Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

AS IS ANALYSIS

ICT Enablement of Older Persons Services

March 2022

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, Equality, Disability, Integration and Youth, HIQA has responsibility for the following:

- **Setting standards for health and social care 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 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. Therefore, it is essential 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 medicine, a nurse needs to be sure that they are administering the appropriate dose of the correct medicine 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 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) of the Health Act 2007, 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, it can generate alerts in the event that a patient is prescribed medication to which they are allergic. Further to this, it can support a much faster, more reliable and safer referral system between the patient's general practitioner (GP) 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 and 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 quality varies, 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.

An older person's patient journey typically has a high number of transitions across care settings, requiring very close coordination between the different health and social care domains. The information needed to provide care to older persons is typically held in a number of IT systems or in paper records, distributed across those settings in silos, creating challenges for those providing care. The COVID-19 pandemic intensified these challenges and led the COVID-19 Nursing Homes Expert Panel to call for the implementation of an integrated IT system for older persons (Recommendation 6.3).

The integrated IT system was intended to ensure the effective sharing of information across residential settings, home support services and day care, and to incorporate needs assessment and care planning. It was also intended to support the management, delivery, and reporting of services, and to enable planning of alternate service provision and capacity development.

Following the publication of the COVID-19 Nursing Homes Expert Panel Examination of Measures to 2021, undertook to develop a set of recommendations to the Minister for Health that take account of both the current national situation and the future goals of the Sláintecare Implementation Plan, and that are informed by international best practice.

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Executive summary

Current challenges

In common with many other countries, Ireland is facing the challenge of ageing population, with those aged 65 years or more expected to account for 50% of all healthcare activity by 2031. An older person's patient journey typically has a high number of transitions across care settings, requiring very close coordination between the different health and social care domains, but with the older person's information typically held in a number of IT systems or in paper records, in silos across those settings.

In the community, the focal points of an older person's care are the GP and public health nurse, who typically assess the older person's need for homecare services or for residential care in a nursing home. The older person often receives significant care from other healthcare professionals in community, in the areas of physiotherapy, occupational therapy, speech and language, social work, dietetics, podiatry and psychology.

Older persons services are provided by a combination of public and private providers. GPs are private contractors, while public health nurses work for the Health Service Executive (HSE). The HSE provides a proportion of homecare services, of residential care (nursing homes), and of the other services listed — including physiotherapy and occupational therapy, among others — while the remainder are provided by contractors in the private sector.

Levels of ICT enablement also vary considerably. While 95% of GP practices use an accredited management system, public health nurses and other public sector healthcare professionals typically use paper-based records (though privately contracted healthcare professionals sometimes having higher levels of ICT enablement).

ICT enablement also varies significantly across the nursing home sector, from almost entirely paper-based systems to highly sophisticated ICT enablement, where separate dedicated systems have been developed for the medical, nursing, and pharmaceutical domains. These systems typically do not interact with each other or with GP practice management systems.

Following discharge to the community, the discharge summary is the GP or public health nurse's sole source of information regarding treatment administered, medications prescribed or discontinued, or additional care requirements related to the older person's acute stay. The quality of this data varies and discharge summaries can be delayed so GPs, public health nurses, and other health and social

care professionals would benefit from more timely and effective sharing of this information.

Getting a full picture of the older person's care can also be a challenge. GP practice management systems allows GPs to generate an up-to-date list of the medications they have prescribed to an older person or of the person's current conditions. But for an older person in a nursing home, they must check paper-based records or electronic systems onsite in the home and manually create such lists or referral letters, greatly increasing the risk of error.

Additionally, many acute settings, private or public, are understood to be developing their own electronic health records, in the absence of national direction. This mix of paper-based records and electronic systems, the tactical development of separate systems, and the lack of interoperability has contributed to fragmentation of the older person's record.

COVID-19 Nursing Homes Expert Panel recommendation and its scope

The COVID-19 pandemic intensified these challenges and, in July 2021, led the COVID-19 Nursing Homes Expert Panel to call for the accelerated implementation of an integrated IT system for older persons. The system was intended:

- to ensure the effective sharing of information across residential settings, home support services, and day care, and to incorporate needs assessment and care planning
- to support the management, delivery, and reporting of services
- to enable planning of alternate service provision and capacity development.[(1)]

The scope of this recommendation should be fully understood. It seeks the safe and effective sharing of information along the older person's pathway: across every residential care settings (including public and private nursing homes), every day care setting, as well as with home support services (again, including the many public and private providers), GP practice management systems, discharge planning in acute settings and others. Additionally, it would support the safe and effective sharing of information during the key transitions of care between acute settings and community care.

It would be used (potentially) by every type of healthcare professional working with the older person, as well as the carers interacting with the older person. It would provide those roles with appropriate access to the older person's information and also with the tools they need for the management, delivery, and reporting of all

services. And it would include the capability to plan alternative service provision and would provide business intelligence to support capacity planning.

Thus, the capabilities requested in the COVID-19 Nursing Home Expert Panel recommendations are extensive and are unlikely to be provided by a single integrated IT system. And the challenges to providing those capabilities — for information sharing, service management, and capacity planning across all settings — reflect the deficiencies in Ireland's national health information system, which HIQA has previously highlighted.

What should be done

In 2021, HIQA published a paper on *The Need to Reform Ireland's Health Information System* which provides a comprehensive analysis of these deficiencies and makes recommendations in six areas for a well-functioning national health system: Strategy; Strategic leadership and governance; Legislation; Workforce; Health information standards and interoperability; and Health information infrastructure and security.[(2)]

In particular, the paper explicitly called for a clear vision of the ICT enablement of older persons services noting that, for that vision to be realised, measures were needed in at least three areas:

- **Strategy** – A clear national health information strategy is needed, including a sound legal framework, a viable workforce and appropriate funding mechanisms, Ministerial approved standards, and a robust and secure health IT infrastructure. This national strategy would inform the national strategy for ICT enablement of older persons services.
- **Strategic leadership and governance** – A strategic entity (eHealth Ireland) should be established, outside of the HSE, with the legislative remit to provide strategic leadership and governance on eHealth and on the collection, use and sharing of health information in Ireland. In parallel, an operational function, developing and supporting the systems required for the delivery of care, should continue to exist in the HSE. Clear policy on health information is also needed, together with a clear roadmap on how the different agencies within the health and broader governmental organisations are coordinated to deal with health information.
- **Legislation** – A legislative framework, setting out clearly how information should be collected, used and shared for people interacting with the health and social care system and covering national eHealth priorities, including summary and shared care electronic health records.

The paper identified requirements for a framework of national health information standards based on clear policy direction, for resolution of current fragmentation of governance structures, and for a secure health IT infrastructure, supported by ongoing investment.

Public and patient engagement was also held to be critical to the successful implementation of a high-quality health service, as was education of the broader user workforce, to support health professionals to use digital health solutions in an effective, responsible and ethical way.

Therefore, rather than focusing on a single integrated IT system, these recommendations consider the ICT enablement of older persons services and their wider context.

What has been done

As noted earlier, international best practice and Irish experience shows that ICT enablement should form part of a broader project, which focuses on the service change it enables.

Integrated care through Sláintecare

Over the past decade or more, and in common with other countries, Ireland has sought to transform health service delivery to a population based, integrated care model. As the Sláintecare Implementation Plan outlines, this model seeks to provide care to older persons (and other populations) at the lowest level of complexity and as close to their homes and communities as possible.

Accordingly, national strategy has focused on the structural, service, financial and other reforms needed, which are ongoing at the time of writing. These reforms include setting up the community healthcare organisations (CHOs), community healthcare networks (CHNs), and the planned transition to regional health areas (RHAs) from CHOs. Service reforms include the development of new national models of care through national clinical programmes and integrated care programmes, as well as significant increases in resourcing in primary and community care. The Sláintecare Office was established to oversee and progress these reforms, aligned to the Sláintecare vision.

eHealth is a crucial enabler of the integrated care model and the Sláintecare vision, and has been developed in parallel to the structural, service, and other reforms. The National eHealth Strategy (2013) outlined the eHealth strategy, comprising a core of national eHealth solutions such as the national shared care record for all populations (including older persons), and the establishment of an independent strategic entity (eHealth Ireland) to provide national guidance and oversight. The HSE set up national strategic programmes for these eHealth objectives, including for national

health identifiers, the national electronic health record and the national shared care record. All these national strategic programmes were set up with the HSE organisation and made subject to internal governance structures.

Other elements of national infrastructure include the national messaging broker, which provides standards-based exchange of health information for some interactions between acute and GPs or community settings, such as for laboratory test booking and reporting of results. These messages use the older, HL7 version 2, document-based standards. As noted earlier, levels of ICT enablement vary considerably across community settings, and between organisations and locations for acute settings.

Transformation of older persons services

Specific to older persons services, the National Clinical Programme for Older Persons (NCPOP) developed the new model of integrated care for older persons, with care pathways across acute settings and across community settings, and including the InterRAI assessment for care needs assessment as the national standard. The Integrated Care Programme for Older Persons (ICPOP) developed a 10-step framework for the implementation of integrated care pathways informed by the NCPOP model. Thus, ICPOP service model seeks to provide a model of service transformation, specifically for older persons services and including the necessary ICT enablement. It is aligned to the wider transformation of healthcare under Sláintecare.

Pilot ICPOP projects were set up in each community healthcare organisation (CHO). Prerequisites for the ICPOP model were identified as standardised planning and funding processes, well-defined care pathways with shared care plans, coordination of care and referral services, and enhanced system capacity – characteristics of the new population based, integrated care model.

Early findings from the pilot implementations identified case management software as the highest priority ICT enabler. A shared record, an integrated Community IT system, the InterRAI Assessment information system, and care planning capabilities were also considered vital as was dedicated ICT support for all local and regional initiatives.

Findings from one review of three ICPOP pilots showed some of the barriers to implementation. In practice, care pathways were found to be extremely complex and, even then, did not suit every patient. Multidisciplinary teams (characteristic of an integrated care model) helped to drive the adoption of the new model of care – but mainly at local level. ICPOP was also hampered by unclear regional

administrative boundaries, fragmented funding structures (for example, between community and acute hospitals) and quick turnover of senior level decision makers.

Limitations of the ICPOP pilots included low levels of participation by GPs and public health nurses – the focus of an older person's care in the community — reflecting the lack of integration between public and private areas of the sector. ICPOP only applies to a small proportion of older persons services.

Slow progress implementing the national eHealth strategy was identified as a significant national level barrier to the implementation of ICPOP in practice.

Thus, the ICPOP model has dependencies on the progression of the structural, service, and other reforms under Sláintecare, especially the redesign of service delivery for older persons. It also has dependencies on the progression of Community ICT solutions and national eHealth solutions, aligned to Sláintecare. It also covers a limited proportion of older persons services and of the private sector.

COVID-19 impact

The COVID-19 pandemic intensified the challenges in older persons care and many resources were redeployed. The HSE moved quickly to develop a range of innovative short-term solutions, such as using the eReferrals system to provide COVID-19 test booking and results functionality (exceeding 3.1 million tests in 2021).

With the ongoing impact of COVID-19, the Sláintecare Action Plan (2021-2023) prioritised the delivery of summary and shared care records. The HSE service plans for 2021 and 2022 also provided significant extra funding and resources to enhance service capacity, especially in community settings through the Enhanced Community Care (ECC) Programme, through which ICPOP received funding. This also includes ECC leads and ICT leads at community health organisation level.

It is understood that the HSE also suspended many of the governance structures for national strategic eHealth initiatives — such as the national shared care record — at the beginning of the pandemic. A single governance body, the Integrated Community eHealth and ICT Oversight Committee was set up late in 2021, to manage the successful delivery of community ICT infrastructure and solutions, and to oversee the significant investment in eHealth and ICT.

All community ICT solutions must now be presented to this committee, to ensure technical interoperability between these systems (as well as, in principle, with

national shared care record and other national eHealth priorities). However, it is not clear what strategy is informing this prioritisation.

The HSE has prioritised the procurement of four HSE community ICT solutions, relevant to older persons and other populations in community settings, and to the capabilities required by the COVID-19 Nursing Home Expert Panel:

- The Residential Care Management System will manage beds in public residential care settings.
- The Home Care Management system is part of a new overarching approach across rehabilitation, re-enablement, intermediate care and other models of care.
- The Integrated Community Case Management System will provide case management capabilities to support integrated care.
- The InterRAI Assessment system (replacing the Single Assessment Tool) is a comprehensive assessment for homecare in the community and for discharge from acute hospitals.

These community ICT solutions have been approved by the Integrated Community eHealth and ICT Oversight Committee.

The HSE Change and Innovation function also hosts three related working groups: the Home Support working group, the Residential Care working group, and the InterRAI working group. Each working group is a separate workstream, with a separate pilot, and the Long Term Change, Development, and Innovation section of the HSE Change and Innovation's Organisational Development and Change function provides input.

Taking the InterRAI working group as an example, the InterRAI Assessment project is a five-year undertaking and national representatives of GPs, geriatricians, and public health nurses were engaged. The roadmap will be finalised in 2022 and will include engagement of the broader end-user groups of GPs, of public health nurses, and other core end-users.

The Enhanced Community Care Programme funded the appointment, in 2021, of 128 InterRAI assessors and InterRAI became the national standard from 2022. The HSE was requested to begin implementation of the InterRAI pilot in November 2021.

The InterRAI Assessment project alone represents a complete change for GPs and public health nurses, from their (respective) well-established and intuitive tools to a new model of assessment of an older persons for homecare needs, as well as from a paper based to a technology-enabled assessment. At the time of writing, GPs as a

group were keen to have sight of the InterRAI Assessment system and to understand what these changes will mean, as were public health nurses.

Thus, the HSE is progressing the strategic approach developed by ICPOP and also progressing individual ICT Community projects in support of community service enhancement, which includes older persons. The HSE Service Plan (2021), through the ECC Programme, is increasing funding and resourcing for primary and community care significantly — including for ICPOP as a service model for older persons services and for chronic disease management, and for the Community ICT projects, such as InterRAI Assessment. CHO ICT leads have also been appointed.

The findings from this As Is Analysis will be considered, in conjunction with the findings from the Best Practice Review, and will inform the development of recommendations to the Minister for Health on the ICT enablement of older persons services.

Chapter 1 Introduction

1.1 Background

Since 2012, national health strategy has focused on integrated care services: that is, moving from a hospital-based model to a patient centric, community-based model, where care is delivered at the lowest level of complexity. Integrated care services are seen as an effective way to address the increasingly complex care needs of Ireland's ageing population.

Currently, older persons services are delivered by healthcare professionals in many different settings, with information held in a number of IT systems or in paper records across those settings. ICT is a key enabler of integrated care services and the Sláintecare vision is that, throughout the older person's patient journey, the national shared care record will provide a unified view of that patient's information. This will ensure that each health or social care professional has the information they need to treat the older person safely and effectively and a number of supporting initiatives have been undertaken as a result.

However, since March 2020, the COVID-19 pandemic has had an unprecedented and continuing impact on national health and social care, particularly on older persons services. Recognising the critical importance of having up-to-date information available to healthcare professionals, the specially-convened COVID-19 Nursing Homes Expert Panel recommended the introduction of an integrated IT system for older persons services as an early priority.[3]

Under the Health Act 2007, HIQA has a statutory remit to develop standards, evaluate information and make recommendations about deficiencies in health information. The responsibilities of HIQA in this regard are outlined in the following sections of the Act:

- Section 8(1)(i): to evaluate available information respecting the service and the health and welfare of the population
- Section 8(1)(j): to provide advice and make recommendations to the Minister for Health and the HSE about deficiencies identified by HIQA in respect of the information referred to in paragraph (i).

Therefore, HIQA's Health Information and Standards Directorate has undertaken the development of recommendations to the Minister for Health on ICT enablement of older persons services. While the COVID-19 Nursing Home Expert Panel

recommended the introduction of a single integrated IT system, this recommendation project will take a broader view.

The project will examine current delivery structures for older persons services across health and care settings with a view to understanding how information flows and any gaps or pain points. It will also look at current levels of IT enablement and maturity in each area. Separately, the project will select comparable implementations in a number of countries, to understand ICT enablement of older persons services in those countries and to identify relevant learnings and best practices.

Informed by this national and international evidence, the final recommendations will outline ICT enablement and other measures that can improve the flow of information throughout the older person's patient journey, aligned with the broader, longer-term Sláintecare vision.

Note that, owing to the breadth of this area, this As Is Analysis focuses on the formal health and social care provided to the older person. It does not cover remote monitoring, telehealth and other areas in depth, instead concentrating on the exchange of the clinical and social care information needed to treat the patient safely.

1.2 Methodology

HIQA's recommendations to the Minister for Health are developed in compliance with the HIQA Quality Assurance Framework. To develop this As Is Analysis, the following methodology was used:

Project planning

Project planning documents have been drafted and were approved by the Director of Health Information and Standards. They outline the business justification, scope, and other aspects of the project.

Review of evidence

The evidence base comprises national evidence in this As Is Analysis, and international evidence, compiled in a Best Practice Review. Evidence was compiled through a systematic review of materials and research produced by authoritative

organisations, video conference interviews with subject matter experts (national and international) and review of published academic articles.

Convening of Advisory Group

The role of the Advisory Group participating in the development of these recommendations is to:

- agree Terms of Reference
- advise on the identification of key stakeholders — for example, user communities, professional bodies and domain experts who should be consulted
- advise on the Draft Recommendations for consultation and on the revised recommendations after the public consultation, focus groups, and interviews
- advise on any further steps, including implementation of the recommendations.

Older persons services are delivered by a broad range of healthcare professionals, while their ICT enablement also encompasses ICT infrastructure and solutions for acute, community, and primary care settings. Thus, membership of the Advisory Group includes representatives of key stakeholders such as clinical experts, policy makers, and methodological experts across the very broad domain of health and social care services for older persons, as well as from ICT enablement and operations of the same. A full list of the organisations that have been invited to nominate members to the Advisory Group is documented at end of this document. The Advisory Group is chaired by HIQA's Director of Health Information and Standards, Rachel Flynn.

Engagement in the development of recommendations

Engagement with stakeholders is a crucial element of the development of these recommendations. The purpose of this engagement is to obtain opinions on the key issues that the recommendations should address, gather examples of good practice and identify what is needed to support the implementation of the recommendations. The outputs from this engagement will be summarised and used to inform the development of the draft recommendations.

Public consultation and focus groups

A public consultation will be undertaken. The public consultation will be held over a minimum period of six weeks, during which time interested parties will have an

opportunity to make submissions on the draft recommendations. Board members will also be asked to participate in this process.

Given the range of stakeholders, it was not possible to invite all stakeholder organisations to nominate representatives to the Advisory Group. However, a number of these organisations will be invited to nominate participants for focus groups that will be undertaken as part of the wider engagement process.

Other organisations will be invited to make submissions to the public consultation.

Submissions received during the public consultation and feedback from focus groups will be analysed, then the draft recommendations will be amended appropriately.

Drafting of Statement of Outcomes

An overview of feedback gathered during one-to-one stakeholder engagement and focus groups, and a summary of submissions made during the public consultation will be presented in a Statement Of Outcomes report, which will be published on the HIQA website together with the final set of recommendations.

