Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Health Information and Standards

Summary Care Records

An As Is Analysis of the Irish Landscape

August 2020

About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is an independent statutory authority established to promote safety and quality in the provision of health and social care services for the benefit of the health and welfare of the public.

HIQA's mandate to date extends across a wide range of public, private and voluntary sector services. Reporting to the Minister for Health and engaging with the Minister for Children and Youth Affairs, HIQA has responsibility for the following:

- **Setting standards for health and social services —** Developing person-centred standards and guidance, based on evidence and international best practice, for health and social care services in Ireland.
- **Regulating social care services —** The Office of the Chief Inspector within HIQA is responsible for registering and inspecting residential services for older people and people with a disability, and children's special care units.
- **Regulating health services —** Regulating medical exposure to ionising radiation
- **Monitoring services —** Monitoring the safety and quality of health services and children's social services, and investigating as necessary serious concerns about the health and welfare of people who use these services.
- **Health Technology Assessment —** Evaluating the clinical and cost-effectiveness of health programmes, policies, medicines, medical equipment, diagnostic and surgical techniques, health promotion and protection activities, and providing advice to enable the best use of resources and the best outcomes for people who use our health service.
- **Health Information —** Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information on the delivery and performance of Ireland's health and social care services.
- **National Care Experience Programme —** Carrying out national service-user experience surveys across a range of health services, in conjunction with the Department of Health and the HSE.

Overview of the health information function of HIQA

Healthcare is information-intensive, generating huge volumes of data every day. Health and social care workers spend a significant amount of their time handling information, collecting it, looking for it and storing it. It is therefore imperative that information is managed in the most effective way possible in order to ensure a high-quality, safe service.
Safe, reliable healthcare depends on access to, and the use of, information that is accurate, valid, reliable, timely, relevant, legible and complete. For example, when giving a patient a drug, a nurse needs to be sure that they are administering the appropriate dose of the correct drug to the right patient and that the patient is not allergic to it. Similarly, lack of up-to-date information can lead to the unnecessary duplication of tests — if critical diagnostic results are missing or overlooked, tests have to be repeated unnecessarily and, at best, appropriate treatment is delayed or at worst is not given.

In addition, health information has a key role to play in healthcare planning decisions — where to locate a new service, whether or not to introduce a new national screening programme and decisions on best value for money in health and social care provision. Under section 8(1)(j), HIQA is charged with evaluating the quality of the information available on health and social care and making recommendations in relation to improving the quality and filling in gaps where information is needed but is not currently available.

Information and communications technology (ICT) has a critical role to play in ensuring that information to drive quality and safety in health and social care settings is available when and where it is required. For example, ICT can generate alerts in the event that a patient is prescribed medication to which they are allergic. Further to this, ICT can support a much faster, more reliable and safer referral system between the patient's general practitioner and hospitals.

Although there are a number of examples of good practice, the current ICT infrastructure in Ireland's health and social care sector is highly fragmented with major gaps and silos of information which prevents the safe, effective, transfer of information. This results in people using the service being asked to provide the same information on multiple occasions.

In Ireland, information can be lost, documentation is poor, and there is over-reliance on memory. Equally, those responsible for planning our services experience great difficulty in bringing together information in order to make informed decisions. Variability in practice leads to variability in outcomes and cost of care. Furthermore, we are all being encouraged to take more responsibility for our own health and wellbeing, yet it can be very difficult to find consistent, understandable and trustworthy information on which to base our decisions. As a result of these deficiencies, there is a clear and pressing need to develop a coherent and integrated approach to health information, based on standards and international best practice. A robust health information environment will allow all stakeholders, the general public, patients and service users, health professionals and policy makers to make choices or decisions based on the best available information. This is a fundamental requirement for a high reliability healthcare system.

Through its health information function, HIQA is addressing these issues and working to ensure that high quality health and social care information is available to support the delivery, planning and monitoring of services. Following its research into summary care records and the publication of information requirements for a National Electronic Patient Summary, HIQA has undertaken an international best practice review of patient summary implementations, with a view to making Recommendations to the Minister for Health in respect of an Irish implementation.

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Chapter 1 Introduction

This As Is Review looks at the national eHealth programmes, projects, and services that will be affected by, or will influence, the implementation of a National Electronic Patient Summary for Ireland. A Patient Summary is an electronic summary care record that provides the treating healthcare professionals with a succinct summary of a patient's essential clinical information during episodes of unscheduled care, thereby improving patient safety and the quality of care. Together with ePrescribing, electronic summary care records are considered to be a 'crucial and immediate' aspect of support for community care in the Sláintecare Implementation Strategy, which implements the ten-year, cross-party vision for healthcare in Ireland.

In 2019, HIQA published the National Standard on Information Requirements for a National Electronic Patient Summary. The National Standard defines the clinical dataset identified as crucial for the safe and effective treatment of a patient during an episode of unscheduled care, such as presentation at the Emergency Department. Continuing its programme of work in this area, HIQA has undertaken the development of a set of Recommendations to the Minister for Health, on the implementation of a National Electronic Patient Summary in Ireland. This As Is Review will inform the Recommendations for the Irish context.

1.1 Background

The Sláintecare Implementation Plan, published in August 2018, states that 'ICT has the potential to be the biggest and most effective driver of change and improvement for better patient outcomes across the health system.'[1] The Plan identified as a priority the design and roll out of a range of primary- and community-based ICT services that will improve the lives of patients, including ePrescribing and summary care records as immediate systems.[1] Shared care records will also provide a means for integration of community-based care and the acute hospital sector, supporting that sharing of patient data across health and social care settings.[1]

Owing to the potential benefits expected from summary care records, which have been outlined in earlier publications, HIQA has focused significant research on a National Electronic Patient Summary.
To date, HIQA has:

- published an international review summary care records (2016)[2]
- published clinical datasets for diagnosis, allergies, and procedures[3,4,5,6]
- contributed to the definition of the EU cross-border summary (OpenNCP)
- developed National Standard on Information Requirements for a National Electronic Patient Summary in Ireland (2019).*

In particular, the National Standard on a National Electronic Patient Summary in Ireland (2018) defined the clinical dataset for the clinical data that would be exchanged as part of a national Irish implementation: subject of care, health conditions, procedures, allergies, vaccinations, and medications. HIQA has now undertaken a project regarding the implementation of such a National Electronic Patient Summary, conformant to this Standard, with a view to making Recommendations to the Minister for Health.

1.2 Methodology

The As Is Review in this document was performed as per HIQA's legislative remit under the Health Act 2007 and subsequent amendments to the Act, to develop standards, evaluate information and make recommendations about deficiencies in health information.[7] The process to develop Recommendations to the Minister for Health typically has five stages:

- Stage 1 – Undertake a Best Practice Review of national implementations in other jurisdictions.
- Stage 2 – Convene a Special Advisory Group to provide feedback on both the Best Practice Review and the Draft Recommendations.
- Stage 3 – Undertake a Public Consultation on the updated Recommendations.
- Stage 4 – Bring the Draft Recommendations to the Special Advisory Group.
- Stage 5 – Finalize then publish the Recommendations.

The first stage of the project, drafting a Best Practice Review of the national implementations of Patient Summary (also known as summary care records) in nine jurisdictions, was undertaken in 2019. A Special Advisory Group was convened and early findings were presented to the first meeting of the Group. Cognisant of the level of variation across implementations and in the terminology used, two new requirements were identified.

* Information requirements are minimum set of data items that should be implemented in information systems that create and transfer information to support the delivery of safe and quality care to patients.

The first new requirement was a set of educational materials to accompany the launch of the Recommendations, intended to promote understanding of key terms used. The second new requirement is an As Is Review of the eHealth landscape in Ireland. The As Is Review is intended to examine the national programmes, projects, and services that would be affected by, or would have an impact on, the implementation of a National Electronic Patient Summary. This Review examines readiness in three areas: potential sources of information, governance, and stakeholder engagement. It does not assess the technical readiness or other aspects of operational readiness or delivery. Together with the Best Practice Review, this As Is Review will inform the Recommendations by taking the particularities of the Irish eHealth landscape into consideration.

Chapter 2 Methodology for readiness assessment

As part of this As Is Review, a brief survey was undertaken, investigating readiness assessment methodologies for eHealth programmes, projects, and services. A full readiness assessment comprises an in-depth examination of all key aspects, such as technical readiness. Thus a full readiness assessment is outside the scope of this As Is Review. However, several higher level themes, identified as relevant, recurred across the methodologies and approaches surveyed and were used subsequently to inform this Review. Should a full readiness assessment be undertaken, this brief survey may also provide a useful starting point in identifying the appropriate methodology.

Several published systematic reviews reveal the varied and fragmentary nature of the area of readiness assessment. One systematic review of eHealth readiness assessment factors and measuring tools revealed an array of often overlapping readiness factors: technological readiness, motivation readiness, organisational readiness, learning and training readiness, engagement readiness, and many more.[8] A multitude of readiness assessments are also available online, covering domains such as environment, leadership and governance, resourcing, current technical infrastructure and information, operational capacity for change and engagement with stakeholders.

Many of these assessments are not specific to eHealth, such as those provided by the World Health Organisation or the World Bank. Other assessments are designed for healthcare organisations implementing electronic health records, such as those provided by the not-for-profit Healthcare Information and Management Systems Society. Of the relevant readiness assessments, some are accompanied by useful resources. But many provide tools based on quantitative measures, typically developed to assess the readiness of a small to medium size organisation to implement a specific system—such as an electronic health record or computerized order entry. Such models are typically too specific for this review.

An academic case study of the four national implementations outlined the potential challenges when introducing a ('shared') electronic summary record nationally. While scoping and set up, system design and delivery issues are outside the scope of this review, the following factors are relevant to this review:

- 'Hard' aspects of implementation, including:
    - project management—for example, liaising across organisations and sectors; managing and prioritising the various interacting tasks and sub-projects
    - mobilising funding streams for the different subprojects
    - improving and maintaining data quality in the records from which the summary will be drawn
    - accommodating the competing interests, priorities, values and practical constraints (for example, budgets) of different stakeholders.
- 'Soft' aspects of implementation (promoting acceptance and use), including:
    - informing patients and answering questions from the public
    - engaging clinicians and encouraging active use of the record
    - managing concerns about privacy and data protection—for example, civil liberties lobby, professional groups.
- Evaluating, monitoring and learning
    - defining and measuring 'success'
    - monitoring uptake and use
    - demonstrating clinical and other benefits
    - maintaining an over-arching narrative of coherence and progress (and in some cases, countering narratives of 'failure' generated by the press or other stakeholders)
    - generating and incorporating organisational and system learning.

These factors recurred in other relevant readiness assessments that are relevant—which also covered factors outside the scope of this review, such as infrastructure and finance:

- Environment/Leadership
    - leadership—national and institutional
    - legislation
    - strategy/policy documents
    - governance structures – national and institutional
    - demand.
- Stakeholder engagement
    - reach & engagement of citizens, business and stakeholders.
- Resourcing
    - finance
    - human resources— capacity and capability.

- Technical
    - inventory of data holdings
    - infrastructure in place
    - information quality and management in place.
- Operational Capacity
    - ability to adapt and change
    - process reform
    - training.

The US Department of Health and Human Services Health Resources and Services Administration created a readiness assessment—which it defines as 'a systematic analysis of an organisation's ability to undertake a transformational process or change'—to be used at both programme and at project level within an organisation. The readiness assessment for programme level was defined largely in terms of stakeholders and resourcing:

- organisational readiness, including aspects such as commitment of senior executives in time and financial investment, and alignment to overall goals
- staff readiness, for example to participate actively in the programme
- resource readiness, which includes the organisation's ability to understand and sustain the resourcing needed.

Another example is the Digital Health Model that the Healthcare Information Management Systems Society has developed for healthcare providers. The model identifies several barriers to advanced Digital Health readiness, which can be categorised as follows:[9]

- **Technical barriers**: Integration of legacy systems, availability of skilled IT staff, available network bandwidth.
- **Governance barriers**: Data governance and data management, identification of risks/threats
- **Stakeholder barriers**: Clinician resistance to adoption of new solutions, patient resistance to adoption.

In all the methodologies and approaches reviewed, three broad themes recurred. These themes informed this review of Irish eHealth programmes, projects, and services:

- **Information sources**—identifying any existing information sources that could potentially be used to populate the patient summary

- **Stakeholder engagement**—understanding stakeholder engagement initiatives needed for this type of implementation and if any relevant initiatives have already been undertaken
- **Governance**—understanding any governance implications for current eHealth programmes and services.

Chapter 3 National eHealth policy and governance structure

This chapter describes the strategic policy context for eHealth in Ireland, together with the key national stakeholders.

3.1 Overview

The Irish Department of Health has the overall responsibility for leadership and policy direction of the Irish health sector while the Health Service Executive is tasked with providing all of Ireland's public health services in hospitals and communities across the country.[10,11] The Department of Health published its *eHealth Strategy for Ireland* in 2013 and set up the eHealth Ireland organisation to realise this vision.[12] As part of this strategy, the Office of the Chief Information Officer (OCIO) was established in 2014. OCIO has responsibility for delivering the technology to support and improve healthcare in Ireland.[13] The Health Service Executive's *Knowledge and Information Strategy* outlines its plan for realizing the eHealth strategy.[14] The Health Information and Quality Authority of Ireland has the remit to define National Standards for eHealth and to make Recommendations and provide Guidance on the same to the Minister for Health. HIQA works collaboratively with all key stakeholders to agree Standards, Recommendations, and Guidance, which are informed by the best available national and international evidence.

