Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

General Practice Messaging Standard Version 3.0

Outline Summary

May 2014

Safer Better Care

About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is the independent Authority established to drive high quality and safe care for people using our health and social care services. HIQA's role is to promote sustainable improvements, safeguard people using health and social care services, support informed decisions on how services are delivered, and promote person-centred care for the benefit of the public.

The Authority's mandate to date extends across the quality and safety of the public, private (within its social care function) and voluntary sectors. Reporting to the Minister for Health and the Minister for Children and Youth Affairs, the Health Information and Quality Authority has statutory responsibility for:

→ **Setting Standards for Health and Social Services** - Developing person-centred standards, based on evidence and best international practice, for those health and social care services in Ireland that by law are required to be regulated by the Authority.

→ **Supporting Improvement** - Supporting health and social care services to implement standards by providing education in quality improvement tools and methodologies.

→ **Social Services Inspectorate** - Registering and inspecting residential centres for dependent people and inspecting children detention schools, foster care services and child protection services.

→ **Monitoring Healthcare Quality and Safety** - Monitoring the quality and safety of health and personal social care services and investigating as necessary serious concerns about the health and welfare of people who use these services.

→ **Health Technology Assessment** - Ensuring the best outcome for people who use our health services and best use of resources by evaluating the clinical and cost effectiveness of drugs, equipment, diagnostic techniques and health promotion activities.

→ **Health Information** - Advising on the efficient and secure collection and sharing of health information, evaluating information resources and publishing information about the delivery and performance of Ireland's health and social care services.

Overview of Health Information function

Healthcare is information-intensive, generating huge volumes of data every day. Health and social care workers spend a significant amount of their time handling information, collecting it, looking for it and storing it. It is therefore imperative that information is managed in the most effective way possible in order to ensure a high quality, safe service.

Safe, reliable healthcare depends on access to, and the use of, information that is accurate, valid, reliable, timely, relevant, legible and complete. For example, when giving a patient a drug, a nurse needs to be sure that they are administering the appropriate dose of the correct drug to the right patient and that the patient is not allergic to it. Similarly, lack of up-to-date information can lead to the unnecessary duplication of tests – if critical diagnostic results are missing or overlooked, tests have to be repeated unnecessarily and, at best, appropriate treatment is delayed or at worst 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)(k) of the Health Act 2007, the Health Information and Quality Authority (the Authority) has responsibility for setting standards for all aspects of health information and monitoring compliance with those standards. In addition, under section 8(1)(j), the Authority 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, effective, transfer of information. This results in service users being asked to provide the same information on multiple occasions.

Information can be lost, documentation is poor, and there is over-reliance on memory. Equally, those responsible for planning our services experience great difficulty in bringing together information in order to make informed decisions. Variability in practice leads to variability in outcomes and cost of care. Furthermore, we are all being encouraged to take more responsibility for our own health and wellbeing, yet it can be very difficult to find consistent, understandable and trustworthy information on which to base our decisions.

As a result of these deficiencies, there is a clear and pressing need to develop a coherent and integrated approach to health information, based on standards and international best practice. A robust health information environment will allow all stakeholders – the general public, patients and service users, health professionals and policy makers – to make choices or decisions based on the best available information. This is a fundamental requirement for a high reliability healthcare system.

One of the areas currently being addressed through this work programme is the need to standardise the information shared between general practitioners and hospital consultant and administrative staff. This has been achieved through a General Practice Messaging Standard (GPMS). The Authority's GPMS is based on the international Health Level Seven (HL7) version 2.4 messaging standard. Version 1.0 of the GPMS was published in April 2010 and approved by the then Minister for Health and Children in May 2010. Version 2.0 of the GPMS was developed in 2011 to incorporate new requirements identified by stakeholders. Version 3.0 has been developed to include the messaging requirements for the electronic transfer of prescriptions between GP's and community pharmacy including the outpatient departments of hospitals.

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1   Note on document update

In 2009, the Health Information and Quality Authority (the Authority) commenced work on the development of the General Practice Messaging Standard (GPMS) for general practice messaging. To lead and oversee the process and advise the Authority, a multidisciplinary working group was convened including experts from practice management systems vendors, acute care information systems and messaging experts.

Version 1.0 of the GPMS was published in April 2010 and approved by the then Minister for Health and Children in May 2010. Version 2.0 of the GPMS has been developed to incorporate new requirements identified by stakeholders. Version 3.0 includes scenarios, clinical examples, message flows and use cases related to electronic prescribing in the community.

2   Introduction

Messaging standards outline the structure, content and data requirements of electronic messages to enable the effective and accurate sharing of information.

In the context of messaging standards, the term "message" refers to a unit of information that is sent from one system to another, such as between a laboratory and a general practitioner (GP).