Approval of recommendations

Following approval by the Director of Health Information and Standards, the draft recommendations will be presented to the HIQA Executive Management Team for approval. The recommendations, together with a Statement of Assurance will then be submitted to the HIQA Board for approval. The Statement of Outcomes, setting out how stakeholder engagement has informed the development of the recommendations will also be submitted to the HIQA Executive Management Team and the Board for their information. Subject to Board approval, the recommendations will be submitted to the Minister for Health for approval.

Next steps

Project planning documents have been drafted and were subsequently approved by the Director of Health Information and Standards. The national evidence has been gathered and analysed in this As Is Analysis, while the international evidence is presented in the Best Practice Review. The draft recommendations have been drafted. The Advisory Group has been convened. The next steps are to publish the As Is Analysis, Best Practice Review, and Draft Recommendations as part of a full, six week public consultation.

Chapter 2 Policy and legislative framework

This chapter describes the development of the policy and legislative framework for older persons services in the context of national health strategy and national service delivery.

2.1 Future Health 2012-2015

Since the publication of the *Future Health* (2012) the Irish healthcare system has undergone a large-scale transformation that continues to this day.(4) This transformation seeks to place the patient at the centre of care, by moving from an episodic, hospital-based model to a model where care is delivered at the lowest level of complexity and as close to the patient's community and home as possible.

At its heart is a commitment to integrated care services — that is, population-based health and social care services that are organised around the patient's needs and wishes. Integrated care services have been shown to make a real difference to the quality of care that a patient receives and to achieve the '...greatest possible impact in terms of health outcomes for a given level of resources'.(4) Thus, integrated care is seen as the most effective means of addressing the changing and increasingly complex needs of Ireland's population.

Such a large-scale transformation encompasses structural, service, and financial reforms, implemented over a number of years, as well as an increased emphasis on health and wellbeing.* *Future Health* outlined the service reforms needed, including measures across primary care, acute care, social and continuing care area, with primary care expected to provide 90-95% of a patient's care. Integration at the clinical and service level is essential for integrated care services to succeed, and key enablers were noted, including a case management approach and the requisite ICT infrastructure for effective and secure information sharing.

At the time *Future Health* was published, service reform was already underway. The HSE National Clinical Programme for Older Persons (NCPOP) was established in 2010, tasked with providing standards models of care and processes needed.(5) NCPOP published the national model of care part 1 — a complete geriatric assessment for older persons (2012).(6)

The model recommended a focus on health promotion, the integration of acute and community services, management of frailty, the establishment of specialist geriatric teams (SGTs) on hospitals, and the use of the InterRAI assessment as a comprehensive geriatric assessment. Following a pilot project, the single assessment

* This analysis focuses on structural and service reforms needed to support the formal healthcare system, and does not cover financial reforms or health living initiatives in detail.

tool (SAT) information system, which provided the InterRAI assessment, was introduced in the nine community health organisations on a phased basis, with educators appointed to train staff to use the assessment and standardised training being rolled out.(7)

The Integrated Care Programme for Older Persons (ICPOP) was established in 2012 to develop and implement integrated services and pathways for older people with complex health and social care needs.(8) Working collaboratively with the NCPOP, the Integrated Care Programme for Older Persons (ICPOP) subsequently developed a 10-step Framework for Older People, with case management and multidisciplinary teamwork among the key elements.(9)

Future Health also outlined structural reforms that were needed, which were undertaken subsequently. The *Report and Recommendations of the Integrated Service Area Review Group* (2014) defined community healthcare services as consisting of primary care, social care, mental health, and health and wellbeing care, and provided for the establishment of necessary organisations' structures:

- Nine community healthcare organisations (CHOs) were founded, each responsible for the delivery of all primary, community, social and continuing care services within the catchment area and for ensuring the appropriate integration with secondary care.
- Ninety-six community health networks (CHN), were established to maximise the provision of primary care services and to ensure access to specialised services, such as social care and mental health, across their average population of 50,000.(10)
- Primary care teams (PCTs) were also established to involve general practice (GPs) in the planning and delivery of services in a structured way. Each PCT serves 7,000 to 10,000 persons, while each CHN has from four to six PCTs.(10)

2.2 Sláintecare

The *Sláintecare Report* (2017) was a landmark in Irish health strategy, outlining a cross-party 10-year vision for Irish health that continued and expanded the reforms outlined in *Future Health*.(11) The report also restated the commitment to:

- The majority of people's health needs being met locally, in primary and community care
- The significant expansion of diagnostic services outside acute settings, giving GPs and other clinicians timely access to diagnostic tests, provided in primary care centres.

It noted that the three overarching structures of public health service delivery are:

- the National Ambulance Service
- the community health organisations, comprised of 96 community health networks
- the hospital groups.

It identified the need for a realignment of regional, CHO, and hospital groups and designated the community health network as the basic unit of services delivery to minimise the impact of this realignment. GPs were recognised as 'central enablers' to the delivery integrated care, playing a core leadership role in multidisciplinary primary care teams. ICT infrastructure was also called out as crucial. It also noted positive outcomes in early findings from the National Clinical Programmes for Older Persons.

The following year, the *Sláintecare Implementation Plan* (2018) provided the details for the realisation of the Sláintecare Vision.[12] It reported on the ongoing geographic alignment of hospital groups and community healthcare organisations. It described this move as a first step toward the evolution of the HSE into a smaller national centre, with responsibility for national planning, strategy and standard setting, and to be complemented by autonomous regional integrated care organisations. The community health network, serving an average population of 50,000, was again confirmed the optimal structure for planning health and social care, including older persons services and and other services delivered in the community.

The plan committed to:

- developing an enabling environment for joined-up community working including ICT, data, clinical governance, patient safety and quality operating frameworks and system
- expanding community services, especially community intervention teams (CITs), community diagnostics, community nursing and palliative care
- accelerating implementation of integrated care programmes for chronic conditions and for older people.

Integrating care for older persons was highlighted as a priority. Each older person was to be assigned a case manager, whom they know and trust, and who helps them navigate the system. Together with the care team, the case manager will help the older person optimise their care — for example, avoiding multiple visits to the emergency department where alternative paths are available in the community, such as through community diagnostics or community intervention teams. The plan

outlined necessary supporting measures, including the ongoing expansion in primary care, such as through the opening of new primary care centres (to a national total of 120), and development of statutory homecare scheme.

The *Sláintecare Implementation Plan* also outlined the need for 'a modern eHealth infrastructure' to underpin and support the overall vision for integrated care, with the priorities including national electronic health records for acute and for community respectively, as well as a range of primary care and community-based ICT services, including ePrescribing, summary care records, and telehealth solutions. The digital maternity system and new electronic record in the new National Children's Hospital were also seen as crucial.

The year after the *Sláintecare Implementation Plan* was published, the six new regional health areas (RHAs) were announced, as the culmination of the geographic realignment of the hospital groups and community health organisations, and the longer-term project of design of the structures for these new health care areas began.(13) The RHAs were to be given charge of their own budgets, planning and delivery of both hospital and community care, with the community health networks providing a framework for local integrated care within the regional reorganisation of services.(10)

2.3 Health Service Capacity Review

In 2018, the Department of Health published the Health Service Capacity Review.(14) Modelling the scenario of care for older persons, the review noted that 19% of the population were expected to be aged 65 years or more by 2031, and were expected to account for one half (50%) of all healthcare activity. To meet these needs, a model of care centred around comprehensive community-based services was identified as providing highest benefit for patients whose care is chronic and complex.(15) The model required the development of comprehensive primary and community care services in each CHO that consisted of:

- the provision of homecare, short-term residential care, and hospital-at-home type services such as community intervention teams (CITs) and outpatient parenteral antimicrobial therapy (OPAT)
- the increased public health nurse activity
- the increased use of comprehensive geriatric assessments
- the development of community-based diagnostic facilities.

These measures are expected to reduce emergency admissions and lengths of stay in hospital, as well as leading to people needing long-term residential care at later ages and for shorter periods. The review noted that the National Clinical Programme

for Older People supported, and had already validated the benefits from, the introduction of a Comprehensive Geriatric Assessment.

Enablers for this scenario included the redesign and implementation of integrated care for older persons, based on a case management approach, and the reduction of hospital admissions through the provision of primary care services including nursing, physiotherapy, occupational therapy, speech and languge, social work, dietetics, and pychology. Getting patients home promptly would require timely step down care and homecare support, and strong links between acute and community settings. The move to primary care settings, coupled with a multidisciplinary approach, would give GPs access to minor procedure rooms, diagnostic services, and a range of therapies in their local primary care centre. Care planning and risk stratification were deemed essential enablers, requiring national, integrated eHealth infrastructure and solutions — which would also enable the appropriate sharing of electronic patient records, a long-term strategic goal.

2.4 COVID-19 Nursing Homes Expert Panel

On Wednesday 11 March 2020, the World Health Organization declared the COVID-19 outbreak to be a pandemic, and on Thursday 12 March 2020, An Taoiseach Leo Varadkar announced emergency measures aimed at slowing the spread of the virus — including the closure of schools, colleges, and childcare facilities, as well as cultural facilities and many workplaces.[16] On Friday 27 March, emergency legislation was passed and the country was put into 'lockdown'.[17]

Over the subsequent weeks and months, the impact of COVID-19 on the health service in general, and on nursing homes in particular, cannot be overstated. Given the unprecendented impact on nursing homes, the COVID-19 Nursing Homes Expert Panel was convened and, in July 2020, reported to the Minister for Health on measures to minimise the impact on nursing homes for the following 12 to 18 months.[3] The report called for measures to empower older persons to remain at home and for:

- an overarching governance structure in the long-term residential care (LTRC) sector
- the introduction of the Single Assessment Tool
- the introduction of regional health areas (RHAs).

GPs were identified as playing a key role in older persons care. A cooperative GP model — operating a mixed approach of site visits, telepractice and regular phone contact — was proposed. Priorities for improvement were:

- the appointment of a GP lead for older persons care
- connectivity between sectors
- continuing education in older person care
- wider application of better eHealth systems, with particular reference to the universal use of electronic patient records.

The report also called for comprehensive and multidisciplinary support, which was deployed in response to the COVID-19 crisis, to be formalised and maintained. In particular, it was recommended that one community support team (CST) be assigned to each CHO, with a CST including representation from:

- general practice: a GP lead with an interest and sessional commitment to care in residential care facilities
- geriatric medicine: a geriatrician with an interest in and dedicated sessional commitment to community geriatric medicine
- public health specialist
- palliative care, in collaboration with their community palliative care teams
- senior infection control nurse
- occupational health and other health and social care professionals
- advanced nurse practitioner
- nursing home-based director of nursing: direct liaison with counterparts in public, private and voluntary nursing homes
- senior management from both the community and the regional hospital groups.

The COVID-19 pandemic continued to have an impact on the Irish health system — and on national health systems worldwide — for the remainder of 2020 and, early in 2021, national health strategy was revised.

2.5 Sláintecare Implementation Strategy & Action Plan 2021-2023

The Sláintecare Implementation Strategic Action Plan 2021-2023 defined the strategic priorities and objectives for the next phase, informed by learnings from COVID-19.[18] Continuing the structural reforms, the Plan outlines the intention to develop the business case for the new governance and associated health system

structures in six new regional health areas (RHAs) and to bring forward detailed proposals about them.

The pace of implementation of integrated care was increased, with the establishment of community health networks (CHNs), of older persons and chronic disease management (CDM) hubs, and of a GP structured CDM programme. The Enhanced Community Care workstream included measures that affect older persons services, including implementation and rollout of:

- fifty-seven community health networks (with remaining 39 scheduled for 2022)
- eighteen community specialist hubs, which include Integrated Care Programme for Older Persons (ICPOP), community intervention teams (CIT), commuity diagnostics, such as direct GP referral to community radiology
- virtual wards in community settings
- National Ambulance Service 'See and Treat' measures
- new primary care centres
- increased home supports
- InterRAI care needs assesment
- falls preventions teams.

Development of the statutory home support scheme was also prioritised.

The critical supporting eHealth and technology initiatives to be implemented are:

- national COVID-19 vaccination IT system
- National Waiting List Management System
- decision support pathways
- ePharmacy and ePrescribing
- residential care and home support management systems
- video conferencing and or remote consultation
- Electronic Discharge System
- Health Performance and Visualisation Platform
- Integrated Information Services Supporting Recovery
- summary and shared care record
- Community Patient Management System.

Though not listed, the InterRAI assessment tool and citizen portal are also high priorities. Additiontally, the implementation of the regional health areas were also considered a high priority.

The report noted some of the strengths arising from the COVID-19 response, including new ways of e-working and telemedicine, and of integrated working. It also noted weaknesses in the lack of modern acute and community care

infrastructure, of real-time information, and of agreed care pathways between GPs, community and voluntary sector, and hospital care. It outlined the ongoing risks of sustaining the new ways of eHealth working, ownership of integrated care eHealth solutions, and technology literacy and availability. To mitigate these risks, joint community-hospital-primary care teams are to be established for integrated care eHealth solutions, as well as proactive engagement around the other risks.

2.6 Sharing the Vision – mental health services for older persons

Published in 2020, *Sharing the Vision* provided a 'whole system mental health policy for the whole population', the first such policy since *A Vision for Change*, was published in 2006. A comprehensive treatment of developments of mental health policy in the interim, particularly in relation to older persons, is outside the scope of this As Is Analysis. However, it is clear that the Sláintecare Implementation Plan considers mental health services to be an essential part of community health services accessed by the wider community, including older persons, and outlines the increased funding for community mental health services under the Enhanced Community Care Programme.[12]

Sharing the Vision outlined the importance of mental health services for older people.[19] Citing the example of dementia, which affects 5% of people aged over 65 years increasing to 20% of people aged over 85 years, the report notes that access to services for early-onset dementia is inconsistent and that older people should have access to specialist services. It placed particular importance on home-based assessment and supports for older people, as well as on improvement in access to talk therapies, on more effective medication management, and on the role that voluntary community sector can play in connecting the older person to activities in their local community.

2.7 Department of Health Statement of Strategy 2021-2023

In light of the COVID-19 impact over 2020 and its expected continuing impact over 2021, the Department of Health published a Statement of Strategy 2021-2023, setting out the Department's five strategic priorities for those three years.[20] These priorities includes the srengthening of community-based care — that is, primary care and social care — and older persons care, as well as related measures:

- development of regional health areas
- development of community health networks and of specialist teams in the community (in particular, for older persons and for chronic disease)
- development of a statutory homes support scheme

- implement and resource the reforms outlined in the Sláintecare strategic action plan 2021-2023
- accelerating work on the Individual Health Identifier, shared care record, and other eHealth infrastructure.

2.8 The Need to Reform Ireland's Health Information System (2021)

In 2021, HIQA published *The Need to Reform Ireland's Health Information System* to support the delivery of health and social care services. The paper holds that a well-functioning health information system is the foundation of cohesive and integrated health system and provides a broad overview of both the good practices and the shortcomings in Ireland's health information system.

Integral to these reforms is the establishment of an independent entity (eHealth Ireland) with responsibility for overall governance around eHealth implementation, in partnership with the Government and state agencies, and with a clear policy on how these agencies involved in the collection of health information should interoperate. The paper also calls for the establishment of an operational function (Health Service Executive) with clear roles and responsibilities to be defined for it and for the independent entity (eHealth Ireland) respectively.

The paper further identified a framework of national health information standards, based on clear policy direction, as a requirement to resolve current fragmentation of governance structures, and the necessity for a secure health IT infrastructure, supported by ongoing investment. Public and patient engagement was also held to be critical to the successful implementation of a high-quality health service as was education of the broader user workforce, to support health professionals to use digital health solutions in an effective, responsible and ethical way.

The paper outlines the central role of summary and shared care records, and the move towards the capture of data across all healthcare facilities, public and private, noting that scale of this transformational change, and associated socio-technical challenges, should not be underestimated.

Finally, the paper identified six core enablers for a robust national health information system:

- **Strategy** – A clear national health information strategy is needed, including effective governance and leadership, a sound legal framework, a viable workforce and appropriate funding mechanisms, Ministerial approved standards, and a robust and secure health IT infrastructure. The national

health information strategy should have clear sponsorship, accountability, and timelines for its implementation, together with the requisite funding.

- **Strategic leadership and governance** – A strategic entity (eHealth Ireland) should be established, outside of the HSE, with the legislative remit to provide strategic leadership and governance on eHealth and on the collection, use and sharing of health information in Ireland. In parallel, an operational function, developing and supporting the systems required for the delivery of care, should continue to exist in the HSE. Clear policy on health information is also needed, together with a clear roadmap on how the different agencies within the health and broader governmental organisations are coordinated to deal with health information.
- **Legislation** – A legislative framework, setting out clearly how information should be collected, used and shared for people interacting with the health and social care system and covering national eHealth priorities, including summary and shared care electronic health records.
- **Workforce** – Strategic allocation of resources to the strategic function (eHealth Ireland) and the operational function (Health Service Executive) with clear roles and responsibilities defined to ensure each function is aligned.
- **Standards and interoperability** – A health information standards setting function, with the remit to set standards for the public and private health and social care sectors (including public sector services outside of the HSE) and to assess compliance against same, underpinned by legislation and assigned appropriate resourcing.
- **Health information infrastructure and security** – Continuous investment and strengthening of a secure health information infrastructure to support the integration of people's health information across public and private healthcare systems.

The position paper outlines the need for a clear vision for ICT enablement of older persons services, with the key building blocks of strategy, strong leadership and governance being essential to its realisation.

2.9 Summary

Since the publication of *Future Health* in 2012, there has been a consistent drive to move from a hospital-based model of care to a model of care that treats a patient at the lowest level of complexity and as close to their home and their community as

possible. Extensive structural and service reforms have been implemented, and are ongoing, in support of this transformation.

Community health networks (CHNs) have been established maximise the provision of primary care services and to ensure access to specialised services, such as social care and mental health, across their average population of 50,000. The CHN is the 'basic unit of service delivery' and is expected to provide a consistent central reference point as the CHOs and hospital groups are realigned into RHAs. The overall goal of the new model of care is that 90-95% of a patient's care is provided by primary care. Each CHN will have between four and six primary care teams (PCT), each serving 7,000 to 10,000, and, ideally, each member of a PCT will be based in the same primary care building.

Integrated care is seen as a crucial means of delivering care in the new model, especially for those with complex care needs, such as older persons. Integrated care requires end-to-end pathways across multiple settings and a comprehensive primary and community care service model is being developed. This model will include the provision of homecare, short-term residential care, and hospital-at-home type services, such as community intervention teams. Funding for primary care staff — such as public health nursing, occupational therapy, and physiotherapy — will be increased, while GPs will be given access to minor procedure rooms, diagnostic services, and a range of therapies in their local primary care centre.

eHealth is a crucial enabler of the new model of care, providing the ability to ensure that all healthcare professionals treating the older person have appropriate and secure access to the relevant patient information. Crucial eHealth initiatives include the national shared care record, national health identifiers, the ePharmacy programme, the home support management system, the residential care management system, electronic discharge, and the InterRAI assessment tool, among others.

