Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Health Information and Standards

Review of information management practices in the Hospital In-Patient Enquiry (HIPE) scheme

October 2018

Safer Better Care

About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is an independent authority established to drive high quality and safe care for people using our health and social care services in Ireland. HIQA's role is to develop standards, inspect and review health and social care services and support informed decisions on how services are delivered.

HIQA aims to safeguard people and improve the safety and quality of health and social care services across its full range of functions.

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

- **Setting Standards for Health and Social Services –** Developing person-centred standards, based on evidence and best international practice, for health and social care services in Ireland.
- **Regulation –** Registering and inspecting designated centres.
- **Monitoring Children's Services –** Monitoring and inspecting children's social services.
- **Monitoring Healthcare Safety and Quality –** Monitoring the safety and quality of health services and investigating as necessary serious concerns about the health and welfare of people who use these services.
- **Health Technology Assessment –** Providing advice that enables the best outcome for people who use our health service and the best use of resources by evaluating the clinical effectiveness and cost-effectiveness of drugs, equipment, diagnostic techniques and health promotion and protection activities.
- **Health Information –** Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information about the delivery and performance of Ireland's health and social care services.

Overview of the health information function of HIQA

Health 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, very important 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 an important 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 (HIQA) has responsibility for setting standards for all aspects of health information and monitoring compliance with those standards. In addition, under section 8(1)(j), HIQA is charged with evaluating the quality of the information available on health and social care and making recommendations in relation to improving its quality and filling in gaps where information is needed but is not currently available.[(4)]

Information and communications technology (ICT) has a critical role to play in ensuring that information to promote 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 and hospitals.

Although there are a number of examples of good practice, the current ICT infrastructure in health and social care services in Ireland is highly fragmented with major gaps and silos of information. This results in individuals being asked to provide the same information on multiple occasions.

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

As a result of these deficiencies, there is a clear and pressing need to develop a coherent and integrated approach to health information, based on standards and international best practice. A robust health information environment will allow all stakeholders — patients and

service users, health professionals, policy makers and the general public — to make choices or decisions based on the best available information. This is a fundamental requirement for a highly reliable 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.

HIQA has a broad statutory remit, including both regulatory functions and functions aimed at planning and supporting sustainable improvements. In 2017, HIQA published standards in the area of health information *Information management standards for national health and social care data collections*[5] *— as per* HIQA's remit under the Health Act 2007.[4] The standards provide a framework of best practice in the collection of health and social care data. HIQA has developed a structured review programme of assessing compliance with standards.[6] The aim of this review programme is to improve information management practices of national health and social care data collections in Ireland by assessing compliance with the standards in each national data collection. Ultimately, the review programme will drive improvements by identifying areas of good practice and areas where improvements are necessary across the range of national data collections.

Table of Contents

Executive summary

The aim of this review is to assess the compliance of the Hospital In-Patient Enquiry (HIPE) scheme with the *Information management standards for national health and social care data collections*.[5] This review is part of an overall review programme being undertaken by HIQA to assess compliance with the Information Management Standards in all major national health and social care data collections within the Health Service Executive (HSE) in Ireland. The recently published Sláintecare report recognises the importance of quality health data and information to drive improvements in the future of healthcare in Ireland.[7] It is, therefore, very important that information is managed in the most effective way possible in order to ensure a high-quality safe service. Ultimately, the review programme aims to drive quality improvements by identifying areas of good practice and areas where improvements are necessary across national data collections.

HIPE is a health information system managed by the Healthcare Pricing Office (HPO) in the HSE. HIPE was developed in 1969 within the Medico-Social Research Board.[8] It is designed to collect demographic, clinical and administrative information on discharges and deaths from acute hospitals nationally. HIPE includes information collected from all acute public hospitals with over 1.7 million inpatient and day case records reported annually.[9] Over 265 whole-time equivalent clinical coders working in hospitals collect HIPE data, while there are eight positions within the HPO to manage the national HIPE database.

Information management

HIPE is an extremely valuable national repository of health information and is the main health information system used in Ireland to inform healthcare planning, delivery and funding, health promotion and research. For example, HIPE data underpins the National Healthcare Quality Reporting System annual report published by the National Patient Safety Office in the Department of Health.[10]

HIPE data is also an extremely important indicator of hospital activity as it identifies the demand for services in each hospital and the hospital's capacity to treat patients.[11] Additionally, HIPE data is essential for the HSE's Activity-Based Funding (ABF) Programme. Over €5 billion was allocated as the budget for the Acute Hospitals Division in 2018. It is imperative that high-quality HIPE data is in place to enable the move to ABF.[12]

Information management is, therefore, particularly important for HIPE given the importance of HIPE data for planning and funding, the significant quantity of data produced, the vast number of stakeholders involved in generating the data, the complexity of the data flow pathway and the significant cost associated with generating the data.

The findings of this review of information management practices of HIPE will focus on three key areas: governance, leadership and management; use of information; and information governance. A summary of these findings will be detailed in turn below before outlining the summary of recommendations.

Governance, leadership and management

HIPE is a fundamentally important health information system which requires strong governance and national oversight arrangements to ensure it is managed appropriately. HIPE was established almost 50 years ago. HIPE was transferred from the Economic and Social Research Institute (ESRI) to the HSE in 2014. Within the HSE, certain responsibilities for HIPE have been devolved to two separate divisions, namely, the National Finance Division (specifically the HPO function) and the Acute Hospitals Division. Since its transfer in 2014 from the ESRI, there is little evidence from this review to demonstrate that HIPE has been effectively embedded into these structures and also into the wider governance structure of the HSE. In the absence of clear governance arrangements, effective risk management and performance management has been limited, posing potential challenges to the overall functioning and use of HIPE.

HIQA identified a number of key areas that need to be addressed in relation to governance.

Firstly, a national oversight structure would be expected to coordinate the leadership for HIPE given the importance of the HIPE data, the significant cost associated with generating HIPE data, the complexity of the management and governance of HIPE across two functional areas of the HSE (that is, the National Finance and Acute Hospitals divisions), and the vast number of stakeholders involved in the generation of data. This review found that there are no national oversight structures and arrangements in place for the governance, leadership and management of HIPE at a senior level within the HSE. Furthermore, the review found that there is no forum at national level to regularly review and monitor the range of governance issues required to ensure the effective management of HIPE such as reviewing strategy, business plans, performance and risk for HIPE.

Secondly, the delineation of responsibilities for HIPE across the National Finance and the Acute Hospitals functions was not clearly defined; this would be expected to be clearly defined through a scheme of delegation and by means of performance agreements. Management of HIPE at a hospital level is delegated to the general manager or CEO of a hospital. HIQA recognises that individual hospitals within the Acute Hospitals Division of the HSE are responsible for local governance of HIPE within each hospital. However there is a requirement for national oversight and governance of these arrangements. To enhance responsibilities within the Acute Hospitals Division, the responsibilities within hospitals need to be formalised through enhanced performance agreements to specifically hold hospital group CEOs accountable in relation to monitoring and managing the quality of HIPE data. This could be achieved by delegating responsibility to the hospital CEO or general manager through the standard production of comprehensive annual data quality statements. In addition, standardised arrangements for the management of HIPE at a hospital level need to be developed and implemented to ensure the quality of data along the entire data flow pathway is continuously improved.

A national audit of HIPE, carried out by Pavilion Health, was published by the HSE in 2016.[(13)] This report highlighted the need for robust governance arrangements for HIPE within the HSE and made a number of key recommendations in an effort to improve the quality of HIPE data to underpin the ABF Programme. Since the publication of the report,

there have been no assurances provided to senior management in the HSE in relation to progressing the recommendations made in this report. In addition, there has been no assignment of responsibilities for some of the recommendations. Senior clinical involvement is required to progress these recommendations at hospital level, and clinical involvement is also required as part of the overall governance structures for HIPE. Furthermore, many of the governance and management issues identified in this review have previously been reported through numerous reviews and publications in the past 14 years.[13,14,15]

Although improvements have been made in the area of HIPE clinical coding over the past number of years, the approaches to solving the overall information management issues of HIPE have not developed. From an information management perspective, the flow of HIPE data should be seen as one continuous process which starts at the clinical documentation stage to the point where the data is ready for use by key stakeholders to inform decision-making. This fact needs to be acknowledged and addressed by the HSE Senior Leadership team, and a coordinated approach to the governance and management of HIPE needs to be prioritised.

HIQA identified that strategic and business planning should be developed and implemented to ensure the intended outcomes for HIPE are defined and achieved. Robust performance assurance arrangements are also required to provide senior management with assurance that practices are consistently of a high standard within HIPE. Performance assurance arrangements should be designed to assign responsibility at a hospital level and the HPO level to continuously review and improve the quality of HIPE data along the entire data flow pathway. In particular, appropriate assurance needs to be provided to senior individuals within the HSE who are accountable in relation to HIPE. These arrangements should include the development of relevant key performance indicators (KPIs) at each level, a comprehensive audit schedule and an integrated risk management framework.

HIPE also needs to maintain regularly updated data sharing agreements which can support the provision of good quality data and the legal and secure handling of data. In addition, the HPO should publish a statement of purpose to promote transparency by informing the public and people who use the data about the national data collection.

Use of information

The need for high-quality HIPE data cannot be overemphasised given the importance of this health information system in measuring aspects of the performance of the health information system in Ireland. HIPE is the main information source providing data and information on hospitalisation rates, length of stay, activity data and in-hospital morbidity and mortality.[16]

HIQA acknowledges that there is a strong emphasis on aspects of data quality within the HPO. Recently, the HPO has published a data quality strategy. To enhance this work further, the HPO should extend the strategy to focus on each step in the data flow pathway and incorporate key responsibilities in line with a scheme of delegation as required for effective governance, leadership and management.
Crucially, however, in the absence of appropriate governance structures and senior clinical leadership involvement, roles and responsibilities are not formally defined around the

implementation of this strategy. Internationally, it is acknowledged that there are challenges to achieving good clinical documentation and it is well recognised that a strategic approach is needed to improve this issue with involvement from clinicians. It is essential that such a data quality strategy is developed with buy-in from key stakeholders.

HIQA recognises that the HPO has developed a number of methods to disseminate information to ensure the data is accessible to key stakeholders and that it has a process in place to manage a large number of specific data requests per year. HIQA noted that an accessibility and dissemination plan could further enhance the effective use of this data, particularly at a hospital level.

HIQA acknowledges that a HIPE data dictionary is in place and is updated regularly and made publically available. This further supports the electronic sharing of data and facilitates the comparison of activity and performance and the use of data across difference services or settings.

In terms of assurance in relation to data quality, although audit activity is being undertaken by the HPO in the area of clinical coding, this is not being routinely carried out in every hospital; therefore, the HPO does not have a complete picture of clinical coding practices in each hospital in Ireland. In addition, hospitals are not consistently auditing clinical coding practices despite being provided with relevant audit tools. The significance of this finding is that there is no comprehensive framework in place across the HSE to provide assurance of the quality of HIPE data throughout the entire data flow pathway.

In light of the implementation of the *Knowledge and Information Plan*[17] in the HSE and the eHealth Strategy[18] in the wider health service, the HPO should continuously review the approach to adopting health information standards and terminologies. These should be addressed within an overall information management strategy and through a stakeholder engagement plan to ensure the organisation is evolving in line with wider health service developments.

Information governance

A well-governed and managed organisation needs to develop assurance arrangements to review adherence to information governance policies and procedures and current and forthcoming legislation through the reporting of relevant KPIs, completion of internal and external audits and the implementation of effective risk management arrangements.

Although, HIQA found that there is an awareness of the significance of information governance, there is a need to identify who has overall executive responsibility for information governance of HIPE within the HPO. The arrangements should also detail roles and responsibilities in relation to data quality, privacy and confidentiality, information security and the use of information throughout HIPE.

Finally, based on the findings of the audits and reviews of information governance, a comprehensive and dynamic training plan should be developed and implemented for staff to promote a culture of information governance within the organisation.

Summary

HIPE is an extremely rich source of data, used to inform healthcare planning, delivery and funding, health promotion and research. Assurance should be provided in relation to the quality of this data to instil confidence in service users, clinicians and all other stakeholders that decisions are made based on high-quality information, the availability of which will ultimately improve patient outcomes.[5]

The nine recommendations outlined in this report should be considered in conjunction with the findings of this review in order to improve information management practices for HIPE. The HPO and Acute Hospitals Division are responsible for preparing and implementing quality improvement plans to ensure that the areas for improvement are prioritised and implemented to improve compliance with the Information Management Standards. The HPO and Acute Hospitals Division should continue to assess their adherence to these standards between reviews by HIQA to ensure that they are meeting the requirements of the Information Management Standards.

Summary of recommendations

Governance, leadership and management	
1.	**Governance and leadership**
	A group with national oversight for HIPE should be established to coordinate the leadership and governance arrangements in relation to HIPE within the Health Service Executive (HSE). This group should be comprised of senior clinical leaders and include representation from the HSE's Healthcare Pricing Office (HPO), Acute Hospitals Division and National Finance Division as well as the Department of Health, and other key agencies. This group should be tasked with: ▪ examining previous reviews of HIPE, including the Pavilion Health Audit Report[13] and overseeing implementation of recommendations. ▪ using the findings from these previous reviews to oversee the development and implementation of a strategic plan for HIPE within the HSE. This strategy should be based on international best practice and aligned to the HSE's eHealth strategy[18] and the Sláintecare report.[7] It should clearly outline how effective information management* will support the efficient generation of high-quality HIPE data and should incorporate every step of the data flow from the clinical documentation to the effective use of information. ▪ defining roles and responsibilities for the management of HIPE within the HSE, particularly in relation to ensuring a clear delineation of roles and responsibilities across the HPO and the Acute Hospitals Division, and to outline which functions have been delegated and to whom in respect of the management of HIPE within the HSE. ▪ reviewing the implementation of national initiatives at hospital level to specifically address how clinicians and coders can effectively engage and work together to generate high-quality HIPE data. These arrangements should include clear lines of reporting and responsibility for all staff involved in generating HIPE data, including clinicians, HIPE coders, HIPE coordinators, hospital managers and chief executive officers of hospital groups.

* Information management is defined as the process of collecting, storing, managing, using and sharing health and social care information. It is a broad definition that includes the aspects of governance and management arrangements, data quality, information governance and use of information.

2.	**Management of HIPE – HPO**
	The HPO should implement an appropriate structure in order to effectively address the management of HIPE. Specifically, an effective senior management team for the HPO and a functioning management team for HIPE need to be established. As part of this structure, responsibilities for information management should be clearly defined, documented and implemented.
3.	**Strategic plan for HIPE**
	Based on the findings from this review, the Pavilion Health Audit report and previous reports, the HPO should implement a strategic plan for HIPE as set out by the national oversight group (as outlined in recommendation 1). Within the HIPE strategic plan, the HPO should be specifically responsible for: ▪ development of a plan for stakeholder engagement to ensure the organisation is involved in key national developments such as the introduction of digital solutions within hospitals, the impact of the new Individual Health Identifier (IHI) and the implementation of relevant health information standards ▪ development of an approach to effectively collaborate with clinicians to improve clinical documentation and to enhance education within the medical colleges and hospitals. The HPO should aim to create greater awareness among clinicians of the coding process and the importance of good quality data, and should work with clinicians to promote the use of the data for clinical decision-making. The strategic plan should have clearly defined objectives and associated annual business planning objectives.
4.	**Performance assurance**
	The HPO should develop performance assurance arrangements for HIPE which are embedded within the HSE governance structures. The performance assurance framework should generate appropriate information to assure the HSE Leadership Team that HIPE is being managed effectively by: ▪ outlining key responsibilities within the Performance Agreements to include the submission of annual data quality statements from hospitals ▪ documenting the process of identifying, generating and reviewing performance information ▪ monitoring performance against the annual business plan

	▪ measuring and reporting of key performance indicators (KPIs) ▪ conducting internal and external audit against aspects of information management ▪ managing risk effectively.
5.	**Compliance with legislation and privacy risk assessment**
	A formalised review of compliance against relevant legislation, including the General Data Protection Regulation (GDPR), should be undertaken by the HPO. As part of this review, an assessment of privacy risks for HIPE should be conducted to outline the data flows and to review the processes in place for data leaving the organisation.
6.	**Statement of purpose**
	The HPO should publish a statement of purpose that accurately describes the aims and objectives of HIPE.
	Use of information
7.	**Data quality framework**
	To enhance ongoing work within the HPO in relation to data quality, an overarching data quality framework for HIPE[†] should be developed and implemented by the HPO in conjunction with key stakeholders, including the Acute Hospitals Division. The data quality framework should include each step in the data flow pathway from clinical documentation to the use and interpretation of data. This should also outline the responsibilities for data quality within hospitals and hospital groups and at the national level.
8.	**Accessibility and dissemination of information**
	In line with legislation and government policy, the HPO should make HIPE data and information more accessible in a timely manner to all stakeholders, including patients, clinicians, managers, policy makers and researchers, in order to address their needs.