3.2 eHealth Strategy for Ireland (2013)

Ireland's first eHealth Strategy was published in 2013, and continues to influence today's eHealth landscape. Recognizing from international experience that eHealth deployments are complex, the Strategy provided for the establishment of the **eHealth Ireland** organisation to drive the eHealth strategy and to work in partnership with government and State agencies, including the Health Service Executive ICT Directorate and the Health Information and Quality Authority in Ireland.

Led by the new created role of the **Chief Information Officer**, eHealth Ireland was established with responsibility for overall governance around eHealth implementation including funding, legal enabling, public awareness, stakeholder engagement, and building the eHealth ecosystem. The Strategy also provided for the establishment of an eHealth

Ireland Board, to be composed of senior representatives from the HSE and the Department of Health, among others.

The **Office of the Chief Information Officer (OCIO)** is the Health Service Executive office responsible for the delivery of technology to support healthcare across Ireland.[15] The OCIO embraces all voice, video and data communications technologies and provides one central management point for all purchases of hardware, software, telecommunications, ICT developments and advisory services. The OCIO is also responsible for turning the eHealth Ireland Strategy into a reality, ensuring that technology supports healthcare efficiently and effectively throughout the whole system. The core of the eHealth Ireland strategy is to bring improved population well-being, health service efficiencies and economic opportunity through the use of technology enabled healthcare provision.

The eHealth Strategy for Ireland also outlined key elements of the eHealth ecosystem, such a national health identifier. Legislation was enacted in 2014, providing for the Individual Health Identifier, which would deliver:[15]

- a single national register of individual service users
- a business operations function to provide service user identity services
- technical infrastructure with appropriate external interfaces to support and maintain the national register (IHI system)
- technical interfaces enabling data exchange between the IHI system and selected consumer systems.

The eHealth Strategy also identified ePrescribing and the development of Summary Care Records as key priorities in line with the EU eHealth Action Plan 2012 to 2020.[16]

Late in 2014 the Health Service Executive held an engagement event for over 150 industry vendors, together with detailed discussion with system integrators and vendors.[17] Through the event, the Health Service Executive sought to understand the range of solutions and services they provided, as well as their recommendations for commercial, procurement, and implementation. The Health Service Executive defined and shared an eHealth Blueprint, indicating core electronic health record components and considerations around

implementation, before the event, in order to test its validity and to solicit estimates of the costs of implementation.

3.3 Knowledge and Information Plan (2015)

In 2015, the Health Service Executive published the Knowledge and Information Plan, outlining the proposed national architecture in detail. The ePrescribing and Summary Care Record implementations were cited as key building blocks that would interact with the National Data Dictionary, the source of truth for clinical and business terms across the enterprise. The Plan also considered the Irish Open National Contact Point (open NCP) infrastructure, which provides the ability to exchange health data—ePrescriptions and Patient Summaries (/Summary Care Records)—safely between EU Member States, in accordance with Cross-Border Directive 2011/24/EU. Datasets related to ePrescriptions and Patient Summaries are also to be published through the National Data Dictionary.

The Knowledge and Information Plan outlined five areas of capability identified as having the greatest impact across the health service:

- Cross setting information integration, such as individual health identifiers for patients and for care providers and care facilities.
- Electronic health records, reducing dependence on paper records and moving towards coverage of all patient interactions with care services, with decision support and patient facing capabilities.
- Care delivery enablement, including the electronic capture of information, to improve the quality of care by freeing up clinician time and provide patients with greater ability to participate in their own care.
- National support systems, providing for the integrated and efficient management of the health system as a whole.
- National support systems, which, through the establishment of a 'single source of truth' national data repository supports business intelligence and other management functions.

That same year, the business case for the National Electronic Health Record was approved and the Office of the Chief Information Officer also published the National Electronic Health

Record: Vision and Direction, outlining the vision for delivery of this 'cornerstone' of integrated care.[18]

3.4 Health Service Executive national strategic programmes

Beginning in 2015, the Health Service Executive launched a number of strategic programmes in the focus areas identified in the Knowledge and Information Plan, including:

- Electronic Health Record
- Individual Health Identifier
- Primary Care IT
- ePharmacy
- Maternal and Newborn Clinical Management System
- National Medical Laboratory Information System
- National Integrated Medical Imaging System.

The (national) Electronic Health Record programme comprises four workstreams:

- National Shared Record
- Community Operational Systems
- Acute Operational Systems
- Integration Capability.

The national EHR will consist of core operational solutions along with the ability to aggregate data from these systems into a comprehensive national record, accessible to health and social care professionals, and to patients, service users and carers. The opportunity afforded by a national EHR is to create a future environment that is information rich, supporting improvements in care, and making a step change in the availability of patient information across the various organisations within the remit of the HSE.

Another core eHealth component, identified in eHealth Strategy, was the provision of health identifiers as a key enabler.[15] Accordingly, the HSE set up the Health Identifiers strategic programme, in line with the legislative provisions.

3.5 Sláintecare (2017)

In 2017, the historic Sláintecare Vision—a ten-year, cross-party programme intended to transform health and social care services—was published. '…It is the roadmap for building a world-class health and social care service for the Irish people. The Sláintecare vision is to

achieve a universal single-tier health and social care system where everyone has equal access to services based on need, and not ability to pay. Over time, everyone will be entitled to a comprehensive range of primary, acute and social care services. Sláintecare's aims are to:

- improve patient and service user experience
- improve clinician experience
- lower costs
- achieve better outcomes.'

In response to the Sláintecare Report, the Government approved the Sláintecare Implementation Strategy in July 2018, outlining the ten strategic actions needed to realise the vision.(1) The Strategy recognizes ICT as the 'biggest and most effective driver of change and improvement for better patient outcomes across the health systems' and thus, implementing a modern eHealth infrastructure was one of the ten actions listed.(1) The priorities associated with this action are:

- Implement the national acute Electronic Health Record (EHR), starting with the new National Children's Hospital.
- Design and roll out community-based Electronic Health Records, connecting data across the system and, over time, making data available to patients.
- Design and roll out a range of primary and community-based ICT services that will improve the lives of patients, including ePrescribing, summary care records, and commence implementing telehealth solutions to support care in the community
- Develop new ICT systems and invest in infrastructure to support the health workforce and the delivery of integrated care.
- Implement the national digital maternity system.

Established in September 2018, the Sláintecare Programme Implementation Office identified four workstreams, including the Service ReDesign and Supporting Infrastructure Workstream, which contains the eHealth programme. The focus of this workstream is to provide patient-centric care— 'the right care, in the right place, at the right time,'— with strong emphasis on prevention and public health. Integrated services, which will ensure that patients are treated at, or near home, minimizing hospital stays, will require the requisite information technology infrastructure. This will include an integrated information technology waiting list to reduce waiting times.

The eHealth pillar focuses on providing the information technology needed to support service delivery, aiming to develop a coherent suite of eHealth solutions to support integrated, patient-centred care. The stated priorities for the first three years of the programme include:

- Progress procurement of the Electronic Health Record
- Commence development of a shared care record
- Commence development of a national community based ePrescribing service
- Progress providing a digital workplace to enable health service professionals to operate in a modern digitised environment
- Progress the development of clinical ICT systems, to provide the required infrastructure to support effective clinical decision making
- Continue implementing financial or corporate systems to improve accountability and ensure money can follow patient activity
- Identify improved information architecture, including standards, information and identity to underpin the delivery of integrated care
- Identify Telehealthcare solutions
- Establish Individual Health Identifier office (IHI)

3.6 EU Directive of Cross Border Exchange of Health Data

The Irish eHealth Strategy also continues to align with the broader EU strategy. EU citizens have the right to access healthcare in any EU country and to be reimbursed for care abroad by their home country, in accordance with the conditions laid out in Cross-Border Directive 2011/24/EU. Accordingly, the Directive provides for the introduction of seamless cross-border care through the secure exchange of patient information—ePrescriptions and Patient Summaries—between participating Member States.[16] The EU Commission published guidelines on the electronic exchange of health data for the patient summary for unscheduled care, which informed the National Standard on Information Requirements for a National Electronic Patient Summary.

3.7 National standards for healthcare interoperability

In line with its remit, HIQA has developed National Standards, Guidance, and Recommendations to support the safe exchange of health data in the eHealth ecosystem. In 2019, HIQA published the National Standard on Information Requirements for a National Electronic Patient Summary in Ireland, which defines the clinical dataset to be included in

the patient summary. The dataset comprises subject of care, health condition, medications prescribed, allergies, procedures, and vaccinations.[19] This As Is Review is intended to inform Recommendations to the Minister for Health in respect of the implementation of such a summary.

HIQA has previously published Standards and made Recommendations supporting the successful implementation of related eHealth technologies, In the area of electronic prescribing (ePrescribing), HIQA published standards for prescription datasets (2015, 2018), for dispensing (2018), and for a Medicinal Product Catalogue. HIQA also made Recommendations in respect of national, community-based electronic prescribing in Ireland. Charged with responsibility for overall delivery of the health service, the Health Service Executive seeks to comply with these National Standards in its contracts and procurement processes.

For example, SNOMED CT was identified as a key means to standardise the way that clinical information is recorded at the point of care. Following Recommendations from HIQA, SNOMED CT was adopted as the national terminology for Ireland. Subsequently, the Irish Government has adopted purchased a national licence for SNOMED CT and has included a vendor specification for SNOMED CT in all procurements.

3.8 Agreement between the Department of Health, the Health Service Executive, and the Irish Medical Organisation

The updated Terms of Agreement between the Department of Health, the HSE and the IMO regarding GP Contractual Reform and Service Development (2019 to 2022) outline the eHealth capabilities that are planned for introduction over the term of the agreement. GPs participating in the agreement will comply with these terms. The Terms cover the introduction of Summary Care Records (the term used for a National Electronic Patient Summary), which are compliant with the National Standard on Information Requirements for a National Electronic Patient Summary and are envisaged as being populated from GP practice management systems.

The Terms of Agreement also outline the introduction of Shared Care Records, which are often used to manage chronic conditions over time and across healthcare settings. The Shared Care Record includes the same clinical dataset as the National Electronic Patient

Summary together with additional clinical information from scheduled care, unscheduled care (emergency departments/out-of-hours clinics), community care and diagnostics, and encounters with other parts of the health service. Where a patient summary is a snapshot in time, the Shared Care Record provides a longitudinal view of patient care. Thus, using the Shared Care Record, the GP will be able to see whether a patient has had attendances at ED, outpatient department or other parts of the health service. The patient summary (or Summary Care Record) is considered to be a prerequisite for the introduction of the more complex Shared Care Record.

Chapter 4 National eHealth programmes, projects, and services

This chapter contains brief descriptions of eHealth programmes, projects, and services that may be affected by, or may have an influence, on the implementation of a National Electronic Patient Summary in Ireland.

4.1 Access to Information

The Access to Information programme is tasked with the delivery of the technical infrastructure and capability needed to enable the integration of health information across the health sector and to provide access to electronic health records for patients and their clinicians. It includes the development of key eHealth Strategy enablers such as:

- Individual Health Identifier (IHI), which enables the identification of health service users and their health records,
- National Health Messaging Broker (HealthLink),
- secure national health mail (Healthmail), is a secure, private, bounded email service for the exchange of patient identifiable clinical information.

4.1.1 Individual Health Identifier

As noted earlier, the eHealth Strategy for Ireland identified the provision of health identifiers as a key enabler for the provision of eHealth services in Ireland.[15] Subsequently, the Health Identifiers Act (2014) provided for the establishment and maintenance of national registers of Individual Health Identifiers (IHIs) and of Health Service Provider Identifiers, for practitioners and organisations. The IHI is intended to safely identify each individual, linking their correct health records across different systems to show their medical history. The Access to Information Health Identifiers programme is expected to deliver the following elements to support health and social care services in Ireland:

- a single national register of individual service users
- a business operations function to provide service user identity services
- technical infrastructure with appropriate external interfaces to support and maintain the national register (IHI system)
- technical interfaces enabling data exchange between the IHI system and selected consumer systems

The Individual Health Identifier has the following benefits, as well as the main benefit of ensuring patient safety:[20]

Benefit	Description
Ensures patient safety	▪ identifying the patient ▪ identifying the patients records ▪ enabling the provision of current and historical health information which supports more informed clinical decisions.
Improved patient care	▪ tracking patients' touch points with health services, thereby enabling the identification of trends and subsequently the development of appropriate patient care pathways. ▪ enabling the safe transfer of patients' records as they transfer across acute and community services (public/private and cross-border). ▪ enabling the capture of Health Intelligence data which can be used by researchers for the development of better treatments for better health outcomes.
Supports health service efficiency	Tracking patients across health services • identifies where efficiencies can be achieved by focusing on high volume services and planning of services to meet demand. • collates more accurate information-for example, identification of duplication of patients on waiting lists for the same consultation, procedure or service.
Enhances privacy	• enabling a mechanism for ensuring that only Health Service Providers that are entitled to access the data for that patient, have access to the IHI • enabling the identification and logging of access to patient records.
Critical for the provision of eHealth systems	• identifying individual patients in healthcare systems. • identifying individual's health records in healthcare systems. • linkage of health records across systems for presentation to healthcare providers. • electronic recording of patient transfers and referrals across the health systems, across all health domains (acute, community, disease registers, public and private, national and international). • complying with GDPR, supporting audit requirements on health record access logs.

An IHI is an 18 digit number that is used to uniquely and safely IHI is assigned to the patient for life and is not re-used after the patient's death. As the IHI is adopted and

embedded into the patient's record in different health services, it will facilitate the linking of correct health records from different health systems, to provide a full medical history.