The impact of the COVID-19 pandemic drove the introduction of e-working and telemedicine, among other eHealth innovations. But it also highlighted the critical need for the acceleration of the changes to older persons services, together with the requisite ICT enablement. As a result, the establishment of the community health networks and community specialist hubs (including ICPOP teams) has been prioritised, along with the establishment of new primary care centres and of virtual wards in community settings, and other measures such as the rollout of the InterRAI assessment, increased National Ambulance Service 'see and treat' measures, and the development of the Statutory Home Support Scheme.

However, the effects of the COVID-19 pandemic may have left the Health Service Executive (HSE) systems more vulnerable to the cyber attack, which took place on

20 May 2021.[21] The impact of this attack highlights both how extensively IT systems are used within the services currently and the need for a very well designed and secure strategic approach.

Chapter 3 National clinical and integrated care programmes

The Health Service Executive (HSE) has responsibility for national clinical programmes and integrated care programmes. As noted earlier, the National Clinical Programme for Older Persons (NCPOP) was established in 2010 to develop acute and mental health pathways for older persons. Similarly, the Integrated Care Programme for Older Persons (ICPOP) was established in 2012, to develop and implement integrated services and pathways for older people with complex health and social care needs.

In 2016, both programmes came together to form the National Working Group on Older People, to lead the development of integrated primary and secondary care services for older persons, especially those with more complex needs, jointly. This chapter describes how these programmes developed both acute and mental health pathways for older persons, and an integrated care framework for older persons, informed by these pathways.

3.1 National Clinical Programme for Older Persons

The National Clinical Programme for Older Persons (NCPOP) has developed and published the following:

- Model of Care Part 1 – Acute Service Provision (2012)[6]
- Comprehensive Geriatric Assessment (2016)[22]
- Model of Care Part 2 – Mental Health Service Provision (2019).[23]

3.1.1 Specialist Geriatric Services Model of Care for Acute Services

The programme initially developed a complete model of care for specialist geriatric services in acute services, aimed at significantly improving access for frail older patients to specialist geriatric teams (doctors, nurses and therapists), day hospitals, specialist inpatients beds and rehabilitation beds.[6,24]

Between 2011 and 2014, the NCPOP also conducted an audit of 30 hospitals, which found that while the number of older persons in Ireland was increasing, the number of dedicated older persons staff had decreased and that only 40% of consultant geriatricians were working exclusively with older persons.[24]

Noting these figures, NCPOP recommended:

- All hospitals admitting acutely ill older adults should have:

— **Geriatric wards**: dedicated geriatric wards staffed by a specialist multidisciplinary geriatric team

— **Geriatric rehabilitation wards**: dedicated onsite or offsite rehabilitation wards

- **Ambulatory Day Hospital as navigation hub**: day Hospital coordinates the assessment of all frail older adults that require a step up in care from primary care team and or public health nurse management in the community
- **Nursing home support**: community outreach supporting primary care services in nursing homes
- **Specialist consultation**: available through community-based services and in extended care settings.

3.1.2 Comprehensive geriatric assessment – the Single Assessment Tool

The NCPOP developed guidance on a comprehensive geriatric assessment, which is known as the Single Assessment Tool (SAT) – Specialist Geriatric Team Guidance on Comprehensive Geriatric Assessment (2016).[22] The Single Assessment Tool (SAT) is a comprehensive, standardised assessment used to assess the health and social care needs of people (primarily those over the age of 65 years) who may be looking for support under one the following two schemes:

- Nursing Home Support Scheme (NHSS) – also known as the Fair Deal Scheme
- Home Support Services.[7]

The SAT provided specialist geriatric teams with a multi-dimensional diagnostic process focused on determining a frail older person's medical, psychological and functional capability in order to develop a coordinated and integrated plan for treatment and long-term follow up. The assessment is based on the International Resident Assessment Instrument (interRAI) assessment, which is designed for use with adults in the home, in acute care, and other community-based settings.[25]

InterRAI assessments are specifically developed for use with frail older people or persons with disabilities, who are seeking or receiving formal health care and supportive services, to identify their health and social care needs using a standardised assessment.[26] InterRAI is a not-for-profit organisation consisting of a collaborative network of clinicians and researchers in over 30 countries, including Canada, USA, Australia, Belgium, Spain, France, Switzerland, Germany and New Zealand.

The SAT is administered through the SAT information system, which consists of 20 sections.[7] Thus, the SAT refers to both the clinical assessment and the information

system that provides the assessment. These outputs include scales to support and facilitate clinical decision making, onward referrals and standards of care based on best practice guidelines. It also produces indices of risk, frailty and prioritisation, which help support equitable and needs-based service provision targeted to those most in need. A summary report displaying all these outputs is also generated by the system which can be emailed as a PDF report or printed for onward non-IT referrals.

Following a procurement process, three acute hospitals (Beaumont Hospital, Tallaght Hospital, and University Hospital Galway) began a trial implementation of Single Assessment Tool (SAT), including hardware and software, in 2016.[7,27] Community areas surrounding these hospitals (Dublin North, Dublin South West and Galway) subsequently began the SAT implementation, to support continuity and integration of care. 90% of the 596 patients were assessed for the Nursing Home Support package, with the other 10% assessed for Home Care Package support.

A key learning was that the ICT implementation is complex and the ICT hardware and software issues were considered to be a major risk to successful pilot implementation.[27] Issues raised included the need for a dedicated SAT support service, the need to resolve software issues, the need for protected training time and assessor support.[27] The tool was introduced afterwards in the nine community health organisations on a phased basis, with educators appointed to train staff to use the assessment and standardised training being rolled out.[7]

However, a second procurement process identified a different single assessment tool information system, Momentum, which also has electronic medical record (EMR) functionality. More than 8,000 patient records are still stored on the original system, implemented by the vendor, OpenSky, and some individual assessors still use the system. However, all new assessments are being done on Momentum and a data migration is planned, to move all old records from OpenSky to Momentum.

The HSE National Service Delivery Plan 2021, discussed later, commits to the full rollout of the InterRAI care assessment, as well as the appointment of 128 InterRAI assessors.[28]

3.1.3 Specialist Mental Health Services for Older People – Model of Care

In 2019, NCPOP published the Specialist Mental Health Services for Older People – Model of Care, outlining the role that specialist mental health services play and the model of care that should be adopted. In this model, the psychiatry of old age teams provide care for:

- older adults who develop functional mental disorders, such as depression, for the first time over the age of 65 years

- older adults with dementia who develop behavioural and or psychological symptoms for which specialist mental health intervention is required.

The report notes that old age psychiatry consultation can improve care in the following situations:

- **Delirium:** Consultation can improve detection and management, providing support and training to medical and surgical colleagues.
- **Dementia:** Consultation can help manage behavioural and psychological symptoms more efficiently.
- **Depression and anxiety:** Consultation can optimise care, potentially reducing length of stay and costs.
- **Self-harm:** Consultation can assess and treat underlying mental illness, which can reduce the risk of recurrence.
- **Medically unexplained symptoms:** Consultation can address underlying mental health difficulties, which can reduce inappropriate investigations.

The National Dementia Strategy (2014) identifies the GP both as the first point of contact and as playing a key role in diagnosis. However, the specialist task of identifying the dementia subtype is shared by neurologist, geriatricians, old age psychiatrists and memory clinics.

A detailed treatment of the pathways is beyond the scope of this analysis. However, a core element is the discussion of the patient's case at the meeting of the multidisciplinary team. Following assessment of a new or referred patient, the patient is discussed at the multidisciplinary team meeting and an individual care plan is implemented. Where patients require ongoing specialist mental health support, a community mental health nurse is typically assigned as the key worker, with responsibility for clinical review, follow up, and coordination of care. Where support from other healthcare professionals is required, referrals are made.

Options for delivery of care also discussed at this meeting. These can include:

- **Community:** Most patients receive care in their homes, or in their nursing home.
- **Psychiatry of old age day hospital:** Where patients with more severe illness have failed to progress at home, the day hospital can provide community-based treatment.
- **Acute inpatient care:** Where patients with more severe illness present a risk either to themselves or to others in their community, they are treated as

inpatients. Typically only a small number of patients require a period of inpatient care.

- **Long-stay care:** In a small proportion of cases, patients with dementia that fail to improve and require specialist psychiatric nursing care not delivered in a nursing home, are treated in long stay units.

For the care pathways outlined, a number of elements are required. The first element is a core community mental health team for, consisting of:

- consultant psychiatrist
- administrative staff
- assistant director of nursing
- community mental health nurses
- non-consultant hospital doctors
- occupational therapist
- clinical psychologist
- social worker.

This provides staffing for a population of 10,000 people aged over 65 years of age – though larger geographic areas, or particularly deprived areas, may require additional staff. One member of the team should act as team coordinator and there may be requirements for further services, such as a memory-assessment service.

Additionally, the following elements are also required:

- **Day hospitals for mental health services:** Should be a separate entity from the Acute Day hospital outlined in the Specialist Geriatric Services Model of Care, Part 1: Acute Services Provision, but should be located in the same campus.
- **Acute beds:** Should be located in either:

  — a separate acute psychiatric unit, close to the general adult psychiatric unit for cover and support purposes, or

  — a designated but separate area within the acute general adult psychiatric unit for Psychiatry of Old Age.

- **Continuing care units:** While the majority of patients have their needs met fully within generic nursing home settings, a small number of dementia patients require ongoing care in a mental health setting that must come within the protections of the Mental Health Act 2001 and be in Approved Centres under that legislation. Therefore, every Old Age Psychiatry service

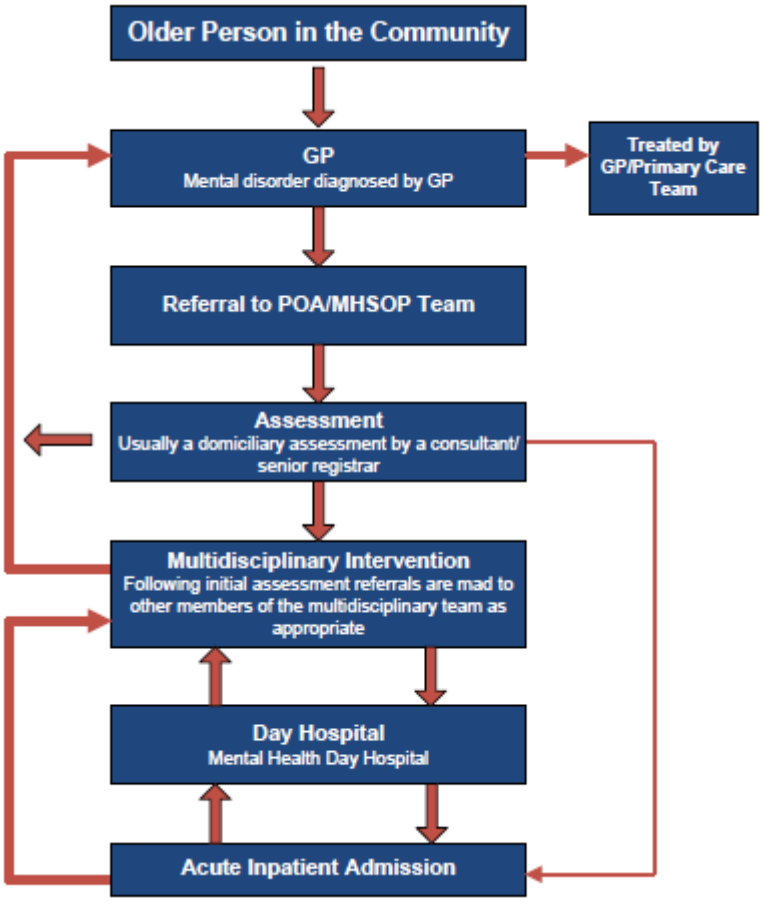
should have access to a continuing care unit specifically for such patients and ideally that long stay care should be provided within the patient's community.

- **Sheltered housing and other approaches**: Other requirements include suitable accommodation for older persons with enduring mental illness, which means that they can no longer live independently in their own homes and may require sheltered housing or other approaches.
- **Consultation-liaison teams in acute hospitals:** Should be similar to the community team, including psychiatrists, mental health nurses, occupational therapists, social workers and clinical psychologists, with composition influenced by local factors. A designated consultant psychiatrist for consultation liaison should have sufficient protected time to fulfil this function.
- **Consultation-liaison services to nursing homes:** Will be cognisant of the prevalence of major depression and dementia in nursing homes being far higher than in the community, with significant implications for service delivery. Deployment of an additional geriatrician on a 0.5 WTE basis together with a senior nurse at Clinical Nurse Specialist is recommended, together with the skills of a clinical psychologist.

A core principle of this model is that all patients should be reviewed at clinically appropriate intervals by the key worker and other disciplines. Informed by this

advice, the responsible consultant will discharge the patient back into the care of their GP when treatment has been completed.

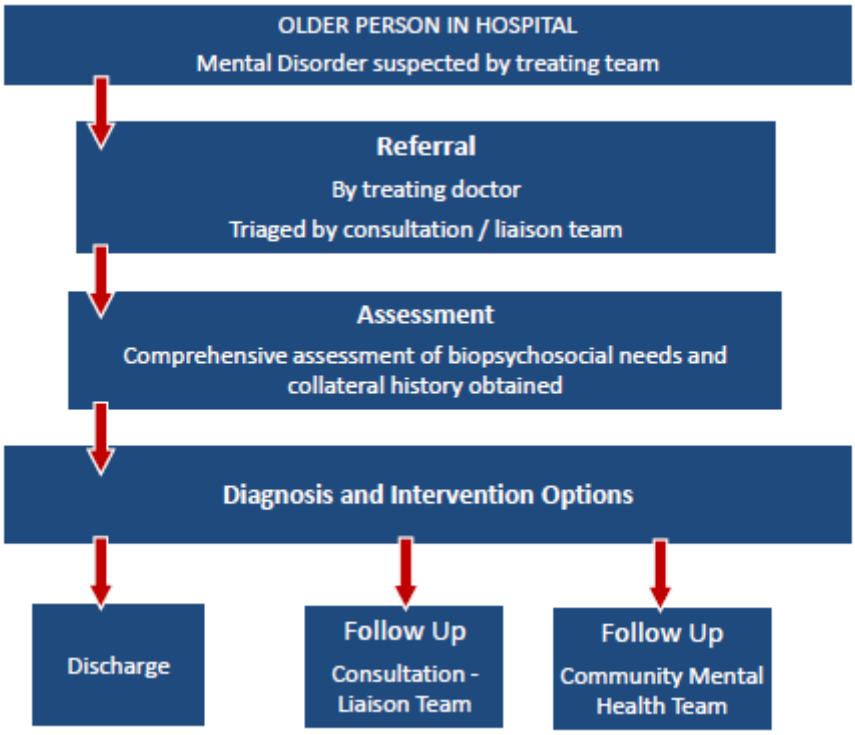
Figure 1. Older person in the community



Source: Specialist Mental Health Services for Older People – Model of Care Part 2.[23]

Where an older person is an inpatient of an acute hospital and is suspected of having a mental disorder, the person may be referred to the consultation liaison team in the hospital and the team remains involved.

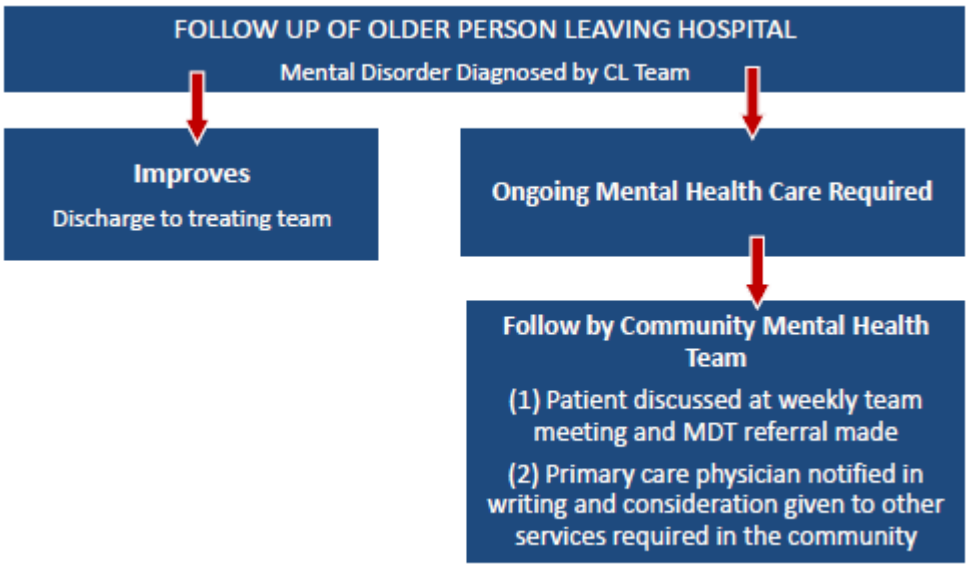
Figure 2. Older person in hospital



Source: Specialist Mental Health Services for Older People – Model of Care Part 2[23]

When the older person is discharged, any required mental health follow up in the community is discussed at the multidisciplinary team meeting described earlier.

Figure 3 Follow up of older person leaving hospital



Source: Specialist Mental Health Services for Older People – Model of Care Part 2[23]

3.2 Development of integrated care for older persons

The Integrated Care Programme for Older Persons (ICPOP) was established in 2015 to develop and implement integrated services and pathways for older people with complex health and social care needs, shifting the delivery of care away from acute hospitals towards community-based, planned and coordinated care.

In 2018, the ICPOP published *Implementating Integrated Care for Older Persons in Ireland - Early insights and lessons for scale up*, which outlined early findings from the Programme and lessons that would be beneficial as the Programme was implemented more widely. First, the challenges that the Programme addresses were outlined. Population predictions estimate that by 2031, over one person in five in the Irish population will be an older person — that is, aged over 65 years.[24]

At the time the report was published, 25% of older persons were living with frailty while a further 45% were considered 'pre-frail'. 30% of older people admitted to acute hospitals had dementia. Older persons living with frailty typically had two or more chronic conditions (96%) and were taking six medications.[24] 40% were also living alone. During the year prior to the report, older persons living with frailty formed 55% of public health nurse caseloads, visited their GPs seven times or more, and spent 15 days in hospital. During a typical year, one in three older persons falls, with 60,000 of those requiring medical attention, and 51% of those having a low fall also experiencing major trauma.