[†] Guidance for a Data Quality Framework for health and social care is currently being developed by HIQA in conjunction with all major national data collections in Ireland and will be published in 2018.

Information governance	
9.	**Effective arrangements in place for information governance**
	As part of a strategy and annual business plan for HIPE, effective arrangements should be put in place for information governance within the HPO. This includes: ▪ assigning an individual with overall responsibility for information governance ▪ providing assurance to senior management in relation to adherence to policies and procedures and current and forthcoming legislation for information governance through reporting of KPIs, audit and risk management ▪ developing and implementing a training plan for staff to embed a culture of information governance within HIPE.

1. Overview of HIQA's review programme for national data collections

This review is part of an overall review programme being undertaken by HIQA to assess compliance with the *Information management standards for national health and social care data.*[5]

A considerable amount of data is collected on a regular basis about health and social care services in Ireland. This data is used for many important purposes, such as to guide clinical decision-making, monitor diseases, organise services, inform policy making, conduct high-quality research and plan for future health and social care needs, both at national and local levels.

All stakeholders (the general public, patients and service users, health professionals, researchers and policy makers) need access to high-quality information in order to make choices and decisions. It is vital that there is confidence in this information as the delivery of safe and effective healthcare depends on access to and use of information that is accurate, valid, reliable, timely, relevant, legible and complete.

Based on international best practice, four key overarching objectives relating to health information have been identified to maximise health gain for the individual and the population:

1. Health information is used to deliver and monitor safe and high-quality care for everyone.
2. Health information should be of the highest quality and, where appropriate, collected as close as possible to the point of care.
3. Health information should be collected once and used many times.
4. Data collection should be 'fit for purpose' and cost-effective.

National health and social care data collections are national repositories of routinely collected health and social care data, including administrative sources, censuses, surveys and national patient registries, in the Republic of Ireland.

Managing organisation is defined as the organisation, agency, managing unit, institution or group with overall responsibility for the national health and social care data collection.

National health and social care data collections provide a national overview of data relating to a particular health or social care service. Examples of national data collections include BreastCheck, the Hospital In-Patient Enquiry (HIPE) Scheme, the Computerised Infectious Disease Reporting (CIDR) system and the Irish Hip Fracture Database (IHFD). There is little point in investing considerable time, effort and resources into producing a high-quality data collection if the data is not used to the maximum benefit of the population it serves. Therefore, it is essential to promote, encourage and facilitate the use of data.

HIQA has a statutory remit to develop standards, evaluate information and make recommendations about deficiencies in health information under the Health Act 2007.[4] A number of key documents have been published by HIQA in recent years in relation to national health and social care data collections (See Appendix 1).

Furthermore, the *National Standards for Safer Better Healthcare,*[19] published in 2012, describe a vision for quality and safety in healthcare which includes the use of accurate and timely information to promote effectiveness and drive improvements. One of the eight themes, 'Use of Information', emphasises the critical importance of actively using information as a resource for planning, delivering, monitoring, managing and improving care. These nationally mandated standards apply to all healthcare services (excluding mental health) provided or funded by the Health Service Executive (HSE).

In 2017, HIQA published specific standards in the area of information management — *Information management standards for national health and social care data collections.*[5] The purpose of these standards is to improve the quality of national health information. The standards provide a framework of best practice in the collection of health and social care data. The *Information management standards for national health and social care data collections,* therefore, complement the *National Standards for Safer Better Healthcare.*[19] Together, these standards provide a roadmap to improve the quality of health information and data, which should ultimately contribute to the delivery of safe and reliable healthcare.

HIQA has developed a structured review programme to assess compliance with the *Information management standards for national health and social care data collections.*[5] Prior to commencing the review programme, the *Guide to the Health Information and Quality Authority's review of information management practices in national health and social care data collections*[6] was published by HIQA.

For the remainder of the report:

Information Management Standards will be used for the *Information Management Standards for National Health and Social Care Data Collections*
Review programme will be used for the review programme to assess compliance of national health and social care data collections against the Information Management Standards

1.1 Aims of the review programme

The aim of this review programme is to improve information management practices of national health and social care data collections in Ireland by assessing compliance with the Information Management Standards in individual national data collections. Ultimately, the review programme was developed to drive improvements by identifying areas of good practice and areas where improvements are necessary across national data collections.

1.2 Assessment and judgment framework

HIQA has adopted the Authority Monitoring Approach (AMA) to carry out its functions. HIQA staff involved in the review programme use this approach and any associated procedures and protocols. HIQA's monitoring approach does not replace professional judgement. Instead, it provides a framework for staff to use professional judgement and supports them in reviewing compliance against the standards. The use of AMA and an assessment and judgement framework ensures:

- a consistent and timely assessment of compliance with standards
- a responsive approach to performing reviews.

1.3 Phase 1 of the review programme

Due to the large number of national data collections, the review programme is being carried out using a phased approach. Phase 1 includes major national data collections within the Health Service Executive (HSE). Prioritisation criteria were developed to determine the schedule for reviews in the first phase of the review programme, which included the quality and safety impact, the policy impact and other operational factors which may impact on the review programme.

There are four main stages involved in the review process:

1. Self-assessment tool
2. Information request
3. On-site assessments
4. Reporting of findings.

1.4 Quality improvement plans

Managing organisations are responsible for preparing and implementing quality improvement plans to provide assurance that the findings relating to areas for improvement are prioritised and implemented to comply with the Information Management Standards.

National data collections should continue to assess their adherence to the standards in between reviews by HIQA, to provide assurance that they are meeting the requirements of the Information Management Standards.

Where opportunities for improvement have been identified by the review team during the review, checks will be carried out during future reviews to ensure that the necessary improvements have been implemented.

1.5 HIQA's legislative remit

HIQA has a specific remit in relation to health information as laid out in the Health Act 2007.[4] The review programme falls within this legislative remit. The relevant sections of the Act are as follows:

- **Section 8(1)(k)** — to set standards as the Authority considers appropriate for the Health Service Executive, the Child and Family Agency and service providers respecting data and information in their possession in relation to services and the health and welfare of the population
- **Section 8(1)(l)** — to advise the Minister, the Minister for Children and Youth Affairs, the Executive and the Agency as to the level of compliance by the Executive and service providers with the standards referred to in paragraph (k)
- **Section 12** — The Authority may require the Executive, the Agency or a service provider to provide it with any information or statistics the Authority needs in order to determine the level of compliance by the Executive, the Agency or by service providers with the standards set by the Authority in accordance with section 8.

1.6 Scope of this review of information management practices in HIPE

The scope of this review is to examine the findings of compliance with the Information Management Standards for HIPE within the HSE. The methodology to assess compliance with the Information Management Standards in HIPE is outlined in Appendix 2.

2. Overview of the Hospital In-Patient Enquiry Scheme

This chapter provides background information on the Hospital In-Patient Enquiry (HIPE) Scheme, including an overview of the Healthcare Pricing Office (HPO), which is the managing organisation with responsibility for HIPE; an overview of HIPE; a description of the information system and data flows in HIPE; and the significance of information management practices in HIPE.

Figure 1 provides an overview of the governance of HIPE since its establishment in 1969.

2.1 The Healthcare Pricing Office (HPO)

The managing organisation with responsibility for HIPE is the HPO, which is part of the HSE. In February 2013, the Department of Health published the *Money Follows the Patient* policy and created the Healthcare Pricing Office (HPO) to act as a national price-setter for activity-based funding (ABF).[20] The HPO was established on an administrative basis, attached to the HSE, in January 2014.[21] Although previous government policy was to set up this office as a statutory body,[22] this has not happened to date. The publication of the Sláintecare report[7] may influence the onward development of the HPO.

The primary functions of the HPO are to set the national Diagnosis Related Group (DRG) prices and to manage the HIPE dataset.[23] The HPO currently sits within the National Finance Division of the HSE. The HPO manages two national data collections: HIPE and the National Perinatal Reporting System (NPRS).

HIPE is a system that collects information on hospital in-patients and day cases in Ireland.

NPRS provides national statistics on perinatal events, in particular, data on pregnancy outcomes, perinatal mortality and important aspects of perinatal care.

The HPO identifies that it is responsible for a range of tasks related to the management of HIPE including[13,24,25]:

- maintaining the national HIPE database
- software development and support
- training clinical coders
- reviewing data quality and performing clinical coding audits
- data analysis and information dissemination
- managing requests for HIPE information
- data user support.

The HPO also has a pricing function which is required to underpin the Activity-Based Funding Programme. The introduction of activity-based funding (ABF) represents a move from the existing block-grant allocation process to a more transparent system of resource allocation as hospitals are funded based on the quantity and quality of services they deliver to

patients.[26] The HPO plays a central role in the implementation of ABF by setting national prices and managing the HIPE dataset.

Good quality HIPE data is a cornerstone of ABF, the funding model being rolled out across Irish hospitals. Discharge data is sourced using HIPE and, therefore, high quality HIPE data is fundamental to the successful implementation of ABF.

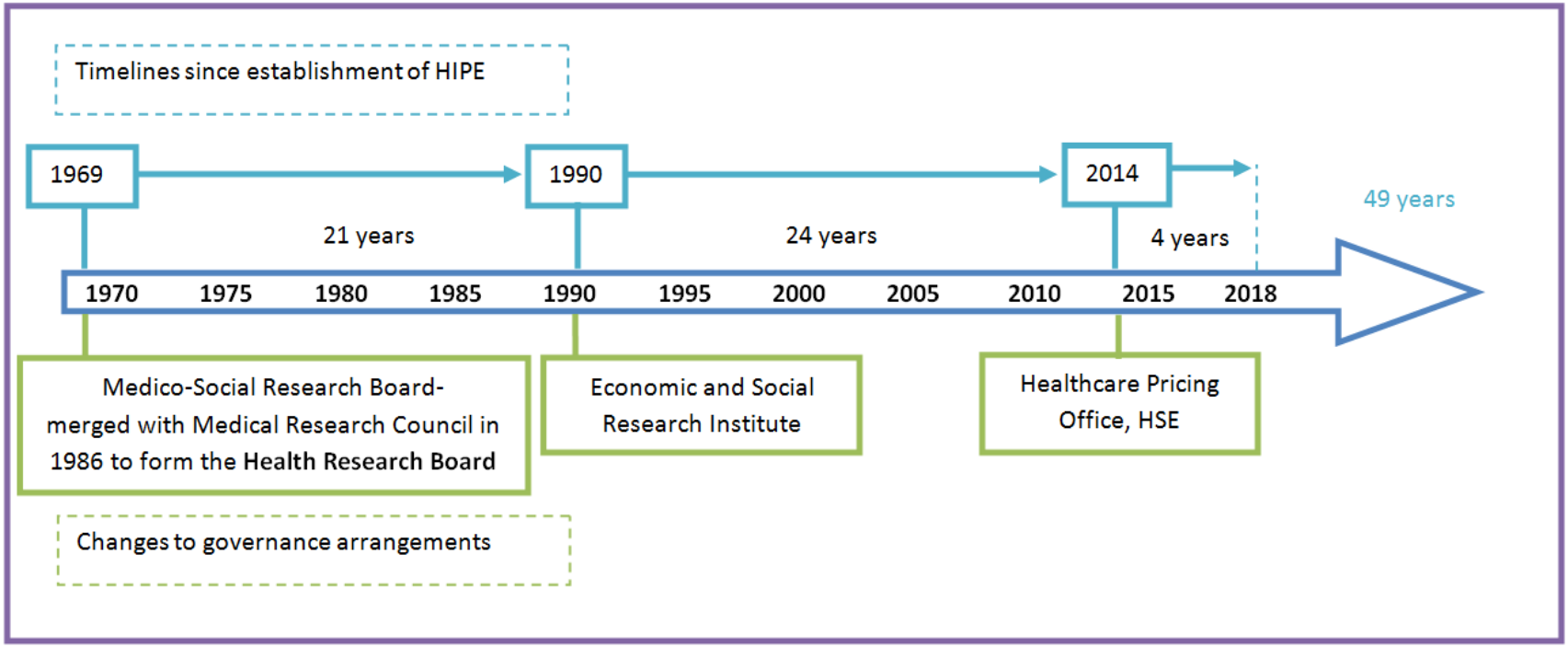

Figure 1. Timelines of governance arrangements since the establishment of HIPE

2.2 Hospital In-Patient Enquiry (HIPE)

HIPE is a national system for recording information relating to inpatient and day case attendances at acute public hospitals in Ireland. As outlined in Figure 1, HIPE was initially established in 1969 by the Medical-Social Research Board. In 1990, the Economic and Social Research Institute were contracted by the Department of Health initially and later by the HSE to be responsible for HIPE, while in 2014, the HPO, within the HSE became responsible for HIPE.[26]

HIPE collects demographic, clinical and administrative data on discharges and deaths in acute public hospitals nationally for episodes of care.

An episode of care begins when a patient is admitted to hospital, as a day case or inpatient and ends at discharge from (or death in) that hospital.

HIPE reports on over 1.7 million inpatient and day case records annually. To generate HIPE data, information is abstracted from clinical records and coded by trained clinical coders in each hospital. At the time of the review, there were 56 hospitals providing data to HIPE and 39 of these hospitals were included in the ABF Programme. In 2017, there were 265 whole-time equivalent staff working in HIPE units within the participating hospitals. Furthermore, there were eight full-time staff working on the national HIPE database within the HPO.

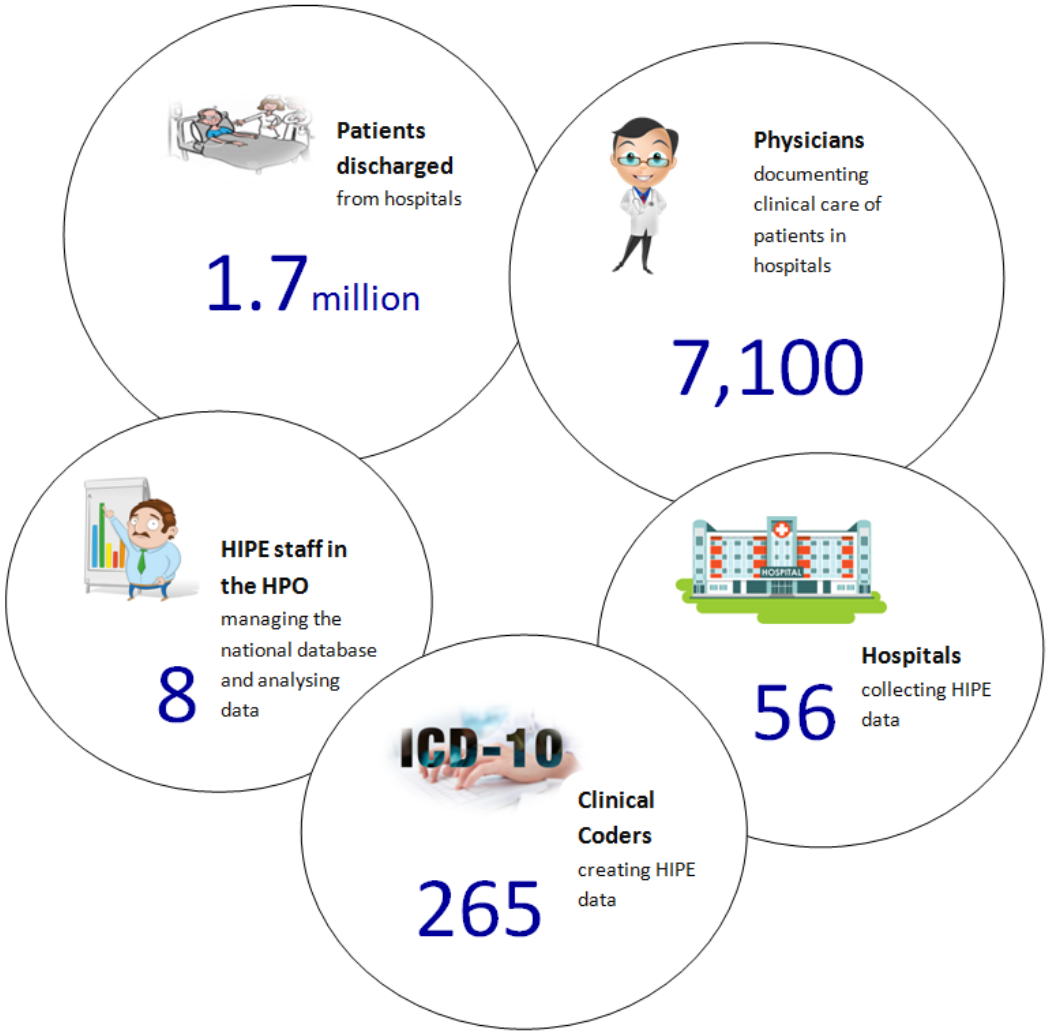

Figure 2. Information management for HIPE

A list of hospitals involved in HIPE is outlined in Appendix 3. Each hospital participating in the collection of HIPE data has a HIPE unit to manage the clinical coding of data. Depending on the size of the hospital, the HIPE unit within the hospital usually has a team of clinical coders and a HIPE Coordinator:

- Clinical coders are responsible for extracting information from inpatient and day case patient records and entering accurate codes into HIPE for all patients discharged from the hospital.
- HIPE Co-ordinators manage the HIPE unit within the hospital.[‡]

Clinical coders use ICD-10-AM/ACHI/ACS (International Classification of Diseases 10th Revision Australian/Australian Classification of Health Interventions, Australian Coding Standards) 8th Edition and related Irish Coding Standards (ICS) to code the extracted data into HIPE.(13)

[‡] At the time of the review, recruitment was underway to appoint the new HIPE Hospital Group Managers positions.