The Health Identifier's Act (2014) provided for national registers for IHIs and for Health Service Provider Identifiers (Practitioners and Organizations) to be established and maintained. The Act specified the list of demographic details that will be held by the IHI Register, including:

- Surname
- Forename
- Date of Birth
- Place of Birth
- Gender
- All former surnames – for example, different names from different marriages
- Mother's birth surname
- Address
- Nationality
- Personal public service number (if any)
- Date of death in the case of a deceased individual
- Signature
- Photograph.

The Individual Health Identifier will have the following format:

[GS1 GSRN Prefix No.] [Core IHI number] [Mod11 check-digit] [Final GS1 check digit]

Where:

	Description	Example
GS1 GSRN Prefix No.	A GS1 GSRN Prefix (7 digits)	1435355
Core IHI number	A core 9-digit number	123456789
Mod11 check-digit	A modulus 11 check digit for the core number, embedded within	6
Final GS1 check digit	A respective GS1 GSRN check digit (1 digit) at the end of the whole number.	3

The IHI is used for direct provision of healthcare services only. If the IHI is required for secondary use—such as planning, research, and so on—a separate application must be made to the Department of Health.

Current status

Established in 2019, the Health Identifier Service (HIDs) is responsible for the operation of the IHI service as delegated by the Minister for Health. Recruitment of the team is in progress.

The technical infrastructure for the Health Identifier Index is in place and populated with 6.7 million IHIs relating to current and former residents of Ireland, as notified by the Department of Employment Affairs and Social Protection. The technical mechanisms for providing the IHI to consumer technical systems are also in place and programmes of work are underway to integrate the IHI with:

- Patient Administration Systems (PAS)
- GP and pharmacy practice systems
- national systems such as:
    - Maternal Newborn Clinical Information System (Maternity),
    - National Medical Laboratory Information System (Laboratory),
    - National Integrated Medical Imaging System (Radiology)**,
    - NCIS (Cancer),
    - Primary Care Eligibility Reimbursement Scheme (Medical Cards and Drug Payment Schemes)**,
    - Cancer Screening,
    - Immunisation,
- registries such as the Cancer Register, Diabetes, Hepatitis C and Haemophilia.

All GP practice management systems and all patient administration systems using iPMS PAS system version 5 can store and display the IHI. The following systems are capable of consuming the IHI:

- Maternal Newborn Clinical Information System (Maternity),
- National Medical Laboratory Information System (Laboratory),
- National Integrated Medical Imaging System (Radiology),
- Primary Care Eligibility and Reimbursement Service.

The IHI is injected into all eReferrals travelling across the National Messaging Broker (HealthLink), where there is sufficient demographic data provided to match with the IHI. IHIs and Eircodes are also provided for the:

- National Treatment Purchase Fund

- Hospital In-Patient Enquiry System
- Single Assessment Tool Information System

A programme of work is underway to inject the IHI and Eircode into all messages using HealthLink. In addition, the IHI is enabling the European National Contact Point Programme for the provision of a Patient Summary Record along with e-Prescribing.

The re-establishment of a governance group to progress the roll-out and operationalisation of the IHI was progressing in February 2020. However, arising from COVID-19 this, and the programmes of work to 'seed' the IHI (and Eircodes) into the NTPF, PCRS, a pilot PAS system, MN-CMS and pilot GP practice systems, have all been suspended as teams were redeployed to support COVID-19 as follows:

- the Health Identifier technical team was redployed to provide a COVID Identifier (linked to the IHI) to the COVID Case Tracker and Swiftqueue Appointment Scheduling Service
- the Health Identifier Service team was redeployed to support contact tracing, the provision of contact information for the communication of test results and the provision of a data quality function for the COVID Case Tracker.

While COVID-19 has suspended the roll-out of IHI for these programmes, the crisis provided the opportunity to demonstrate the value of the IHI and the Health Identifier Service in action as the IHI was used extensively to support:

- The unique identification of individuals on the COVID Care Pathway by the provision of a COVID-Identifier linked to the IHI
- The ability to trace individuals from referral for test and/or assessment along the COVID Care Pathway via the COVID Case Tracking System (CCT)
- The ability to track COVID-Test swabs to laboratories for testing and to ensure that results were returned to the correct clinicians
- The ability to contact individuals to inform them of their test results.
- The ability to contact individuals for contact tracing where there was insufficient contact information available.

In light of service continuity and operational requirements in the context of COVID, the systems and operational sites that now need to be prioritised for technical integration with the IHI and on-site operationalisation by services needs to be agreed, with a focus on COVID-related demands such as outbreak management immunisation and vaccinations

programmes. This is in addition to prioritised clinical programmes such as screening services, GP out of hours and also to support waiting list management with the NTPF.

4.1.2 HealthLink

HealthLink is the National Health Messaging Broker, with a core remit to provide a secure, standardised messaging service. Any hospital or secondary healthcare facility can send messages to GPs through a central database managed by HealthLink, while GPs use a web interface to access messages sent to them.(15)

The main purpose of HealthLink is to facilitate the exchange information of structured patient information, compliant with national and international health messaging standards, which enables the integration and interoperability of health systems. It uses health identifiers such as the IHI, Medical Council Number, Practice and Organisation Identifiers in messages. HL7 messaging standards are applied in all instances. HealthLink exclusively supports HL7 version 2.4. In version 2.4 there are two options for message encoding: the standard encoding or the newly introduced XML encoding. For a message to be successfully handled by HealthLink, it must at least conform to the corresponding Abstract Message Structure definition for standard encoding, or the corresponding XML Schema for XML encoding.

Patient information is generated on the source system and transferred to and from HealthLink using secure network connections. Users can access HealthLink through their accredited GP practice management system. Service calls are also used to generate referral messages which are sent on to hospitals via HealthLink. If needed, users can also log in to the HealthLink Portal with a unique username, password, PIN and digital client certificate to verify their identity. Message files are formatted in HL7 which is an internationally recognised standard for exchanging information between healthcare applications. HealthLink is fully compliant with the HIQA National GP messaging Standards.

NCCP (National Cancer Control Programme) Referrals

The 2006 National Cancer Strategy recognised that information systems should be developed to manage cancer services. The National Cancer Control Programme (NCCP), in collaboration with HealthLink, GPIT and the HSE developed electronic referral forms for breast, prostate, lung and most recently, pigmented lesion cancer. HealthLink worked with

the accredited GP practice management system vendors to integrate the forms into the patient record. Once the referral has been submitted, an instant acknowledgement is received to confirm that it has been successfully sent. A response outlining triage and appointment information is sent to the referring GP within 5 working days. Breast, Prostate, Lung and Pigmented Lesion referrals have been rolled out nationally to the designated cancer centres.

General Referrals

The National Electronic General GP Referral Pilot Project was established in 2011 to deliver electronic general referrals, using the HIQA/ICGP standard referral template. This project was run as a collaboration between HealthLink, HSE, ICGP, GPIT, NCCP and the Outpatients Performance Improvement Programme. Similar to cancer referrals, the general referral form is integrated in the GP software systems which means that much of the patient information is auto-populated thereby cutting down on the time taken to place a referral.

Acknowledgements are also sent, confirming that the form has been successfully submitted. The Mater hospital was the first site to go live with phase II of the referrals project having achieved full integration with PatientCentre, their EPR system. The referral is no longer printed on arrival in the Hospital resulting in substantial savings in administrative time due to automation of this key step in the process. The Royal Victoria Eye and Ear hospital now have referrals integrated into their systems.

Laboratory Ordering

In 2006 HealthLink introduced Laboratory Order functionality, giving GPs and Practice Nurses the ability to order blood tests online, replacing the manual order form. Laboratory Order allows users to choose from a definitive set of tests for the patient then print the order form (including a barcode) which is sent with specimens to the lab. Upon receipt in the lab, the form is scanned by the bar code reader and the order is immediately accessible on the system. There are many benefits to both GP practices and labs including elimination of illegible, incomplete order forms, electronic records of all orders placed and quicker turnaround of orders and results. This service is available for laboratories in the Mater, St. James's and Cavan General.

GP Messaging

Hospitals vary in terms of the adoption of electronic messaging for communication with GPs, however the full suite of HealthLink messages available are as follows:

- laboratory orders
- laboratory results
- radiology results
- A & E attendance notifications
- inpatient admissions
- death notifications
- discharge notifications
- discharge summaries
- OPD appointment updates
- outpatient clinic letters
- waiting list updates
- out of hours co-op messages
- cardiology reports
- referral response messages.

At the time of writing, the status of HealthLink is in supporting the COVID pandemic. It is instrumental in enabling referrals for patients who need a COVID test to be done or who need to be seen at a Community Assessment Hub. It is also instrumental in delivering laboratory results for COVID back to referring clinicians – including GPs. While supporting COVID, HealthLink is continuing with business as usual for all the elements outlined above. The high level roadmap for HealthLink at present is to enable the delivery of the current priorities for the HSE Office of the Chief Information Officer in the following areas:

- referrals
- IHI
- laboratory results
- waiting lists
- enterprise appointment scheduling for referrals, screening, telehealth consultations
- vaccinations
- ePrescribing and medications.

HIQA was advised that any clinical message exchanged over HealthLink is a potential information source for the patient summary dataset. The referrals that are compiled for a patient that are delivered via HealthLink have the potential to provide information on

Subject of care, Health conditions, Medication prescribed, Allergies, Procedures, Vaccinations.

In addition, upon delivery of ePrescribing as per Sláintecare, which will rely on messaging provided by HealthLink, it will be possible to source medication information.

GP systems are a huge source of clinical information for a patient summary dataset. For example, the gathering of the data for the chronic disease management programme is currently focusing on a key population cohort and a key data set for a certain series of diseases.

Any vaccination or immunisation system that is developed would be a useful source of vaccination history and work is progressing in this area at present.

The Citizen Health Portal, while not a source of data, provides the means to aggregate this information and make it accessible to the patient for their own information or to share with their clinicians and carers as they choose.

4.1.3 Healthmail

Healthmail is a secure, private email service for the exchange of patient-identifiable, clinical information. The use of faxes and non-secure email systems present an unacceptable risk to the health service. Healthmail addresses this risk effectively and is the preferred solution for unstructured communication between healthcare professionals. Healthmail helps healthcare providers to comply with GDPR requirements by securing identifiable, sensitive information communicated with other health providers. Healthmail users can send clinical information securely to any healthcare professionals with a @healthmail.ie address, @hse.ie or @voluntaryhospital.ie address. Additionally, other connected agencies can use the service to safely communicate patient identifiable information. Healthmail works within a secure network, ensuring the security and confidentiality of the data transmitted. Common uses of the system include:

- transfer of medical records,
- requests for medical reviews,
- referral queries,
- transfer of fundus images,

- communication of allied health professional assessments/treatment plans.

Current status

Healthmail has been in operation since 2014 with the original purpose of securing email communication between GPs and hospitals. An evaluation was carried out in early 2017 to gauge satisfaction with the service; as part of this study, GPs were asked which other groups they would like to see join and this included community pharmacies, nursing homes, optometrists and dentists. The expansion of Healthmail has followed this course.
Further expansion is planned with high demand specifically from private consultants and physiotherapists. The following groups are currently eligible to register for @healthmail.ie accounts:

- GPs and their practice staff
- community pharmacies
- nursing homes
- dentists
- optometrists.

In April 2020, COVID-19 Emergency Legislative Provisions recognised Healthmail as the national electronic prescription transfer service, permitting the transfer of a prescription between the prescriber and dispensing pharmacy by electronic means, removing the need for a paper equivalent. This has led to a large increase in usage of the system, in terms of message throughput, volume and user logins.

Furthermore, HealthMail has been used to support the COVID-19 response by providing a secure mechanism for sharing demographic data within the HSE itself and with external organisations such as Long Stay Residential Facilities. This has been used extensively to support COVID-19 testing for the residents and staff of Long Stay Residential Facilities such as nursing homes and the sharing of contact data for contact tracing purposes.

At the time of writing, the high level roadmap for HealthMail is to focus on rolling out:

- adoption for organisations supporting specific COVID-19 activities
- adoption to support clinicians needing to securely communicate clinical information while minimising their own exposure to health colleagues and locations

With the availability of electronic prescriptions within HealthMail, there is now the potential to provide patients with electronic prescriptions via the Citizen Health Portal in advance of the availability of the data that would be provided by an ePrescribing solution.

4.2 Primary Care Eligibility and Reimbursement Service

The Health Service Executive's Primary Care Eligibility and Reimbursement Service (PCERS) supports the delivery of primary healthcare by providing reimbursement and eligibility services to primary care contractors for the provision of health services to members of the public in their own community. That is, the Primary Care Eligibility and Reimbursement Service processes payments to all GPs, dentists, pharmacists and other professionals who provide free or reduced cost services to the public. The Service also compiles statistics and trend analyses which are provided to other areas within the HSE, the Government, customers, stakeholders and to members of the public. The Service has two core functions:

- **Eligibility from National Medical Card Unit**—the **National Schemes View** is a web-based tool providing demographic and eligibility information for schemes, and the ability to search by applicant, card number or GP. It is used by staff—such as PCRS staff, hospital staff, and CHO staff—that have been individually authorized by senior management.
- **Reimbursement from the reimbursement service**—the **PCRS Claims and Payments System**, consisting of many components and infrastructure, generates daily dashboards showing activity such as the number of claims, items processed, costs to date, and the number of unique patients. The status of a query and expected turnaround time can also be checked.