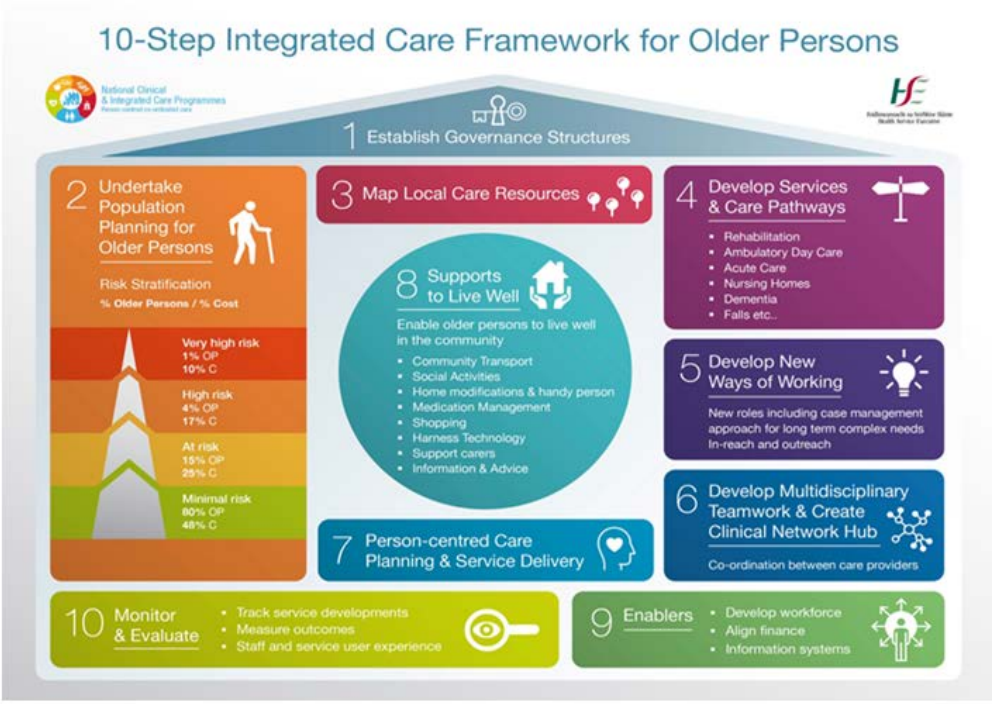
Once admitted to an acute hospital, older persons occupy 54% of acute beds and account for 90% of delayed discharges, often waiting for nursing home support or a homecare package. People aged over 75 years spend three times longer in the emergency department than those aged under 65. The risk of deterioration during a hospital also rises steeply with age, with 35% of people aged over 70 years show functional loss at discharge, rising to 65% for 90 year olds. By 2030, demand is expected to rise for residential care (50%) and for home support services (40%).

Thus, the vision underpinning the ICPOP is providing timely access to health and social care by:

- supporting older persons to live well
- enabling older persons to remain in their place of residence by providing secondary care in the community
- providing integrated intermediate care (hospital and or community care)
- supporting older persons in residential care.[29]

The programme developed and published a 10-step framework for integrated care for older persons, providing a fundamental principle of design rather than a system of delivery, shown in Figure 5 below.

Figure 4. 10-step integrated framework for older person



Source: Making a Start in Integrated Care for Older Persons[29]

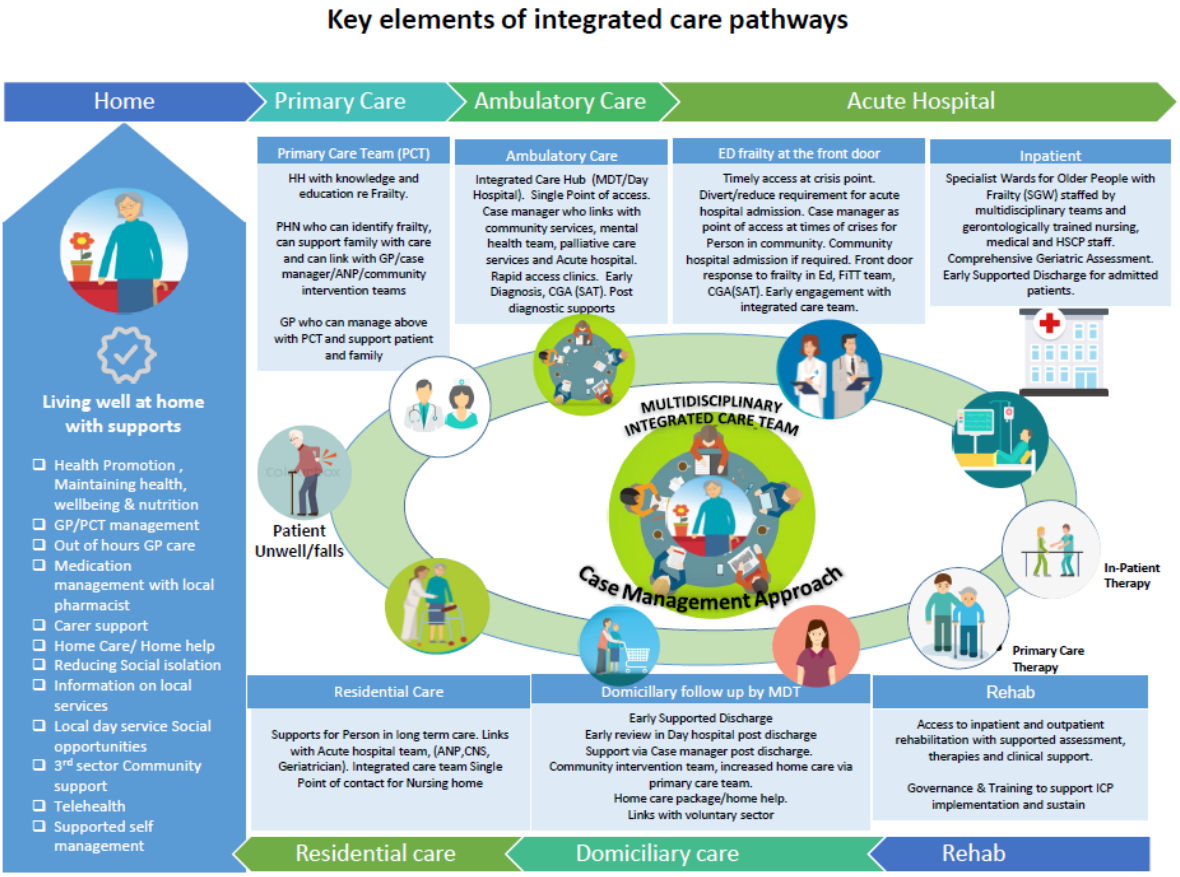
The following table summarises the 10-step framework:

Step	Description
Step 1	Establish governance structures
Step 2	Undertake population planning for older persons. Prevalence of frailty in the community: ▪ severly frail (very high risk) – 11% ▪ moderate frailty (high risk) – 21% ▪ mild frailty (very high risk) – 36% ▪ fit (minimal risk) – 32%.
Step 3	Map local care resources
Step 4	Develop services and care pathways ▪ focus on frailty ▪ acute care pathways ▪ ambulatory care ▪ rehabilitation ▪ ICPs for falls, Dementia, and nursing homes outreach.
Step 5	Develop new ways of working. New roles including case management approach for long term complex needs for in-reach and outreach.
Step 6	Develop multidisciplinary teamwork and create clinical network hub. Coordination between care providers.
Step 7	Person-centred care planning and service delivery.
Step 8	Supports to live well. Enable older persons to live well in the community: ▪ community transport ▪ social activities ▪ home modifications and handy person ▪ medication management ▪ shopping ▪ harness technology ▪ support carers ▪ information and advice.
Step 9	Enablers: ▪ develop workforce ▪ align finance ▪ information systems.
Step 10	Monitor and evaluate: ▪ track service development ▪ measure outcomes ▪ staff and service user experience.

3.2.1 Key elements of integrated care pathways

The ICPOP also identified key elements of integrated pathways for older persons, designed to use a case management approach that places the patient at the centre of care.

Figure 5. Key elements of integrated care pathways

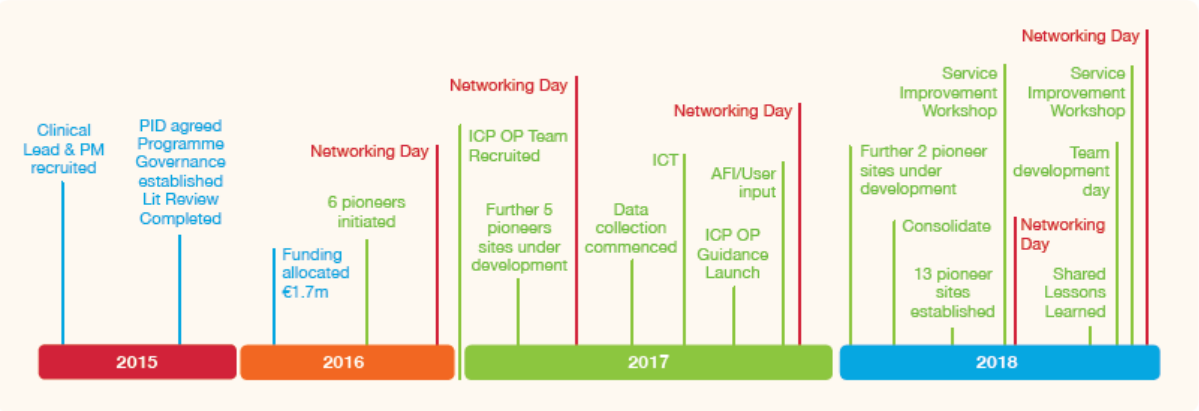


Source: Implementing Integrated Care for Older Persons in Ireland[24]

The National Working Group on Older Persons initiated a pilot programme at pioneer sites, informed by the acute and mental health pathways developed by the NCPOP. The ICPOP sought to implement, test, and monitor integrated service developments

for older people at the sites, with a view to using lessons learned in national implementation.

Figure 6 . Timeline for pilot projects



Source: Implementing Integrated Care for Older Persons in Ireland[24]

Over 2016 and 2017, 13 pioneer sites were established for design and testing of the new model. The following pathways were developed, each at a different location:

- **Inpatient pathway**: Based on the NCP Model of Acute Care, this pathway supports specialist geriatric wards staffed by multidisciplinary teams and gerontologically trained staff, and using the Complete Geriatric Assessment and early supported discharge.
- **Early supported discharge and rehabilitation pathway:** Community based, time-limited case management by a multidisciplinary team, based in an ICPOP hub site, enabling early supported discharge with
    - — alignment with existing services, such as falls
    - — early review in day hospital
    - — support from case manager
    - — link to community intervention team.
- **'Frailty at the front door' geriatric emergency medicine service (GEMS) pathway:** Early identification of frailty through routine screening for frailty in the emergency department with consultant geriatrician-led multidisciplinary team of a clinical nurse specialist (CNS), physiotherapist, and occupational therapist.
- **Ambulatory care pathway and hub:** Facilitating integration beween hospital and community services, acting as a resource for delivery of all older persons services such as rapid access clinics.

- **Primary care integrated pathway:** While the integrated care team acts as a liaison between hospital, primary care teams, and other network services, facilitating rapid access to the complete geriatric assessment of the older person with complex needs, at home or at a clinic, and to assist in expediting long-term care requests. Community virtual ward provides support for older persons with complex needs to remain at home for longer.

Case management was trialled at two pilot sites with a clinical case manager (usually a nurse, or another senior clinical role) working across primary and secondary care, supported by a wider multidisciplinary team, with GPs and specialists in gerontology. For about 71% of patients referred, the clinical case manager principally managed community care in the home or day hospital.

A community virtual ward was also developed at one site, supporting older persons at low risk (green level), moderate risk (yellow level), or high risk (red level) with the commensurate level of supervision and care. The clinical case manager oversaw care, supported by GP, public health nurse (PHN), physiotherapist, occupational therapist, and social worker, with specialist gerontology services provided in the acute and day hospitals.

During the pilot implementations, ICPOP worked with local teams, managers, departments and the Office of the Chief Information Officer (OCIO) to identify and roll out tools to enable ICT capabilities at local sites. Laptops with tablet capabilities and smartphones were issued to staff.

3.2.2 ICT enablement of ICPOP pilot projects

The Integrated Care Programme for Older Persons programme leadership provided more detail about pilot projects undertaken in three community health networks (South Tipperary, Kilkenny, and Waterford) in Community Health Organisation (CHO) 5. The pilot projects focused on population-based healthcare delivery for chronic disease and older persons services across acute, community, primary and secondary care and included approximately 150 to 200,000 people. They were undertaken in to test and evaluate the Carefolk case management platform, which was recommended by the Health Innovation Hub.[30]

Carefolk is designed for the service user and carer, supporting people to engage with the care system. Workshops were undertaken as part of the pilot projects and feedback from them showed a clear need for a shared record, visible across the system — for example, to prevent duplication of assessment and for clinical

governance. Programme leadership stated that the fundamental requirement of the ICPOP programme is an ICT architecture to support the work.[30]

Since that time, care planning and case management have been identified as a requirement.[31] Therefore, while the community health network pilots are still running Carefolk, it will be phased out over time, with no training on Carefolk for new starters and with Carefolk records available in read-only mode.[31]

Programme leadership stated that patient care needs to be seamless and to share information consistently.[22] However, at present, an overall platform is lacking, with patient information held in different silos. Data collection and analysis on activity and outcomes that can be delivered is a real challenge. Currently, this is often done using spreadsheets, with opportunity cost in lack of architecture, in patient experience, and in patient safety.

For example, the Enhanced Community Care Programme will recruit thousands of staff, but the staff will be much less effective without the requisiste ICT enablement. A decision is needed around the available case management software platforms and the case management platform that is selected must also form part of the shared care record.[22,30] The case management platform should be prioritised over all other initiatives.

3.2.3 Governance structures

In 2017, the Integrated Care Programme for Older Persons had also developed a tripartite governance structure for the implementation of same, comprised of:

- **National Steering/Oversight Group**: comprised of representatives from the HSE leadership team, the Social Care Division, the Design Authority, the National Integration Oversight Group, and the National ICPOP Steering Group.
- **National Working Group**: comprised of the National Clinical Programme for Older Persons, the Integrated Care Programme for Older Persons, and the National Working Group on Older Persons, with input from senior management in Age Friendly Ireland.
- **Local Implementation Group**: comprised of the Community Health Organisation or Hospital Group Implementation Governance Group, the LocalImplementation Group (with input from the local Age Friendly Alliance), and separate working streams for business, for care integration, and for models of care.[29]

Recent ICPOP guidance on governance for this service model uses a bottom-up approach with the following levels:

1. Bottom up transformation, which is clinically and operationally led through engagement with frontline staff.
2. Local improvement approach, where local acute hospital groups and CHOs own improvement initiatives and work collaboratively with local structures.
3. Models of care, which are delivered collaboratively across hospital groups and CHOs.
4. Programmatic governance, which provides accountability for implementation that is locally implemented and nationally enabled.
5. National service model, which provides a clear roadmap and supports for delivering the model, covering enablers such as ICT.

More detailed guidance on governance is also provided for each of these levels.

3.2.4 Early insights

In 2018, findings from the first three years of the Integrated Care Programme for Older Persons were published. Key findings were the need for:

- bespoke pathways for older persons
- multidisciplinary community teams
- a case management approach.

Early insights from the national implementation covered several crucial themes:

- **Governance:** The national governance structure, the National Working Group on Older Persons, guided national service redesign. To succeed, each local initiative also needs:

  — a local governance structure, to support local clinical and managerial entrepreneurs

  — local executive support and sponsorship — that is, from the clinical director, senior acute hospital managers, and community managers.

- **Common vision:** Relationships with all parties need to be cultivated, in order to develop a common vision for patients and staff.

- **Shared local roadmap:** Local managers found the ICPOP 10-step framework showed the national 'direction of travel' while providing the flexibility and autonomy that was needed for local implementations. Key tasks

for local managers include mapping the older persons pathway, developing a community hub to deliver services, and clarifying the role of new multidisciplinary teams.

- **Dedicated resourcing and effective use of local assets:** More effective use of existing assets, which include service users and carers, is required. Dedicated resources, who are given ownership in their area, are also needed.
- **Enablers:** Critical national enablers for integrated care are ICT, human resources, population planning and finance. Their successful implementation takes time and depends heavily on local clinical and operational leadership.

In particular, ICT was highlighted as critical, as it provides the ability to share patient information appropriately across the multidisciplinary teams, a key enabler for integrated care. Delays in implementing an electronic health record were also found to have significantly affected this ability to share information.

It was noted that the Sláintecare Implementation Plan (2018) emphasised the role of the community health network in coordinating integrated care for its population and, in particular, sought to accelerate the integrated care programme for older persons.

After considering the implications of the Sláintecare Implementation Plan, the following options were identified for scaling up ICPOP:

- Integrated care needs to be built incrementally at community health network level, with relevant partners such as specialist ambulatory hubs and acute care.
- Within the emerging HSE commissioning process:

  — incremental, strategic redesign of service needs to be supported by local leaders and with local governance

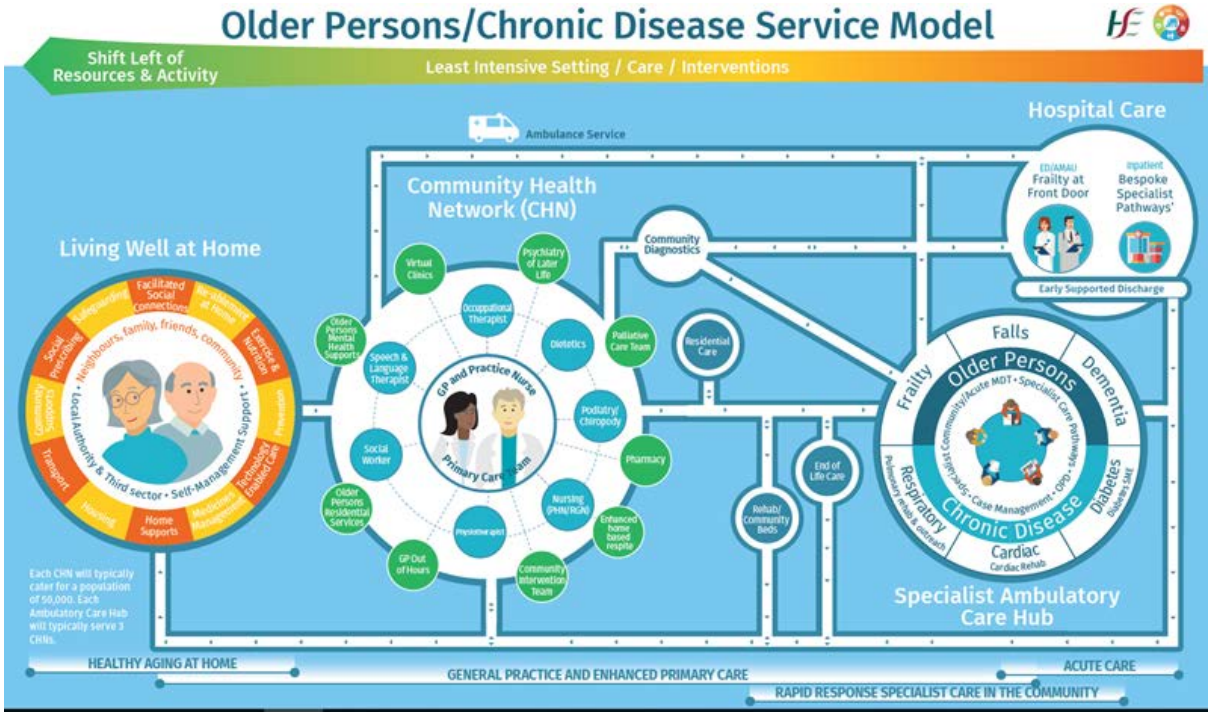
  — more strategic links between primary and secondary care need to be developed, nationally and regionally.
- Structure (governance) was also needed to integrate related initiatives, such as homecare, falls, dementia, old age psychiatry, single assessment tool (SAT), Community Intervention Team (CIT), and others.
- Dedicated technical expertise is needed, nationally and regionally, as well as support for the dynamic social process involved.
- New and existing resources need to be aligned.