2.3 Information system and data flows in HIPE

This section will describe the information system used by HIPE, the process of collecting data at a hospital-level and how this data is transferred from each hospital into the national HIPE database managed by the HPO.

2.3.1 Information system — HIPE Portal

The HIPE portal is a web-based application used by hospitals to collect HIPE data. It is also used by the HPO to collate the national HIPE database. The HIPE portal collects demographic, clinical and administrative information on discharges and deaths from acute hospitals nationally.[24] The main functions of the HIPE portal are to collect HIPE data, report HIPE data, import demographic and administration data and export HIPE data. In addition, the HIPE Portal is used to run the data quality Checker Tool[§] and the HIPE Coding Audit Tool (HCAT) at local and national level. There are also data entry validation checks built into the HIPE portal data entry system.

The HIPE portal has a number of modules with controlled access depending on the user's requirements within hospitals and within the HPO. See Appendix 4 and 5 for further details on the functionality of the modules within the HIPE portal.

2.3.2 Data flows

Figure 3 provides a detailed explanation of the data flows for HIPE:

- The process of collecting HIPE data begins when a patient is admitted to hospital. Throughout the stay in hospital, the patient's journey is documented in the medical chart. Once discharged, a discharge summary should be created by the clinician and the status of the patient is changed to 'discharged' on the Patient Administration System (PAS)[**].

- Depending on the chart flow in each hospital, the clinical coders download, from PAS, a list of patients that have been discharged, and a request for the medical records of these patients is submitted to the medical records department.

- Clinical coders review the medical records of each patient and extract the relevant clinical data, and translate it into codes using the ICD-10-AM/ACHI/ACS 8th edition. If the details in the medical record are not clear, the clinical coder may need to contact the clinician for clarification. The data is entered into set fields on the data entry module of the HIPE portal, which includes a principal diagnosis, up to 29 additional diagnoses and up to 20 procedures. During data entry, the portal has inbuilt data quality checks which query coding decisions. Data entry has to conform to expected values, and fields cannot be omitted unless they are optional.
  Each case is checked completely when it is stored on the HIPE portal to ensure all fields

§ The Checker Tool was developed by the HPO to run standard quality checks on HIPE data.

** The Patient Administration System (PAS) is one of the main information systems supporting day-to-day operations in acute hospitals in Ireland. It is used to record all activity including referrals, waiting lists, admissions, outpatient appointment/attendances, emergency department attendances and transfers/discharges.

are correct, to check for missing data and to ensure consistency in data entry. The HIPE unit has a 30 day target to complete the coding for each patient discharged from hospital.

- At the end of the month, each HIPE unit prepares a file for export to the HPO. A final quality check using the data quality Checker is usually completed by the HIPE Co-ordinator prior to export. The entire export file is encrypted using the Advanced Encryption Standard before it leaves the hospital. Files are transferred at the start of each month to the HPO.
- Additional quality checks are performed by the HPO before the hospital files are merged into a national file for that period and, subsequently, into a master file.
- The updated master file is made available to key data users in two ways: report-based access via the HIPE online portal (HOP) and file-based access via FILESERVE, which is a web application on the National Hospitals Network (NHN). The users with access to FILESERVE include the HPO, the Department of Health and certain units within the HSE.

The HIPE data is automatically changed during the export to the HPO to remove patient names, to encrypt consultant codes, to remove the medical card number and to set the day of birth to 15.

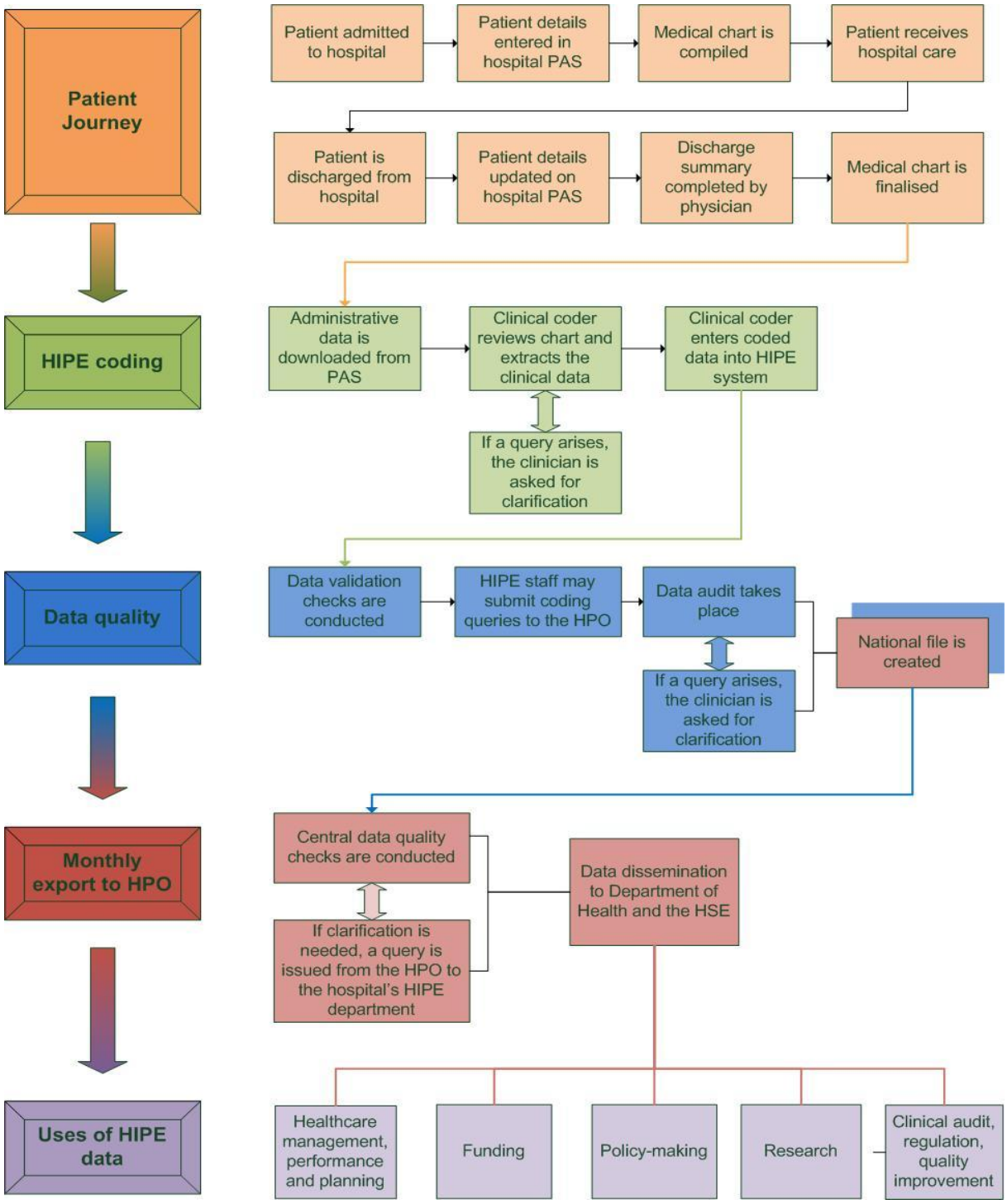

Figure 3. Data flows in HIPE

2.4 Significance of information management for HIPE

The benefit of good information management practices is to instil confidence in service users, clinicians and all other stakeholders that decisions are made based on high-quality information, the availability of which will ultimately improve patient outcomes.[5] It is widely recognised that effective information management improves quality through enhanced knowledge and understanding for all involved in generating and using the data. Furthermore, good information management promotes assurance that information will be held securely; it puts in place the necessary precautions to maintain individuals' privacy and confidentiality; it facilitates greater empowerment and involvement by communicating effectively with stakeholders including the public; and, ultimately, it creates a culture in which information will be used more effectively.[27]

2.4.1 Use of HIPE data

HIPE is an extremely rich source of data. It is the principal source of data on all inpatients and day cases discharged from publicly funded acute hospitals in Ireland. HIPE is one of the main health information systems used in Ireland to review healthcare management, performance and planning, to enable activity-based funding, to assist in policy making, and to facilitate research, innovation and improvements in care.[9]

Globally, hospital discharge data is an important indicator of hospital activity. It highlights a hospital's capacity to treat patients, it identifies the flow of patients in hospitals and need for hospital beds, and it demonstrates the potential role of the primary care sector in preventing avoidable hospital admissions and caring for patients after an acute episode[11] (See Appendix 6 for examples of how HIPE data is used).

2.4.2 Importance of information management for HIPE

Given the complexity of steps involved in generating HIPE data, the vast quantity of data produced and the number of people involved in the process, comprehensive and high-quality data collection can only be assured if the HSE has appropriate arrangements in place to manage information appropriately.[5] The process of collecting, coding, inputting and validating HIPE data requires contributions from a range of professionals, including clinicians, clinical coders, HIPE Co-ordinators, medical records staff, IT personnel, hospital managers and administrative departments such as finance.[15] It is essential that the data generated is based on good information management principles to ensure a high level of accuracy of the underlying data. Comprehensive and high-quality HIPE data can only be assured if the HSE implements effective arrangements to manage information appropriately.[28] Like all other resources within an organisation, information is a resource that must be strategically and effectively managed. The process of information management to generate HIPE data includes a number of key steps as outlined in Figure 4, namely, clinical documentation/medical records; medical records management; HIPE clinical coding; and importing, merging, and updating hospital files.

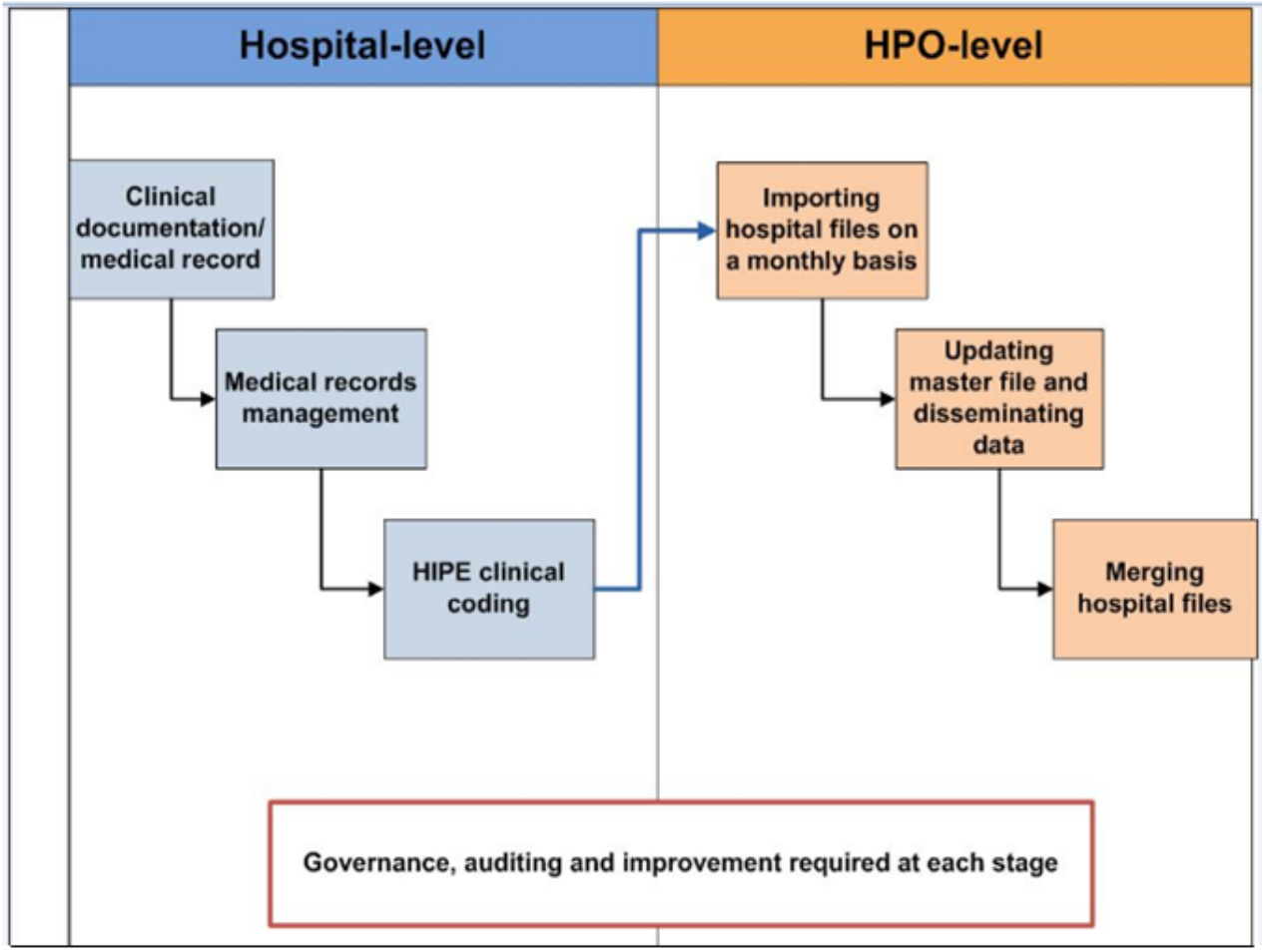

Figure 4. Steps in information management – HIPE data flow pathway

Step 1: Clinical documentation/medical records

- An accurate description of the patient journey through information recorded in the medical records is an important part of the coding process to ensure effective information management.
- It is the responsibility of the clinician to comprehensively record accurate diagnoses and procedures, in particular the principal diagnoses. There is an onus on the clinician to provide sufficient information in the medical record and discharge summary to enable the clinical coder to accurately reflect the patient's journey.[15]
- The medical record needs to be accurate, timely and legible. If the information in the medical record is not an accurate reflection of the patient's hospital stay, this seriously impacts on the quality of HIPE data.

To improve the quality of clinical documentation, it is recognised as best practice to:

- provide ongoing education to enhance coding knowledge for clinicians
- ensure a high level of collaboration between clinical coders and clinicians
- conduct clinical documentation audits and initiatives to promote improvements in professional practice in this area.

Step 2: Medical records management

- Good medical records management ensures that:
  - all forms and notes relating to a patient are filed in the medical record
  - the filing order follows a set standard so that all forms and notes are in the correct section of the record
  - each admission is in order.
- It is the responsibility of the medical records department to ensure that clinical coders have access to a well-organised medical record.
- Irish Coding Standards 2018 extend this medical records management advice to electronic healthcare records.[29]
- The lack of consistent and orderly organisation of the medical record can have an impact on the quality of HIPE data.