Data received is stored on an internal database management system, which processes applications for national health schemes, tracks scheme provision and uptake, and documents reimbursement payments made to contracted healthcare providers.[21] As noted in the earlier section, the Primary Care Eligibility and Reimbursement Service messages are exchanged through the National Messaging Broker (HealthLink). Communication from the Primary Care Eligibility and Reimbursement Service indicated that no relevant governance structures or stakeholder engagement initiatives had been identified. Therefore, this section describes the Service as a potential source of information.

A recent HIQA review notes that, in the absence of e-prescribing, the PCRS is a rich source of national prescription data and the largest data source for measuring drug exposure in

specific populations in Ireland. For each drug dispensed in Ireland and reimbursed by the PCRS, data are available for the date of dispensing, quantity of medication provided, strength, dosage form, route of administration, ingredient cost, community drug scheme on which drug was dispensed and dispensing fees to the pharmacist.[21] For example, the availability of PCRS data informs the HSE's Medicine Management Programme, which develops national initiatives to reduce overall expenditure on, and improve access to, medicines. Furthermore, PCRS data is used routinely by HIQA when conducting health technology assessments in order to provide accurate and reliable evidence to support decision-making within the Department of Health.[21]

Submissions from the Primary Care Eligibility and Reimbursement Service identified the following potential sources of information for a National Electronic Patient Summary:

PCERS Records	Potential source of records …
Eligibility	Current eligibility for free or subsidised healthcare on the national health schemes
Pharmacy Reimbursement	Proxy for medicine consumed
Dental reimbursement	Dental treatment consumed
GP reimbursement	GP treatment consumed, as well as the person's choice of doctor on the General Medical Scheme
Optical reimbursement	Optical healthcare consumed
Vaccination	Vaccinations received
European Health Insurance	Periods of insurance cover

The same communication noted that:

'… operational requirements of GDPR has a huge bearing on the potential issues and burden associated with a providing a patient summary. Although issues with data are materially very low in our experience, by the same token, any enterprise which would display operational data (not subject to pre-publication cleaning processes) for a population will need to provide for dealing with the 'right to rectification' issues which emerge. How these would be handled at a summary level solution and potentially back into the source system etc. At a PCERS level, we find that even tiny levels of incorrect data result in an inability to display historical data in general to a population. Most often historical data is an audit trail and cannot

necessarily be corrected which can lead to issues for data subjects if information displayed in their summary for example was considered incorrect.'

4.2.1 PECRS Hospital Pharmacy Portal Project

At present, the pharmacist receives complex information by phone from community providers. This is time consuming, potentially error prone, and an unscheduled interruption to community providers engaged in clinical activities. The project business case was supported by the findings that, amongst medical card patients, use of a patient's HSE PCERS medication record to build a medication history list was as reliable as communicating with the patient's community pharmacist or GP. Other findings showed a good level of agreement between the HSE PCERS data and patient self-reported medication use identified during interviews in the patient's home.

It was thought that access to the HSE PCERS medication record to build a medication history list through a secure on-line PCERS Hospital Pharmacy Portal would offer the opportunity to access accurate patient's records at the earliest possible opportunity during a patient's stay in Hospital. In addition, the information would be available 24 hours a day, seven days a week—that is, whenever patients present in an emergency, and not limited to business hours. Furthermore, access would reduce Hospital Pharmacists reliance on community providers (GP, Community Pharmacists) for patient medication information at admission, whilst accepting that information gleaned from the portal would need to be corroborated with a second source, usually the patient and/or their representative.

A small pilot project currently underway in Naas and Tallaght provided some relevant findings regarding the use of the Primary Care Eligibility and Reimbursement Service as a potential information source.[22] The pilot, which started at the end of the summer in 2019, involves approximately 25 pharmacies surrounding Tallaght Hospital and approximately eight pharmacies surrounding Naas General Hospital. Hospital pharmacists have been given access through the PCERS Hub to the pharmacy records.

During the pilot, HIQA was advised of several limitations with the PCERS data. First, only medicines reimbursed by PCERS are included—for example, those claimed under the General Medical Scheme or over the monthly threshold of €124 for the Drugs Payments Scheme. Thus, reasonably complete records are available for those using the General

Medical Scheme, but records for those not using schemes reimbursed by the PCERS are significantly less complete—that is, for private patients who are not on any scheme. Where PCERS information is available, the dosage, frequency, and directions for use are not available. The information is updated monthly, and so becomes less up-to-date as the month passes. Additionally, in a small number of cases, family members' medicines were displayed in place of, or in combination with, that of another family member—such as information for a husband and wife being displayed.

However, staff using the system are clinical pharmacists and have been trained in medicines reconciliation, thus are aware of the need to verify medicines information with a reliable second source, such as the patient or carer. Staff have a positive view of the system, considering it a good—though not complete—record. They consider that it saves time and find the six month history of treatment to be useful. However, staff in other roles, without medicines reconciliation training, could find the information more difficult to interpret.

Community pharmacy records would include the missing information—the dose/ frequency/ directions— and would represent almost all prescribed medicines, in a way that could be interpreted correctly by all healthcare professionals. Exceptions that would not be included include some psychiatric medications and treatment for HIV.

At the time of writing, a survey of all participating hospitals had just been conducted, with the outcome to determine proposed next steps, including whether it will be extended to other HSE hospitals. All learnings from this project will be used to inform the national ePrescribing Hospital Pharmacy Portal that is envisaged to supersede this, as part of the National ePrescribing Solution. Further information about the National ePrescribing Solution is provided in a later section.

4.3 General Practice IT Group

The National General Practice Information Technology Group is a working group within the Irish College of General Practitioners. Comprised of representatives from the Irish College of General Practitioners, the Health Service Executive and the Department of Health, the aim of the Group is to promote the eHealth agenda in Ireland, in particular electronic communications and interoperability between GP and health service information systems.[23]The activities of the Group include:

- educating GPs through presentations and seminars
- giving GP a perspective on major national information systems, such as the National Integrated Medical Imaging System (NIMIS)
- contributing a primary care input to national eHealth initiatives, such as the Individual Health Identifiers (IHI) project
- working with the relevant national agencies to manage and develop existing services, such as electronic referrals for the National Cancer Control Programme
- working to improve electronic communication between GPs and the health services, particularly through structured messaging (electronic referrals, laboratory and x-ray results) and HealthLink
- providing a general practice and primary care perspective on interoperability and health informatics standards in the health services.[23]

4.3.1 Feedback on the Implementation of a National Electronic Patient Summary

GPIT acknowledge the value for clinicians and patients in having a National Electronic Patient Summary for medical encounters outside GP clinics, particularly for information about what medications the patient is taking and what drug allergies they may have, as well as relevant medical history. Although of value for the out-of-hours GP setting, GPIT considers that, currently, the main beneficiaries of a National Electronic Patient Summary would be other health professionals who have poor access to electronic patient data. GP records are a potential rich source of clinical information, however there may be both difficulties in extracting this information and ensuring it is accurate, relevant and up-to-date for the patients.

4.3.2 Data quality in current GP records

In current GP practice management software, the landing page of a patient's chart shows an Electronic Patient Summary, in effect. However, that record has been created primarily for use in the setting of the GP surgery. GPIT does not have access to good quality information on the extent and accuracy of coded medical information in GP summaries—for example, a GP might enter 'diabetic' as free text rather than selecting the condition properly coded as 'diabetes mellitus'.

Therefore, to take the information currently as it is from GP systems has significant limitations. The data may not be completely clinically accurate for a variety of reasons, which include:

- the design of GP software
- poor transfer of information from other health services
- variability in how practices update their medical summaries.

To provide accurate and up-to-date information could involve GP review of each summary, ideally with the patient present to confirm additions and deletions. By implication, to transmit any information without review could be clinically dangerous. Such review currently takes place to some extent when composing referral letters. However to review all patient records with the patients and ensure accurate updating, would be beyond the current clinical and administrative resources of most general practices, without additional assistance. Many GP surgeries are struggling to meet clinical demand, as a result of significant workforce limitations and a national lack of new GPs taking over General Practice lists.

4.3.3 Information sources

Considering the individual data fields required, GPIT made the following observations:

- **Demographic information** General Practice is likely to yield better quality data than records provided from other healthcare sources as most Irish patients attend their GP as the principal healthcare provider. Linkage with the IHI should improve the quality and accuracy of this data.
- **Health conditions** The quality of morbidity data in Irish General Practice is unknown. The ICGP have encouraged GPs over many years to code the main chronic diseases and the introduction of the Diabetes cycle of care and Chronic Disease Management Programme should improve this further for the major chronic diseases. Two coding systems are in use in Irish General Practice: the International Classification of Primary Care version 2 and ICD 10.
- **Procedures** This information would probably be best populated from hospital HIPE and day services databases, although general practice may hold historical data—less likely to be in a coded format.
- **Prescribing information** As most GPs use their clinical software to generate patient prescriptions, this should prove a useful source of information for the patient summary record. As not all GPs keep the current medications lists up-to-date , this data would need validation before upload.

- **Allergies** Useful information on allergies should be available from GP records but would need confirmation by the treating physician using the Electronic Patient Summary.
- **Vaccinations** GPs currently provide childhood immunisations up to age of 13 months, some GPs perform pre-school vaccinations, most GPs ensure as many patients receive Influenza and Pneumococcal vaccination. As GPs get direct reimbursement for performing these vaccinations then they would have reliable records of the vaccines being given and the data should be of high quality.

If general practice could be provided with appropriate resources to do so, it potentially is the quickest and easiest source of seed information for an Electronic Patient Summary. However, with the intended use of acute and community EHRs, it is likely that the Electronic Patient Summary may be populated from a variety of other sources. GPIT studied the Northern Ireland Electronic Care Record and consider that this type of model would be an efficient method for building the National Electronic Patient Summary, as well as the building blocks for the shared electronic patient records.

4.3.4 Summary

- General practice is a rich source of historical medical information for many patients.
- The quality and usability of that information is variable.
- Expecting GPs to manually review records for accuracy is unreasonable without significant additional resources.
- Future updating of an Electronic Patient Summary may work best with an automated system such as Northern Ireland Electronic Care Record.
- Consideration will also need to be given to the future governance of an Electronic Patient Summary, such as clinical responsibility for accuracy and updating.

The recent Irish Medical Organization contract includes other projects, such as ePrescribing and the Individual Health Identifier, that must be developed and integrated as necessary components of a National Electronic Patient Summary.

4.4 Irish Medical Organisation

The role of the Irish Medical Organisation (IMO) is '…to represent doctors in Ireland and to provide them with all relevant services. It is committed to the development of a caring, efficient and effective Health Service.'[24] '…The IMO develops policy on a wide range of

Health Service and Societal issues and aims to influence Government proposals in a constructive and practical way… The IMO works across a number of European and International medical organisations to represent the interests of Irish doctors on medical education and training issues, along with professional, ethical and socio-medical affairs. By working with other National Medical Associations, the IMO can contribute effectively to debate and influence policy through collaborative international structures.'[25]

The Department of Health, the Health Service Executive and the Irish Medical Organization together agree the terms under which GPs provide services nationally. Updated *Terms of Agreement between the Department of Health, the HSE and the IMO regarding GP Contractual Reform and Service Development* were published in 2019. They outline how the State and GPs will work to support the implementation of eHealth solutions over the term of the agreement, to support interoperability between GP practice management systems and HSE systems. It has been agreed that all GP practices will use GPIT-accredited Practice Management Systems, with coverage currently standing at 95%.

Accredited general practice systems are already capable of using the patient's Individual Health Identifier. Individual Health Identifiers will be rolled out to GP practices nationally on a phased basis, with the intention of achieving 85-90% signup by 2022. To support the introduction of ePrescribing, use of three-part PCERS prescriptions and dot matrix printers is to be eliminated and the medicines file currently in use by GPs must be cleaned up. Expected to take between 18 and 24 months to develop, the ePrescribing solution will be implemented nationally on a phased basis from 2021 to 2023, again to achieve 85-90% coverage.

The Agreement also covers GPs' obligations in relation the introduction of Summary Care Records, addressing the use case defined in the National Standard, and Shared Care Records, addressing a broader use case involving management of chronic diseases across healthcare settings. The agreement holds that Summary Care Records normally provide a snapshot in time, generated using data held in GP practice systems. Shared Care Records are more complex, providing a longitudinal record that includes clinical information from hospitals and capturing information about patient encounters with other parts of the health services.

Finally, the Agreement notes that eHealth provides the opportunity to streamline the administration of immunisations, which are administered nationally by multiple clinicians in multiple settings—GPs, School Immunizations Nurses, Pharmacists). An integrated solution is expected to go live by 2021 and to achieve 90% coverage by 2023.

4.5 Irish Pharmacy Union

The Irish Pharmacy Union is the representative and professional body for community pharmacists. The mission of the Irish Pharmacy Union is to promote the professional and economic interests of its members. In particular, for more than 30 years, the Irish Pharmacy Union has produced that the Irish Pharmacy Union Product File, which is designed for pharmacists, doctors and hospital personnel. The Product File supports prescribing, dispensing, claiming with PCRS, stock ordering, stock taking, price checking and product sourcing.

The Union also provides guidance on eHealth. In 2016, the Irish Pharmacy Union published a Policy Statement on eHealth, outlining the principles for technology solutions and participation in national programmes and initiatives—applying specifically to mobile health, telehealth, Electronic Transfer of Prescriptions (ETP), ePrescribing and Electronic Health Record (EHR).