Overall, ICPOP requires end-to-end integrated care pathways to be in place, supported by ICT as a key enabler. Additionally, smaller scale, local solutions needed

to be leveraged and an agreed mechanism for scale up or adaptation of IT solutions was also needed. It was also recommended that the ICPOP has dedicated ICT support focusing on functional implementation of new technologies or harnessing existing ICT systems. This includes implementing a case management system that can interface with existing systems and provide a community ICT infrastructure.

3.2.5 National service model

More recently, ICPOP has been linked with, and funded under, the Enhanced Community Care Programme. The ICPOP programme has provided an integrated care service model that is used for older persons services and has since been adopted for chronic disease management, owing to the significant overlap between the two domains, as well as for Enhanced Community Care more broadly.



The Enhanced Community Care ICT Working Group also reports to the Integrated Community eHealth and ICT Committee.

Under the ICPOP framework, the broader transformation of older persons requires:

- streamlined, standardised processes for planning, funding, resourcing, and enhancing these services
- well-defined pathways, based on shared care plans and care pathways, that are accessible to multidisciplinary teams

- enhanced system capacity, in terms of community rehabilitation services, multidisciplinary team approach, and others
- coordination of care and referral services.

ICPOP has developed a service model for delivery of older persons services, which is also being used for chronic disease management.

Adoption of the model is being driven through the Enhanced Community Care (ECC) Programme — for example, the ECC steering group for each CHO responsible for the development of care pathways and significantly increased resourcing of multidisciplinary teams as a key driver of the broader transformation. Additional ICT resourcing is also being appointed to each CHO.

3.2.6 Findings from an academic evaluation

A recent case study demonstrated ICPOP's use of multidisciplinary teams as critical drivers of integrated care in three pioneer sites. The multidisciplinary teams studied were led locally by hospital geriatricians and HSE managers working in the public health system. The ICPOP model focuses creating new care pathways and bridges the gaps between professions and organisations, providing integration at the clinical (micro) and professional or organisational (meso) levels respectively. As such, it was considered to provide a top-down or bottom up approach to whole system change. These teams were shown to be essential drivers of change, at clinical (micro) and at national or system (macro) levels.

However, a common understanding of integration at organisational or professional (meso), and national or system (macro) levels was needed. Systemic supports are needed by MDTs implementing change the impact of evolving roles and existing organisational and professional structures and relationships. Both ICPOP operation and governance had low levels of GP and public health nurse involvement. This reflects a system-wide lack of integration between public and private services, and a model for their integration to deliver integrated care is also needed.

At national or system (macro) level, barriers included the lack of homecare services and underdeveloped primary care — areas with significant private involvement. The ICPOP service model currently treats 5% of older population and potential patient pathways are hugely complex. Unclear regional administrative boundaries, fragmented funding structures (for example, between community and acute hospitals) and quick turnover of senior level decision-makers, among others, also impeded implementation and scaling. Finally, slow progress implementing the national eHealth Strategy was identified as a significant barrier at national or system

(macro) level, with one site collaborating with local university to trial its own electronic health record.

The Sláintecare programme was established to guide the structural and service reforms needed, and to ensure public private partnership, thus playing a key role in the removal of these barriers. HIQA's paper on *The Need for Reform of Ireland Health Information System* also outlines the urgent need to update the eHealth strategy and for a more cohesive approach to be taken to the national health information system.

3.3 Summary

The National Clinical Programme for Older Persons has developed a comprehensive model of care for specialist geriatric services, addressing acute service provision and aimed at significantly improving access for frail older patients to specialist geriatric teams (doctors, nurses and therapists), day hospitals, specialist inpatients beds and rehabilitation beds. The model of care outlines the pathways for care for older persons and includes a complete geriatric assessment, a detailed description of which was published in 2016.

The Integrated Care Programme for Older Persons (ICPOP) developed a 10-step framework for the implementation of integrated care services for older persons, informed by this model of care. The framework supports the development of integrated services and pathways for older persons, moving the delivery of care from acute settings, to community-based, planned and coordinated care.

To ensure the success of integrated care services for older persons, health and social care information must be shared appropriately and securely among these areas: home, primary care, ambulatory care, acute hospitals, rehabilitation, domiciliary care, and residential care.

Over 2016 and 2017, the ICPOP implemented a pilot project in each of the community health organisations, with a view to testing and evaluating the implementation of integrated care within the 10-step framework.

Under the ICPOP framework, the broader transformation of older persons requires:

- streamlined, standardised processes for planning, funding, resourcing, and enhancing these services
- well-defined pathways, based on shared care plans and care pathways, that are accessible to multidisciplinary teams
- enhanced system capacity, in terms of community rehabilitation services, multidisciplinary team approach, and others

- coordination of care and referral services.

ICPOP leadership stated that patient care needs to be seamless and to share information consistently but that an overall platform is a high priority requirement.[22] The case management platform should be prioritised over all other initiatives, and any solution selected must form part of the national shared care record. Data collection and analysis on activity is also a challenge. It is often performed using spreadsheets, with opportunity cost in lack of architecture, in patient experience, and in patient safety — such as the recruitment of thousands of staff to the Enhanced Community Care Programme being much less effective without the requisite ICT enablement.[22,30]

ICPOP has developed a service model for delivery of older persons services has been developed, which is also being used for chronic disease management. An academic evaluation of three pilot sites also provided learnings about this model. The ICPOP service model currently treats 5% of older population and potential patient pathways are hugely complex. Unclear regional administrative boundaries, fragmented funding structures (for example, between community and acute hospitals) and quick turnover of senior level decision-makers, among others, also impeded implementation and scaling. Finally, slow progress implementing the national eHealth Strategy was identified as a significant barrier at national or system (macro) level, with one site collaborating with local university to trial its own electronic health record.

Another crucial element of the older persons care is the complete geriatric assessment. Developed by the National Clinical Programme for Older Persons and based on the InterRAI standard, the complete geriatric assessment provides a comprehensive overview of the older person's needs, which informs management of their case. Optimal use of the InterRAI Assessment is through an information system rather than through paper-based records. The HSE originally developed and began national rollout of the Single Assessment Tool Information System. Since that time, further requirements have been identified and a second procurement process identified the InterRAI assessment in Momentum software, which is being rolled out nationally. Single Assessment Tool (SAT) is being phased out, with new users are being trained on Momentum and existing records in SAT being transitioned to the new system.

In 2019, the National Clinical Programme for Older Persons published the Specialist Mental Health Services for Older Persons Model of Care – Part 2, a comprehensive document outlining care pathways for older persons requiring access to specialist mental health services. Although detailed integrated care pathways have not yet been defined, again, information must be shared appropriately and securely among

healthcare professionals providing care to the older person, which are likely to include:

- community mental health team
- staff in day hospitals for mental health services
- staff in acute hospitals (typically designated psychiatric units)
- staff in continuing care units
- consultation-liaison teams in acute hospitals
- consultation-liaison services to nursing homes.

Chapter 4 ICT enablement of service delivery (pre-COVID-19)

4.1 Background

As has been shown, eHealth solutions and ICT infrastructure play a crucial role in enabling the reforms outlined in *Future Health.* This role was outlined in the eHealth Strategy for Ireland (2013) while the HSE Knowledge and Information Strategy (2015) articulated the detailed 'vision of how healthcare would be delivered in the future'.[4] This vision was comprised of five elements:

- **Care delivery enablement:** Digital enablement that ensures data is captured as a by-product of clinical activity and information is shared.
- **Electronic health records:** Stores detailed care information across care settings along the patient pathway, and feeding the summary care record. For example, this captures all care interactions across hospitals, community care, social care, health and wellbeing, and mental health.
- **Cross setting information integration:** Standardising information flows and processes, thereby ensuring seamless patient transition between settings. For example, this includes implementation of the IHI.
- **Health Service Insight:** Provides reporting and analysis that enables decision support, population health trends, and so on.
- **National support systems:** Putting in place the core support systems, such as finance, procurement, and HR systems.[32]

In 2015, the Health Service Executive launched the eHealth Ireland website, together with national strategic programmes for essential national eHealth solutions. The National Electronic Health Record strategic programme:

- National Shared (Care) Record
- community operational systems
- acute operational systems
- integration capability.

The Sláintecare Implementation Plan (2018) reiterated the importance of eHealth and outlined the following elements as priorities:

- National acute Electronic Health Record (EHR), starting in the Children's Hospital Ireland (CHI)
- Community-based Electronic Health Records (EHRs), connect data across the system and, over time, making data available to patients

- National shared record, providing the necessary integration between community-based care and the acute hospital sector
- Primary and community-based ICT services, including ePrescribing, summary care records
- Telehealth solutions to support care in the community
- Infrastructure to support the health workforce and the delivery of integrated care
- Implement the national digital maternity system.(12)

Immediate priorities were ePrescribing, summary care records, and an overarching operational system to share data between the key care professionals such as GPs, nurses and other health professionals. Individual health identifiers are seen as playing a crucial role, to identify the person's information uniquely and correctly across all systems. Continued strong support of the eHealth strategy was also advocated – particularly ensuring the necessary funding for timely rollout of the EHR system and resourcing of the eHealth change processes.

Prior to the COVID-19 pandemic and the cybersecurity attack on the HSE, the HSE national governance structures aligned to the national strategic eHealth programmes. A national eHealth Board had oversight of all projects and programmes related to Sláintecare. Chaired by the deputy CEO of the HSE, the board had three subcommittees:

- Acute electronic health records
- Community electronic health records
- Shared care records/integration engine.

Each subcommittee was typically headed by individuals at national director level and all projects related to ICT enablement were usually presented to the appropriate subcommittee. These governance structures were considered to have worked well but the strategic programmes were paused during COVID-19 when critical resources were redeployed to pandemic response.

4.2 Example of existing national systems supported by a crucial eHealth enabler

Over the past decade or more, a number of national systems and infrastructure have been established. Examples of these systems include:

- **Maternal Newborn Clinical Information System (Maternity)**, which is an electronic health record (EHR) for all women and babies in maternity services.

- **National Medical Laboratory Information System (Laboratory)**, which provides Irish healthcare providers with 24-hour access to complete and up-to-date accurate laboratory data across all sites through a national electronic laboratory record.
- **National Integrated Medical Imaging System (Radiology)** comprising a Picture Archive and Communication System (PACS), a Radiology Information System (RIS) and a Voice Recognition (VR) system, storing and sharing patient images electronically in 38 hospitals across Ireland.
- **Primary Care Eligibility and Reimbursement Service**, which processes payments to all GPs, dentists, pharmacists and other professionals who provide free or reduced cost services to the public.

Additionally, the national messaging broker, Healthlink, provides for the standardised exchange of information across settings; for example, the receipt of radiology images.

Healthlink is a secure, standardised national messaging service that allows hospitals (or other secondary healthcare facilities) and GPs to exchange information. Healthlink is fully compliant with the HL7 version 2.4, an internationally recognised standard for the exchange of information between healthcare applications. Healthlink is also fully compliant with the General Practice Messaging Standard, the national standard that defines electronic messaging for the following communications between GPs and hospitals:

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

For example, Healthlink supports laboratory order functionality, which gives 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. Benefits to both GP practices and labs including the elimination of illegible or incomplete order forms, electronic records of all orders placed and quicker turnaround of orders and results.

Healthlink also supports National Electronic Referrals (eReferrals), which provides GPs with the ability to use a nationally accredited GP practice management system to generate referrals to specialist services electronically. eReferrals for breast, prostate, lung, and pigmented lesion cancer have also been developed, in collaboration with the National Cancer Control Programme (NCCP).

Prior to the COVID-19 pandemic, the high-level roadmap for Healthlink was to deliver the following priorities for the HSE Office of the Chief Information Officer:

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

National health identifiers are considered to be a crucial enabler of electronic health records and the Sláintecare model, providing the means to uniquely identify a patient and the patient's records across systems and settings, when the patient accesses healthcare. Following their introduction through legislation in 2014, Individual Health Identifiers are being embedded in national systems and infrastructure as part of the national rollout.

The Health Identifier Service (HIDs) is responsible for the operation of the Individual Health Identifier (IHI) service, as delegated by the Minister for Health. Technical infrastructure for the Health Identifier Index is in place, populated with 6.7 million IHIs notified by the Department of Employment Affairs and Social Protection as current and former residents of Ireland.

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 mentioned earlier are also 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.

4.3 Examples of planned eHealth solutions and ICT infrastructure

Prior to COVID-19, other eHealth solutions and ICT infrastructure to support the delivery of services to all populations, including older persons, were in progress. Examples related to older persons services include:

- **Home Support Management System:** Implementation of this system has started, described in more detail later.
- **Residential Care Management System:** Following completion of demonstrations, a national approach has been agreed, described in more detail later.
- **Community Hub Management System (PCMS):** Pilot rollouts are complete and national rollout has started. The solution is being assessed for feasibility as a Primary Care Management System.
- **Clinical notes:** Solution scope and requirements have been defined.
- **Single identity:** Migrations of HealthIrl, Lotus Notes, and regional exchanges are complete. Identity management tools are in place.
- **National Single Sign On:** Procurement of a system-wide SSO solution is complete. DGOU sanction for solution.
- **CHO digital leads:** Digital leads are in place.
- **Health pathways:** A solution will be procured and made available to the service.

Examples of initiatives related to the delivery services to all cohorts and populations in acute care (including older persons) are:

- **Acute services digital leads:** Digital leads are in place.
- **ePharmacy/ePrescribing:** Clincal leads have been appointed.
- **Telehealth (video conferencing and remote consultation):** Rollout of video enabled care solutions is continuing and procurement has been completed.

- **Electronic Discharge System:** This system has been deployed in first three of seven priority sites.
- **Integrated Information Services Recovery:** The strategy and implementation programme are in progress.
- **Emergency services technology:** Upgrade of the core emergency services system has been completed and is live.

4.4 Summary

The Sláintecare Implementation Plan (2018) reiterated the importance of eHealth. Priorities include implementation of a national acute Electronic Health Record (EHR) and community-based Electronic Health Records (EHRs). A national shared record was intended to provide the necessary integration between community-based care and the acute hospital sector. Primary and community-based ICT services, including ePrescribing and summary care records were considered as immediate priorities, along with an overarching operational system to share data between the key care professionals such as GPs, nurses and other health professionals.(12)

Individual health identifiers are seen as playing a crucial role, to identify the person's information uniquely and correctly across all systems. Continued strong support of the eHealth strategy was also advocated – particularly ensuring the necessary funding for timely rollout of the EHR system and resourcing of the eHealth change processes.

Some national infrastructure is already in place. For example, the national messaging broker, Healthlink, supports a range of communications between primary care and acute settings. The General Practice Messaging Standard defines a number of communications between GPs and acute settings, such as the ordering of laboratory tests and receipt of results, inpatient admissions, and others. The National Standard for Electronic Referrals defines electronic referrals from GPs to specialist services.

The rollout of national health identifiers is underway. All GP practice management systems and all patient administration systems using iPMS PAS system version 5 can store and display the IHI. The IHI is inserted into all eReferrals travelling across the national messaging broker (Healthlink), where there is sufficient demographic data provided to match with the IHI.

Prior to COVID-19, other eHealth solutions and ICT infrastructure to support the delivery of services to all populations, including older persons, were in progress. These include management systems for home support and for residential care, as well as for community hubs.

Chapter 5 ICT enablement of service delivery (post-COVID-19)

The COVID-19 pandemic intensified the challenges in older persons care and crucial resources were redeployed to pandemic response. The HSE moved quickly to develop a range of innovative short-term solutions. In April 2020, COVID-19 emergency legislative provisions were introduced, permitting the emailing of prescriptions from prescribers, usually GPs, to the dispensing pharmacy using Healthmail. This removed the need for a paper equivalent and led to a large increase in usage of the system, in terms of message throughout, volume and user logins.[†]

Healthmail has also provided a secure mechanism for sharing demographic data within the HSE and with external organisations such as long stay residential facilities — such as testing of residents and staff in nursing homes and the sharing of contact data for contact tracing purposes.

The eReferrals service, which uses the national messaging broker, Healthlink, was used to make referrals for patients who required a COVID-19 test to be done or to be seen at a Community Assessment Hub, as well as delivering laboratory results for COVID-19 back to referring clinicians, including GPs. As such, Healthlink, the eReferrals system was used to provide COVID-19 test booking and results functionality for more than 3.1 million tests in 2021 along.

5.1 Strategic priorities (2021-2022)

Strategic programmes that were paused during COVID-19 began to be resumed in 2021. The Sláintecare Implementation Strategy and Action Plan 2021-2023 prioritised the delivery of summary and shared care records.(18) The critical, supporting eHealth and technology initiatives to be implemented are:

- national COVID-19 vaccination IT system
- National Waiting List Management System
- decision support pathways
- ePharmacy and ePrescribing
- residential care and home support management systems
- video conferencing and or remote consultation

[†] Strictly speaking, this cannot be accurately called ‘electronic prescribing’ or ‘electronic transfer of prescriptions’, as both terms are usually defined, because the information is not structured and therefore cannot be re-used.

- Electronic Discharge System
- Health Performance and Visualisation Platform
- Integrated Information Services Supporting Recovery
- summary and Shared Care Record
- Community Patient Management System.

Though not listed, the InterRAI assessment tool and citizen portal are also high priorities. Additionally, the implementation of the regional health areas were also considered a high priority.

The report noted some of the strengths arising from the COVID-19 response, including new ways of e-working and telemedicine, and of integrated working. It also noted weaknesses in the lack of modern acute and community care infrastructure, of real-time information, and of agreed care pathways between GPs, community and voluntary sector, and hospital care. It also noted that a new, integrated community IT system was being scoped to support a broad range of services, including older persons services.[31]

The HSE National Service Plans for 2021 and 2022 provided significant additional resourcing to enhance primary and community services, especially for older persons, and to support older persons to live in their own communities for as long as possible with improved access to care.[33] This, in turn, is expected to reduce the need for acute and residential care. The measures to achieve these aims include:

- **96 community healthcare networks** (CHNs, also known as Enhanced Community Care (ECC) networks) and **32 community specialist teams** (CSTs) for older people and chronic disease will work in an integrated way with the National Ambulance Service (NAS) and acute services to deliver end-to-end care, including bespoke pathways.
- **Nurse-led community intervention teams** (CITs) being expanded to support hospital avoidance and early discharge.
- **Community diagnostics** being expanded and access for GPs and CSTs improved. An additional 136,000 diagnostic tests will be provided, including X-rays, ultrasound, magnetic resonance imaging (MRI), computerised tomography (CT), echocardiography, and spirometry test, and through development of a radiology strategy.
- **Front-line staffing** being significantly increased, through the hiring of 2,000 additional front-line staff.