To improve the quality of medical records management, it is recognised as best practice:

- for medical records staff to comply with *HSE Standards and Recommended Practices for Healthcare Records Management*[1]
- that the medical records department conducts regular audits to ensure standards are adhered to and good practice is maintained.

Step 3: HIPE clinical coding

- A joint effort between the clinician and the clinical coder is essential to achieve complete and accurate documentation, code assignment and reporting of diagnoses and procedures.
- It is the responsibility of the clinical coders to translate the clinician's notes in the medical records into ICD-10-AM clinical codes. Translating disease, injury, condition and procedure descriptions from hand-written patient charts into HIPE codes is a task which requires a very specific set of skills and expertise.
- In order to code accurately, it is vital that clinical coders have knowledge of medical terminology and understand the characteristics, phrasing and conventions of ICD-10-AM/ACHI/ACS/ICS.

- It is universally recognised that high standards must always be maintained as inaccurate and poor quality data can have an adverse effect on patient safety and clinical outcomes, as well as the potential to affect management, organisation, planning, funding, quality improvement and research.

To improve the quality of clinical coding, the following are recognised as best practice:

- ongoing education to enhance clinical coding skills
- good communication links between clinical coders and clinicians so that queries on documentation can easily be resolved and to enable collaborative examination of coding problems. Methods used to improve collaboration include identifying clinical champions, clinician-coder liaison programmes and clinical coding committees to build and maintain relationships.
- clinical coding audits and initiatives to promote improvements in professional practice. Auditing tools have been developed by the HPO which should be used by clinical coders and HIPE Co-ordinators to continuously evaluate and improve the quality of coding.

Steps 4–6: Importing, merging, updating the master file and disseminating data

- On a monthly basis, the HPO manages the secure import of HIPE files from each of the 56 hospitals into the HPO.

- In order to continuously improve the quality and use of HIPE data, it is the responsibility of the HPO to ensure that:

    - each hospital submits a file on an agreed date each month in line with a calendar of export dates issued at the beginning of each year
    - quality checks are performed on the imported data, with any issues reported back to individual hospitals, and clinical coding audits are conducted
    - hospitals are addressing data quality issues and improvements are being implemented
    - strong information governance principles are in place and users' needs are responded to while maintaining each individual's privacy.

- If there are issues with the transferring of files or with the quality of the data received from a hospital, the HPO sends specific queries to the HIPE Co-ordinator of the relevant hospital.

- Once all files have been imported, the HPO is responsible for performing quality checks to review completeness of the data received from each hospital using the data quality Checker tool. If significant issues are identified, they are used to review the quality of clinical coding and any significant issues are reported back to individual hospitals.

- The final stage in the management of information for HIPE data is to merge the data for the previous month to the HIPE master file, which contains all national HIPE data

on record (see Figure 4). Once the master file is updated, the HPO disseminates the information to key stakeholders such as units within the HSE and the Department of Health.

- The HPO also provides individualised access to specific files through the HIPE portal, for example, the chief executive officer of a hospital group may get access to the data for the hospitals within their group once the appropriate permission from each hospital are obtained.

3. Governance, leadership and management

To achieve compliance with the Information Management Standards, the managing organisation of a national data collection must have effective governance, leadership and management structures in place. These structures should promote good information management practices throughout the organisation. Effective governance arrangements for information management are necessary to ensure that processes, policies and procedures are developed, implemented and adhered to in respect to information management.

Features of good governance, leadership and management include:

- A well-governed managing organisation is clear about what it does, how it does it and is accountable to its stakeholders. Formalised governance arrangements ensure that there are clear lines of accountability for individuals and teams so that everyone is aware of their responsibilities in respect to information management. The managing organisation should be unambiguous about who has overall executive accountability for the national data collection, and there should be identified individuals with responsibility for information governance and data quality. There is also an onus on senior management to develop the required knowledge, skills and competencies within the organisation to manage information effectively and to ensure compliance with relevant legislation.

- Managing organisations should demonstrate strong leadership by strategically planning and organising resources to achieve their objectives. Strategic and business planning need to specifically address the area of information management given the ever evolving health information landscape in the wider health service. These plans should be aligned with the broader health information strategies in Ireland.[17,18] The strategy should set out how the organisation aims to improve the management of information in order to achieve its overall strategic objectives. It should include the technological infrastructure requirements, information governance, data quality and the use of information.[27]

- A well-governed and managed service can only be achieved if the managing organisation has robust processes in place to monitor its performance. Senior management require information on performance to be assured that practices are consistently of a high standard within the national data collection. This involves using key performance indicators to measure and report on performance, undertaking regular audits to assess practice and having a comprehensive risk management framework in place throughout the entire organisation to help identify, manage and control information-related risks.

- Another key feature of good governance, leadership and management involves having data sharing agreements in place with external organisations. The agreements outline the responsibilities of both parties and the associated timelines for the completion of tasks. Data sharing agreements are necessary to support the provision of good quality data, and the legal and secure handling of data.

- Managing organisations with robust governance structures promote transparency by informing those individuals about whom data is being shared about any data sharing agreements in place, and they accurately describe the aims and objectives of the national data collection in a published statement of purpose.

The HIQA review team assessed the governance, leadership and management arrangements for HIPE against Standard 2, 3 and 4 of the Information Management Standards.

The findings of governance, leadership and management will be presented in the following sections:

- Governance structures of HIPE within the HSE
- Strategic vision, planning and direction
- Performance and risk management
- Transparency.

3.1 Findings — Governance structures of HIPE within the HSE

This section will outline the governance structures for HIPE at the time of the review, including the positioning of HIPE within the Health Service Executive (HSE) and governance arrangements for HIPE in respect of information management.

3.1.1 Overview of governance structures

3.1.1.1 National Finance Division, HSE

As outlined in Section 2.2, in 2014 the HIPE unit was moved from the Economic and Social Research Institute (ESRI) into the Healthcare Pricing Office (HPO), which is part of the National Finance Division of the HSE. The National Finance Division is responsible for ensuring that valued, responsive and effective financial services are delivered across the health service as part of National Financial Management Framework.[30]

At the time of the review, the Chief Financial Officer (CFO)/Deputy Director General had executive responsibility and accountability for the National Finance Division. The CFO reports directly to the Director General of the HSE and sits on both the HSE Directorate and the HSE National Leadership Team. The National Finance Division has a Senior Finance Team which is chaired by the CFO and includes five Assistant Chief Financial Officers (ACFO) (See Figure 5). The team meets on a monthly basis.[30] The five ACFOs report to the CFO.

Within the National Finance Division, the Acute Hospital Finance function ensures that an integrated financial performance system is in place for acute hospitals. It is made up of two teams, which work closely together in meeting the overall objectives of the function: the Acute Finance team and the HPO team (See Figure 6).

- The Acute Finance Team has responsibility for financial planning and performance management for the Acute Hospitals Finance function; business support, including service developments and investment proposals; and the development of the new system of activity-based funding (ABF).
- The HPO team has responsibility for national costing of hospital activity, determination of national prices for hospital activity, the HIPE scheme and the National Perinatal Reporting System (NPRS)[††].[30] The HPO are responsible for ensuring HIPE data is consistently of good quality in order that it can support ABF.

[††] The National Perinatal Reporting System (NPRS) in the system providing national statistics on perinatal events, in particular data on pregnancy outcomes, perinatal mortality, and aspects of perinatal care.

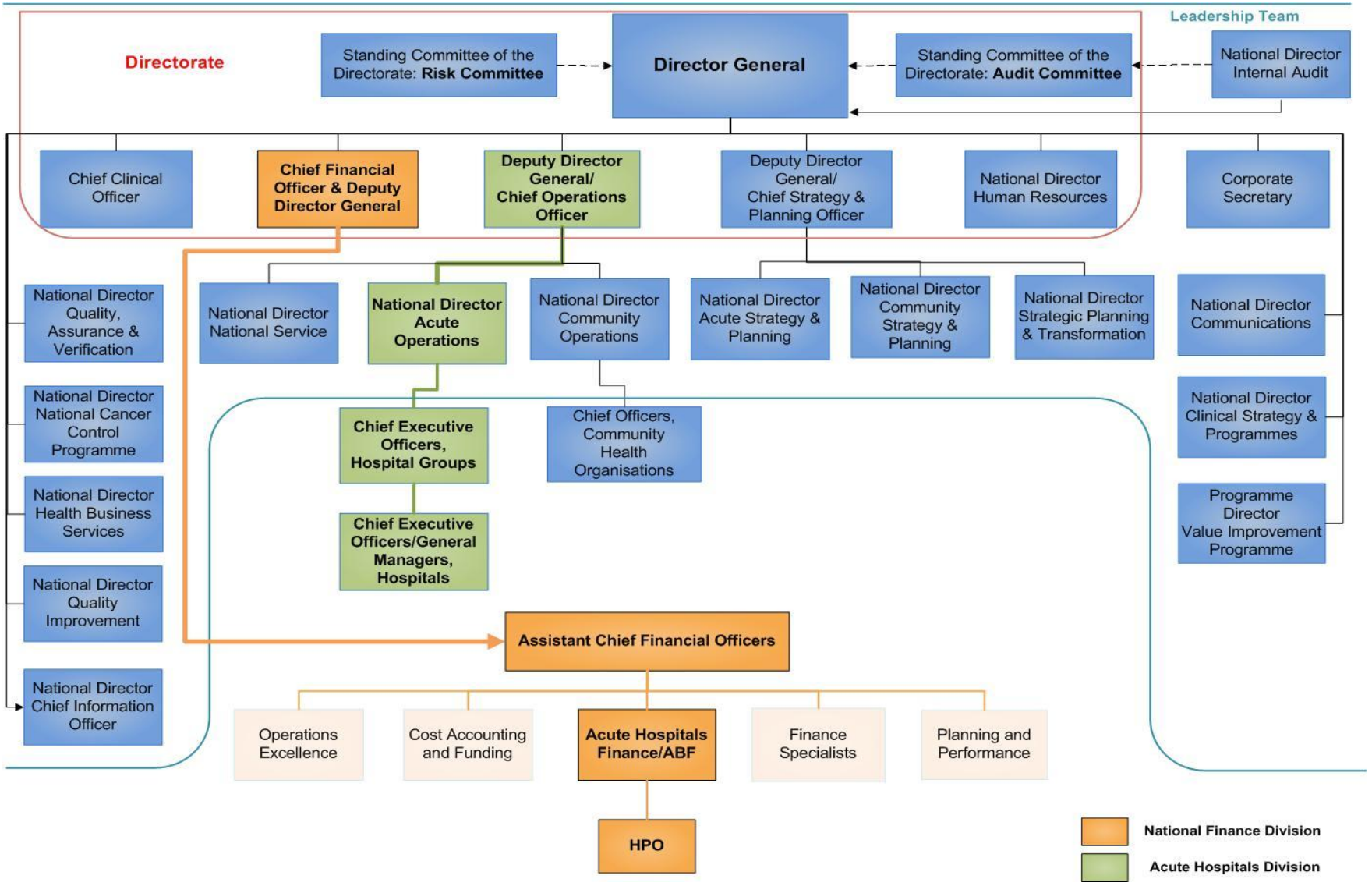

Figure 5. The position of the Healthcare Pricing Office and Acute Hospitals Division within the HSE

3.1.1.2 The Healthcare Pricing Office

The Healthcare Pricing Office (HPO) is led by the Assistant Chief Financial Officer (ACFO) for Acute Hospitals Finance. This ACFO has held responsibility for the HPO since its establishment in 2014.

> The ACFO for Acute Hospitals Finance with responsibility for the HPO will be referred to as the Head of the HPO for the remainder of this report.

The HPO consists of two teams: the Pricing team and the HIPE/NPRS team. The Head of Pricing manages the Pricing team and the Head of HIPE/NPRS manages the HIPE team, and both report to the Head of the HPO (See Figure 6).[31]

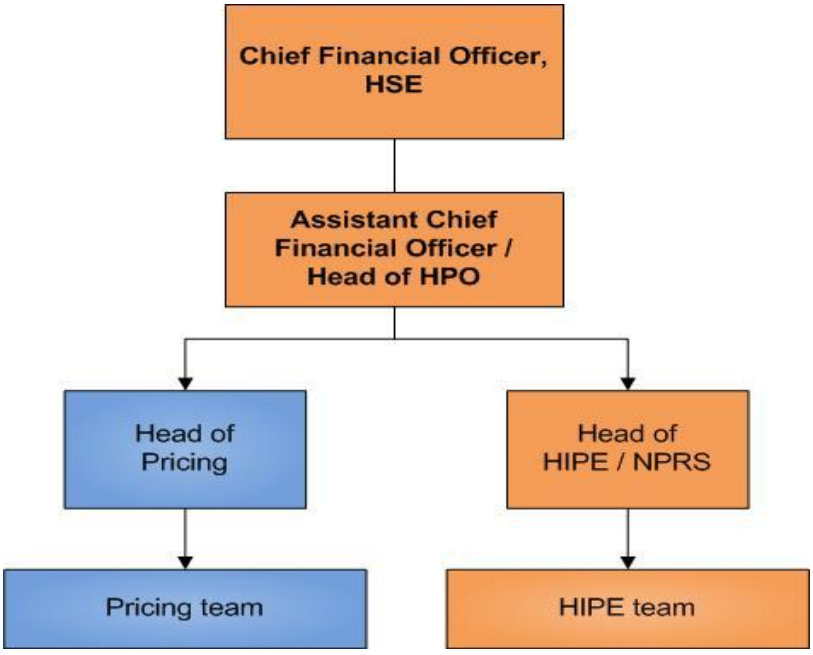

Figure 6. Current governance structure for the HPO

> The Head of HIPE/NPRS with responsibility for the two national databases will be referred to as the Head of HIPE for the remainder of this report.

3.1.1.3 The HIPE unit, HPO

As outlined, the Head of HIPE reports to the Head of the HPO. As shown in Appendix 7, there are four teams within the HIPE unit of the HPO: IT, Coding, Clinical Coding Education and Clinical Coding Support. The manager of each unit reports to the Head of HIPE. At the time of the review, the HIPE unit has eight whole-time equivalent (WTE) filled positions and a number of vacant positions. A recruitment campaign had been launched for two of these vacant positions at the time of the review. In addition, there are two clinical coding support positions which are shared between the HIPE and NPRS.

The HIPE unit within the HPO manages a range of tasks related to the HIPE scheme, including maintaining the national HIPE database, software development and support, training clinical coders, reviewing data quality and performing clinical coding audits, managing requests for HIPE information, and data analysis and information dissemination. Data analysis is performed by the HIPE unit in relation to training and data quality issues. In addition, the HIPE unit provides classification support to the HPO, HSE and HIPE data users.

3.1.1.4 Acute Hospitals Division, HSE

HIQA was informed that the governance and management of HIPE within hospitals is the responsibility of the Acute Hospitals Division within the HSE. As outlined in Figure 5, the Deputy Director General/Chief Operations Officer has overall accountability for this division. The executive management of all acute hospitals within the HSE is the responsibility of the National Director of Acute Operations. The National Director of Acute Operations delegates responsibility for managing services to the chief executive officer (CEO) of each hospital group who, in turn, delegates responsibility for the management of individual hospitals to the relevant hospital CEO or general manager.

The governance and management of all staff involved in the data flow pathway of HIPE data within hospitals, including over 7,000 clinicians, 265 clinical coders, 25 coding managers and medical records staff, falls within the remit of the Acute Hospitals Division. The relevant staff working within the individual hospitals are accountable to tbe CEO or general manager of the hospital.

3.1.2 Governance arrangements for information management of HIPE

HIQA examined the structure and composition of senior management and management team meetings within the HSE and the HPO in order to assess what governance arrangements for HIPE were in place to bring together key decision makers to discuss strategy, business plans, performance and risk in relation to information management of HIPE.

3.1.2.1 Oversight arrangements for the governance of HIPE

At the time of the review, HIQA was informed by senior management in the HPO and HSE that there was no national oversight structure in place for the governance, leadership and management of HIPE within the HSE.