The Statement also emphasised that an eHealth system should not undermine core values of the pharmacist-patient relationship, should improve the existing paper system, and that security and access issues must not impede patient care. It also indicated that, for the effective functioning of the eHealth system, pharmacists must be partners in governance and in any decision making committees and that systems must be integrated. The Statement recognised the following key deliverables for the eHealth Ireland ePharmacy Programme, aligned to the Department of Health's eHealth Strategy for Ireland: electronic health records, ePrescribing in primary care, electronic transfer of prescriptions, and the National Medicinal Product Catalogue. Subsequently, the Irish Pharmacy Union has produced standards and specifications to support the adoption of these eHealth deliverables:

- **Product File Mapping to SNOMED CT**, several elements of the Product File were mapped to SNOMED, and will then map EDQM field values, supporting eHealth interoperability

- **ePrescribing Specification**, detailing the functionality require to manage an electronic prescription (ePrescription), with the necessary infrastructure and principles for technology solutions, as part of a national system in primary care.
- **Dispensary System Specification**, for community pharmacy and other care settings where electronic dispensing records are generated and stored.
- **Pharmacy Internet Messaging Standard,** a protocol for a broadband-based pharmacy system, used by PCRS for High Tech Hub.

The Irish Pharmacy Union has also drafted a number of guideline documents related to adoption of these eHealth deliverables. The Irish Pharmacy Union has undertaken a significant body of work in collaboration in two strategic EU programmes: openMedicine and its successor UNICOM. UNICOM could result in improved data from the Health Products Regulatory Authority Database into the Irish Pharmacy Union Product File, which is a medicinal product catalogue used by pharmacies nationally, as the Database would have a direct link to the EMA database.

4.6 Pharmaceutical Society of Ireland

The Pharmaceutical Society of Ireland is an independent statutory body, established under the Pharmacy Act 2007. It is charged with, and is accountable for, the effective regulation of pharmacy in Ireland, including responsibility for supervising compliance with the Act. The Pharmaceutical Society of Ireland is also charged with ensuring compliance with certain medicines and controlled drugs legislation. It works for the public interest to protect the health and safety of the public by regulating the pharmacist profession and pharmacies.

The Pharmaceutical Society of Ireland published the Future Pharmacy Practice in Ireland Report, which recommended the use of technology in pharmacy and healthcare to enable sharing patient care, realising work efficiencies and facilitating safe transitioning of care of patients from different healthcare settings. The PSI recognises the many patient safety benefits and efficiencies that eHealth can bring and also the importance of integration with national IT systems.

The PSI considers three areas to be particularly relevant to the implementation of a National Electronic Patient Summary:

- pharmacy practice management software, including the requirement for validation

- provision of vaccination services in pharmacies
- electronic prescribing

4.6.1 Pharmacy practice management software

Pharmacy practice management software is supplied by a number of vendors, with the following functionality in common:

- to record patient details such as name, address, date of birth, allergies, etc.
- to record details of medicines supplied to patients
- to generate records which are required to be kept by legislation
- to transmit claiming information for payment to the HSE-PCRS
- to access product information on medicines
- to maintain other supporting records
- to manage stock control.

To date, user specifications have driven the development of these systems, which provide for the electronic recording and storage of a patient's personal, medical, and clinical information. While pharmacists do not submit data recorded on their pharmacy practice management systems to the PSI, they must manage the data in compliance with legislative and patient confidentiality requirements outline in the Code of Conduct for Pharmacists.

Pharmacists also have many legislative obligations to retain hard-copy records and registers about medicines, to provide traceability in medicines. The ability to manage these records electronically would optimise resource use, aligning with the eHealth Strategy aim to realise health service efficiencies.

Pharmacy systems have not been validated independently, though pharmacy legislation makes provision for certain pharmacy records to be maintained in electronic form in line with certain conditions—including that the records be validated and certified independently, by a person approved by the Minister for Health. The PSI has requested that the Department of Health appoint a person or body, to carry out this independent validation and certification, which the Society considers a key enabler of eHealth. This validation would ensure that pharmacy practice management systems could be used as an accurate source of a patient's personal medical information for a Patient Summary or electronic health records.

Noting the example of the English Summary Care Record, the Society considers information about a patient's medicines, allergies, and adverse reactions to be essential for a pharmacist to be able to fully assess the appropriateness and safety of a patient's prescription.

4.6.2 Provision of Pharmacy Vaccination Services

The Medicinal Products (Prescription and Control of Supply) (Amendment No.2) Regulations 2015 and the Medicinal Products (Prescription and Control of Supply) (Amendment) Regulations 2011 provide for the supply and administration of particular vaccines by pharmacists, specifically seasonal influenza, pneumococcal polysaccharide and herpes zoster vaccines. Additional vaccinations being administered in the future.

Clear communication between the pharmacists, GPs, and nurses involved in vaccinations and associated services about all vaccine administrations enables them to provide patients with an appropriate standard of care, reducing the risk of clinical error. Currently, all vaccination administrations must be notified to the HSE, which must receive a vaccine administration record within seven days of administration. The vaccine administration record may be submitted on paper or using the Pharmacy suite in the Primary Care Eligibility and Reimbursement Scheme. Relevant information must also be forward to the patient's GP within seven days, on paper or electronically, including administration of ephedrine for the emergency treatment of anaphylaxis following vaccine administration—some pharmacies use Healthmail to transfer this information to the GP.

Pharmacist access to the National Electronic Patient Summary would support clear communication and compliance with legislative requirements.

4.6.3 Other requirements for ePrescribing and ePharmacy

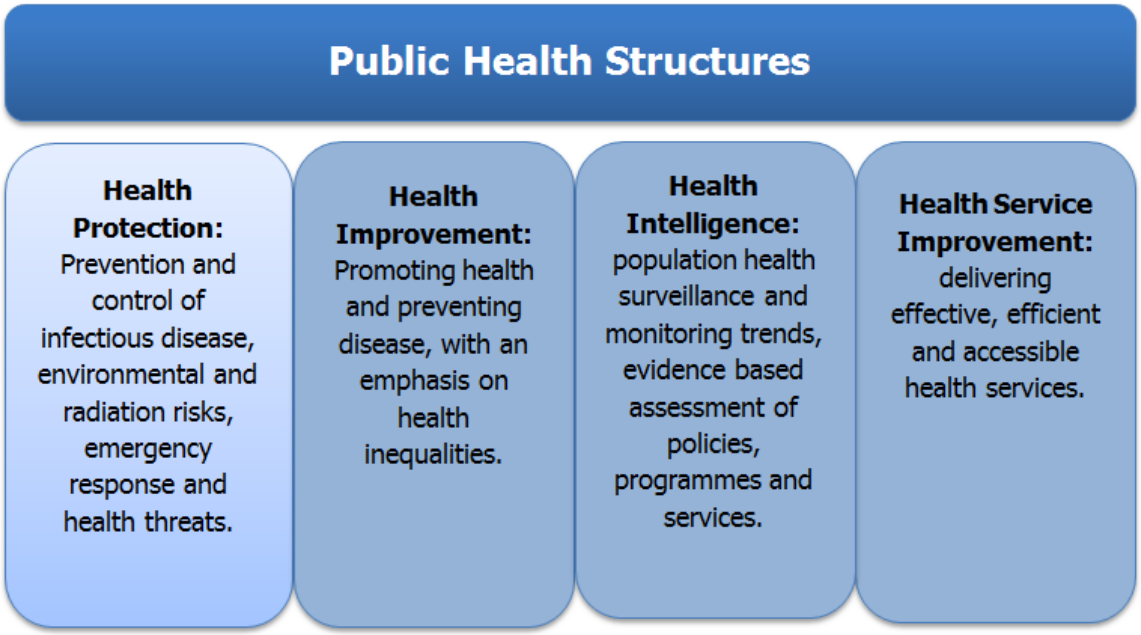
Important provisions on the control of medicines supply are enshrined in Irish legislation for the protection of public health and safety, and must be considered in the development of any ePrescribing system. A prescription is a legal document that must comply with the requirements of the Medicinal Products (Prescription and Control of Supply) Regulations 2003 (as amended), and, for controlled drugs, the Misuse of Drugs Regulations 2017 (as amended). The prescribing and supply of medicines are regulated from the manufacturer to the patient through the relevant pharmacy and medicines legislation, including the

Pharmacy Act 2007, the Medicinal Products (Prescription and Control of Supply) Regulations 2003 (as amended) and the Misuse of Drugs Regulations 2017 (as amended).

The PSI also believes that it is important that the public is protected and that current safeguards in legislation are replicated or enhanced in any new ePrescribing systems that are implemented, to ensure the continued safe and rational use of medicines. The PSI believes that consideration must be given to the current legislative and regulatory framework, as legislation will require amendment to ensure that any ePrescribing systems preserve, or indeed, enhance, the safeguards in this legislation.

4.7 National Immunisation Office

Management of the public health function is distributed across a number of divisions and units within the HSE.



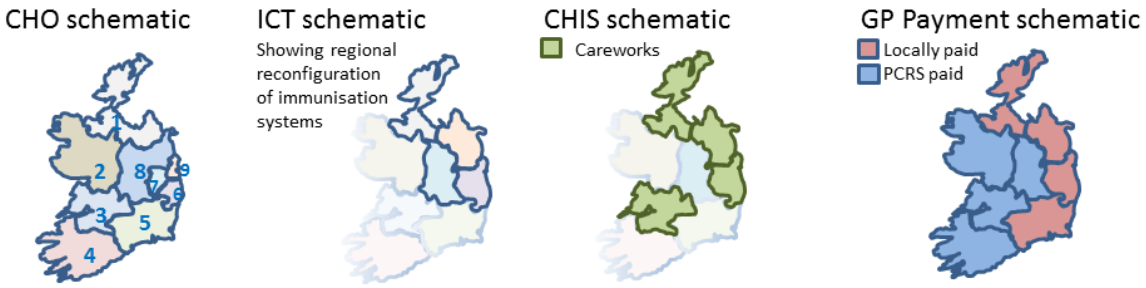
The health protection pillar encompasses Health Protection Surveillance Centre (HPSC), the **National Immunisation Office (NIO)** and eight regional Departments of Public Health. The National Immunisation Office is responsible for publicly funded vaccination programmes, including the following programme areas:

- strategic planning and innovation,
- project management and implementation,
- financial management,
- risk management,

- ICT management, and,
- service management.

The Office works with key stakeholders and support healthcare providers to maximise the uptake of all national immunisation programmes. It provides strategic direction in support of a best-practice-based, equitable and standardised delivery of publicly funded immunisation programmes. This graphic shows coverage of immunisation programmes nationally:

County	PopN	CHO	System	# Records	Functions + Immunisation	Support set up	Technology issues
Galway, Mayo, Roscommon	450K	2	iSoft	1300K 1999	Ophthalm'gy	Supplier contract	PAS based
Clare, Limerick, North Tipperary/East Limerick	380K	3	Careworks MW	1500K	CHIS	Time & Materials	
Kerry, Cork	670K	4	IMS Max 2006	1300K		Supplier contract	Upgrades 100K
South East: South Tipperary, Carlow, Kilkenny, Waterford, Wexford	500K	5	Mumps SE system 1974	2700K	Local Payments	In house support	Mumps/VMS
Wicklow, South Dublin, Dublin SE	365K	6	Careworks East All installed 2002	4600K	CHIS (minimal) Schemes, PHN, aids, appliances	Time & Materials	The last upgrade costs 250K
Kildare/W Wicklow, Dublin W, Dublin S City, Dublin SW	670K	7			Local Payments		
Dublin North, NC, NW	580K	9					
Laois/Offaly, Longford/Westmeath	600K	8	IMS Max 2006	1300K		Supplier contract	Upgrades €100K
Louth, Meath			Careworks NE	1300K	CHIS	Time & Materials	
Cavan, Monaghan	390K	1			Local Payments		
Donegal, Sligo, Leitrim			Careworks NW	800K	CHIS Local Payments	Time & Materials	
All counties except CHO 1	All		Opensky 2011	465K		Supplier contract	Upgrades €120K



This is an overview of Immunisation and Child Health presently.

- **CHO schematic** shows the CHO regional splits, population wise 4 & 7 – Cork/Kerry & Dublin are the biggest populations.
- **ICT schematic** shows the ICT systems for immunisation highlighting that the deployments do not follow regional boundaries for CHO 1, 6,7,8, & 9 but are reconfigured. ICT systems are from 5 suppliers, with additional functionalities mostly in the Careworks system as areas seek to cover more of their business electronically.
- **CHIS schematic** shows the Careworks coverage, which also equates to the existing electronic child health records coverage.
- **GP payment schematic** shows the regional split for GP payments for immunisations work, again not regionally defined, with CHO8 being split in half.

The overall sense of this is that it is a complex environment to either develop or change. There is no national oversight, excepting the National Schools Immunisation System. All records are manually transcribed into each system. Thus, a total vaccine record for a patient is fragmented and may be on several systems. It is hoped that this situation will be rectified by the new National Immunisation Information System (NIIS).

4.8 Practice Management Software Systems - McLernons

McLernons is a leading provider of dispensing and business information technology tools to community pharmacies. After consideration of the patient dataset contained within McLernons MPS systems, the Patient Medication Record (PMR) at pharmacy level is a fundamental data set that can have a key role in the implementation of a National Electronic Patient Summary.

