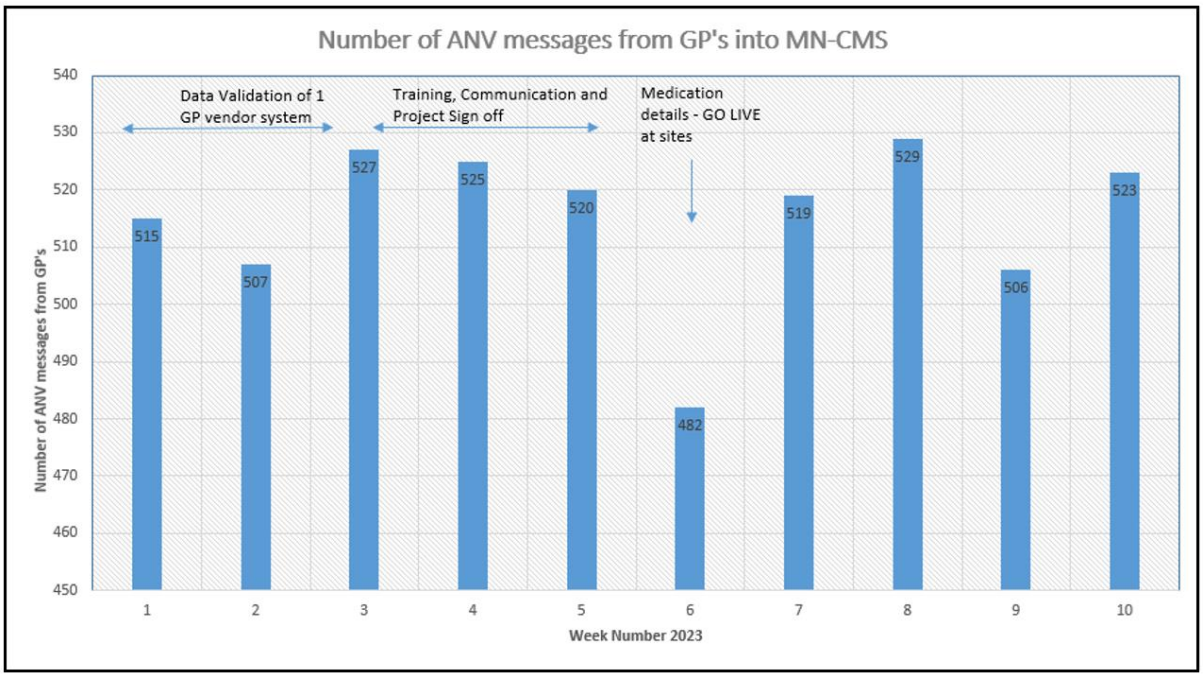
- ✓ Clinical staff using MN-CMS have instant access to the details of medications prescribed, discontinued and vaccines administered to antenatal patients by their GP, supporting safer care.
- ✓ As the pregnancy progresses, the medications list is updated to include any new medications prescribed by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

Medication Reconciliation Efficiency

- ✓ This solution enables the automated acquisition of the GP source of medication information facilitates the documentation of the most accurate medication history possible for over 500 patients per week.
- ✓ Replaces the requirement to contact GPs directly, saving a conservative estimate of 10 minutes per patient, if the GP surgery was accessible, as evidenced during the validation process, i.e. saving > 80 hours/week. (See Graphs 1 & 2).
- ✓ It is in keeping with best practice i.e. using 2 sources of information for medication histories.
- ✓ Reduces the communication workload on GP practice staff.



Graph 1 - Number of ANV messages containing medication details from week 46 – week 53, 2022



Graph 2 – Number of ANV messages containing medication details from week 1 – week 10, 2023

Standardised data entry

- ✓ Standardised medication information coming into MN-CMS from the different GP vendor systems is in alignment with Slaintecare strategic Action 10 by supporting integrated patient-centered care while also improving data, research and evaluation capabilities.