Specific messaging standards for the healthcare context, such as the GPMS, are an essential way of improving how we use technology to enable safe and effective information exchange, including the exchange of clinical, administrative and patient information, for the benefit of the quality and safety of patient care.

Standards in this area are critically important in promoting the effective and consistent recording and sharing of information between GPs and third parties such as laboratories, radiological services, emergency departments and hospital consultants.

A standard form of GP messaging enables the following benefits to patients:

→   speeding up the patient-referral process to enable the patient to start on their journey of care more quickly

→   reducing the need for duplicate and repeat diagnostic testing

→   speeding up the sharing of patient discharge details and facilitating continuing care for patients during transfer between secondary care (for example, hospital) and primary care (for example, GP)

→ complete, accurate, and searchable health information, available at the point of diagnosis and care, allowing for more informed decision making to enhance the quality and reliability of health care delivery

→ more efficient and convenient delivery of care, without having to wait for the exchange of records or paperwork and without requiring unnecessary or repetitive tests or procedures

→ earlier diagnosis of disease, with the potential to thereby improve outcomes and reduce costs

→ reductions in adverse events through an improved understanding of each patient's particular medical history, reducing the potential for harmful drug interactions in the course of treatment

→ outcome of out-of-hours consultations on patient available to general practitioner thus facilitating continuity of care for the patient

→ patient laboratory and radiology reports and diagnosis transmitted more efficiently to general practitioners, ensuring patients are receiving the most appropriate treatment.

In addition to those already listed the following are benefits of a standard form of GP messaging for general practitioners in particular:

→ enabling the faster, more efficient and accurate transfer of information between acute services and GPs

→ reducing transcription errors in the recording and sharing of information, ensuring that patients and their information can be more reliably identified

→ increased efficiencies related to administrative tasks, allowing for more interaction with and transfer of information to patients, caregivers, and clinical care coordinators, and monitoring of patient care

→ facilitating GPs to increase the amount of time spent on the delivery of frontline patient care as a result of a reduced administrative burden

→ notification of patient attendance in emergency departments, thus facilitation of patient follow up, if required

→ electronic ordering of test, thus reducing waiting times for investigations for patients

→ allowing GPs to select/use the system best suited to their needs, while at the same time ensuring that they can exchange information safely with hospital and other systems.

3   Background

The development of a standard for Ireland in this area is particularly important as a means of increasing patient safety. It also offers the benefit of reducing the administrative burden on GP practices in the community, by enabling patient information to be shared more effectively by electronic means.

The GPMS has the potential to increase the amount of time GPs can spend on frontline service delivery to patients, and also results in a reduced reliance on less reliable, traditional, means of information sharing such as record transcribing and hard-copy posting of diagnostic results.

The aim of the Authority's GPMS is to prevent any potential misinterpretation of information and data and enable the adoption of a standardised system for Ireland.

The successful implementation of health messaging in Ireland requires a common and consistent approach. The Authority's GPMS aims to define an agreed approach for messaging to, and from, GP services in Ireland.

In addition, it is essential that the structure and meaning of the data being exchanged is agreed upon by both the sender and recipient before the electronic exchange of information takes place. This ensures that the benefits of the electronic sharing of information (referred to as health messaging) can be realised and any potential for misinterpretation can be overcome.

For this reason, the Authority's GPMS focuses on the structure and content of electronic messages used to communicate information from secondary and out-of-hours care services to GP settings as outlined in Figure 1.

As illustrated in this figure, in some circumstances messages may flow into and out of GP practices (illustrated by the two-way arrows). In other situations, information flows into the GP practice only (illustrated by the one-way arrow).

Figure 1:
Summary of health messaging information exchanges to and from GP services
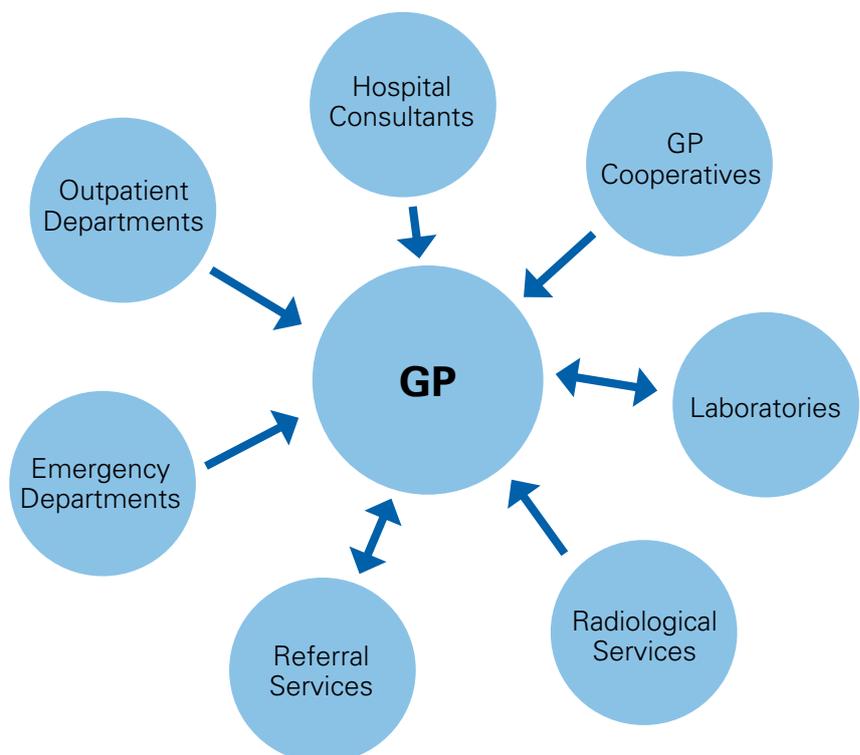
4   Methodology