In the dispensing system, the Patient Medication Record data set is the last, verifiable information available on whether a prescription has been presented for dispensing and what medicines were dispensed. It contains the information written on the script—if a script scanner is used—as well as details of the drugs dispensed. Drugs dispensed may differ from those prescribed due to drug substitution—such as using a generic or shortages of dosage—or where the pharmacist queried the prescription with the GP. The pharmacy dataset therefore can differ from that in a GP system as it is based on exactly what the patient received. Complementary information is provided, including: BNF Categorisation, Drug Interactions, Cautionary Warnings, Patient Information Leaflets (PIL) and Drug Optimisation software. The system also interacts with the national IMVO repository which checks drugs for compliance against EU Falsified Medicines Directive.

McLernons also supplies a mobile application for patients, Medi-Marshal, facilitating prescriptions refills and also monitoring drug compliance reminders. This data set (access to medicines dispensed) can be shared by the patient with other healthcare professionals, such as during an appointment with a consultant, nurse or when accessing healthcare either out-of-hours or in an emergency setting such as a visit to A&E. The frequency of presentation of patient's repeat prescriptions also gives a good indication of that patient's compliance with their prescribed drug regimen.

4.9 Open NCP

Both ePrescriptions and Patient Summaries are expected to be implemented in 22 countries by 2021. The EU Open National Contact Point (Open NCP) initiative supports the development of the requisite national infrastructures, as part of the eHealth Digital Service Infrastructure (eHDSI). The initiative is categorised into two parts: Open NCP A, transmission to another Member State, and Open NCP B, reception form another Member State. Ireland has committed to Open NCP A—that is, to develop the infrastructure to transmit health data to another Member State—by March 2020. Late in 2019, Ireland successfully met this milestone.

Thus, the Irish National Contact Point for eHealth implementation will provide healthcare professionals with key information in emergency situations and save unnecessary diagnostic procedures. Providing quick access to patient health information and increasing the accessibility of patient's prescriptions while abroad is expected to reduce the incidence of medical errors.

The Open NCP framework relies on a core set of clinical codes, including SNOMED CT, which are shared between Member States (referred to as the Master Value Catalogue). This aligns with the adoption of SNOMED CT as the national clinical terminology, identified as an essential element for rolling out eHealth and for the introduction of electronic health records.

The Open NCP cross border architecture is supported by eight interoperability specifications:

Area	Interoperability Specification name
Overall interoperability and information flows	Patient ID management core
	Patient Summary core

	ePrescription and eDispensation core
Sharing and access to records	Sharing Documents
	Security and Privacy
Clinical content	Encounter, Discharge, and Patient Summaries Content
	ePrescription and eDispensation Content
	General Terminology Value Sets

Among other milestones, the Open NCP project has completed a rigorous semantic analysis on As Is data sources, highlighting gaps that need to be filled from a semantic perspective. The project has already created an OID Registry for identification, which will be used in the wider eHealth domain.

4.10 Acute Floor Information System

Approximately 1.42 million emergency care presentations occur in the Irish health system annually. Analysis in 2011 identified the need for new information technology infrastructure to manage these presentations effectively, particularly in respect of the six-hour target for patient experience time. The Acute Floor Model was identified as providing a means for Emergency Departments, Acute Medical Assessment Units, Acute Surgical Assessment Units, and Minor Injury Units to work together in a coordinated way to provide care for unscheduled care patients. The Acute Floor Model has several key features:

- Single point of access, the Acute Floor Hub, for effective communication with GPs and community partners, rapid access to specialists, or direction to appropriate acute services.
- Rapid streaming of presenting patients, who are directed immediately to the appropriate service by an experienced clinician, with triage occurring later as part of the service.
- Early and more effective access to senior clinical decision makers.
- Services operating as a network, both within and outside the Acute Floor.
- Capacity designed around patient need and patters of demand.

A crucial part of the Acute Floor Programme, the Acute Floor Information System provides the support information technology infrastructure for this Model. The Acute Floor Information System is expected to efficiently track patient flow and record detailed clinical information for all Acute Floor patients, enabling rapid triage, assessment, and clinical decision making as well as efficient referrals and discharges.

Primary users include:

- administration support staff
- nursing staff
- emergency medicine consultants
- acute medicine consultants
- surgical consultants
- paediatric consultants
- NCHDs
- health and social care professionals

Real time dashboards will show patient journeys along the unscheduled care pathway in hospitals. Business intelligence reports will also help to improve key performance indicators. Central to the Acute Floor Information System, the Core Clinical Record is an electronic record of the patient's care that includes diagnostics, assessments, procedures, and diagnoses. The Acute Floor Model is under development, but, at the time of writing, is expected to provide the ability:

- to generate discharge summaries electronically
- to order diagnostics
- to manage requests for HSCPs, phlebotomy, porters, and services

Coded using the SNOMED CT clinical coding terminology, Acute Floor Information System records are expected to the integrated into the National EHR Shared Record and to support the potential integration with other information technology systems, including the National Ambulance Service, master data, and ePrescribing. The initial sites are Cork University Hospital emergency care network and St. Luke's General Hospital, Kilkenny.

The Acute Floor Information System is seen as a crucial means for Emergency Departments, AMAUs, ASAUs, and Injury Units to work together in a coordinated way to provide care for unscheduled care patients. The National Electronic Patient Summary is intended for that use case and could play a central role in such a system.

4.11 Digital Academy

The Digital Academy Forum is a place where ideas and views on digital health issues, digital transformation and innovations across the Health Service can be shared and discussed by medical staff, academics, industry leaders, and patients and citizens.[26] The Digital Academy

identified two projects as potential information sources for a Patient Summary (summary care record):

- **Vital Signs Automation:** This project records National Early Warning Score results and timestamp(s) include:
    - pulse
    - blood pressure
    - respiratory rate
    - temperature
    - oxygen saturation.

  This content could be included in an electronic health record or electronic patient record, though this is not in scope for the pilot project. The pilot project is awaiting funding, with details to be finalised, but is expected to cover 100 beds in one of two hospitals. Based on the success of the pilot, a recommendation may be made to interface with an electronic summary care record system.

- **Elder Care Case Management (Carefolk):** This project provides the ability to manage and co-ordinate case and client care with a multi-disciplinary case team. The pilot project is progress in southern Ireland within a 'select HSE carer group'.

The recommendation for integration of each project with the Patient Summary system depends, in each case, on the success of the respective pilots. Following successful outcomes, HSE Enterprise Architecture will then be consulted to review standardisation of data fields. Both projects have also been informed by the Individual Health Identifier Programme Office that other projects have been prioritised for integration with the Individual Health Identifier.

4.12 National Ambulance Service

In 2013, the National Ambulance Service took the decision to develop a comprehensive information technology infrastructure for the National Emergency Operations Centre and for ambulances and crew. Implemented in phases, the infrastructure comprised a new command and control system, Computer Aided Dispatch, which allowed the caller's location to be displayed on an ordnance survey mapping system in the National Emergency Operations Centre. New digital radio and mobile data infrastructure was installed in each ambulance, including a Mobile Data Terminal (MDT) on the ambulance dashboard and an

electronic patient care record (ePCR) system in a fixed terminal at the back of the ambulance, with government-sanctioned WiFi hubs. Crew members were also issued with digital handsets and telemedicine was introduced.

4.12.1 Governance

Following implementation, governance of the Electronic Patient Care Report (ePCR) transitioned to the National Ambulance Service Medical Directorate and the National Ambulance Service Clinical Effectiveness Committee.

4.12.2 Clinical information

The PHECC dataset was adopted, with significant modifications to meet service and clinical need—for example, patient assessments used by National Ambulance Service Community Paramedics were added. There is some overlap between the clinical dataset for the ePCR and the clinical dataset for a National Electronic Patient Summary. The National Standard on Information Requirements for a National Electronic Patient Summary defines the clinical dataset as comprised of subject of care, health condition, medications prescribed, allergies, procedures, and vaccinations.[19] Of these categories, the ePCR clinical dataset also contains information related to subject of care, allergies, and medications prescribed. Other elements of the ePCR dataset may be common to the National Electronic Patient Summary.

The following table shows a high level overview of the clinical dataset for the ePCR:

Incident		
Incident	Incident General	Call type
		Dispatch Complaint
		Incident Locations
		Destination
	Call Times & Dates	
	Outcomes	
Patient Information	Name	
	Age	
	DOB	
	Gender	
	Next of Kin Details	
	GP Details	
History	Presenting Complaint	Cardiovascular
		Respiratory
		General
	Mechanism	

	Patient History	Allergies
		Current Medications
		Past Medical History
	Descriptor of Pain	
	Social and Family History	
ABCD Assessment		
Vitals	Vials Signs	
	Burns %	
	ECG / Monitor	
Assess / Plan	Assessment	Airway
		Falls Risk Assessment
		FAST Assessment
		Decision Making Capacity Assessment
	Anatomical	
	Treatments	Airway Management
		Drugs
		Bleeding/Burns/Minor Injury Care
		Ventilation
	Protocols	PHECC CPG's
		NAS Clinical Advisories
		NAS Clinical Directives
		NAS Clinical Governance
Care Plan	Working Diagnosis	Cardiac
		Medical
		Respiratory
		Trauma
	Vulnerable Patient	
Disposition	General	Patient Outcome
		Out of Hospital Cardiac Arrest
Review	Print Preview	Details Report
		ASHICE
		IMISTAMBO
	Required	
	Signatures / Waivers	Verifications of Death
		Control Drug Wastage
		Witness of Control Drug Wastage
		Receiving Staff Signature
		Patient Refusal of Care

Additionally, the system is capable of integration with SNOMED CT.

4.13 National Integrated Medical Imaging System

The National Integrated Medical Imaging System (NIMIS) project has implemented a Picture Archive and Communication System (PACS), a Radiology Information System (RIS) and a Voice Recognition (VR) system in 38 hospitals across Ireland. While images and radiology results are not included in the clinical dataset defined in the National Standard on

Information Requirements for a National Electronic Patient Summary, they may be integrated in the future.

Patient images and reports are stored and distributed electronically. The Change Healthcare RIS/PACS is integrated with many of the HSE clinical data systems, with data stored and retrieved from a centralised data repository. Local data is replicated to the central data repository for archiving and on-demand distribution. All hospitals have real-time access to images, even those acquired at other locations.

NIMIS also provides clinicians with a voice recognition reporting solution for instant clinical reporting, advanced 3D diagnostic tools for image manipulation and exploration, orthopaedic templating solutions for pre-operative planning and radiation dose tracking tools.

4.14 National Maternal and Newborn Clinical Management System

The goal of the Maternal and Newborn Clinical Management System project is the implementation of an electronic health record (EHR) for all women and babies in maternity services in Ireland. This record will allow all information to be shared with relevant providers of care as and when required. The key benefits include:

- Improved patient care as a result of better communication, supported decision making and effective planning of care.
- More effective and efficient recording of information reflecting best standards in documentation.
- Enhanced clinical audit and research locally as a result of better quality data.
- Informed business intelligence that will drive local and national management decisions.

The System has been implemented as follows:

Year		
2014	Project initiated	
2016-8	Core deployment	
	2016	Cork University Maternity Hospital
	2017	University Hospital Kerry
		Rotunda

	2018	National Maternity Hospital, Holles Street
		[Remaining maternity hospitals (19)]

The National Maternal and Newborn Clinical Management System will use a single instance of the Cerner Millennium suite of applications, shared with the National Medical Laboratory Information System. This Millennium system will also maintain a single, shared list of patients, each identified using their Individual Health Identifier. All patient information is registered on the hospital patient administration system (PAS), which, in turn, triggers registration on the shared Millennium system. When a patient's demographics information is updated on the PAS then, again, an update is triggered on the Millennium system. Information about each new baby is added directly to the Millennium system.

4.15 National Medical Laboratory Information System Project

Laboratory services are vital for the day-to-day operation of all healthcare services, both acute and community based. The provision of high quality laboratory services is a critical component of patient care, involving diagnostic, monitoring and screening services. In 2012, it was estimated that 80 million laboratory test requests were processed annually by the publicly funded laboratory services in Ireland. At that time, each Irish hospital laboratory operated its own independent laboratory information system (LIS), with a standalone database and little or no laboratory-to-laboratory connectivity.

The strategic goal of the National Medical Laboratory Information System Project was to ensure Irish healthcare providers have 24-hour access to complete and up-to-date accurate laboratory data across all sites through a national electronic laboratory record. The Project involved replacing IT systems in the 43 medical laboratories in the Health Service Executive and Voluntary hospitals, to address 'immediate and serious' clinical risks. The Project established a central single database, supporting the electronic patient-centered storage of complete laboratory diagnostic data. This allows clinicians and other healthcare providers to have user friendly access to the full laboratory information on each patient on a 24/7 basis, in line with clinical need and data protection requirements. The system also has full audit trail capability to support data breach detection.

The sites that were identified for earliest replacement were:

- Beaumont Hospital, Dublin
- Connolly Hospital, Blanchardstown
- Mater Misericordiae Hospital, Dublin
- Midland Regional Hospital (all three sites – Tullamore, Portlaoise & Mullingar)
- Naas General Hospital
- North Eastern Hospitals Group (all four sites – Drogheda, Cavan, Louth and Navan)
- St. Columcille's Hospital, Loughlinstown
- St. James's Hospital, Dublin.

The National Laboratory Information System was expected to have unidirectional or bidirectional interaction with:

- all operational Patient Administration Systems
- national systems, including:
    - Integrated Patient Management System (IPMS) – PAS
    - IPMS – Clinical Manager
    - Cancer Systems (incl. Screening & Audit)
    - Computerised Infectious Disease Reporting (CIDR)
    - National Cancer Registry of Ireland (NCRI)
    - Electronic Blood Tracking System (EBTS)
    - Kidney Disease Clinical Patient Management System (KDCPMS)
- local clinical information systems
- HealthLink, the National Messaging Service.