A national oversight structure would be expected to coordinate the leadership and governance arrangements, develop strategy, and define roles and responsibilities in relation to HIPE given the following:

- the importance of the HIPE data to underpin ABF, healthcare planning, healthcare delivery and performance, policy making and research
- the significant cost associated with generating HIPE data
- the complexity of the management and governance of HIPE across two functional areas of the HSE (that is, the National Finance and Acute Hospitals Divisions)
- the vast number of stakeholders involved in the generation of data, including clinicians, clinical coders and co-ordinators, medical records staff, IT personnel, statisticians and management.

HIQA then examined the structure and composition of the following groups as listed below, to assess the arrangements, if any, that were in place in relation to governance of HIPE:

- HSE National Finance Division Senior Management Team
- HPO Senior Management Team
- Other management teams within the HIPE Unit of the HPO
- ABF Clinical Advisory Group.

➢ HSE National Finance Division Senior Management Team

In interview, the Head of the HPO informed HIQA that the governance and management of HIPE is not a standing item on the agenda or routinely discussed at the HSE National Finance Division Senior Management Team meeting.

➢ HPO Senior Management Team

Within the HPO, a Senior Management Team was in place to review the management and performance issues. The team included the Head of the HPO, Head of Pricing, Head of HIPE/NPRS and the HPO Business Manager. This team met at least once a month prior to March 2017 but, as reported by the Head of the HPO, the team had not met for the latter part of 2017 due to competing demands. In interview, the Head of the HPO informed HIQA of plans for the team to meet on a monthly basis from January 2018. HIQA was not provided

with adequate evidence that the team had begun to meet on a regular basis by the end of this review. The significance of this is that HIPE is not being routinely discussed at senior management level and issues in relation to performance, risks, business plans and strategy are not adequately addressed.

➢ Other management teams within the HIPE unit of the HPO

In the absence of this forum, HIQA examined whether another senior team was tasked with governance of HIPE. The review team identified that, at the time of the review, there were no formal management team meetings in place within the HIPE unit of the HPO. Therefore, there was no forum at any level to regularly review and monitor the range of governance topics required to ensure the effective management of HIPE.

➢ ABF Clinical Advisory Group

In the absence of any other formal arrangements, HIQA reviewed the Terms of Reference of the ABF Clinical Advisory Group, which was convened in 2016. The purpose of the group is to serve as a reference group for the HSE ABF Programme, to champion incentives to promote activities that need to take place in hospitals and that are clinically beneficial to patients, and to act as consultants as ABF is progressed. However, although the use of HIPE data underpins the ABF Programme, this group is not responsible for overseeing the governance of HIPE and HIPE is not a standing item on the agenda or routinely discussed at these meetings.

3.1.2.2 Lines of reporting and responsibility for HIPE within the HSE

To understand the current arrangements, the lines of reporting and responsibility for HIPE at the different levels within the HSE (that is, senior leadership within the HSE, the HPO, and the Acute Hospitals Division) will be discussed in this section:

- Lines of reporting and responsibility for HIPE — Senior leadership arrangements within the HSE
- Lines of reporting and responsibility for HIPE — HPO arrangements
- Lines of reporting and responsibility for HIPE — HSE Acute Hospitals arrangements

Lines of reporting and responsibility for HIPE — Senior leadership arrangements within the HSE

Senior leadership arrangements within the HSE: refers to the overall lines of reporting and responsibility for HIPE within the HSE. National oversight structures should be in place to coordinate the leadership and governance arrangements, develop strategy and define roles and responsibilities in relation to HIPE.

HIQA identified that two separate functions within the HSE, namely the National Finance Division and Acute Hospitals Division, have responsibility for different aspects of the governance and management of HIPE; however, in the absence of oversight/governance structures, there is no coordination of these responsibilities.

The HPO, contained within the National Finance Division, is responsible for the provision of systems, processes and infrastructure, including data quality tools, to support hospitals in the extraction and submission of high quality HIPE data. The Acute Hospitals Division is responsible for the overall management of HIPE data within individual hospitals, including generating validated data based on hospital activity, the work of clinical coders, how the data is used and ensuring it is fit for purpose.

However, HIQA was informed that there are no oversight arrangements in place to coordinate the varying responsibilities of these divisions. It was also found that formal meetings do not take place between the two divisions. When HIQA asked for evidence of delineation of responsibilities across these two divisions through a formal agreement, such as a scheme of delegation or memorandum of understanding, the review team were informed that such agreements did not exist.

As a consequence, HIQA consistently identified throughout the review that there was a lack of clarity regarding explicit responsibilities for the governance and management of HIPE across the two divisions.

This has significant implications for the remainder of the findings in this chapter. The key principles of good governance are closely aligned to clear structures. For example, clarification regarding function and specific responsibilities are essential for effective strategic

vision and business planning, robust performance and risk management, and the promotion of transparency.

Lines of reporting and responsibility for HIPE — HPO arrangements

HPO arrangements: refers to lines of reporting and responsibility for HIPE within the HPO. The HPO-level arrangements should include clarity of roles and responsibilities for staff working within the HPO and clear lines of reporting.

In interview, the Head of the HPO identified that they had overall responsibility for the HPO, as delegated by the CFO. HIQA was provided with an organisational chart outlining the lines of reporting among employees within the HIPE unit in the HPO.

The HIPE unit within the HPO manages a range of tasks in relation to HIPE. The unit has a significant remit in regards to maintaining and managing the national HIPE database, training clinical coders, reviewing data quality and performing clinical coding audits.

However, the extent of the responsibilities was narrow as the Head of the HPO informed HIQA that responsibility for the governance and management of HIPE within hospitals is the responsibility of the Acute Hospitals Division within the HSE. This means that the HPO does not have responsibility for the management of staff working within HIPE units in hospitals nor the management of information for the collection of HIPE data within hospitals. The consequence of this is that, although the HPO has the authority to issue recommendations for improving the quality of clinical coding, they do not have any authority to ensure the recommendations have been implemented within hospitals. Similarly with training, the HPO has responsibility for developing and providing training for clinical coders but the HPO does not have any authority to enforce mandatory training as coders are classified as the employees of the hospitals. Therefore, the HPO's remit in respect to improving data quality through audit is restricted to clinical coding, which is only one of the steps in the data flow pathway. Furthermore, in the absence of national oversight arrangements or the establishment of a forum for regular meetings between the HPO and the Acute Hospitals Division, it is difficult to see how issues in relation to information management of HIPE can be escalated or resolved.

Throughout the review, HIQA identified a narrow remit in relation to the remit of the HPO in respect of HIPE. For example, the Head of the HPO informed HIQA that under the governance of the National Finance Division, the HPO has the responsibility for assuring the quality of HIPE data to underpin the ABF Programme. However, in order for the HPO to fulfil this responsibility, the HSE would need to enhance the authority of the HPO to improve the management of information across the entire data flow pathway. This could only be achieved by working in partnership within an appropriate governance framework which explicitly defines the formal delegation of responsibilities for HIPE across the HPO and the Acute Hospitals Division. There was also no evidence provided of any formalised arrangements or meetings in place between the HPO and the Acute Hospitals Division to

achieve this. As both units are based within the HSE, one would expect to see the advancement of a national forum to address these issues.

Lines of reporting and responsibility for HIPE — HSE Acute Hospitals arrangements

HSE Acute Hospitals arrangements: refers to lines of reporting and responsibility for HIPE within hospitals participating in the collection of HIPE data. Hospital-level arrangements should include clear lines of reporting and responsibilities for the range of staff involved in the collection and management of HIPE along the data flow pathway in hospitals. To ensure that local governance arrangements across hospitals are working effectively and adhering to best practice, there is a need for national governance, leadership and oversight of these arrangements.

In interview with the National Director of Acute Operations in the HSE, HIQA was informed that performance agreements are in place which delegate specific responsibilities to hospital group CEOs (this will be discussed further in section 3.3.1). However, in reviewing these agreements, HIQA identified that details in relation to HIPE are not clearly specified or defined in such agreements. The consequence of this is that the accountability for the overall quality of HIPE data at a hospital level is not formally reported as part of an assurance framework. Internationally, hospitals are required to report on the quality of their data through the use of quality conformance and assurance processes and the production of data quality statements.[32]

In relation to reviewing the governance arrangements for the management of HIPE at a hospital level, HIQA was informed that local governance arrangements vary across hospitals. The lines of reporting for clinical coders and HIPE Co-ordinators vary across hospitals; HIPE units within hospitals are generally aligned to the finance department, medical records department or best practice department in the relevant hospital. However, while there is variance in local governance arrangements across hospitals, as previously mentioned, there is no national oversight of these arrangements.

The quality of HIPE data is dependent on the appropriate management of information through the sequence of processes involved in the data flow pathway within hospitals. However, the delegation for the management of HIPE across all stakeholders involved in the data flow pathway, such as clinicians and medical records staff, are not clearly defined within the current governance structures. In the absence of a clear delegation of responsibility for all staff involved in the management of HIPE, there is an absence of accountability. For example, the CEO of a hospital needs to be assured in relation to clinical documentation practice amongst clinicians.

The following three steps at the level of the hospital will be addressed in turn below:

(i) clinical documentation
(ii) medical record management
(iii) clinical coding.

Best practice for improving the quality of data involves both a top-down and bottom-up approach, that is, the national identification of issues and a coordinated approach to produce initiatives and guidance for the system to address these issues as well as the local implementation of quality improvement initiatives to address the issues idenitified within hospitals.

(i) Clinical documentation

Healthcare providers, including the clinicians, are responsible for keeping the medical records up to date. At the time of the review, the responsibility for improving clinical documentation lay with the hospital CEO or general manager. HIQA learned in an interview with the National Director of Acute Operations that there is no national strategy within the HSE to encourage management to review and improve clinical documentation. In focus groups with clinical coders and HIPE Co-ordinators, HIQA identified that poor clinical documentation is the biggest challenge for achieving good quality HIPE data. Clinical coders reported that the absence of appropriate governance structures as well as insufficient collaboration with clinicians has resulted in persistent issues with data quality. HIQA also identified that there is little accountability within the current governance structures to identify and address poor clinical documentation practice among clinicians at a hospital level.

(ii) Medical records management

The medical records departments within hospitals are responsible for organising the information in the medical record and adhering to the *Health Service Executive Standards and Recommended Practices for Healthcare Records Management*.[1] The responsibility for improving medical records management lay with the hospital CEO or general manager. There has been a national attempt to improve practice and standards across hospitals through a National Healthcare Records Management Advisory Group. However, in evidence gathered during the review and in the Pavilion Health report, it was identified that the current standards are not fit for purpose in light of the implementation of electronic health records and a review of the standards was required to meet clinical as well as classification needs.[13] Furthermore, in order to successfully implement the recommendations and standards, it is recognised that hospitals should have a medical records committee to improve the management and quality of medical records. However, HIQA identified that these structures have not being implemented consistently across all hospitals.

(iii) Clinical coding

The HIPE Co-ordinator and clinical coders have responsibility for adhering to Irish Coding Standards and classification systems. A national approach to improve clinical coding is coordinated through the HIPE unit within the HPO. Although, the clinical coders are not accountable to the HPO, the quality of the HIPE coding in each hospital is reviewed by the HPO. If there is a HIPE coding concern, the HPO can issue recommendations for improvements to the HIPE Co-ordinator; however, the responsibility for implementing the improvement lies within the hospital. The HPO have also developed auditing tools for clinical coders, and the use of these tools is managed at a hospital level. The ultimate responsibility

for improving clinical coding lay with the hospital CEO or general manager. In focus groups with HIPE Co-ordinators and clinical coders, HIQA was informed that audit is not performed regularly due to time-pressures to achieve the 30 day deadline for submission of HIPE data to the HPO. HIQA was also informed through focus groups and interviews that the extent of formal collaboration between clinical coders and clinicians is not sufficient to stimulate effective and systematic improvements in the quality of HIPE data. This cooperation is necessary so that recurring queries on documentation can be resolved and that coding problems can be examined collaboratively.

These findings highlight that although there is a recognition and attempt to improve the management of information for HIPE for some of steps in the data flow pathway, a strategic and coordinated approach is absent within the HSE. As outlined in section 3.1.2.2, a persistent situation exists where there is no specific accountability for identifying and delivering on the requirements for HIPE across both the HPO and HSE Acute Hospitals Division.

3.2 Findings — Strategic vision, planning and direction of HIPE

Strategic plans are the foundation on which all business activities can be connected and aligned. In order to effectively deliver a strategy, it is necessary to specify how the national data collection is going to achieve their strategic objectives by producing regularly updated business plans.[3] Developing and implementing business plans is an essential process to translate strategies into realistic work targets, and this process also provides a basis to monitor progress to ensure that key outcomes are achieved within the specified timelines.

The HSE's three year Corporate Plan 2015 to 2017 sets out the strategic direction for the HSE.[33] The National Service Plan is the annual business plan which sets out the type and volume of services against which the HSE's performance is measured.[34] The HSE Corporate and Service plans outline high-level strategic objectives and outcomes. These plans do not address the specific requirements for national data collections. Therefore, it is the responsibility of the Head of the HPO, with input from key stakeholders, to develop detailed strategic and business plans to outline the aims and objectives, legal responsibilities and future developments in order to adequately consider how the management of HIPE needs to evolve along with wider-system changes and in line with the HSE Corporate Plan. A strategic plan for HIPE is necessary to address each aspect of information management such as developments in ICT, information governance, the effective use of information and data quality.

3.2.1 Strategy for HIPE

In reviewing the HSE Corporate Plan 2015-2017 *Building a high quality health service for a healthier Ireland*, HIQA found evidence that high-level strategic plans for the HPO are included in these plans.[33] The corporate plan for this period outlines the need to implement ABF as the funding model for the HSE. The corporate plan also acknowledges a need to effectively use data collected, such as HIPE data, within the system.

A well governed and managed organisation has robust oversight arrangements in place that oversee the development of strategy for the organisation. HIQA was informed through the information request and during an interview that, at the time of the review, the HPO did not have specific organisational-level strategic plans and, therefore, there are no plans to address strategy for information management within HIPE. In the absence of both clear governance structures and a strategy at the level of the organisation, it is unclear how the HPO effectively delivers on current requirements and also anticipates and prepares for the future needs of HIPE.

3.2.2 Business planning for HIPE

HIQA was informed through the information request and in interview that high-level operational plans for the health service are published within the annual *HSE National Service Plan.*[34] In line with the corporate plan, a key objective for 2016 was to carry out a phased

implementation of the ABF model and use HIPE data to determine the volume of cases required to be undertaken by each hospital group.

In 2015, the HPO published an ABF implementation plan for the period 2015-2017.[26] This plan details the requirements for the successful roll-out of the ABF Programme, which incorporates the management and performance of HIPE to support the ABF function. This implementation plan was a once-off exercise as, in interview, HIQA was informed that an updated implementation plan would not be published in 2018. Furthermore, HIQA was informed that a progress report on the successful execution of the plans had not been produced and, therefore, there was no formal assessment within the HPO as to the successful delivery of these plans.

A well governed and managed organisation monitors its performance to ensure it meets its objectives, which are outlined through the process of strategic and business planning. As the HPO does not have specific strategic plans for the management of information within HIPE, it did not have associated business plans to detail how the strategic objectives would be achieved. Without detailed strategic and business plans, it is impossible to review the performance and management of HIPE in line with the key objectives for the period. This is concerning given that HIPE data is used for so many important purposes, including allocating budgets to hospitals based on activity data.

3.3 Findings — Performance and risk management

Robust performance and risk management promotes accountability to all stakeholders by facilitating informed decision-making and improvements through continuous and rigorous self-assessment.[2]

Performance and risk management involves using the appropriate tools to produce the necessary information to assure senior management that HIPE is being managed effectively at an operational level. Effective performance management can be achieved by employing the use of a number of key tools, including identifying and reviewing KPIs, commissioning necessary internal and external audits to assess compliance with relevant legislations and the organisation's policies and procedures, and reviewing the risk management policy and risk register. The use of KPIs, audit and risk management for HIPE within the HSE will be detailed in the following sections.