- Implementation of a **national 'home first' policy**.
- Implementation of the **Statutory Home Support Scheme**.
- Implementation of a **new national service framework** for public residential care, taking account of COVID-19 and of the new 'home first' policy to provide alternatives to long stay residential care.
- Full rollout of the **InterRAI care assessment** to assist with care planning, including the appointment of 128 InterRAI assessors (by quarter 1 2022).
- Establishment of a **pilot home support scheme** and completion by quarter 2 2022 to provide 230,000 additional hours

The above measures depend on the implementation of the Enhanced Community Care (ECC) programme, in particular the therapy and nursing capacity in primary care. The ECC programme also provides funding to the Integrated Care Programme for Older Persons (ICPOP) and for the appointment ECC leads and ICT leads at community health organisation level.

For the National Ambulance Service, the plan also outlines as a priority the development of alternative patient care pathways, including the introduction of the community Pathfinder, or community paramedics, project to deal with low acuity (low level of acuteness) calls in an integrated manner in partnership with other healthcare providers.

In relational to mental health services for older persons, the National Service Plan outlines a range of measures aimed at realising the vision outlined in *Sharing the Vision* — for example, by providing alternatives to inpatient care and emergency department presentations through integrated care — and in line with the *National Framework for Recovery in Mental Health (2018-2020)*.[19,28,34] It states that the mental health services provided should serve the different groups within the population, including young people (up to 18 years of age), general adult services (18 to 64 years), and psychiatry of later life (65 years and older). The plan seeks to improve access and resourcing by measures, such as the development of three community acute mental health services telehealth hubs and a 10% increase on mental health staffing in community acute mental health services compared to the previous year.

The report also outlined more general measures, such as the provision of a range of alternative care and recovery support services for service users across all community health networks.

The reform of home support and residential care continues in 2022 with the new integrated models being implemented for home and community support.[35] Key elements include:

- Development of a national service framework.
- Revise the model of service delivery in preparation for the statutory home support scheme, including public and private provision aspects.
- Design and pilot the reformed model to inform the new home support statutory scheme, supported by national rollout of the InterRAI assessment system.
- Deliver a new model of integrated older persons services founded on integrated care pathways between hospital and community and supports to positively age well.
- Develop and deliver alternatives to long-term residential care.

There is continued emphasis on increased primary and community care, to reduce hospital attendance and enhance care and support in communities.

Integrated care service pathways are also being developed, to reduce unnecessary hospital admissions, length of stay, and pre-admission rates of older persons to acute hospitals. GP access to diagnostics in primary care is being expanded and more community intervention teams are being established. New ambulatory care hubs are to be established and 1,250 additional community beds are to be provided, together with the expansion of re-ablement and outreach services.

Through enhanced community care (ECC) end-to-end care pathways have been developed at CHN level, to be supported by community specialist teams (CSTs). Where needed, new primary care centres are also being built. The National Ambulance Service is also playing a role in alternative care pathways that deal with low acuity calls in an integrated manner. And in specialist mental health services for older persons, staffing is to be increased by 10% and three new community acute mental health service telehealth hubs are to be established.

Over 2021 and 2022, the eHealth and ICT infrastructure and systems to support the expansion of services under ECC have been prioritised.

They include:

- **eHealth initiatives**, including ePrescribing, summary and shared care records

- An **interim ICT solution**, aligned to the longer-term rollout of an **Integrated Community Case Management System**, to support a standardised approach to the collection of data, activity and outcome measurements
- The **national home support IT system**, when detailed requirements for the operation of the home support scheme are known.

Additionally, support services (eHealth and Disruptive Technology function) is focusing on the delivery of foundational infrastructure and cyber technology, national and HSE transformational programme, among others. It also aims to deliver core national programmes to advance the Sláintecare Implementation Strategy, including the community electronic health record system, summary care records, the shared care record and individual health identifiers, among others. These projects and initiatives are subject principally to the HSE governance structures for ICT enablement and are focused on delivering the basic functionality, across populations, to support enhanced primary care and community care.

Prior to COVID-19, the HSE was undergoing corporate restructuring and governance structures were in transition. Following the outbreak of COVID-19 and the cyber security attack, a revised approach was taken to the strategic governance function of ICT enablement across populations, including older persons services. This section provides a brief summary of the information that was available concerning governance of ICT enablement across the HSE.

At a broad level, the Office of the Chief Information Officer has oversight of all day-to-day ICT enablement, while the Digital Transformation function (under the Chief Strategy Officer) has oversight of all ICT enablement with a transformational aspect. The Chief Operations Officer has oversight of Community Operations, Acute Operations, Community Health Organisation ICT and Hospital Group ICT. The Chief Strategy Officer has oversight of the Change and Innovation for Older Persons Working Groups, including the InterRAI National Office.

Since the cyberattack, all ICT enablement projects for the Community Operations area — especially those with a digital transformation aspect — are now brought to the Integrated Community eHealth & ICT Oversight Committee (also known as the Community Digital Oversight Group [CDOG]) for approval. The CDOG was set up late in 2021, to prioritise competing ICT intiatives in the non-acute sector. These initiatives remain subject to sanction from the Department of Expenditure and Reform.

CDOG has a focus on interoperability of all ICT enablement projects and has additionally identified six principles of interoperability with future eHealth solutions, with which projects much comply. However, it remains crucial that a more detailed

strategic vision is articulated, outlining how these elements will integrate with the national strategic approach that includes national eHealth solutions, as part of a national infrastructure to support the management and sharing of information.

The Group is chaired by the National Director for Community Operations, with the Assistant National Director for Community Operations as vice chair. Members include representatives from two CHOs, from the Officer of the Chief Information Officer, the Department of Health, the Enhanced Community Care (ECC) Programme, with the National Coordinator of GPIT Group representing GPs. The Group reports to the Chief Operations Officer, through the Chair.

The Change and Innovation function also has a core role in the reform of older persons services, running several working groups that are undertaking pilot projects. It has two representatives on the Integrated Community eHealth and ICT Committee, for Older Persons and for the Integrated Care Programme for Older Persons.

In the acute operations area, the acute hospital groups typically have their own ICT steering groups, each of which fulfills a similar role to the Integrated Community eHealth and ICT Oversight Committee. The committee and the acute hospital group ICT steering groups also report to the Digital Government Oversight Unit, which has oversight of larger scale projects.

Each Community Health Organisation (CHO) has been funded to hire an ICT General Manager, reporting to the Chief Officer of the CHO who, outside the direct reporting line, has additional reporting responsibilities to the Integrated Community eHealth and ICT Oversight Committee. The CHO ICT General Managers are also expected to form their own network within the Office of the Chief Information Officer to ensure CHOs can share learnings.

5.2 Delivery priorities

CDOG is focusing on delivery of basic functionality that will support the delivery of formal care services for populations in community (including older persons). Known as the 'ICT Spine', this will consist of integrated community health systems, e-referral, triage, waiting list, and case management functionality. The HSE Digital Transformation function also provides a pipeline of 'agile, well-governed' solutions that have been through pilot testing, to the CDOG for approval.

5.2.1 'ICT Spine'

Requirements across the different populations in community, including older persons, are broadly similar. Therefore, the HSE intends to provide a common,

centrally maintained summary of care for the patient through functionality across these populations. The 'ICT Spine' has four pillars:

- **Integrated Community Case Management System**, which incorporates clinical records and care provision, patient administration, analytics and reporting, and foundations (that is, interoperability, secure mobile platform, and consent, among others).
- **Specialist systems**, including:
    - the **Integrated Residential Care Management System**, which will manage beds in public residential care settings
    - the **Integrated Home Support Management System**, which is part of a new overarching approach across rehabilitation, re-enablement, intermediate care and other models of care
    - the **InterRAI assessment** information system (replacing the Single Assessment Tool information), which is a comprehensive assessment for homecare in the community and for discharge from acute hospitals.
- **Tele Health**, including video-enabled care, remote monitoring technology, and delivery of online care.
- **Triage Reference Group**, which reviews any requirements for community and, after scoring, presents them to CDOG. It has representatives from the corporate, clinical, and informatics domains, among others.

The HSE is prioritising the procurement of these solutions. It is understood that the national eReferrals service and the national messaging broker, Healthlink, will be used to support the ICT Spine.

The HSE Change and Innovation for Older Persons function has several workstreams that are relevant to the ICT enablement of older persons services, including the Integrated Care Programme for Older Persons and three working groups:

- Home Support Working Group
- InterRAI Working Group
- Residential Care Working Group
- Integrated Care Programme for Older Persons.

Each working group forms a separate workstream, each with a separate pilot, and includes representation from ICT, clinical, acute, community. Each reports through the National Director for Change and Innovation, to the Chief Strategy Officer. Each working group has a separate pilot that follows a standard approach. The purpose of these groups is to ensure that systems implemented in the CHOs are standardised,

can be integrated with the IHI, and will be compatible in the future with the Shared Care Record.

Implementation encompasses not only the ICT solution itself, but also the larger change management process. The ICCMS programme has five workstreams: user experience and pathways, data and reporting, our people and change, national directories and integration, and the ICCMS solution. Support from the services is considered vital for the success of the 'ICT Spine'. National representatives of key user groups have been engaged to gather requirements during the pilot projects and broader engagement of key user groups is expected during later phases. Thus, the 'ICT Spine' is a multi-annual undertaking that requires significant cultural change.

5.2.2 InterRAI Working Group

As was noted earlier, the InterRAI Assessment was selected by the National Clinical Programme for Older Persons as the national standard for assessment in home support and community care. The InterRAI Assessment information system represents a change for GPs and public health nurses, from their (respective) well-established assessment tools to a new model of assessment of an older persons for homecare needs, as well as from a paper-based to a technology-enabled assessment. The InterRAI Assessment project is a five-year undertaking and national representatives of GPs, geriatricians, and public health nurses were engaged in the working group and pilot, which began in November 2021.

The Enhanced Community Care (ECC) Programme funded the 2021 appointment of 128 InterRAI assessors and InterRAI became the national standard from 2022. The roadmap will be finalised in 2022 and will include engagement of the broader end-user groups, including GPs, public health nurses, and other core end-users. Broader initiatives for the upskilling of healthcare professionals are also underway. The HSE has developed digital health capability framework for nursing and midwifery, which is being extended to other healthcare professionals nationally.

5.2.3 Home Support Working Group

As part of wider reforms, learnings from COVID-19 and earlier are informing the development of a new overarching model, including rehabilitation, re-ablement, intermediate care and other models of care. Public health nurses are represented on the Working Group through the ONMDS.

The home support pilot project began in November 2021 as a ministerial priority, It aims to provide homecare evaluation (using InterRAI) for every new person applying

for support — though there are capacity challenges, such as with carers — and is expected to scale up from January.

5.2.4 Residential Care Working Group

The HSE is currently developing the Residential Care Management System, which is intended to manage residential care settings across a broad range of areas, including residential care for older persons, for people with disabilities, and for other populations.(36) The system will provide the capability to manage admission and discharge, and to carry out a needs assessment for a patient. It will also provide the ability to plan rosters, as well as integrated governance and standardisation in patient records.

As part of this project, an indepth analysis of care facilities was needed, so the HSE carried out a digital maturity assessment of residential care settings. Workshops were held in May 2020 to gather high-level requirements from stakeholders in key areas including disability services, older persons services, mental health support services, GPs, and so on. Themes from the workshop included ePharmacy and medication management. It was also understood from these workshops that 50-60% of work is still paper based.

Other desired capabilities include patient records, medication management and integration with acute and community serices, such as ePharmacy and integration with GP practice management systems. Still to be determined are how the system will link to the national shared care record and national electronic health record (EHR), and into private hospital systems. The second and final workshop has been rescheduled for later in 2021. Community managers have had a preview of the Residential Care Management System.(31)

The Residential Care Management System pilot is in progress, using four pilot sites chosen for their different characteristics and being subject independent evaluation. The pilot was affected by COVID-19 and by the cyber-attack on HSE services, but is ramping up. A key requirement is the count of available ‘beds’ in the community, and an electronic system for counting beds has been approved. However, a key prerequisite — a common definition of a bed — is yet to be developed. The pilot and the new electronic bed counting system are for public sector only.

5.2.5 Other

The Change and Innovation function also has a Long Term Change, Development, and Innovation division, which manages the culture change associated with organisational transformation. Additionally, there is recognition of the need, at national level, for foundational training to healthcare professionals moving from paper-based records to IT systems. Therefore, the HSE has already developed a

digital health capability framework for nursing and midwifery, and the digital health foundation offering has been offered.[37] The digital health framework this is now being considered to address the upskilling of other healthcare professionals nationally.

5.3 Summary

The HSE National Service Plans for 2021 and 2022, together with the CHO 2 service delivery plan, seek to continue the structural, service, and other reforms that are integral to realisation of the Sláintecare vision. As a high priority, these plans hold the establishment of each community health network as the focus for health and social care delivery to its constituent population. Consistent with the goal of providing most of an older person's care as close to their home and community as possible, the aim is to implement a national 'Home First' policy, underpinned by a Statutory Home Support Scheme. A pilot home support scheme is to be established, and 230,000 additional home support hours are to be allocated. To assist with care planning, the InterRAI care assessment will be fully rolled out and 128 InterRAI assessors will be appointed.

Over 2021 and 2022, HSE service delivery plans have continued to emphasise ePrescribing, summary records, and shared records as the key ICT requirements for the reforms that are underway. Connectivity between hospital and primary care systems, along integrated care pathways and with community-based diagnostics are also considered essential. The HSE Service Plan (2021), through the Enhanced Community Care (ECC) programme, has increased funding and resourcing for primary and community care significantly — including for ICPOP as a service model for older persons services and for chronic disease management, and for the 'ICT Spine' projects, such as InterRAI Assessment. CHO ICT leads have also been appointed. Thus, the HSE is progressing the strategic approach developed by ICPOP and also progressing the 'ICT Spine' in support of enhanced primary and community services for all cohorts and populations, including older persons.

The new Integrated Community Case Management System is expect to manage referral, treatment and discharge initially, with subsequent management of very complex care pathways. The residential care management system is expected to manage admission and discharge, as well as needs assessment, for patients across a number of populations, including for older persons. Finally, the National Ambulance Service is also likely to play a larger role in the delivery of care to older people in their homes, and sharing information with the eAmbulance systems may also be appropriate.

Over the longer term, these systems are all expected to integrate with national eHealth solutions under Sláintecare. As noted earlier, these include national acute

electronic health record, the national community electronic health record, and the national shared care record, which will provide a unified view of both. Over time, other acute services that may play a role in the delivery of older persons services (such as ePrescribing and ePharmacy, and electronic discharge) and are also expected to be integrated with national eHealth solutions. This is likely to be best achieved through the development and adoption of the relevant national standards for interoperability.

While the Community Digital Oversight Group (CDOG) identified six principles of interoperability with future eHealth solutions, it remains crucial that a clear vision is articulated of how these elements will integrate with the national strategic approach, including national eHealth solutions, as part of a national infrastructure to support the management and sharing of information.

Chapter 6 Examples of ICT enablement across services, settings, and roles

A primary care team (PCT) provides much of an older person's care in the community, with GPs, public health nurses, and other health and social care professionals playing a particularly crucial role in identifying the older person's needs and making the appropriate referrals. The PCT is a multidisciplinary team that typically consists of GPs, nurses, home help support, physiotherapists, and occupational therapists, as well as other healthcare professionals from social work, psychology, dietetics and speech, podiatry, and language therapist. Long-term residential care is also a key element of older persons services, while the National Ambulance Service is undertaking a more active role in this area with a view to preventing unnecessary visits to the emergency department. This chapter provides examples of ICT enablement of older persons services in these areas.

6.1 Healthcare professionals

Primary and community care services are provided by healthcare professionals, which encompasses GPs, nurses, and other health and social care professionals (HSCPs). Primary care teams (PCTs) work to support older persons to live at home for as long as possible. Core HSCP disciplines working in HSE primary care services include dietetics, occupational therapy, physiotherapy, podiatry, psychology, social work and speech and language therapy. Depending on the discipline, the HSCP professional may provide cover at CHN or CHO level.

Clients may require intervention from a single discipline or from the multidisciplinary team (MDT). For clients with complex needs, use of a referral form for a single discipline can lead to challenges in providing coordinated care. With the introduction of the community healthcare networks (CHNs), key workers will be appointed. This will support the identification of clients with complex needs and ensure a co-ordinated MDT approach to their care planning and provision, which may include close collaboration between acute hospitals and primary care services.

Referral management differs between CHOs, with varying levels of ICT enablement — for example, through a centralised PCT referral process, or by referral to an individual discipline or to a primary care centre. No standardised PCT referral form exists. A key objective of the Enhanced Community Care (ECC) programme is support for a centralised PCT Referral Process, centralised submission and management of referrals.

GPs play a core role in the provision of primary care and healthcare professional on the PCT, with the role with most involved in an older person's care typically acting as the case load manager. For example, if the older person has difficulties swallowing,

the speech and language therapist would act as a case manager. Therefore, this section looks at examples of ICT enablement among general practitioners (GPs) and among public health nurses, as one of the healthcare professions providing care.

6.1.1 General practitioners

General practitioners (GPs) in Ireland have worked on ICT enablement for many years. The Irish College of General Practitioners' GP IT Group has worked in collaboration with vendors and other stakeholders to develop accredited GP practice management systems.(38) Thus, approximately 95% of GP practices currently use an accredited GP practice management system.(39)

Following the development of the National Standard for Patient Referral Information, GP practices can make referrals to specialist services, and receive triage information and other follow up electronically.(40) By 2020, more than 23 million electronic referral messages had been sent through Healthlink – indicating compliance with the General Practice Messaging Standard.(41)

While hospitals vary in terms of the adoption of electronic messaging for communication with GPs, the General Practice Messaging Standard ensures that GP practice management systems have the ability to send the following messages electronically through the national messaging broker, Healthlink:(42)

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

The terms under which GPs provide services nationally were agreed by Department of Health, the HSE and the Irish Medical Organisation in the *Terms of Agreement between the Department of Health, the HSE and the IMO regarding GP Contractual Reform and Service Development (2019 – 2022)*. Known as 'the GP contract', this agreement outlines 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 GP IT-accredited practice management systems, with coverage currently standing at 95% of GP practices.(43)

Accredited general practice systems are already capable of using the patient's Individual Health Identifier (IHI). IHIs 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 Primary Care and Eligibility Reimbursement Service (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 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 or 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.

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 immunisations nurses, pharmacists. An integrated solution is expected to go live by 2021 and to achieve 90% coverage by 2023.

Following the onset of the COVID-19 pandemic, the General Practice IT Group (GPIT) in the Irish College of General Practitioners became aware of deficiencies in nursing homes and began focusing on how to improve nursing home services.(38) In medication management, in particular, there was no interoperability between the record used in nursing homes and the record use in the GP surgery. Therefore, when the GP generates a letter for a patient — for example, for a referral from the

nursing home into an acute hospital — the GP cannot guarantee that the medications list is up to date.