The degree of integration was expected to vary from no change or impact on the existing system to a significant degree of integration by the software vendor.
The system also has full audit trail capability to support data breach detection. The MedLIS systems is also expected to be integrated into external systems, such as order communications resulting and reporting, patient administration systems, HealthLink and other national clinical systems, including Acute Floor Information System.

4.16 National Data Dictionary

Developed by the Office of the Chief Information Officer, the National Health and Social Care Data Dictionary provides the basis for information integrity in all national health and social care data in Ireland. The Dictionary provides '*…consistency, governance and a standards-*

based common language which will bridge the gap between medical, IT and Business worlds, serving as a foundational building block of the EHR (Electronic Health Record)..'.

The Dictionary is a reference of the standardised, accepted terms and protocols used for information collection and collation in Ireland's health and social care sectors, where those services are provided by the HSE. It provides a list of key health service terms and concepts, including agreed definitions and protocols. Information regarding data elements is compiled, published and shared in the Dictionary. Where new projects are being introduced, the Office of the Chief Information Officer provides assistance in the creation of datasets and alignment with existing datasets, including a toolkit to support the standardisation of data. Additional terms, concepts and metrics are published in January and July each year, as agreed by the Dictionary Governance Board.

By standardising definitions and promoting consistency of use, the Dictionary enables conforming and comparable health information to be generated across the country, independent of the systems or organisation from which it originated. The Dictionary is expected to be a source of truth for all key health service terms and concepts.

The Dictionary currently provides a range of core datasets and catalogues that could be relevant for the implementation of a National Electronic Patient Summary:

- **NSE NHSCDD Singular Terms**—a set of singular terms, each with a number of properties that align with ISO 11179/3 Standard for Metadata.
- **HSE & Nationally Approved Datasets**—datasets supporting healthcare activities carried out within and on behalf of the HSE in Ireland that have been approved by the respective steering group, governance board, or organisation process in the HSE functional area, HIQA, or NTPF.
- **HSE NHSCDD Slainte Core Catalogues**—a set of evolving metadata registry catalogues, selected to advance the Sláintecare Implementation Plan, and developed in collaboration with key stakeholders.
- **Clinical Terminology**—links to the Irish National Release Centre for SNOMED CT, the clinical terminology for Ireland which is relevant for all datasets with a clinical component.

Other components of the Dictionary relate to management of organisational performance and data quality.

As noted above, the HSE NHSCDD Sláintecare Core Catalogues includes a specific Patient Summary catalogue, which is directly relevant any programmes, projects, or services related to the National Electronic Patient Summary. For each data element related the patient summary, the Dictionary can describe the field where the data originates, any rules or edits that apply to it and a description of any codes applied to the data element such as ICD or SNOMED CT where applicable, ensuring consistency across the Health Service and facilitating interoperability.

4.17 Clinical Terminologies and Classifications

Clinical terminologies and classifications serve different purposes but, together, form the basis of semantic interoperability in a national eHealth ecosystem.

4.17.1 SNOMED CT

SNOMED CT is a clinical terminology designed to be the global standards terminology for use in clinical information systems. Its principal objective is to contribute to the quality and safety of healthcare by enabling consistent recording, retrieval and reuse of clinical information. It was developed to improve the quality of clinical data in patient records in order to help improve the overall quality of care received by patients.[27] Following Recommendations from HIQA, the Irish Government has adopted SNOMED CT as a national terminology standard and has purchased a national licence for SNOMED CT.

The SNOMED CT National Release Centre of Ireland has been set up to meet Ireland's responsibilities to administer the national license for SNOMED CT, as outlined by the International Health Terminology Standards Development Organisation (IHTSDO), which trades as SNOMED International. These responsibilities include:

- manage the licensing and distribution of the SNOMED CT International Edition in Ireland
- manage the relationship with SNOMED International and other member countrie.
- support the development, implementation, and use and maintenance of SNOMED CT products and services within Irish health and social care.

The Governance Board of the National Release Centre for SNOMED CT:

- provides strategic advice and guidance to the organisation as a whole as well as on the scope of products and services,
- oversees business planning measuring performance against the agreed plan,
- approves policies,
- ensures that risks are identified and mitigated

The SNOMED CT Strategy 2020 – 2022 aims 'to help achieve adoption and deployment of SNOMED CT in clinical ICT solutions, ensuring standardisation of clinical data. This will improve the quality of data in patient records, facilitate interoperability, and benefit analytics, thus improving individual and population health'.

SNOMED CT is seen as a key means to standardise the way that clinical information is recorded at the point of care. Clinicians have used a limited amount of International Classification of Diseases (ICD-10) AM for reimbursement of activity-based funding and for statistical purposes of morbidity and mortality, but will need to be supported to adopt SNOMED CT coding. Sections 10.3.2 and 10.4.3 of the Sláintecare Implementation Strategy highlights the importance of SNOMED CT in supporting interoperability between systems, while ensuring electronic health records are compliant with international standards.

The SNOMED CT National Release Centre has developed an Irish Edition of SNOMED CT, developed based on input from national stakeholder organisations and in line with guidance from SNOMED International. The SNOMED CT Irish Edition is released biannually. The Irish National Release Centre has also produced a vendor specification for SNOMED CT, ratified and endorsed by the SNOMED CT Governance Board and by the SNOMED International Team. This specification has been approved by the Office of the Chief Information, together with the Department of Health and the Health Service Executive Enterprise Architecture organisation, for inclusion in all procurements.

4.17.2 International Classification of Diseases 10th Revision (ICD-10)

The World Health Organisation (WHO) International Classification of Disease (ICD) is the foundation for the identification of health trends and statistics globally.[28] It provides a comprehensive definition of diseases, disorders, injuries, symptoms, and the reason for the encounter, together with social factors and external causes. ICD-10 is the international

standard for mortality and morbidity statistics and for defining and reporting diseases and health conditions in all clinical and research purposes.

The Hospital In-Patient Enquiry records demographic, clinical and administrative data on discharges and deaths in acute public hospitals nationally for episodes of care using ICD-10. An episode of care begins when a patient is admitted to hospital, as a day case or inpatient and ends at discharge from (or death in) that hospital.

Initially established in 1969 by the Medical-Social Research Board, HIPE was managed by the Economic and Social Research Institute from 1990 to 2014. From 2014 The Healthcare Pricing Office within the HSE became responsible for HIPE.[29] In 2017, eight full-time staff were working on the national HIPE database within the Healthcare Pricing Office and 265 whole-time equivalent staff were working in HIPE units within the 56 participating hospitals. HIPE reports on over 1.7 million inpatient and day case records annually.

To generate HIPE data, clinical coders review the medical records of each patient, extracting the relevant clinical data, then entering that data into HIPE. The information is coded using the International Classification of Diseases 10th Revision Australian/Australian Classification of Health Interventions, Australian Coding Standards (ICD-10-AM/ACHI/ACS) 8th Edition and related Irish Coding Standards. ICD-10 provides a comprehensive means of structuring the data entered—for example, HIPE includes a principal diagnosis, up to 29 additional diagnoses and up to 20 procedures. Thus, as noted in a review by HIQA, HIPE is an extremely valuable national repository of health information, as it contains data for every individual that is admitted as an inpatient or day case patient in a publicly funded hospital in Ireland. It may also prove to be a rich source of information for the national, electric patient summary.

4.18 National ePrescribing Solution

The vision for the national ePrescribing Solution is to provide a safer and better way for clinicians to prescribe, and for community pharmacists to dispense, medicines to patients. It is expected to lead to a reduction in each of the following:

- transcription errors
- issues with legibility of scripts
- incorrect drug

- incorrect frequency
- incorrect dose / omission of dose
- incorrect route of administration
- errors associated with interchangeability of medicines
- medication errors arising from any of the above

The aims of the National ePrescribing Project are to:

- streamline the processes for prescribing and dispensing, leaving more time for patient care
- eliminate unnecessary paperwork and the logistical costs
- enable safer patient care by implementing an integrated solution for ePrescribing in Ireland
- reduce medication errors
- at a macro level, to provide greater visibility of items prescribed to public patients in Ireland
- at a micro level, to provide authorised health professionals with greater visibility of the medicines prescribed and dispensed to individual patients
- facilitate higher adoption of generic prescribing
- enable Ireland to meet EU obligations on ePrescribing by 2020.

The objectives of the National ePrescribing in Primary Care project are:

- to implement a single, national solution for all prescribing in Primary Care in Ireland
- to ensure such a solution follows HIQA standards and guidelines
- to make it as simple and safe as possible for prescribers to use the solution
- to make it as simple and safe as possible for dispensers to use the system
- to reduce medication errors associated with the paper based systems it replaces.
- to implement a standard based solution wherever possible
- to meet the requirements of the relevant EU Directives
- to deliver the solution in a timely fashion and as cost effectively as possible
- to minimise the operational impact on all users insofar as this is feasible.
- to reduce, if not eliminate paper based prescribing entirely.
- to ensure the solution complies with GDPR (EU General Data Protection Regulations).

Benefits are expected to be realised for patients, prescribers, and pharmacists. The benefits for patients include:

- Safer care because electronic transfer of prescriptions and ePrescribing reduce manual data entry. This reduces transcription errors, resulting in turn in reduced risk of a prescribed medicine not being correctly given to a patient. Prescribed medicine descriptions are more accurate and there is an improvement in the legibility of prescription details.
- Having prescriptions dispensed more quickly through more efficient processes.
- Permanent easily accessible records of what has been prescribed/dispensed to patient.

The prescriber benefits include:

- Potential for a reduction in queries from pharmacies regarding prescriptions.
- Elimination of dot-matrix printers and associated costs and support through the use of new plain paper prescription solutions.

Pharmacists are expected to benefit from:

- Improved quality of prescription information and therefore a potential reduction in time spent contacting prescribers to clarify prescriptions.
- The ability to download prescription details as opposed to manual entry will make the process more efficient with less room for error.
- The use of a common code sets to support exchange of information between Prescribers and Pharmacies and aid generic dispensing.

Additional benefits from electronic transfer of prescriptions through:

- Improved efficiency to health information flows and a reduction in duplicate prescribing.
- Efficiency gains enabling pharmacists to provide other patient orientated services.
- Reduction in costs associated with provision of multi-part paper for all prescriptions issued by GP Practices using accredited practice systems (~95% of GP Practices).
- Improved consistency with the adoption of electronic transfer of prescriptions standards (and therefore better consumer understanding and control of) the policies, processes and mechanisms that are put in place to ensure the privacy of electronic healthcare records.

This project is also a key enabler in allowing Ireland to meet its commitments to EU Directive 2011/24/EU.

At the time of writing, the recruitment process for a new Clinical Lead for ePharmacy was underway, with the required governance expected to be established swiftly to support the project.

Chapter 5 Public Engagement

This chapter briefly describes the main national organisations that engage the public—including patients, services users, their family members and carers—in the planning, design, and improvements of eHealth services. It also provides a brief description of relevant events that have already taken place.

5.1 Patient and public engagement channels

5.1.1 Health Service Executive Patient Forum

The Health Service Executive Quality Improvement Division set up the National Patient Forum, to create a platform for collaborative partnership and engagement with patients or service users, family members and carers at national level. The inaugural meeting of the forum took place in April 2015. The Forum is comprised of patients, their family members and carers, representatives of advocacy groups, disability organisations and Patients for Patient Safety Ireland. Representatives from the Health Service Executive Patient Forum have already participated in a number of programmes related to electronic health records, including:

- Acute EHR Project
- Community EHR Project
- mental health
- child health
- health and wellbeing
- primary care
- disability services
- older Person services
- Integration Capability and Shared Record Project

5.1.2 Irish Platform for Patient Organizations, Science and Industry

The Irish Platform for Patient Organizations, Science and Industry (IPPOSI) is a patient-led organisation that works with patients, government, industry, science and academia to put patients at the heart of health policy and innovation. To achieve this objective, the organisation holds meetings, workshops and training days in such areas as rare diseases, clinical trials, Health Technology Assessment, innovation, health information, connected

health – or any other relevant topic that will promote patient understanding, and patient involvement in the treatment and decision-making processes that affect them in Ireland and Europe. IPPOSI is a very active member organisation of the Health Service Executive Patient Forum, for example, nominating a number of the representatives participating in groups related to electronic health records.

IPPOSI has organised several events related to the area of electronic health records and sharing of patient data:

- **Person-centred eHealth (2016)**—In partnership with eHealth Ireland and the Health Service Executive, IPPOSI co-hosted a roundtable session on person-centred eHealth.
- **In Electronic Health Records We Trust (2016)**—IPPOSI organised this patient-led workshop which reflected on various aspects of electronic health records.
- **Personas for Electronic Health Records workshop (2017)**—IPPOSI members participated in this Health Service Executive workshop, contributing to the development of the personas that are used to inform the National Electronic Health Record strategic programme.
- **Annual IPPOSI conference on Patient Data (2019)**—this conference addressed progress towards an electronic health records and shared patient summaries for Ireland. IPPOSI also launched the 'Terminology Explained' paper at this conference.

5.1.3 National Patient Representative Panel

To promote and facilitate patient input into the planning, design and improvement of services, expressions of interest were sought in 2017 from a wide community of patients, carers, members of local patient councils to register for the National Patient Representative Panel. 61 patients, family members and carers from diverse backgrounds and different geographical areas registered. Representatives from the panel participate in focus groups, steering and working groups and provide an input into a wide range of programmes and projects

5.1.4 Patients for Patient Safety Ireland

Patients for Patient Safety Ireland is a World Health Organisation (WHO) initiative aimed at improving patient safety in healthcare. Networks of Patients for Patient Safety have been set up in a number of countries around the world. The purpose of setting up a network of

Patients for Patient Safety Ireland is to promote understanding and dialogue around patient safety and the role patients can play in developing new tools useful in patient safety. Patients for Patient Safety Ireland aim to foster and build collaboration and links between patients and staff on the range of patient safety efforts at regional and local levels, so that lessons can be shared and partnerships created.