Recognising the importance of electronic messaging to and from GPs, and in keeping with its mandate under section 8 (1) (k) of the Health Act, 2007 the Authority began developing a GPMS in 2009.

Reflecting its commitment to consultation and engagement, the Authority convened a multidisciplinary working group, including experts from clinical practice management, acute-care information systems specialists and messaging experts, to provide input and feedback to the Authority on the GPMS project. See Appendix 1 for a list of members of the working group.

The Authority would like to acknowledge the participation of the working group members for their helpful contributions to such important standards.

Messaging Standards

The Authority's GPMS is based on the international Health Level Seven (HL7) version 2.4 messaging standard outlined further at http://www.hl7.org.

A not-for-profit organisation, HL7 coordinates standards development and publishes standards specific to the Healthcare arena. HL7, which is based in the United States, began work in this area in 1987 and is now comprised of more than 20 international affiliates.

One of the benefits of the HL7 v2.4 standard is its flexibility which makes it suitable for modification for use in an Irish setting. While the flexibility of the HL7 2.4 holds many benefits it also presents challenges as, without appropriate guidance and requirements for use, it may be open to misinterpretation in its structure and format.

The GPMS takes account of relevant elements of existing practices in GP messaging. For a brief history of electronic messaging in Ireland please see Appendix 2.

In preparing its standard, the Authority undertook an extensive literature and practice review to ensure that those elements, already in place in some practices in Ireland, could, where appropriate, be adapted and built-upon for standardised national use. The Health Board Executive Messaging Specification and the Healthlink Online Messaging Specification were used during the development of the GPMS.

The Authority is fully committed to working collaboratively with its stakeholders and consulting as widely as possible on the introduction of new standards. Consultation on the proposed GPMS took place in December 2009. Based on feedback received, additions were, as appropriate, made to the proposed GPMS.

The introduction of a nationally-adopted GPMS, such as that proposed by the Authority, will enable the standardisation of GP messaging, in keeping with best practice, and will prevent any unnecessary duplication.

5 Overview of technical report

The Authority's GPMS details the messages required for 13 clinical scenarios. An illustrative example of one possible message flow is provided in Appendix 3.

Building blocks (that is, message and data elements) are used to construct messages specific to each clinical scenario, for example the transfer of information to a GP from an emergency department or returning a patient's laboratory results to the GP. Clinical scenarios use different combinations of the building blocks to create the required message.

These scenarios covered by the GPMS are:

→ Emergency department attendance

→ Admission notification

→ Administrative discharge

→ Clinical discharge summary

→ Death notification

→ Cooperative discharge summary

→ Outpatient department summary

→ Waiting list notification

→ Online referral and response

→ Laboratory order

→ Unsolicited laboratory result

→ Unsolicited radiology result

→ Corrected results.

Version 3.0 has been developed to include the messaging requirements for the electronic transfer of prescriptions between GP's and community pharmacy including the outpatient departments of hospitals. The new section includes scenarios, clinical examples, message flows and uses cases relevant to the electronic transfer of prescriptions in the community.

6   Next Steps

The Authority will continue to work with stakeholders to increase the scope of the GPMS as required. The Authority will build on, and further develop, the GPMS for use in areas such as specifying the detailed clinical content for GP referrals and discharge summaries.

Other major health information projects which impact on standard, for example Unique Health Identifiers for Patients, Practitioners or Providers, will also be incorporated into the standard in due course.

Supporting this work, the messaging standard and message segments and clinical scenarios will be added and/or updated as required. In addition, the Authority will work on extending the standard so that it reflects further developments in electronic messaging to and from most current information.

On a regular basis, the Authority will publish updates or amendments to the GPMS to ensure the availability of the most current information.

Appendix 1
Working group membership list

The members of the initial working group who contributed to the development of version 1 of the GPMS were:

- → Dr Kevin O'Carroll (Chair), Health Information and Quality Authority

- → Carl Beame, Complete GP Ltd.