This gives rise to two main issues for older persons, who are typically very frail and vulnerable patients:

- Medication management is much more important than in younger patients.
- Nursing home systems tend to focus on nursing care and tend not to be aligned with services such as eReferrals, good end-of-life care, access to hospital reports, and so on. For example, when the GP sees a patient who is losing weight, the patient record may be a hardcopy folder with no access to previous medical history, lab results and so on. This makes it much harder for the GP to make a judgment.

All the groups involved in providing this care would really benefit from 'thought through' IT systems — such as a cloud-based record that all could access.

Thus the main issues are:

- Transition from secondary to primary care, not just for older people
- lack of interoperability between hospitals and GPs, with a lack of visibility — hence, for example, duplication of blood tests.

6.1.2 Public health nurse

Public health nursing is comprised of two main roles:

- public health nurses, who have specialist public health qualifications and are the case load managers
- community nurses, who are registered general nurses who assist public health nurses.(44)

Within the integrated care services, each public health nurse has a caseload within a specific geographical area, with active patients who are listed in a register. There are a number of categories of care, including older persons. Case notes are typically paper based, though some public health nurses use Microsoft Excel.

In respect of older persons, the public health nurse is responsible for assessing whether the older person requires home support and can refer to other members of the primary care team — for example, for physiotherapy, for occupational therapy, for speech and language therapy, and so on.(44) Public health nurses can make this assessment using the Single Assessment Tool – although this varies across CHOs

with many generated without SAT.[45] There is an online form for some referrals but many referrals are made using paper.[44]

70% to 80% of referrals to the public health nurse are from acute settings, and are paper based rather than electronic. In practice, two copies of the referral letter are typically printed out in the ward, with one copy being put in the patient's record folder and the other copy being sent to the community centre. The public health nurse then enters the patient on their registered list of active patients, creating a new case record and entering the relevant information into activity metrics.

Public health nurses report 90 metric lines each month through a system developed for metric reporting only. This is part of an initiative started in 2016 and looking at national metrics for all professionals working in primary care. To date, metrics show that most activities for public health nurses is with older persons (aged 65 years and over) and with sick young people.

There is keen interest in the introduction of ICT systems for caseload management among some health nurses — for example, use of laptop and mobile to manage cases — though others would prefer to continue with paper records.

6.2 Community Health Organisations

6.2.1 Example: Managing nursing care using Carenotes (CHO 1)

This example looks at the use of Carenotes ('built by nurses for nurses') in Community Health Organisation (CHO) 1, which began in 2018. The Carenotes Electronic Patient Record provides the ability to manage care across settings that include mental health and community health among others.[46]

The implementation used basic Carenotes functionality: basic core forms with some small customisations. Carenotes was implementation as a web-based application and used with virtual private network (VPN) access to the HSE. It covers 11 community hospitals and the day hospital. The application has four roles:

- standard clinical user
- HSE system admin
- HSE clinical user
- system administrator (from the HSE Office of the Chief Information Officer).

The system administrator can build forms and create reports. Access to the system is role-based and permissions-based, by site. Users (nurses) can search for the client

using their IHI, date of birth, or other criterion. Each client is linked to a site and the system administrator has to transfer clients from one site to another, when needed. Users can create a community episode to cover episodes of care as an inpatient or in day hospital. However, no information can be transferred from GP practice. There is no external connectivity with GPs, hospitals, and labs.

A major upgrade was due in 2021 in training systems and in the test environment. It is tailored for nursing staff and will provide the ability to integrate with a GP system. Currently information is shared between older persons, intellectual disability services, inpatient services, and outpatient.

Carenotes typically contains demographics information and discharge information — that is, why the patient was discharged or transferred, what the treatment was. Previously, a one-page proforma summary was completed manually. This is now autopopulated because the information captured by the National Transfer Document has been incorporated into Carenotes fields, though the structure of the National Transfer of Care Document information has not been implemented. When transferring a patient, the nurse prints the one-page proforma summary, the transfer of care information, the patient's medications information, and the GP letter. They have a lot of potential for building forms themselves and autogenerating forms.

The system is not paperless. Staff have terminals or desktops — one for each community, or two for larger communities — which are wheeled around on a trolley. Mobile or handheld devices could work — such as a public health nurse bringing the mobile or handheld device when attending a community episode. But the user interface on the mobile or handheld is different to the desktops so they are not used.

IT support would be very useful, as a member of staff inhouse currently provides that support. Tablets or mobile devices outside rooms would also be very useful.

6.2.2 Example: Delivery of older persons services (CHO 2)

The community healthcare organisation (CHO) 2 Operational Plan for 2021 noted that the move towards the establishment of a strategic HSE national centre complemented by regional health areas was underway, together with the integration of hospital, community and social care services.[47] Priorites for the following two-to-three year period were structural reform including:

- the establishment of community health networks the central point for managing and delivering community services
- the establishment of specialist ambulatory care hubs, for chronic conditions and for older persons with complex needs

- the recruitment of specialist integrated care teams.

The community health network learning site was also paused from March to September 2020, which the implementation of the CHN model.

Opportunities recognised included:

- the development of the Community Intervention Team for Mayo to support hospital discharge, hospital avoidance, and the delivery of outpatient parenteral antimicrobial therapy services
- the rollout of Attend Anywhere telehealth, available to clinicians rather than full reliance on clinic or home visits
- the development of the community healthcare network learning site in Tuam, with funding sought for five further CHNs
- the provision of GP access to diagnostics — that is, CT,[‡] MRI,[§] X-ray,[**] and DEXA[††] scans — in primary care
- the provision of integrated care for older persons and of diagnostics through ambulatory care hubs
- the provision of integrated care teams for chronic disease management for three CHNs (or average population 150,000)
- the completion of construction of two new primary care centres.

In the area of primary care, the plan provides for a multidisciplinary approach through primary care teams, network-based services, and integrated teams in which GPs, community nursing and health and social care professionals (HSCP) work with community-based services for older persons and acute hospital services to provide care.

In CHO 2, older persons services provides a range of services for older persons, including:

- home supports
- day care
- community supports (in conjunction with voluntary groups)
- intermediate care (residential and in the home and respite)
- long stay residential care.

[‡] CT scan (or CAT scan) is a computerised tomography.
[§] MRI is the magnetic resonance imaging technique.
[**] X-ray is a radiography scan.
[††] DEXA scan is bone densitometry, a method of measuring bone density.

For winter 2020/2021, the primary focus of older persons services in CHO 2 was, together with the COVID-19 vaccination programme, progression the ICPOP model of care aligned to two networks. Services in key pathways were to be designed to ensure reductions in unnecessary hospital admissions, lengths of stay, and re-admission rates of older persons to acute hospitals. Other key elements of the 2020/2021 winter plan were additional home support hours, Home First policy, and the establishment of ICPOP described already.

The plan also outlined the continued rollout of the Single Assessment Tool (InterRAI Ireland), which is used in CHO 2 in two situations:

- in longterm residential care, to assess dependency levels in longer-term residential care applications
- in home support, in preparation for introduction of the statutory home support system.

Finally, in CHO 2, the Services Liaison Office, Portfolio Management Office, and Office of the Chief Information Officer are working on a range of projects to support enhanced community care.

The plan noted issues such as the post-COVID-19 return to clinical services face-to-face, through telehealth, or by telephone. It also noted that connectivity between hospital and primary care systems was not there, and was a requirement for the development of integrated care pathways and diagnostics.

6.3 Acute settings

From 2018 to 2020, the HSE undertook digital maturity assessments for acute and community settings. Originally developed by NHS England, the assessments were designed to provide a baseline which is a national benchmark against which progress can be monitored at national level and for benchmarking against neighbouring countries. It is also expected to inform future planning by identifying where gaps are and where investment is required.

Originally developed by NHS England, the digital maturity assessment for acute settings focused on three core themes of digital maturity:

- **Readiness:** strategic alignment, leadership, resourcing, governance and information governance
- **Capabilities:** records, assessments and plans, transfers of care, orders and results management, medicines optimisation, decision support, remote and assistive care, asset and resource optimisation, business and clinical intelligence, and standards

- **Infrastructure:** enabling infrastructure.

Hospitals that completed the digital maturity assessment can be categorised as follows in Table 1.[48]

Table 1. Hospital types included in the digital maturity assessment[48]

Type	Description	Number
Childrens	Children's hospital	3
Level 2	Local hospital with selected (GP referred) medical patients	10
Level 3	General hospital	18
Level 4	Tertiary hospital	9
Maternity	Maternity hospital	5
Speciality	Speciality hospital	5

The results of the assessment are shown in **Error! Reference source not found.** and Table 2.

Figure 7. Results of the assessment

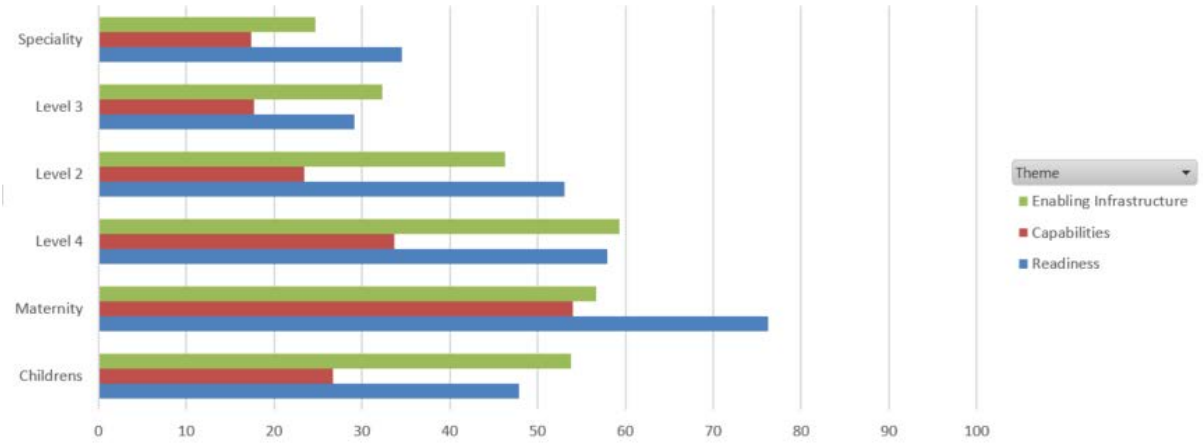


Table 2. Summary of results

	% Readiness	% Capabilities	% Enabling Infrastructure
Childrens	48	27	54
Maternity	76	54	57
Level 4	58	34	59

Level 2	53	23	46
Level 3	29	18	32
Speciality	35	17	25

As shown above, the five maternity hospitals consistently show the highest levels of readiness, capabilities, and enabling infrastructure. The children's hospitals and level 4 hospitals have good levels of enabling infrastructure and readiness, with lower scores on capabilities. Similary, level 2 hospitals have good levels of enabling infrastructure and readiness, but modest capabilities. Level 3 hospitals have more modest scores across all three areas.

6.4 Home support services

6.4.1 Example: Managing home support services using ARCH (CHO 1)

In the Sligo-Leitrim area of CHO 1, older persons services provides a range of home support services, including:

- personal care
- home respite, day and night
- day care
- Meals on Wheels.

These services are delivered by a combination of HSE staff (70%) and up to eight private providers (30%). Older persons services also liaise with other services and organisations, such as the Alzheimer's Society. A Sligo-Leitrim partnership manages up to 14 day services, while a Leitrim partnership manages five more.

When providing care to an older person, the first step is a devising a plan of care tasks. The public health nurse does an assessment and the individual makes an application for services, as well as providing their agreement and consent for those services to be provided. The occupational therapy team in older persons services typically manages the care after that.

A care plan folder is placed in each older person's home, with all contact details, the care plan, and policies as well as the form that the older person needs to sign, to consent to the provision of services. The care plan folder is a ring binder that the public health nurse, occupational therapists, and others can use it to sign off.

The public health nurse provides details of the care plan to their coordinator. Each coordinator is responsible for the staff providing services in their coordination areas

and works with several public health nurses. Each coordinator also has a full time administrative assistant for administrative support.

Each coordinator also has an environmental risk assessment for home support, which the older persons service has developed based on a similar assessment used by private providers.

Coordinators make a monitoring visit — covering things like if the individual is happy, well dressed, well cared for, and so on — every six months for less complex care and every three months for more complex care. They also contact the public health nurse pre and post-visit.

Referrals to older persons services are discussed at twice weekly meetings. Many of these referrals come through the consultants, who visit nursing homes and people in their homes, while others come from public health nurses and ICPOP. Older persons services can refer the older person to physios, occupational therapists, two healthcare assistants, and five advanced nurse practitioners. The public health nurse then goes out to the older person, bringing the national application form, consent form, and so on for the person to sign. They also provide mental health key workers.

Additionally, a weekly governance meeting is held, attended by home support, discharge liaison, occupational therapy management, the Assistant Director of Public Health Nursing (and occasionally the Principal Social Worker for Adult Services.) The re-enablement team, which is occupational therapy-led, attends the governance meeting and develops re-enablement plan for each older person. The ICPOP team also attends. The ICPOP team liaise with four consultant geriatricians and have received funding for a community geriatrician, rotating between community and acute. Older persons services also have community nurses who specialise in dementia (for example, caring overnight for an older person with dementia).

The ARCH Homes Support System was introduced to manage details of home support services. ARCH is a Microsoft Access database, holding personal details of clients of the home support services, stores the order of calls that home support services makes, and audits their travel. A standalone utility extracts details for home support staff, which are uploaded as a CSV file to a SAP human resource management and payroll system, and extracts a separate spreadsheet to invoice thir party providers.

The ARCH system is used by the six coordinators to help them manage services in their coordination areas. As noted earlier, each coordinator works with a number of public health nurses. The public health nurse provides details of the care plans developed to the respective coordinator for the area and the coordinator is responsible for entering the older person's details onto ARCH — the coordinator's administrative assistant usually inputs these details into ARCH. Prior to the

introduction of ARCH, the administrative assistants were inputting information 'constantly'. Following the introduction of ARCH, this was reduced to three days every two weeks.

ARCH provides the ability to run a report on the full package delivered to a patient. ARCH provides staff with key performance indicator (KPI) information for direct and indirect services, such as annual leave, sick leave, and so on. For example, travel time has an impact, and 36 hours of direct care might entail three hours of travel. So calls have been clustered. The ARCH system has also been implemented in the Cavan-Monaghan area.

Older persons services have also eliminated the use of paper files at meetings. Public health nurses now scan all of an older person's documents using a printer or scanner in their primary care centre. These documents are sent to the administrative assistant, who adds the document to the older person's file. The weekly governance meeting is now paperless, as all the older person's documentation has been scanned in and added to their file. Staff personnel files have also been put online. However, coordinators bring the paper forms that need to be signed.

When asked about staff response to these initiatives, the respondent noted that there 'was and is real enthusiasm…they see IT enablement as a way forward and staff are excited about it'. This enthusiasm persists even though it was a major transition and, for a time, both paper and online approaches were in use simultaneously.

When asked about what additional capabilities were desirable, the respondent noted that a link to the SAT tool was added, all areas would be covered. Staff — that is, the GP, occupational therapist, public health nurse, and so on — could document [their visits] on their phones. The vendor [who had worked with Older persons Services to develop the ARCH system] had confirmed that this is possible technically. Examples of other desirable capabilities are:

- the ability to see staff booking of annual leave and approval
- the ability to set up notifications and alerts — such as an alert when the patient has COVID-19 and the staff need to wear personal protected equipment — among others
- the ability to use the phone to sign in and sign out, to cover travel, pay and so on.

6.5 Long-term residential care

Nursing Homes Ireland (NHI) outlined that nursing homes are independent, so they manage their own IT, recording, documentation and so on.[49] As a result, the level

of ICT enablement varies, with some nursing homes having paper-based systems while others are all electronic.

Nursing homes typically provide information to an acute setting using the National Transfer of Care document, which they find useful. However, they do not typically get that information back from the hospital. Sometimes they receive a regular discharge letter but, ideally, would also like the information captured in the National Transfer of Care document to be provided by the acute setting. For example, if the person now prefers to be approached from the left side only. Such documentation needs to be linked to an Individual Health Identifier.

NHI is aware of the medications management aspect of the systems used in nursing homes, with many such systems providing administration and stock management capabilities, and is updating medication management policies and procedures for such systems.

A number of nursing homes use Epicare, which covers many areas of the nursing home, such as clinical, medical, and social, together with management of kitchen and laundry services, among others. It provides extensive nursing support through care plans, progress notes, and medication management. As such, Epicare supports a ‘paperless’ nursing home, but this would not include interoperability with GP system.[49]

The key requirements for nursing homes are:

- Individual Health Identifier
- Transfer of Care document.

The COVID-19 pandemic has prompted a number of innovations — first, the use of computer tablets, phones, and video calls in nursing homes. For example, during a COVID-19 outbreak in a nursing home, the administration or activities person communicated with families and linked in with staff using instant messaging and video calls. However, there were concerns about how safe this medium was. GPs also made greater use of phone and video consultations with nursing home residents and staff. Healthmail was also used for communications between the pharmacy, the HSE, the COVID-19 teams and the nursing homes. Vaccination information was

typically compiled on paper or in MS Excel spreadsheets. The HSE ran a pilot Attend Anywhere project, which supports consultations using telehealth technology.

6.5.1 Example: managing nursing homecare with Epicare

Another respondent had worked in a nursing home that used an electronic system, Epicare.[50] The respondent outlined the ICT capabilities and devices provided to nursing staff and to care staff.

The respondent praised the nursing assessment in Epicare, but noted limitations in its capacity to change the information at a later date or to give prompts — such as to revisit the assessment every three months. Care plans have a lot of generic information that people do not personalise, and carers may not understand the content fully. Epicare also has a number of risk assessments and a system for recording accidents and incidents. For example, if a resident fell, the nurse would perform a risk assessment and update an incident form. However, there is no prompt to assess or reassess the resident's mobility.

Electronic tablets were positioned on each floor and in ward throughout the nursing home, providing care staff with the ability to enter care planning information for the resident — for example, how much liquid intake the resident had. However, that information was held only at that location in each ward or floor location and so information could not be viewed for all residents. Nurses also often had to print out a resident's mobility assessment and place it in the resident's room. Ideally, care staff would also have access to each resident's care plan at those screen locations, rather than just the specific task-based information provided. Care staff should also be able to input their feedback through these devices into a 'whole model of overall care'.

Remote capabilities had also been introduced. Physiotherapists and occupational therapists could access Epicare remotely, using video conferencing to advise on activities, rehabilitation, and other areas. Similarly, those providing behavioural or nutritional support could access Epicare remotely, again using video conferencing for remote consultations. Healthcare professionals could also write notes remotely. The medication management system use has a pharmacy supply chain management aspect. Some nursing homes use electronic tablets and GPs, nurses, and pharmacists have access to a resident's prescription. Connectivity to Epicare was

being introduced. The staff and carers' current skill level and appetite for change also influenced the adoption of technologies.