The HSE has a Performance and Accountability Framework which sets out the means by which named individuals, who have delegated responsibility and accountability, are held to account for the performance of services within their allocated budget.[35] The principles of this framework are to outline, without ambiguity, what is expected of those that are held to account and what actions they should take if targets are not achieved. It is the responsibility of managers to proactively identify issues of underperformance and to act upon them promptly as an effort to avoid the need for escalation within the organisation. As previously stated, performance and risk management are closely aligned with clear governance

structures: explicit lines of reporting and clarity regarding specific accountabilities are essential. For example, in line with the HSE's Performance and Accountability Framework, National Directors and hospital group CEOs are required to sign a performance agreement which sets out the scope of what they are responsible for and against which they will be held to account, including the specific budget to achieve the deliverables agreed. This is relevant for the collection of HIPE as the appropriate allocation of budgets is explicitly linked to the quality of data underpinning these decisions. As the CEOs of each hospital have delegated responsibility for the governance and management of HIPE within hospitals, it is within their remit to ensure that HIPE data is consistently of a high quality to guarantee the appropriate allocation of budgets. It is best practice that organisations prepare data quality statements to clearly demonstrate the quality of the data by reporting against pre-defined indicators [(5)]

3.3.1 Performance agreements

HIQA was informed by the National Director of Acute Operations that the performance agreements which assign specific responsibilities to the hospital group CEO does not have any specific detail on the need to ensure that HIPE is of good quality to ensure accurate allocation of hospital budgets. In addition, hospitals are not required to report on the quality of their data through the use of data quality statements. The consequence of this is that the accountability for the overall quality of HIPE data at a hospital level is not formally reported as part of an assurance framework, despite the fact that this data underpins the financial model for acute hospitals in the HSE.

3.3.2 Key performance indicators

KPIs can be a valuable tool to assess performance if used effectively: they can be used to monitor how effectively an organisation is reaching targets. In accordance with best practice, a systematic process is required to identify, develop, collect and review KPIs for information management. Senior management need assurance that there is a carefully planned process in place to derive the appropriate KPIs as relevant, reliable and accurate indicators are essential for good governance. A performance report detailing the KPIs should be reviewed regularly at management and senior management meetings with responsibility for HIPE, and actions should be decided upon if performance drops below the pre-specified target at any point.

- HPO

The HSE National Service Plan includes a KPI to report on the HIPE data completeness. This KPI presents the percentage of all eligible cases entered into HIPE in the prior month. The target for this KPI is >95%.[(36)] For the period of January to August 2017, HIQA calculated that the average completeness rate was 92%. HIQA was informed in interview with the Head of the HPO that this KPI is not escalated to the Finance Senior Management Team meetings and the consequences for action are not discussed at a senior level when the indicator falls below the outlined target.

HIQA was informed that the HPO does not employ the use of any other KPIs to review and monitor the performance of HIPE and the quality of data. Furthermore, as detailed in section

3.1.3.1, there is no dedicated forum to identify relevant KPIs and review the results on a regular basis.

- Hospitals

HIQA was informed in an interview that the KPI on completeness is used to inform senior management within hospitals of the quality of HIPE data. However, no other indicators are being routinely used to assess the quality of data at a hospital level or the Acute Hospitals Division. Regular performance reports on the quality of HIPE data are not reviewed by the hospital CEO or General Manager, or by the hospital group CEO. Currently there is little focus at a senior management level in respect to regularly reviewing the quality of HIPE data.

3.3.3 Internal and external audit

Audit plays an important role in providing assurances to senior management as to the adequacy of their internal controls. It also brings a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes. Audit schedules, including external audits, should be reviewed and agreed by senior management. External audits should be commissioned when a specific area of expertise, which may not be available in-house, is required or when an extra level of independence is considered necessary. The findings of the audits should be presented regularly to senior management to highlight areas of good practice and to identify areas which need improvements. Audits should also be used to identify specific training needs and to ultimately identify and implement improvements to information management practices.

3.3.3.1 Internal HIPE audits

Clinical coding audit

- HPO

The HIPE unit within the HPO has an audit function to independently assess the quality of clinical coding in each ABF hospital at least once every two years. The audit process in hospitals involves re-abstracting information from the charts of 100 discharges in a certain period. There are two national coding auditors to help fulfil this requirement. The HPO have an audit schedule which determines the audit rota. Once an audit is completed, a final report is provided to the hospital within four to six weeks which includes the overall findings and recommendations.

HIQA identified through the information request and interview that in the absence of clear governance structures, a formalised audit programme for HIPE throughout the HSE has not been developed. Although it is a very positive to independently review coding practices within hospitals, HIQA was informed that some hospitals have yet to be audited by the HPO. In 2017, the HPO had completed clinical coding audits in 16 out of the 56 hospitals that

produce HIPE data. Four years after the establishment of the HPO, it does not have a complete picture of clinical coding practices in each hospital in Ireland.

Hospitals are also required to use the HIPE Coding Audit Toolkit (HCAT) to perform regular audits on their own practice; however, HIQA identified in focus groups and interviews that routine audits are not being regularly performed in practice. Some hospitals reported that they do not use HCAT. Therefore, in these hospitals, senior management have no method to routinely evaluate the quality of clinical coding and improve practices if necessary.

3.3.3.2 External data quality audits — Pavilion Health

An external review of HIPE commissioned by the HSE was undertaken by Pavilion Health in 2015 and published in September 2016.[13] The project aimed to assess the validity of the data underpinning the ABF model through a quality review of a full year (2014) of Irish HIPE coded patient data.[13] HIQA was informed that this was a once-off exercise which specifically focused on the practice of clinical coding across hospitals to assess the validity of the data underpinning the HSE's ABF Programme.

In the report, Pavilion Health outlined 12 recommendations which, if implemented, would help to improve the quality of HIPE data (See Appendix 8).[13] These recommendations are directed at both the HPO and hospitals. HIQA was informed that the HPO is working to coordinate and support the implementation of recommendations within hospitals, while each individual hospital is ultimately responsible for implementing the recommendations. The national report, compiled by Pavilion Health, acknowledged that the participating hospitals were responsible for preparing individual action plans based on the report.[13] In interview, HIQA was informed that a team was in place within the HPO to review the implementation of the action plans and recommendations across hospitals.

Although the HPO provided HIQA with a record of decisions made by the team established to monitor the implementation of the Pavilion recommendations, and there was evidence of some progress underway, HIQA identified that there is no formal implementation progress report with timelines and assigned owners for actions. As a consequence, the recommendations are at different stages of implementation and some of the recommendations have not been progressed two years after the audit. In addition, HIQA was unable to establish who was responsible for the successful implementation of the specific recommendations as some were aimed at the HPO while other recommendations were directed at hospital management. It is, therefore, ultimately not clear, in the absence of clear governance structures, who has overall responsibility for implementing these recommendations. This report should form the basis of a strategic plan for HIPE across the HSE.

3.3.4 Risk management

Senior management needs regular assurance that the risk management policy is being implemented within the organisation by regularly reviewing the risk register at the senior management team meetings and assessing whether risks are being managed appropriately within the organisation.

The HPO is required to follow the HSE Integrated Risk Management Policy.[37] This policy encourages management to adopt a proactive approach to risk management by identifying risks that threaten the achievement of objectives and compliance with governance requirements. An example of such risks is the failure to comply with legal and regulatory requirements. The policy clearly outlines that it is the responsibility of all staff members to identify and manage risk within the context of their work. Furthermore, it is the line manager's responsibility to manage and control risk. In order to manage risk, formal identification of risks and implementation of controls should be part of routine working practices and a risk register should be systematically maintained and reviewed by management. Good risk management practices are intrinsically linked to clear lines of responsibility and reporting by enhancing communication and rapid response to a risk.

3.3.4.1 Risk management within the HPO

In 2017, the National Finance Division approved a new risk management policy and the HPO implemented a new risk management framework. A risk register is maintained by the Business Manager within the HPO. The Business Manager discusses the risk register with the Head of the HPO, and the risks are reported to the HSE through a formal risk reporting process. As part of the information request, the HPO provided HIQA with two risk registers: one was a HPO risk register and the other was a HIPE and NPRS IT risk register.

HIQA was informed that the HPO risk register is reviewed by the Head of the HPO and submitted on a quarterly basis to the HSE's Quality Assurance and Verification Division. The HPO provided a risk register to HIQA which had been prepared for the HSE risk reporting process in February 2018. The risks on this register were for a five year period from 2016 to 2021; however, it is unclear for long the individual risks had been on the register. The HPO risk register had seven assigned risks: five were financial risks, one was related to the impact of the quality of HIPE data on ABF implementation and one was in relation to data breaches and information security. The control for the risk of poor quality HIPE data was not specific. For example, the register stated that a strong clinical audit function is required but it did not detail how the HPO would achieve this.

The IT risk register for HIPE/NPRS was provided to HIQA for the period of March 2017. There were 18 risks on the register for this period. Of the risks outlined, 12 had a control or action identified but only one of the risks had a due date for addressing the risk. It was not clear from the documentation provided how often this risk register is updated. There is a query on four of the risks as to whether they should be removed as they are risks at a hospital level and, therefore, outside of the control of the HPO. This demonstrates that the

HPO have a narrow focus in respect to risk management of HIPE within the HSE. In addition, in the absence of robust governance structures, it is not clear who has overall responsibility for these risks and whether they are being effectively managed.

HIQA was also informed that the HPO have a Quality Assurance Group which identifies issues that can be escalated for the attention of senior management. Employees within the HPO can place an issue on the log at any time, which is then reviewed at the quality assurance meetings. However, it was unclear how risks were escalated to senior management as HIPE was not on the agenda of senior management meetings, as outlined in section 3.1.2.1).

In general, HIQA found that while the staff within the HPO are identifying risks, the process of risk management does not seem to be systematic, coordinated and integrated. There are a number of registers within the HPO which are not reviewed routinely in an appropriate forum by senior management, and there is no process in place to align the risk identification and management process for HIPE across the HSE. As a consequence, HIQA identified a number of information management-related risks which did not feature on either of the risk registers, including vacant positions within the HIPE unit, no one with assigned responsibility for information governance, and compliance with the General Data Protection Regulation (GDPR).

3.4 Findings — Transparency

Organisations with robust governance structures promote transparency by publicly reporting a statement of purpose which clearly outlines the aims and objectives of the national data collection. Furthermore, data sharing between organisations is encouraged if it is for the benefit of the service user and public health and in line with legislation and best practice guidelines. The use of data sharing agreements is recognised as good practice in this area. The governance of data sharing should ensure personal information is shared in a way that is fair, transparent and in line with the rights and expectations of the individuals whose information is being shared.

3.4.1 Statement of purpose

At the time of the review, HIPE had a statement of purpose; however, there was specific detail missing and it was not published online (See Appendix 9 for a statement of purpose template).

3.4.2 Data sharing agreements for HIPE

The sharing of HIPE data with key agencies is essential in order to provide a high-quality, efficient and comprehensive health service. HIQA identified through the information request that the HPO receives HIPE data from 56 hospitals and HIPE data is routinely shared with the Department of Health, the HSE and other external organisations such as the National Office of Clinical Audit (NOCA) and the National Cancer Registry of Ireland (NCRI).

The HPO has service-level agreements in place with hospitals which contain a confidentiality clause; however formalised data sharing agreements were not in place with external organisations with which they share data.

The review team were also informed during interview that while a template has been developed to capture privacy risks in relation to data requests, the HPO had not conducted an overall privacy impact assessment (PIA) on data sharing practices for HIPE. This will be further discussed in Chapter 5 — Information Governance. (Further details on data sharing agreements can also be found in Appendix 10).

3.5 Significance of findings — Governance, leadership and management

Governance structures for HIPE

Leadership for HIPE within the HSE

- HIPE is a fundamentally important health information system which requires strong governance and national oversight arrangements to ensure it is managed appropriately. It was established almost 50 years ago, indicating that this should now be a mature and well-established system with strong governance arrangements in place. Currently, certain responsibilities have been devolved to two separate divisions within the HSE, namely, the National Finance Division (specifically the HPO function) and the Acute Hospitals Division. However, there has been little progress to effectively embed HIPE into these structures and also into the wider governance structure of the HSE, following its transfer from the ESRI in 2014. In the absence of clear governance arrangements, effective risk management and performance management has been limited, posing potential challenges to the overall functioning and use of HIPE.

- The Pavilion Health report was commissioned by the HSE and published in 2016. This report highlighted the need for robust governance arrangements for HIPE within the HSE and made a number of key recommendations in an effort to improve the quality of HIPE data to underpin the ABF model. Since the publication of the report, there has been no attempt to define the assignment of responsibilities for some of the recommendations in the report. In addition, there is a lack of appropriate governance structures to address some of the issues and recommendations arising from the report. Senior clinical involvement is required to progress these recommendations at hospital level, and clinical involvement is also required as part of the overall governance structures for HIPE. Furthermore, many of the governance and management issues identified in this review have previously been reported through numerous reviews and publications in the past 14 years.[13,14,38]

- Although some improvements have been made and clinical coding has evolved over the past number of years, the approaches to solving the overall information management issues of HIPE, however, have not evolved. From an information management perspective, the flow of HIPE data should be seen as one continuous process which starts at the clinical documentation stage to the point where the data is ready for use by key stakeholders to inform decision-making. This fact needs to be acknowledged and addressed by senior leaders within the HSE, and a coordinated approach to the governance and management of HIPE needs to be prioritised.

Governance for HIPE within the HSE

Formalised governance arrangements ensure that there are clear lines of accountability for individuals and teams so that everyone is aware of their responsibilities in respect of information management. Currently, there are no national oversight arrangements in place for the governance, leadership and management of HIPE at a senior level within the HSE. A national oversight structure would be expected to coordinate the leadership for HIPE given the importance of the HIPE data, the significant cost associated with generating HIPE data, the complexity of the management and governance of HIPE across two functional areas of the HSE (that is, the Finance and Acute Hospitals divisions), and the vast number of stakeholders involved in the generation of data. Furthermore, there is no forum at any level to regularly review and monitor the range of governance issues required to ensure the effective management of HIPE such as reviewing strategy, business plans, performance and risk for HIPE. The consequence of this is that although HIPE data is being used for many important purposes, the dedicated focus to ensuring the data generated is of high quality receives minimal attention at a senior management level.

- HIQA recognises that individual hospitals within the Acute Hospitals Division of the HSE are responsible for local governance of HIPE within each hospital. However there is a requirement for national oversight and governance of these arrangements. To enhance responsibilities within the Acute Hospitals Division, the responsibilities within hospitals needs to be formalised through enhanced performance agreements to specifically hold hospital group CEOs responsible for monitoring and managing the quality of HIPE data to account. This could be achieved by delegating responsibility to the hospital CEO or general manager through the standard production of comprehensive annual data quality statements.

- It is widely recognised that a strategic approach is required at each step of the data flow pathway to improve the quality of HIPE data across the system. However, the process of changing practice, professional behaviour and culture is complex and often requires a range of methods to drive improvement.[15,28] Methods to enhance the quality and value of hospital data include audit and feedback, benchmarking, enhanced education of clinicians and coders, organisational change to improve governance structures and culture, and incentives such as financial penalties and rewards (See Appendix 11 for examples of evidence on methods used to change behaviour and improve practices).[39]

- These findings have significant implications for the governance, leadership and management of HIPE. The key principles of good governance are closely aligned to clear structures. For example, explicit lines of reporting and clarity regarding specific responsibilities are essential for effective strategic vision and business planning, robust performance and risk management, and the promotion of transparency.

Strategic vision, planning and direction

Strategy and business planning

Strategic plans demonstrate strong leadership by strategically planning and organising resources to achieve their objectives. Strategic and business plans need to specifically address the area of information management given the ever evolving health information landscape in the wider health service, and should be aligned with the broader health information strategies in Ireland, including the eHealth strategy.[18]

- Although the significance of HIPE to underpin ABF is outlined in the HSE Corporate Plan 2015-2017, the HPO did not have specific organisational-level strategic plans and, therefore, there are no plans to address strategy for information management within HIPE. Without a strategy at the level of the organisation, it is unclear how the HPO effectively delivers on current requirements and anticipates and prepares for the future needs of HIPE. The Pavilion Health report[13] and other reviews[15,28] could form the basis of a strategic plan for HIPE across the HSE.

- In relation to business planning, the significance of HIPE to underpin ABF was also outlined in the National Service Plan and the ABF Implementation plan; however, as the HPO currently does not have specific strategic plans for information management within HIPE, it did not have associated business plans to detail how the strategic objectives would be achieved. Without detailed business plans, it is impossible to review the performance and management of HIPE in line with the key objectives for the period.