- → Julie Bellew, Health Service Executive

- → Dr Donal Buckley, Irish College of General Practitioners

- → Dr Eleanor Crowley, National Cancer Registry Ireland

- → Orla Doogue, National Healthlink Project

- → Gerard Hurl, Heath Service Executive

- → Vincent Jordan, Health Service Executive

- → Ann Lynott, Irish College of General Practitioners

- → Louise Mc Quaid, Health Information and Quality Authority

- → Stephen Mulvany, Health Service Executive

- → Michael Nerney, Health Service Executive

- → Dr Brian O'Mahony, General Practice Information Technology Group

- → Patrick O'Neill, Freagra

- → Declan Rossiter, Health Ireland Partners Ltd.

- → Malachy Stringer, Health Service Executive

Appendix 2
History of health messaging in Ireland

The Health Boards Executive (HeBE) Messaging Group

HeBE was formed in 2002 as part of the Government's eHealth initiative with the long-term aim of acting as a single governance body with responsibility for the development of messaging standards.

Prior to the establishment of HeBE, all organisations and groups involved in messaging had conducted their own research and decision-making in relation to messaging standards. Representing a step beyond this fragmented approach, HeBE provided a forum for shared decision-making regarding messaging standards. Through HeBE's work, messages, some of which are still in use, were implemented and tested at a local level and published, adopted and extended at a national level.

However, due to the health service reform which saw the restructuring of health board areas, this group was dissolved in 2005 and the national development of messaging standards by means of the HeBE group ceased.

Healthlink

Healthlink is a national health messaging service which provides the electronic communication of patient information between primary and secondary care settings. This project was initiated in the Mater Hospital, Dublin, in 1995 and is funded by the Health Service Executive (HSE). With the introduction of Healthlink Online in 2003, the work of this group came to be considered as a national project. Healthlink Online allows for the secure transfer of clinical information between GPs and hospitals.

Healthlink works with a range of groups including GPs, hospitals, HSE areas, other healthcare agencies (for example, health centres and day-care facilities). Healthlink provides a range of messaging services to over 2423 GPs in over 1054 practices nationwide. In addition to GPs involved in Healthlink, there are, at present, 29 hospital sites which are availing of the Healthlink service and developing messaging standards to varying degrees, depending on their specific needs.

Through this system, patient information is generated on the host-hospital computer system and is stored on a central database, allowing GPs to access this information via a web-browser. This allows a GP to view, print or export information into a practice management system.

Healthlink is not currently available nationwide. Outside of the Healthlink project, four former health boards (namely, North West Health Board, North Eastern Health Board, South East and South) developed their own regional messaging services. The North Eastern Health Board is currently working with Healthlink to migrate their implementation of messaging services to Healthlink.

Appendix 3
Death notification message flow

Outlined below is an illustrative example of a message flow, regarding the death of a patient, between an acute-care setting and the patient's GP.

The death of a patient is recorded on the local system (for example, by a clinician) and an electronic notification of the death of the patient is sent to other systems, for example to the patient's GP.
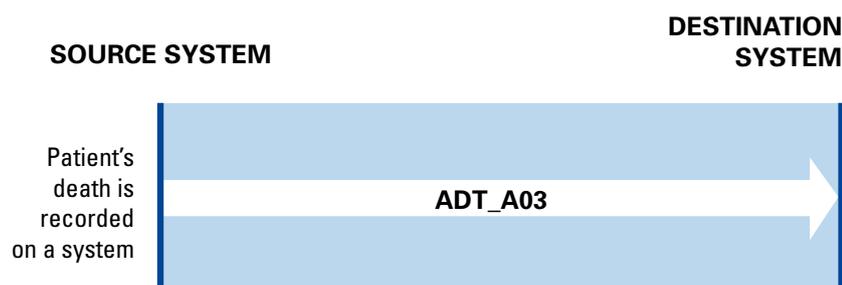
The message type used in this example is the ADT_A03 message type. For the purpose of this standard the minimum death notification message contains the following segments:

MSH (Message Header)
carries information about the source and destination systems

PID (Patient Identification)
 defines the patient identification and demographic information

ENV (Event Segment)
defines the 'trigger' that initiated a message e.g. admission, discharge, death of a patient

PV1 (Event Type/Patient Visit)
carries information relating to the episode of care

PV2 (Event Type/Additional information)
defines additional information relating to the episode of care

PDA (Patient Death and Autopsy)
defines specific information relating to the death of a patient

The specification identifies data fields as being either "required", "recommended", "conditional" or "optional".

For example, 'Date and Time of Death' is a required field and should always be populated in a Death Notification Message. In contrast, the 'Death Cause Code' and 'Death Location' data fields may not be available in the system that initiates the message and so, they are not required but are strongly recommended.