6.5.2 Example: National Transfer of Care Document for transitions of care

The National Transfer of Care (NTC) Document collates 96 different nursing 'letters' (documents) into a single document. It was developed by the University of Limerick, and the literature review undertaken as part of its development showed this to be the first international document of its kind — perhaps most similar to the disability 'passport'.

The NTC Document provides essential information in an emergency, while keeping the patient at the centre of care, together with a patient 'passport'.

- Part I (front two pages): Emergency information, based on ISBAR Communication Tool. Where the document is integrated into the nursing home system, some information may be pre-populated.
- Part II: Profile of the patient, in line with person-centred care. Where the document is integrated into the nursing home system, much of the information is pre-populated. Part II outlines the patient's preferences and is particularly relevant for nursing.

The NTC Document was piloted in three hospitals and three residential care homes (private and public) and showed the following benefits:

- It reduces reworking and phone calls.
- It improves patient safety.
- It can also inform care planning.

Recently, new sections regarding COVID-19 and regarding nutrition were added. Epiccare, carematters, and other vendors have adopted the National Transfer of Care Document for use. Private hospitals have not adopted it, but public hospitals are considering adoption.

6.6 National Ambulance Service

As outlined in the National Service Plan 2021, the National Ambulance Service is prioritising the development of alternative patient care pathways, including the introduction of the community Pathfinder, or community paramedics, a project to deal with low acuity calls in an integrated manner in partnership with other healthcare providers. In 2019, the National Ambulance Service collaborated with the

Northern Ireland Ambulance Service and the Scottish Ambulance Service to develop the Community Paramedicine Project at four pilot sites.[51,52]

Aimed at improving the lives of patients in border and rural areas, the pilot project enabled community paramedics to build closer relationships with patients, local community teams, and GP practices. It also developed an alternative means of providing a community-based assessment and or treatment, thus potentially avoiding unnecessary referral to hospital, and could refer patients not just to GP services but also to primary care teams and to hospital services.

The community paramedics service is typically staffed by advanced paramedics, each being a practitioner State-registered with the Pre-Hospital Emergency Care Council. Advanced paramedics can assess many urgent medical problems and deliver a range of medications or interventions in a pre-hospital setting.

Community paramedics treat patients that come to the national ambulance service through low acuity calls through the 999 system. The community paramedic liaises with the GP, primary care team, and ambulance service as to the best treatment pathway for that patient. The community paramedic can organise referral and transportation to an appropriate facility and, in some circumstances, can monitor the patient's progress by reassing the patient later that day or in the following days.

The Community Paramedicine Project pilot ran from September 2017 to July 2019 and reached 1,596 male patients (average age 59 years) and 1,638 female patients (average age 62 years).[53] The most common age ranges were:

- 81-90 years: 708 patients
- 71-80 years: 632 patients
- 61-70 years: 372 patients.

Of those treated, 86% were treated in the community and 12% attended the emergency department. Only 2% required admission to hospital.

6.6.1 Example: Minimising unnecessary emergency department visits through the National Ambulance Service Pathfinder Service (CHO 9)

As noted earlier, presentation to the emergency department of an acute hospital increases an older person's risk of a number of adverse events, such as infection or increased confusion.[54] Beaumont Hospital reported that, in 2018, of the 9,861 patients aged over 75 years who presented the emergency department, approximately 50% were admitted.[54]

The Pathfinder service is run jointly by Beaumont Hospital and the National Ambulance Service, and aims to minimise unnecessary attendances at emergency

department by older people — that is, people aged over 65 years — by providing treating the older person at the scene, where appropriate, as an alternative to an emergency department visit. The service has two teams:

- **Ambulance team**: Consisting of an advanced paramedic and a clinical specialist occupational therapist or physiotherapist, responding to emergency (999) calls.
- **Follow-up team**: Consisting of occupational therapy and physical therapy staff, to support an older person to remain in their home through further assessment, interventions such as the provision of equipment, and linking the older person with the appropriate community health and social services or other services.

The advanced paramedic assesses the following:

- primary survey
- medical history (AMPLE)
- vital signs including blood glucose reading
- twelve lead ECG if required
- head to toe assessment in cases of a fall
- medication changes
- documentation.

The Beaumont Hospital occupational therapist or physiotherapist completes:

- baseline functioning report
- upper and lower limb power and range of motion assessment
- transfers and functional mobility assessment
- home environment assessment
- frailty screening
- cognitive and delirium screening
- activities of daily living assessment
- falls risk assessment
- screening need for referral to HSCP colleagues or services.

Case study

An 87-year-old lady called 999 after she felt ‘flat’ for three days and ‘generally unwell’. Her previous medical history included insulin-dependent diabetes mellitus (IDDM), polymyalgia, and high blood pressure. Baseline function assessment for

physical activities of daily living (PADL) is 1, as she is mobile over a short distance with a walking stick and independent with transfers.

The advanced paramedic recorded a Pre-Hospital Early Warning Score of 3 (respiration rate 20, blood sugar 19.5), medication list and recent changes, 12 lead ECG. The occupational therapist assessed transfers, functional mobility, home environment, and cognitive screen.

The outcome was to treat and refer:

- referred to Diabetic Day Clinic, with an appointment scheduled with the clinic for the next day (National Ambulance Service arranged transport)
- liason with Psychiatry of Old Age (low mood and clarity regarding antipsychotic prescription)
- liason with GP
- provided a raised toilet seat and rails.

6.6.2 Example: National Ambulance Service, eAmbulance

The National Ambulance Service has developed a comprehensive information technology infrastructure for the National Emergency Operations Centre and for ambulances and crew.(55) The infrastructure comprises a command and control system, Computer Aided Dispatch, which allows the caller's location to be displayed on an ordnance survey mapping system in the National Emergency Operations Centre.

Digital radio and mobile data infrastructure was installed in each ambulance, including a mobile data terminal 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 Wi-Fi hubs. Crew members were also issued with digital handsets and telemedicine was introduced. 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.

The Pre-Hospital Emergency Care Council (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.(56) Additionally, the system is capable of integration with Systematised Nomenclature of Medicine Clinical Terms (SNOMED CT).

6.7 Summary

Much of an older person's care is provided in the community by the primary care team (PCT). PCTs typically consist of GPs, public health nurses, physiotherapists, occupational therapists, home helps and a range of other health and social care professionals. The National Ambulance Service is taking a more active role in older persons care while long-term residential care is also a key element of older personsservices. ICT enablement varies significantly between these groups and must be considered as part of the wider ICT enablement of older persons services. Under the Enhanced Care Programme, support is being provided for a standard, centralised referrals management process in primary care.

GPs in Ireland have high levels of ICT enablement, with approximately 95% using an accredited practice management system that is capable of using the patient's Individual Heath Identifier. The terms of agreement between the Department of Health, the HSE and the Irish Medical Organisation regarding GP Contractual Reform and Service Development (2019–2022) further outlines the implementation of ePrescribing in the community, the wider rollout of the IHI (85-90%), and use of Shared Care Records.

The outbreak of COVID-19 had a hugely significant impact on GPs and the care they provide to their patients in nursing homes. In particular, it highlighted the lack of interoperability:

- between hospitals and GPs — for example, a lack of visibility of test results and duplication of same, but also creating challenges during the transition from secondary to primary care.
- between nursing home systems (if any) and GP practice management systems — creating issues with medications management in particular challenge.

Like other members of the primary care team, public health nurses are responsible for assessing the older person's care needs and can make referrals for to other members of the primary care team — for example, for physiotherapy, for occupational therapy, for speech and language therapy, and so on.[‡‡] 70-80% of referrals to public health nurses are from acute settings. Referral management varies but it is noted that referrals are typically paper based with some public health

[‡‡] Other health and social care professionals can also make referrals.

nurses and other healthcare professionals having access to MS Excel on shared laptops or desktops to report metrics only.

However, in CHO 1, the Carenotes system provides the ability to manage care across settings that include mental health and community health among others. It is most commonly used by nursing staff in 11 community hospitals and the day hospital. The ARCH Home Support system is also in use in several areas in CHO 1, by the home support team, which provide personal care, day care, meals on wheels, and respite to clients. This shows a moderate level of ICT enablement but also highlights that this does not necessarily mean that information can be shared effectively with other health and social care professionals, such as GPs.

The HSE Digital Maturity Assessment of acute settings in 2019, by and large, showed good levels enablement in the maternity hospitals, children's hospitals, and level 4 hospitals. Level 3 hospitals and level 2 hospitals showed more modest levels of ICT enablement.

Levels of ICT enablement vary considerably from nursing home to nursing home. Some nursing homes use paper based records, with the GP writing a medication note that many be added to a cardex for the older person. Other nursing homes use medications management systems supplied by pharmacy companies, which provide administration and stock management system. A number of nursing homes use a 'paperless nursing home' package, which covers many areas of the nursing home, such as clinical, medical, and social, together with management of kitchen and laundry services, among others, but does interoperate with GP systems.

Some nursing homes have opted to use the National Transfer of Care document, which they find useful, but typically do not get information back from hospitals in that form. Thus, the key requirements highlighted by Nursing Homes Ireland were:

- the use of national health identifiers
- the use of National Transfer of Care document, especially during transitions to and from acute settings
- interoperability with GP practice management systems.

ICT enablement varies significantly across the nursing home sector, from almost entirely paper-based systems to highly sophisticated ICT enablement, where separate dedicated systems have been developed for the medical, nursing, and pharmaceutical domains. These systems typically do not interact with each other, with GP systems or with other services. This mix of paper-based records and electronic systems, the tactical development of separate systems, and the lack of

interoperability has contributed to fragmentation of an individual's (including an older person's) record.

Given the variations in ICT enablement across those settings, ICT enablement is still a significant undertaking and should be driven by the needs of the end-user groups involved, with the patient at the centre of care. As noted earlier, technical requirements were found to be common across older persons services, as well as in other cohorts and populations. However, the clinical and care information required by key user groups can differ somewhat across cohorts and populations. The provision of a single, core record for each individual or patient must also remain a priority.

For example, in line with requirements identified by GPIT for nursing homes, a single record should be maintained for each resident and the use of hybrid paper and electronic records should be avoided. Clinical coding standards SNOMED CT (national standard) should be supported.

Findings from the full mapping of existing datasets should inform this analysis. Consideration should also be given to how the necessary information could be made available to any healthcare profession or facility responsible for continuity of care of that patient.

Therefore, an analysis of the actual information needs of healthcare practitioners should be undertaken, with the outcomes used to inform development of national standards for information requirements for core user groups involved in these transitions of care.

Chapter 7 Conclusion and next steps

In common with many other countries, Ireland is facing the challenge of an ageing population, with those aged 65 years or more expected to account for 50% of all healthcare activity by 2031.[24] An older person's patient journey typically has a high number of transitions across care settings, and their information is typically held in a number of IT systems or in paper records, in silos across those settings. This makes it extremely difficult for healthcare professionals treating the older person to share information safely and effectively.[24]

The high number of transitions, and the increasingly complex nature of the care, make the safe and effective exchange of information a particular challenge for older persons services. However, this challenge is common, to a large extent, to the delivery of services to almost all other cohorts and populations across primary, secondary and community settings.

Over the past decade or more, and in common with other countries, Ireland has sought to address this challenge by transforming health service delivery to a population-based, integrated care model.[4] The Sláintecare model seeks to provide care to older persons (and other populations) at the lowest level of complexity and as close to their homes and communities as possible.[12] Accordingly, national strategy has focused on the structural, service, financial and other reforms needed, which are ongoing at the time of writing.[57]

EHealth is a crucial enabler of the integrated care model and the Sláintecare vision, and has been developed in parallel to the structural, service, and other reforms. The HSE set up national strategic programmes for these eHealth objectives, including for national health identifiers, the national electronic health record and the national shared care record.

Other elements of national infrastructure include the national messaging broker, Healthlink, which provides standards-based exchange of health information for some interactions between acute and GPs or community settings, such as for laboratory test booking and reporting of results. Ireland is also engaged on work to support the enablement of ePrescribing, patient summary, medical imaging, lab results and reports, and hospital discharge summaries.

Specific to older persons, the National Clinical Programme for Older Persons (NCPOP) developed the new model of integrated care for older persons, with care pathways across acute settings and across community settings.[6] The model

designated the InterRAI assessment as the national standard for care needs assessment.

The Integrated Care Programme for Older Persons (ICPOP) developed a 10-step framework for the implementation of integrated care pathways informed by the NCPOP model.[29] Thus, the ICPOP service model seeks to provide a model of service transformation, specifically for older persons services and including the necessary ICT enablement. It is aligned to the wider transformation of healthcare under Sláintecare and has been adapted, under the Enhanced Community Care Programme, as the service model for chronic disease management. Limitations of the ICPOP pilots included low levels of participation by GPs and public health nurses — generally, the focus of an older person's care in the community — reflecting the lack of integration between public and private areas of the sector. ICPOP only applies to a small proportion of older persons services. However, its learnings are more broadly applicable.

Prerequisites for the ICPOP model were identified as standardised planning and funding processes, well-defined care pathways with shared care plans, coordination of care and referral services, and enhanced system capacity – characteristics of the new population-based, integrated care model. However, during pilot implementations, care pathways were found to be extremely complex and, even then, did not suit every patient.

ICPOP was also hampered by unclear regional administrative boundaries, fragmented funding structures (for example, between community and acute hospitals) and quick turnover of senior level decision makers. However, the structural reforms underway as part of Sláintecare, including the transition from CHOs and hospital groups (HGs) to regional health authorities (RHAs) are expected to address these issues. Slow progress implementing the national eHealth Strategy was identified as a significant national level barrier to the implementation of ICPOP in practice.

Thus, the ICPOP model is dependent on the progression of the structural, service, and other reforms under Sláintecare, especially the redesign of service delivery for older persons. It also has dependencies on the progression of Community ICT solutions and national eHealth solutions, aligned to Sláintecare.

The COVID-19 pandemic intensified the challenges across health service delivery, including in older persons care. At the beginning of the pandemic, many critical resources were redeployed to pandemic response. As a result, many national strategic eHealth projects, such as the national shared care record, were paused. The HSE moved quickly to develop a range of innovative solutions, such as using the

eReferrals system to provide COVID-19 test booking and results functionality (exceeding 3.1 million tests in 2021).

With the ongoing impact of COVID-19, the Sláintecare Implementation Strategy and Action Plan 2021-2023 prioritised the delivery of summary and shared care records.[18] The HSE Service Plans for 2021 and 2022 also provided significant extra funding and resources to enhance service capacity, especially in community settings through the Enhanced Community Care (ECC) Programme, through which ICPOP received funding. This also includes ECC leads and ICT leads at community health organisation level.

The HSE is focused on the delivery, in parallel of basic functionality that will support the delivery of formal care services for populations in community (including older persons). This will consist of integrated community health systems, e-referral, triage, waiting list, and case management functionality. The HSE Digital Transformation function also provides a pipeline of 'agile, well-governed' solutions that have been through pilot testing, to the Community Digital Oversight Group (CDOG) for approval.

Requirements across the different populations in community, including older persons, are broadly similar. Therefore, the HSE intends to provide a common, centrally maintained summary of care for the patient through functionality across these populations, known as the 'ICT Spine'. While the HSE has identified six principles of interoperability with future eHealth solutions, it remains crucial that a clear vision is articulated of how these elements will integrate with the national strategic approach, that includes national eHealth solutions, as part of a national infrastructure to support the management and sharing of information.

Implementation encompasses not only the ICT solution itself but also the larger change management process. Support from the services is considered vital for the success of the 'ICT Spine'. National representatives of key user groups have been engaged to gather requirements during the pilot projects and broader engagement of key user groups is expected during later phases.

The HSE is working as far as possible within the limits of its public remit (and of its time and resources) to engage core end-users in the private sector—for example, the HSE expects to make a version of the 'ICT Spine' available to providers of services under Section 38 and Section 39 of the Health Act 2007 at a later date. However, the 'ICT Spine' will be used a range of healthcare professionals across the public and private sectors, and will bring added complexity and require

interoperability across a broad range of settings. Therefore, the earlier engagement and broader involvement of all end-users in the private sector is essential.

Some service providers in the private sector, such as pharmacists and some privately-run nursing homes, have already invested significantly in systems and infrastructure. Accreditation of GP practice management systems is provided through the Irish College of General Practitioners' GP IT group. However, there is no formal accreditation of systems in other domains, such as pharmacy. This leads to fragmentation of the individual older person's record in some nursing homes. It also means that the national 'direction of travel' in the private sector is inconsistent and lacking direction.

Broader initiatives for the upskilling of healthcare professionals are also underway. The HSE has developed digital health capability framework for nursing and midwifery, which is being extended to other healthcare professionals nationally. Again, core end-user groups need to be engaged more fully and at an earlier stage.

The longer-term national strategic programmes, including the national shared care record and other key national eHealth solutions, have also resumed. The scope and functionality of the national shared care record will be determined, including in respect of older persons among other cohorts and populations. The long-term goal remains the provision of a single core record, with all of a person's health and social care information.

However, it is crucial that a clear strategy is developed to describe how these current undertakings, including ICPOP and the 'ICT Spine', align with longer-term priorities under Sláintecare — that is, with the national eHealth solutions, including the national shared care record, as those programmes evolve. This long-term direction is needed not only for the national eHealth solutions outlined but also to provide context for informed decision-making on the 'ICT Spine' and other related projects.

Thus, the ICT enablement of older persons services highlights broader needs, which are common across all cohorts and populations. This includes **the need for a strategy**, at national level, for the full engagement of the public and private sector in the ICT enablement of health service delivery, in line with national policy and the Sláintecare vision. It is crucial that this strategy describes how current undertakings, including ICPOP and the 'ICT Spine', align with longer-term priorities under Sláintecare. As noted earlier, within current arrangements, some effective governance structures exist within the HSE. However, there is a need to identify the appropriate overall governance structure(s) to develop this overarching strategy and oversee its implementation, across the full public and private sector, aligned to the

wider transformation of health service delivery and Sláintecare. The ICPOP model could provide learnings for the wider transformation of service delivery.

A clear vision for the overall ICT enablement of older persons services should also be developed, to provide a common understanding for core user groups, across all the settings outlined. A full stakeholder mapping should be undertaken, across the public and private sectors, and an appropriate plan for the engagement of stakeholders, particularly core end-user groups in the public and private sectors, should be developed.

In common with other cohorts and populations receiving primary or community care, older persons information should be stored and shared through **the 'ICT Spine'** initially, and then through **national eHealth solutions** as these solutions evolve, including the national shared care record. An overall roadmap for the ICT enablement of older persons services should also be developed.

While some national standards have been defined, many more are needed for the engagement of all cohorts and populations, including older persons. Therefore, a **comprehensive suite of national standards for interoperability** across older persons services should be developed, in collaboration with core user groups and led by the appropriate national standards function.

As far as possible, an **appropriate governance structure** should ensure that core user groups, in both public and private sectors, are engaged during the planning, design and implementation of systems used for these transitions of care, as well as on an ongoing basis post implementation. Again, this requirement is not specific to older persons as a population, but common to all cohorts and populations owing to the use of common infrastructure and systems.

The evidence in this As Is Analysis has been reviewed and used to inform the development of recommendations to the Minister for Health on the ICT enablement of older persons services.

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