- As there are no formal strategic and business plans, a stakeholder engagement plan is not currently in place which would help to ensure that the future development of HIPE is aligned to national and international developments.

These findings are concerning given that the importance of ensuring good quality HIPE data has been outlined in the HSE Corporate Plan, the National Service Plan and the ABF Implementation Plan. However, developing strategy and business planning for HIPE has not being prioritised at a senior management level as there is no dedicated forum for this process at any level within the HSE.

Performance and risk management

KPIs, audit and risk management

Senior management require information on performance to be assured that HIPE data is consistently of a high standard. This involves using KPIs to measure and report on

performance, undertaking regular audits to assess practice and having a comprehensive risk management framework in place throughout the entire organisation to help identify, manage and control information-related risks.

- As there is no specific detail in the performance agreements and data quality statements are not produced by hospitals, the accountability for the overall quality of HIPE data at a hospital level is not formally incorporated as part of an assurance framework. Despite this, HIPE data underpins the financial model for the allocation of funding for acute hospitals in the HSE.

- In relation to audit, there is an absence of a robust governance structure to outline what audit programme should be in place across the HSE for HIPE. As a result, there is limited assurance around the consistency of the quality of HIPE data. Furthermore, when reviews are completed, it is unclear as to the assignment of roles and responsibilities in terms of implementing findings and recommendations, in addition to the development of plans around progress.

- Although audit activity is being undertaken by the HPO in the area of clinical coding, this is not being carried out in every hospital to date; therefore, the HPO does not have a complete picture of clinical coding practices in each hospital in Ireland. The activity is below the target of aiming to complete an audit in all ABF hospitals every two years. In addition, hospitals are not consistently auditing clinical coding practices despite being provided with relevant audit tools. In essence, there is no standard methodology across hospitals to audit across the entire data flow pathway. The significance of this finding is that there is no comprehensive framework in place across the HSE to provide assurance of the quality of HIPE data throughout the entire data flow pathway. This is concerning given the data is used for so many important purposes.

- HIQA acknowledges that the external audit by Pavilion Health to examine clinical coding practices is a positive attempt to improve practice. However, assurance has not been provided in relation to progress of these recommendations and there is no formal implementation progress report with timelines and assigned owners for actions.

- In relation to risk management, although staff within the HPO are identifying risk the process of risk management does not seem to be systematic, coordinated and integrated. The performance and risk management framework for the management of HIPE is limited. One KPI is collected but this is not used routinely to monitor performance. Audit is currently not comprehensive and is limited to clinical coding. Risk management is not integrated across the system. Therefore, there is little assurance being provided to senior management at any level on the quality of HIPE data. This is a symptom of weak governance structures across the HSE for the governance and management of HIPE.

Transparency

Statement of purpose, data sharing and privacy impact assessment (PIA)

Managing organisations with robust governance structures promote transparency by informing those individuals about whom data is shared about any data sharing agreements in place, and accurately describe the aims and objectives of the national data collection in a published statement of purpose. Another key feature of good governance, leadership and management involves having data sharing agreements in place with external organisations. Data sharing agreements are necessary to support the provision of good quality data, and the legal and secure handling of data.

- The HPO currently does not publish a statement of purpose to promote transparency by informing the public and people who use the data about the aims and objectives of HIPE.
- The HPO does not have formalised data sharing agreements in place with external organisations with which it shares data, which is recognised as best practice in this area.
- The HPO has not conducted a privacy impact assessment (PIA) on its practices in relation to sharing data with external organisations.[40]

Organisations have a responsibility to be transparent regarding data sharing practices, which is a mandatory requirement under GDPR.[41]

3.6 Recommendations — Governance, leadership and management

Governance, leadership and management	
1.	**Governance and leadership**
	A group with national oversight for HIPE should be established to coordinate the leadership and governance arrangements in relation to HIPE within the Health Service Executive (HSE). This group should be comprised of senior clinical leaders and include representation from the HSE's Healthcare Pricing Office (HPO), Acute Hospitals Division and National Finance Division as well as the Department of Health, and other key agencies. This group should be tasked with: ▪ examining previous reviews of HIPE, including the Pavilion Health Audit Report[13] and overseeing implementation of recommendations. ▪ using the findings from these previous reviews to oversee the development and implementation of a strategic plan for HIPE within the HSE. This strategy should be based on international best practice and aligned to the HSE's eHealth strategy[18] and the Sláintecare report.[7] It should clearly outline how effective information management‡‡ will support the efficient generation of high-quality HIPE data and should incorporate every step of the data flow from the clinical documentation to the effective use of information. ▪ defining roles and responsibilities for the management of HIPE within the HSE, particularly in relation to ensuring a clear delineation of roles and responsibilities across the HPO and the Acute Hospitals Division, and to outline which functions have been delegated and to whom in respect of the management of HIPE within the HSE. ▪ reviewing the implementation of national initiatives at hospital level to specifically address how clinicians and coders can effectively engage and work together to generate high-quality HIPE data. These arrangements should include clear lines of reporting and responsibility for all staff involved in generating HIPE data, including clinicians, HIPE coders, HIPE coordinators, hospital managers and chief executive officers of hospital groups.

‡‡ Information management is defined as the process of collecting, storing, managing, using and sharing health and social care information. It is a broad definition that includes the aspects of governance and management arrangements, data quality, information governance and use of information.

2.	**Management of HIPE – HPO**
	The HPO should implement an appropriate structure in order to effectively address the management of HIPE. Specifically, an effective senior management team for the HPO and a functioning management team for HIPE need to be established. As part of this structure, responsibilities for information management should be clearly defined, documented and implemented.
3.	**Strategic plan for HIPE**
	Based on the findings from this review, the Pavilion Health Audit report and previous reports, the HPO should implement a strategic plan for HIPE as set out by the national oversight group (as outlined in recommendation 1). Within the HIPE strategic plan, the HPO should be specifically responsible for: ▪ development of a plan for stakeholder engagement to ensure the organisation is involved in key national developments such as the introduction of digital solutions within hospitals, the impact of the new Individual Health Identifier (IHI) and the implementation of relevant health information standards ▪ development of an approach to effectively collaborate with clinicians to improve clinical documentation and to enhance education within the medical colleges and hospitals. The HPO should aim to create greater awareness among clinicians of the coding process and the importance of good quality data, and should work with clinicians to promote the use of the data for clinical decision-making. The strategic plan should have clearly defined objectives and associated annual business planning objectives.
4.	**Performance assurance**
	The HPO should develop performance assurance arrangements for HIPE which are embedded within the HSE governance structures. The performance assurance framework should generate appropriate information to assure the HSE Leadership Team that HIPE is being managed effectively by: ▪ outlining key responsibilities within the Performance Agreements to include the submission of annual data quality statements from hospitals ▪ documenting the process of identifying, generating and reviewing performance information ▪ monitoring performance against the annual business plan

	▪ measuring and reporting of key performance indicators (KPIs) ▪ conducting internal and external audit against aspects of information management ▪ managing risk effectively.
5.	**Compliance with legislation and privacy risk assessment**
	A formalised review of compliance against relevant legislation, including the General Data Protection Regulation (GDPR), should be undertaken by the HPO. As part of this review, an assessment of privacy risks for HIPE should be conducted to outline the data flows and to review the processes in place for data leaving the organisation.
6.	**Statement of purpose**
	The HPO should publish a statement of purpose that accurately describes the aims and objectives of HIPE.

4. Use of information

HIPE is an extremely valuable national repository of health information. The database includes data for every individual that is admitted as an inpatient or day case patient in a publicly funded hospital in Ireland. This is a rich source of data which should be used to improve the quality of the service being provided to all inpatients**.** It is an important source of data which is used by many stakeholders, including the public, clinicians, health service management, policy-makers and researchers. Health information is a valuable resource and hence wherever possible, it should be collected once and used many times — provided the appropriate protections and safeguards are in place.

It is now widely recognised that the appropriate sharing and effective use of information can bring enormous benefits.[42,43] In the healthcare sector, effectively using information is the key to driving quality improvements, leading to safer, more integrated care and greater prevention of ill health. Timely access to good quality information benefits a range of stakeholders by enabling individuals to make informed choices about their health, professionals to make better and safer decisions, managers to effectively deliver a high-quality service, policy-makers to strategically plan services and researchers to establish best practice. In essence, there is a growing expectation that data held by national data collections will be shared and used optimally for the benefit of the service user and public health.[42,43]

For organisations that aim to maximise the use of information, there are two important considerations: the underlying data must be of good quality so that all stakeholders can confidently use the information to inform decisions and the data should be aligned with health information standards and nationally agreed definitions to enable comparability and support interoperability.

The HIQA review team assessed the theme 'Use of Information' at HIPE against Standards 5, 6 and 7 of the Information Management Standards.

The findings of 'Use of Information' will be presented in following sections:

- Data quality
- Accessibility and dissemination of information
- Use of health information standards and terminologies.

4.1 Findings — Data quality

Data quality is a key component of information management as it is essential that data is accurate, valid, reliable, timely, relevant, legible and complete. HIQA identified during the review that there is a strong emphasis on aspects of data quality within HIPE. Within the HPO, there is a Coding Manager in place with responsibility for managing HIPE data quality within the HPO. There is, however, no one with overall responsibility for data quality for the entire data flow pathway for HIPE.

4.1.1 Data quality strategy

A data quality strategy was developed by the HPO in September 2017 to outline the approach to the surveillance and audit of HIPE data.[24] The data quality strategy sets out the purpose and objectives of the data quality activities undertaken within the HPO. The HPO outline that the scope of the data quality strategy covers the national HIPE database and HIPE portal managed by the HPO. The HPO are responsible for making sure the strategy is implemented.

4.1.2 Clinical coding validity checks

HIPE data entry edits in the HIPE Portal play an important role in the quality of HIPE data. Data entry validation checks are developed by the HPO and can be updated or added to as required. There are over 20,000 data entry validation checks at code level, administrative and demographic level, combination level and at case level.

The HPO has developed a number of specific software tools to support data quality improvements. Table 1 outlines the tools which are to conduct quality checks on HIPE data.

Table 1. Software tools to support data quality improvements

Name of tool	Uses of the tool
Checker	Checker was developed by the HPO to run standard quality checks on HIPE data. The HPO runs the Checker module on a routine basis on the complete HIPE dataset, applying over 204 checks to the data to identify quality issues. This enables the HPO to identify basic quality issues with clinical coding and liaise with HIPE Coordinators. The findings are reported back to the hospitals to address the issues. Hospitals are also required to run the Checker module and address any quality issues before submitting the data to the HPO.
Performance Indicators for Coding Quality (PICQ)	PICQ is an additional data quality tool which is currently in development. It will apply more detailed checks on the data beyond the functioning of the Checker module which will further assist hospitals in improving data quality.
HIPE Coding Audit Toolkit (HCAT)	HCAT compares differences between the coding of the same medical chart by two independent coders. The HPO recommends that at least one chart-based audit using HCAT of 100 discharges is undertaken annually in each hospital.
Qlikview	Qlikview is a business intelligence software programme which has been developed for analysis of HIPE data. It encourages the use of data within hospitals and hospital groups.

4.1.3 Training and education

HIPE has a thorough Clinical Coder Education Programme for clinical coders, particularly new coders, and a comprehensive starter pack is provided to each coder upon commencing their training. As part of an information request, HIQA was informed that, overall, 82 HIPE training courses were held in 2017, attended by approximately 1,061 participants. The courses ranged from introductory courses for new coders to refresher workshops and speciality training courses for experienced coders.

Furthermore, in 2017, four data quality sessions were held, with a total of 90 clinical coders attending these sessions. HIQA was informed about the increased involvement of clinicians in clinical coder education, including anatomy and physiology sessions delivered by a professor in anatomy and training sessions delivered by the National Sepsis Clinical Lead. HIQA was also informed about the increase in communication between clinical coders and clinicians. One example given was that in several hospitals, clinical coders attend sepsis committee meetings.

The review team was informed that the Dublin Institute of Technology offers an accredited HIPE training course[25]; however, advanced coding skills training needs to be enhanced as some gaps have been identified in this area by the HPO.

Other than this formal training, information governance education is delivered by means of an online information governance module through HSeLanD. Figures on how many clinical coders had completed the training were not available to the review team.

4.1.3.1 Data quality responsibilities — HPO

The HPO manages the national HIPE dataset, which is compiled by merging the monthly exports from hospitals into a master file. The HPO are responsible for the training and on-going education of HIPE staff to ensure clinical coders have the skills and competencies to perform duties. Data quality issues identified by data quality surveillance are addressed through coder training and education.

HIQA was informed in interviews and focus groups that the HPO are responsive to training requests by HIPE Co-ordinators. However, HIQA also identified that, while the HPO are responsible for ensuring there are adequate training courses available for new coders, they do not have the authority to make all training mandatory: training attendance is managed within hospitals. The HPO have training records for all courses but they do not systematically report on training attendance of coders across each hospital and they do not have the authority to enforce training.

The HPO provide on-going support and education to clinical coders through the following mechanisms:

- training course for new and experienced clinical coders
- coding query helpdesk
- dedicated email for coding queries
- hospital visits

- quarterly newsletters for coders, published by the HPO.

HIQA was informed that the HPO has developed a specific data quality audit training course, which commenced in 2018. The HPO is also responsible for reviewing data at a national-level to ensure compliance with standards and to monitor changes in reporting activity. The data quality activities undertaken by the HPO for the surveillance of HIPE data are:

- surveillance through data analysis and review; a sample of checks performed by the HPO include complex case checks, review of frequency of diagnosis and procedures, and review by Australian-refined diagnosis-related groups
- chart-based coding audits
- review of data quality issues identified by reviews of cost and activity data
- liaising with hospitals on outcomes of data quality reviews
- sending data quality queries to hospitals
- providing support and advice to coders on clarification of code assignment
- providing reports on reviews undertaken on data quality performance.
- running the national file through the Checker tool on a quarterly basis
- performing a final review of HIPE data prior to file closure.

As previously outlined, the HPO is responsible for developing software tools to support the quality of HIPE data. At the time of the review, HIQA was informed that, although the HPO can monitor the use of the various quality improvement tools at a hospital level, it does not have the authority to enforce changes to address data quality issues within hospitals. Details of each hospital's use of the Checker is reported on and reviewed at the monthly HPO coverage meeting (see Table 2). Hospitals are required to run the Checker module on the data before it is submitted to the HPO. However, in an interview, the HPO acknowledged that not all hospitals run the Checker consistently prior to the submission of data. On a quarterly basis, the HPO also runs the Checker software to validate and review entire dataset and flag incorrect data entry.

The HPO has two auditors who are responsible for performing the chart-based coding audits to improve the integrity of HIPE data and identify issues affecting the quality of data being submitted to the HPO. It is the HPO's responsibility to adhere to an audit schedule for onsite reviews, to provide on-going support for clinical coders and to undertake developments in data quality software. The HPO, despite limited resources and incomplete recruitment, have made good progress in relation to the auditing of HIPE data. However, work is still required as audits were completed in just 16 of 56 hospitals in 2017 as outlined in Chapter 3.

HIPE data coverage is also monitored across hospitals by the HPO to ensure hospitals are submitting cases within a 30 day deadline following discharge. The coverage across hospitals is discussed monthly in a specific coverage meeting and areas of concern are raised with hospitals as appropriate on an ad-hoc basis.

4.1.3.2 Data quality responsibilities — Acute Hospitals Division

HIQA identified that, within the data quality strategy developed by the HPO, hospital-level responsibilities for data quality focus particularly on coding practices. The strategy outlines how the HPO can support a quality assurance process so that the clinical coding is completed to a high standard for the data to accurately reflect every patient's journey. It is the responsibility of the hospital to ensure that high-quality data is submitted to the HPO in accordance with national guidelines. It is essential that a joint effort between clinicians and coders is in place to achieve high-quality HIPE data.

While this strategy describes the varying responsibilities of the HPO and hospitals in relation to ensuring HIPE data quality, in the absence of robust national governance structures for HIPE, these roles and responsibilities are not formally outlined, particularly in relation to the roles of clinical staff. Internationally, the importance of engaging with clinical leaders to achieve good clinical documentation is well recognised, and the need for a strategic approach to improve practice is required.[(44)] Appendix 11 outlines some examples of international best practice in this area.