Improved data quality and innovation

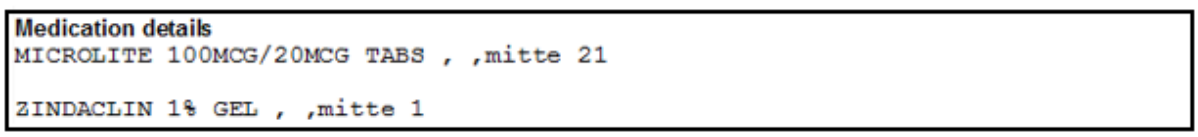
- ✓ The implementation of this solution enables further innovation, e.g. the development of audit and research capabilities to identify medications a patient is on pre-pregnancy and during pregnancy and the possible impacts of these medications.

Project Outcome:

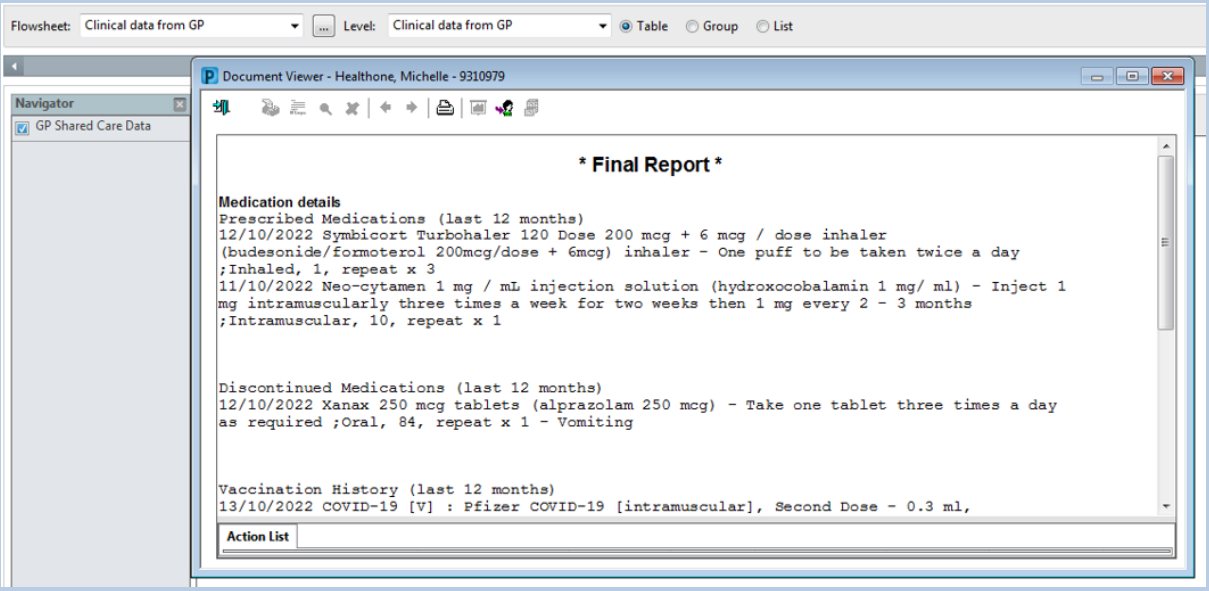
On completion of this project The Antenatal Shared Care Message contains clear medication information for patients attending antenatal services in MN-CMS sites including:

- Prescribed Medications (last 12 months)
- Discontinued Medications (last 12 months)
- Vaccination History (last 12 months)

The following images showcase the improvements in medication details for the benefit of patients attending antenatal services at facilities using MN-CMS.



Example of medication details as it appeared in the patient's EHR **before** solution deployment.



Example of medication details as it appears in the patient's EHR **after** solution deployment.

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 maternity facilities will have this information for their patients when they adopt MN-CMS.
- ✓ This solution is the foundation upon which further innovation is unlocked.
- ✓ 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.
- ✓ See graph below for the number of eReferrals sent by GP's each month which could benefit from having a comprehensive medication history included using the HIQA approved eReferrals process.
- ✓ 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.