5.2 HIQA development of recommendations on a consent model

HIQA is developing recommendations on a consent model for the collection, use and sharing of personal health information in Ireland. The recommendations development process will include a national public engagement survey that will be undertaken to provide knowledge and understanding in relation to public opinion on the use of health information, electronic health records and other eHealth initiatives. It is intended that this national survey will be completed during 2020 and published in early 2021. The survey findings will also inform recommendations to the Minister for Health that will be published in 2021.

Chapter 6 Conclusion

This Review has assessed the readiness of a number of eHealth programmes, projects, and services for the implementation of a National Electronic Patient Summary in Ireland. Following a brief review of readiness assessment methodologies, a simplified framework was developed, assessing readiness in terms of potential information sources, governance, and stakeholder engagement. Technical readiness and other areas of operational readiness or delivery were not assessed.

6.1 Information sources

First, the potential sources of information for a National Electronic Patient Summary were assessed. The clinical dataset for the summary is defined in the National Standard on Information Requirements for a National Electronic Patient Summary.[19] The National Electronic Patient Summary dataset comprises subject of care, health condition, medications prescribed, allergies, procedures, and vaccinations.[19] The National Standard was also designed to be cognisant of Ireland's obligations under the EU Open National Contact Point for eHealth programme, which aims to enable seamless cross-border care through the secure exchange of patient information—ePrescriptions and Patient Summaries—between participating Member States.[16]

The *Terms of Agreement between the Department of Health, the HSE and the IMO regarding GP Contractual Reform and Service Development* (2019) provides for the population of a National Electronic Patient Summary automatically from GP practice management systems.[30] The Agreement outlines the clinical dataset, compliant with the National Standard, that will be taken from GP practice management systems and outlines GPs' responsibilities in respect of provision of same.

The General Practice IT Group, affiliated to the Irish College of General Practitioners acknowledges the value for clinicians and patients in having a National Electronic Patient Summary for medical encounters outside GP clinics, seeing the main beneficiaries being other health professionals who have poor access to electronic patient data. GPIT notes that records are a potential rich source of clinical information, but that there may be both difficulties in extracting this information while ensuring it is accurate, relevant, and up-to-

date for the patients. The quality of data in GP practice management systems is unknown and, at the time of writing, no evaluations of data quality were available.

A Review of the Primary Care Eligibility and Reimbursement Service indicated that the Service to be potentially a rich source of information for eHealth services such as the National Electronic Patient Summary – for example, for each drug dispensed in Ireland and reimbursed by the PCRS, data are available for the date of dispensing, quantity of medication provided, strength, and dosage form. Feedback from the first pilot project, where the PCERS data was used for the purposes of inpatient medicines reconciliation, gave more insight about the data available in practice

In the pilot, staff trained in medicines reconciliation had access to the PCERS list of medicines reimbursed for the patient – and thus had substantial information regarding patients using the General Medical Scheme but none for private patients. The PCERS list of medicines did not include dosage and administration information. The staff were aware of, and comfortable using the records within these limitations – for example, checking with a second source. However, there were concerns that staff without similar training would find the lists more difficult to interpret. Instead, the community pharmacy records were considered to provide a potentially more complete record of a patient's medicines.

The Pharmaceutical Society of Ireland noted that pharmacists also have many legislative obligations to retain hard-copy records and registers about medicines, to provide traceability in medicines. The ability to manage these records electronically would optimise resource use, aligning with the eHealth Strategy aim to realise health service efficiencies.

Noting the example of the English Summary Care Record, the Society considers information about a patient's medicines, allergies, and adverse reactions to be essential for a pharmacist to be able to fully assess the appropriateness and safety of a patient's prescription.

The Irish Pharmacy Union has already work to support the use of the national clinical coding terminology, SNOMED CT, by mapping the some elements of the Irish Pharmacy Union Product File to SNOMED CT. The Union has also developed the ePrescription Specification, detailing the functionality require to manage an electronic prescription (ePrescription), with the necessary infrastructure and principles for technology solutions, as part of a national system in primary care.

The National Immunisation Office advises that vaccination information tends to be stored in local records and thus is fragmentary, but it was hoped that the National Immunisation Information System will provide a total vaccine record for each patient. In the interim, PCERS also tracks vaccinations administered.

In addition to systems that could populate the National Electronic Patient Summary, a number of services, programmes, and projects provide the necessary infrastructure for the implementation or may provide useful clinical information for the future roadmap.
A national health identifier is considered to be a crucial prerequisite for the implementation of eHealth services. The Individual Health Identifier has been enacted in law and is currently being seeded into a number of different systems. It is designed to safely identify each individual, linking their correct health records across different systems to show their medical history.

Developed by the Office of the Chief Information Officer, the National Health and Social Care Data Dictionary provides the basis for information integrity in all national health and social care data in Ireland. The Dictionary provides '*…consistency, governance and a standards-based common language which will bridge the gap between medical, IT and Business worlds, serving as a foundational building block of the EHR (Electronic Health Record)..'.*

Additionally, SNOMED CT was adopted as the National Standard for clinical terminology in Ireland in 2018 and has been added as a requirement to all HSE procurement contracts. This ensures that all systems and services procured by the HSE have the capability to support SNOMED CT, the national standard terminology for clinical coding, and thereby may improve the quality of data and supporting interoperability.

The National Medical Laboratory Information System Project aims to ensure Irish healthcare providers have 24-hour access to complete and up-to-date accurate laboratory data across all sites through a national electronic laboratory record. While laboratory results are not part of the National Standard clinical dataset, they may be considered part of the future roadmap.

The Acute Floor Model has been developed to optimise patient flow and care through Emergency Departments, a key use case for the National Electronic Patient Summary.

Providing the information technology to support this Model, the Acute Floor Information System is expected to efficiently track patient flow and record detailed clinical information for all Acute Floor patients, enabling rapid triage, assessment, and clinical decision making as well as efficient referrals and discharges. Thus a National Electronic Patient Summary could provide crucial clinical information during these episodes of unscheduled care.

Similarly, the National Ambulance Service is often the first point of contact with the health service for the patient. A National Electronic Patient Summary could provide responding healthcare professionals with information that is critical to the safe and effective treatment may also contain clinical information that could contribute to a more complete and accurate Patient Summary.

- MNCMS
- NIMIS
- Digital Academy Vital Signs

6.2 Stakeholder engagement

Sourcing information for a National Electronic Patient Summary would also require significant engagement with all the stakeholder organisations affected. There were no instances of stakeholder engagement around the specific topic of patient summaries. However, the Irish Platform for Patient Organisations, Science and Industry has organised several events related to the area of electronic health records and sharing of patient data, which has raised awareness about the potential benefits and considerations of eHealth services such as electronic health records. There is some overlap in the benefits and considerations of electronic health records and those of patient summaries, thus these events could be considered to have engaged patients, their carers and interested members of the general public.

6.3 Governance

None of the submissions covered the governance aspects of the implementation of a National Electronic Patient Summary. However, any such implementation must remain cognisant of the governance requirements of services, programmes, and projects involved.

For example, the Pharmaceutical Society of Ireland noted that an eHealth system should not undermine core values of the pharmacist-patient relationship, should improve the existing

paper system, and that security and access issues must not impede patient care. It also indicated that, for the effective functioning of the eHealth system, pharmacists must be partners in governance and in any decision making committees and that systems must be integrated. The Pharmaceutical Society of Ireland also noted that pharmacy systems have not been validated independently, though pharmacy legislation makes provision for certain pharmacy records to be maintained in electronic form in line with certain conditions—including that the records be validated and certified independently, by a person approved by the Minister for Health.

At the time of writing, the Pharmaceutical Society of Ireland had already requested that the Department of Health appoint a person or body, to carry out this independent validation and certification, which the Society considers a key enabler of eHealth. This validation would ensure that pharmacy practice management systems could be used as an accurate source of a patient's personal medical information for a Patient Summary or electronic health records.

The National Medical Laboratory Information System governance structure is an example of a well-balanced project governance model, established by the HSE and the service provider:

- The **MedLIS Executive Governance Team** provides executive oversight and direction.
- The **MedLIS Project Board** provides overall direction and management, overseeing project scope and successful delivery, resolving conflicts and authorising changes as needed.
- The **MedLIS Project Management Team** manages day-to-day implementation on behalf of the Board and is responsible for ensuring the successful completion of the project. It consists of the MedLIS Project Manager, Clinical Director, Business Quality/Change Manager and ICT Project Lead.
- The **National Project Team** is responsible for developing the standard configuration that will be deployed in each hospital. It consists of HSE personnel—mainly drawn from Laboratory Medicine, the ICT Directorate, and relevant End User groups—and personnel from the Service Provider.
- The **Local Steering Group** is the steering group in each hospital established to manage the timely deployment of the system in that environment.
- The **Local Implementation Team** is the local team at each site where the system is to be implemented.

Appendix A Hospitals using HIPE

The hospitals using HIPE coding are:

Hospital name	County	Hospital type	ABF involvement
Ireland East Hospital Group			
St. Columcille's Hospital	Dublin	Non-voluntary	Yes
Mater Misericordiae University Hospital	Dublin	Voluntary	Yes
St. Vincent's University Hospital	Dublin	Voluntary	Yes
Cappagh National Orthopaedic Hospital	Dublin	Voluntary	Yes
St. Michael's Hospital, Dun Laoghaire	Dublin	Voluntary	No
Royal Victoria Eye & Ear Hospital	Dublin	Voluntary	Yes
National Maternity, Holles St.	Dublin	Voluntary	Yes
St. Luke's General Hospital, Kilkenny	Kilkenny	Non-voluntary	Yes
Wexford General Hospital	Wexford	Non-voluntary	Yes
Midland Regional Hospital, Mullingar	Westmeath	Non-voluntary	Yes
Our Lady's Hospital, Navan	Meath	Non-voluntary	Yes
RCSI Hospital Group			
Connolly Hospital, Blanchardstown	Dublin	Non-voluntary	Yes
Beaumont Hospital	Dublin	Voluntary	Yes
Rotunda Hospital, Dublin	Dublin	Voluntary	Yes
St. Joseph's Hospital, Raheny	Dublin	Voluntary	No
Our Lady Of Lourdes, Drogheda	Louth	Non-voluntary	Yes
Cavan General Hospital	Cavan	Non-voluntary	Yes
Louth County Hospital	Louth	Non-voluntary	Yes
Monaghan Hospital	Monaghan	Non-voluntary	No
Dublin Midlands Hospital Group			
Naas General Hospital	Kildare	Non-voluntary	Yes
St. Luke's Hospital, Rathgar*	Dublin	Voluntary	No
St. James's Hospital	Dublin	Voluntary	Yes
Coombe Women's and Infant's University Hospital	Dublin	Voluntary	Yes
Tallaght Hospital**	Dublin	Voluntary	Yes
Midland Regional Hospital, Tullamore	Offaly	Non-voluntary	Yes
Midland Regional Hospital, Portlaoise	Laois	Non-voluntary	Yes
South/South-West Hospital Group			

University Hospital Waterford	Waterford	Non-voluntary	Yes
Kilcreene Orthopaedic Hospital	Kilkenny	Non-voluntary	No
South Tipperary General Hospital	Tipperary	Non-voluntary	Yes
Bantry General Hospital	Cork	Non-voluntary	No
Mercy University Hospital	Cork	Voluntary	Yes
South Infirmary Victoria University Hospital	Cork	Voluntary	Yes
Mallow General Hospital	Cork	Non-voluntary	Yes
Cork University Hospital	Cork	Non-voluntary	Yes
University Hospital Kerry	Kerry	Non-voluntary	Yes
University of Limerick Hospital Group			
University Maternity Hospital, Limerick	Limerick	Non-voluntary	No
University Hospital Limerick	Limerick	Non-voluntary	Yes
Croom Orthopaedic Hospital	Limerick	Non-voluntary	Yes
St. John's Hospital, Limerick	Limerick	Voluntary	Yes
UL Hospital, Ennis	Clare	Non-voluntary	No
UL Hospital, Nenagh	Tipperary	Non-voluntary	No
Saolta Hospital Group			
Roscommon University Hospital	Roscommon	Non-voluntary	No
Portiuncula Hospital	Galway	Non-voluntary	Yes
Galway University Hospital	Galway	Non-voluntary	Yes
Mayo University Hospital	Mayo	Non-voluntary	Yes
Letterkenny University Hospital	Donegal	Non-voluntary	Yes
Sligo University Hospital	Sligo	Non-voluntary	Yes
Children's Hospital Group			
Our Lady's Hospital, Crumlin	Dublin	Voluntary	Yes
Temple St. Children University Hospital	Dublin	Voluntary	Yes
Tallaght Hospital**	Dublin	Voluntary	Yes
No group			
Peamount Hospital	Dublin	Voluntary	No
National Rehabilitation Hospital, Dun Laoghaire	Dublin	Voluntary	No
Incorporated Orthopaedic Hospital, Clontarf	Dublin	Voluntary	No

St. Finbarr's Hospital	Cork	Non-voluntary	No

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Health Information and Standards Directorate
Health Information and Quality Authority
Unit 1301, City Gate,
Mahon,