Hospitals are provided with data quality tools and reporting software to monitor and improve quality locally. The HPO data quality strategy states that it is the responsibility of hospital management to review the effective use of data quality tools and to audit local coding practices. An important step in the data processing activity is assuring the quality of data at the time of entry. Extensive data entry checks are incorporated into the HIPE portal to ensure that each case is validated by the clinical coder before it is saved onto the system. The software prompts queries in relation to the guidelines and coding instructions and checks data for an individual code, code combinations and cases. The HIPE coders need to be appropriately trained to address each prompt and query.

The data quality strategy recommends that hospitals run the Checker module and address any issues identified before submitting their monthly data to the HPO. Hospital management should ensure that HIPE staff are provided with the time to perform data quality reviews and audits. However, evidence obtained by HIQA identified that Checker is not routinely used in a small number of hospitals (five of the 56 hospitals) and, therefore, basic validity checks on the quality of data are not being performed consistently across all hospitals. In these hospitals, senior management have no method to routinely evaluate the quality of clinical coding and improve practices if necessary.

HIPE coordinators and clinical coders are also responsible for ensuring coding practices comply with the Irish Coding Standards (ICS). The ICS recognise that the quality of HIPE data is not only reliant on accurate coding of clinical data but also on clinicians to perform good chart documentation of the patient's care journey. It is the responsibility of the clinician to record accurate diagnosis and procedures. If the clinical information is inadequate, the coder is required to get clarification from the clinician before assigning the code. The strategy also recognises (as per Australian Coding Standards) that responsibility for recording accurate diagnoses and procedures lies with the clinician, not the clinical coder. However, a joint effort between the clinician and clinical coder is essential to achieve good quality HIPE data.

4.1.4 Data quality framework

A data quality framework provides a method to develop a strategic and coordinated approach to data quality across the data flow pathway and to incorporate all of the data quality dimensions into practice. Although the HPO are undertaking a significant amount of activity to continuously improve the quality of HIPE data, this work could be enhanced through the use of a data quality framework

The HPO has already initiated one of the key steps in the framework through the recent development of a data quality strategy. It is not clear, however, if stakeholders were engaged with the development of this strategy. This need for engagement and buy-in from key stakeholders, such as the Acute Hospitals Division, is essential in terms of successful implementation of this strategy.

In addition, a data quality framework should also include a comprehensive audit schedule and KPIs which are used to monitor data quality and assess improvements overtime. At the time of the review, HIQA was informed that the HIPE unit did not comprehensively use KPIs to monitor and review the quality of data at a hospital or national level. However, staff within the HPO acknowledged that there are plans to review and develop data quality KPIs as part of the data quality strategy in 2018.

Strategically developing KPIs as well as implementing a comprehensive audit schedule at a hospital level and within the HPO to systematically review and improve the data flow pathway would help to further enhance data quality.

4.1.5 Data quality arrangements

HIQA was informed that there are three meetings at which data quality issues are discussed within HIPE. These are the monthly HPO coverage meeting, HPO audit team meeting and the HPO coding team meeting. All three groups meet on a monthly basis. Table 2 outlines the lines of reporting, purpose, composition and functioning of the groups.

Table 2: Teams that focus on data quality issues for HIPE within the HPO

	Monthly HPO Coverage meeting	**HPO Audit Team meeting**	**HPO Coding team meeting**
Lines of reporting	**Chair:** Coding Manager **Reporting:** Head of HIPE	**Chair:** Coding Manager **Reporting:** Head of HIPE	**Chair:** Head of HIPE **Reporting:** Head of the HPO
Purpose	To review the percentage of cases coded each month across all hospitals submitting HIPE cases	To plan and discuss the audit of the quality of coding in hospitals	To discuss audit, training, data quality and NPRS.

	Monthly HPO Coverage meeting	**HPO Audit Team meeting**	**HPO Coding team meeting**
Composition	Coding Manager Head of HIPE IT Manager Head of Costing National file processing team	Coding Manager Coding Auditors x2	Head of HIPE Coding Manger Head of Clinical Coding Education HIPE Auditor (x2) HIPE trainer (x1) NPRS staff (4x3)
Functioning	**Frequency:** Monthly **Documentation:** Agenda and minutes recorded	**Frequency:** Monthly **Documentation:** Agenda and minutes recorded	**Frequency:** Monthly **Documentation:** Agenda and minutes recorded

4.1.6 Stakeholder engagement

HIQA identified that the HPO performs significant engagement with key stakeholders to inform changes which are aimed at improving data quality. For example, the HPO continuously engages with all the hospitals providing data to HIPE and many organisations that use HIPE data such as the Department of Health and units within the Health Service Executive (HSE). However, HIQA identified other organisations with which the HPO would benefit from engaging with from a strategic point of view, such as the HSE's Office of the Chief Information Officer. HIQA was informed through focus groups and interviews with management at a hospital level that the impact of the implementation of the electronic health record in maternity care on the generation of HIPE data was not considered until the new system was launched within the hospital. In an interview, the Head of HIPE recognised the value of engaging more effectively with the Office of the Chief Information Officer to identify future requirements for HIPE.

As the Acute Hospitals Division is responsible for the clinical coders within hospitals, formalised links to improve governance and lines of accountability between hospitals and the HPO is fundamental, which, in turn, will help drive improvements in data quality.

4.2 Findings — Accessibility and dissemination of data

HIPE data is used by the HSE and Department of Health in the management, performance assessment, planning and funding of acute hospital services. HIPE statistics are also used in research to review hospital activity statistics related to diseases/procedures, to examine population health profiles at local and regional levels, to evaluate quality assurance approaches and to perform clinical trials.[(45)]

The HPO has developed a number of methods to disseminate the HIPE data and information and to ensure that it is accessible to the different stakeholders, while aiming to ensure confidentiality and data protection as outlined below.

- **Annual report**

Each year the HPO publishes an 'Activity in Acute Public Hospitals in Ireland Annual Report'.[25] This is a detailed report on inpatient and day case patient discharges from acute public hospitals for a calendar year. It presents aggregated data based on national-level data on discharge activity and also presents discharges by diagnosis, procedures, major diagnostic categories and diagnostic related groups. The annual report is published on the HPO website each December for the previous calendar year. At the time of the review, HIPE did not publish data quality statements to accompany the report.[25]

- **Statistics reporter**

The HPO has produced a statistics reporter which is available on the HPO website. This allows users to analyse the diagnosis and procedures categories outlined in the annual report.[45]

- **Information requests**

The HPO offers data users the option to submit a specific information request. This information provides users with a greater level of detail to perform more in-depth analysis than what is available in the annual report or statistics reporter. A process is in place for dealing with data requests; such requests are subject to a data access policy and must be submitted to the HPO using a standard application form. To maintain confidentiality, the information is provided through a specific request which excludes information that can identify individual patients, consultants or hospitals and data in cells where the number of discharges is five or less is suppressed. HIQA was informed that the HPO receives up to 500 individual requests for information each year. Appendix 12 outlines some of the stakeholders which request data from the HPO.

- **HIPE Online Portal (HOP)**

The HPO also has a portal called the HIPE Online Portal (HOP). This portal maintains a number of databases to provide specific data access to different organisations and users, including the Department of Health and the HSE.

Data is anonymised by encrypting the Medical Record Number (MRN) from the source hospital, removing date of birth, aggregating health insurance provider information and removing the episode number.

The level of access is controlled to prevent users creating patient-level reports. Appendix 13 outlines a list of organisations with access to the HOP. A user agreement is in place to ensure access is exclusive to named users and access is granted conservatively, based on what data the user requires.

A small number of users have access to HIPE data through FILESERVE, which is a web application on the National Hospitals Network (NHN). All HIPE files on FILESERVE are encrypted and users are provided with individual accounts which control the files available to that account holder.

- **Qlikview**

As outlined earlier, Qlikview is a Business Intelligence software which enables the use of HIPE data within hospitals and hospital groups. In focus groups, HIQA identified that the HIPE Co-ordinators recognise the value of the software as they appreciate the benefit of using data more effectively within the hospital; however, HIQA identified that in practice they find the software difficult to use. While it is welcome that the HPO provides training on the use of Qlikview, users reported difficulty using the tool without assistance. It was generally acknowledged in focus groups with HIPE Co-ordinators and clinical coders that HIPE data is underutilised locally.

HIPE data is also used for national reporting. To demonstrate this, the HPO provided HIQA with a list of publications that are developed using HIPE data, specifcally:

- National Sepsis Annual Report 2016[46]
- NOCA – National audit of hospital mortality rates report 2016[47]
- NOCA – Hip fracture annual report 2015[48]
- NCPA[§§]/HPO Annual Report 2014/2015[49]

4.3 Findings — Use of health information standards and terminologies

HIQA reviewed practices at HIPE to assess the use of health information standards and nationally agreed definitions to enable comparability and sharing of information. Health standards support interoperability between information systems and through meaningful and appropriate sharing on data.

A HIPE instruction manual provides details on how administrative and demographic data for each HIPE discharge record are captured in accordance with the classification and associated standards. The following section will detail the standards and terminologies used in HIPE.

4.3.1 Standard terminological systems

➢ ICD-10-AM/ACHI/ACS 8th Edition

This edition is used by all clinical coders for discharges since January 2015. The International Classification of Disease – Australian Modification (ICD-10-AM) is used for coding diagnosis and conditions. It consists of a tabular list of diseases and accompanying index. The Australian Classification of Health Interventions (ACHI) is used for coding procedures and interventions, which provides a detailed list of interventions and accompanying alphabetic index. Australian Coding Standards (ACS) is used in conjunction with the ICD-10-AM and ACHI.

The HPO updates the edition of the ICD-10-AM approximately every five years. Updating an edition creates a huge body of work as all documentation needs to be updated and staff have to be re-trained to apply the new classification system appropriately. In an interview,

[§§] NCPA: National Clinical Programme for Anaesthesia.

HIQA were informed that preparations are underway to adopt the 10th Edition in January 2019.

- Irish Coding Standards (ICS)

The ICS were written with the basic objective of satisfying sound coding convention according to ICD-10-AM/ACHI/ACS 8th Edition and to augment, clarify or replace the Australian Coding Standards as appropriate. Many of the issues addressed within these Irish Coding Standards are as a direct result of input and feedback from the Irish clinical coding, healthcare and clinical community. The ICS provide guidelines for the collection of HIPE data for all discharges using the HIPE portal software. The ICS are to be used in conjunction with the 8th Edition ICD-10-AM/ACHI/ACS and the HIPE instruction manual. The ICS provide guidance and instruction on all aspects of HIPE data collection and aim to provide the necessary clarity and standardisation.

4.3.2 Standard definitions

- HIPE data dictionary[50]

The HIPE data dictionary is a valuable resource which provides definitions and codes for data collected within HIPE. This is updated yearly to coincide with any updates to the database, and it is version controlled and published online for data users. Currently, the HIPE data dictionary published in 2018 is the 10th version. It provides standard definitions for variables to ensure consistency for clinical coders, HPO staff and data users, which helps to promote data quality.

4.4 Significance of findings — Use of information

Data quality

- HIQA identified during the review that there is a strong emphasis on aspects of data quality within the HPO. The HPO publish a HIPE instruction manual and Coding Notes and use Irish Coding Standards and training material to promote high-quality HIPE data.

- A data quality strategy was developed by the HPO in September 2017 to outline the approach to the surveillance and audit of HIPE data. The data quality strategy sets out the purpose and objectives of the data quality activities undertaken in the HPO. The strategy distinguishes between the responsibilities of the HPO and hospitals to perform data quality surveillance and audit on HIPE data. However, HIQA identified that the strategy primarily focuses on the clinical coding process and does not address each stage of the data flow pathway for HIPE. Crucially, in the absence of appropriate governance structures and senior clinical leadership involvement, roles and responsibilities are not formally defined around the implementation of the strategy. Internationally, it is acknowledged that there are challenges to achieving good clinical documentation and it is well recognised that a strategic approach is needed to improve this issue with involvement from clinicians. It is essential that such a data quality strategy is developed with buy-in from key stakeholders.

- At the time of the review, an overarching data quality framework was not in place to outline a coordinated approach to data quality throughout the data flow pathway across the HSE and to incorporate all of the data quality dimensions. The use of a data quality framework is recognised as good practice to establish the approaches which are necessary to systematically assess, monitor, evaluate and improve data quality.

- HIQA recognises the initiative within the HPO to develop software support tools to improve data quality; the HPO has also recently commissioned the development of Performance Indicators for Coding Quality (PICQ), which will serve as an additional data quality tool. However, the routine use of these tools should be mandatory in order to improve data quality across the system. HIQA was informed that the HPO reviews the use of the Checker tool and reports back to hospitals on their use of Checker during the year; the HPO provides additional training or support where required. However, formal reporting on the utilisation of these tools across hospitals does not occur.

- The HPO is responsible for adequately training coders and ensuring the quality of data in the national database. However, training attendance is managed at a hospital level. The HPO have training records for all courses but they do not systematically report on training attendance of coders across hospitals.

- Although there is Coding Manager within the HPO, there is no one with executive responsibility for data quality for HIPE within the HSE.

- While some stakeholder engagement is taking place with national and international colleagues, formal links are not in place with the HSE's Office of the Chief Information Officer in relation to future initiatives and developments.

Accessibility and dissemination of information

- HIQA recognises that the HPO has developed a number of methods to disseminate information and to ensure the data is accessible to the different stakeholders, including an annual report, statistics reporter, information requests, HIPE online portal and sharing data through FILESERVE. The HPO receives up to 500 data requests each year, indicating the importance of this data.

- While the HPO have liaised with the National Office of Clinical Audit (NOCA) and the National Quality Assurance Improvement System (NQAIS) in terms of use of HIPE data and engagement with training and coding support for those systems. The HPO can also raise classification queries with the Australian Consortium for Classification Development (ACCD) as required. However, it was also acknowledged throughout the review that the use of HIPE data could be significantly improved. An accessibility and dissemination plan within the overall organisational strategy would help the HSE to strategically focus on how HIPE could be used to its full potential. This should also consider how HIPE data can be made more accessible for patients to inform care decisions.

Compliance with health information standards

- The ICD-10-AM/ACHI/ACS 8th Edition is used for coding diagnosis and conditions for discharges from 1 January 2015. The HPO has begun preparations to adopt the 10th Edition in January 2019.

- The Irish Coding Standards (ICS) complement the ACS by providing guidelines for the collection of HIPE data for all discharges using the HIPE portal software. The ICS are a crucial element of the classification to ensure it is tailored to the requirements of the Irish hospital system and are used in conjunction with the 8th Edition ICD-10-AM/ACHI/ACS and the HIPE instruction manual.

- The HPO have a well-established data dictionary for HIPE which is published online and provides definitions and codes for HIPE data. This is updated on a yearly basis to coincide with any updates to the database. Currently the HIPE unit is on its 10th version. The publication of a data dictionary provides standard definition for variables to ensure consistency for clinical coders, HPO staff and data users to promote data quality.

4.5 Recommendations — Use of information

7.	**Data quality framework**
	To enhance ongoing work within the HPO in relation to data quality, an overarching data quality framework for HIPE*** should be developed and implemented by the HPO in conjunction with key stakeholders, including the Acute Hospitals Division. The data quality framework should include each step in the data flow pathway from clinical documentation to the use and interpretation of data. This should also outline the responsibilities for data quality within hospitals and hospital groups and at the national level.
8.	**Accessibility and dissemination of information**
	In line with legislation and government policy, the HPO should make HIPE data and information more accessible in a timely manner to all stakeholders, including patients, clinicians, managers, policy makers and researchers, in order to address their needs.

*** Guidance for a Data Quality Framework for health and social care is currently being developed by HIQA in conjunction with all major national data collections in Ireland and will be published in 2018.

5. Information governance

National health data collections, such as HIPE, are repositories for large volumes of sensitive and important health information. Health information is considered to be the most sensitive form of information and, therefore, extra precautions need to be taken to protect privacy. The process of collecting, using, storing and disclosing personal health information can present a risk to privacy and confidentiality of service users. National data collections have an obligation, under legislation, to protect personal health information. Information governance provides a means of bringing together all the relevant legislation, guidance and evidence-based practice that apply to the handling of information.

Robust information governance arrangements focus on the following areas: the maintenance of privacy and confidentiality of individuals; the protection of information security; the generation of high-quality data; and the implementation of appropriate safeguards for the secondary use of information. In Chapter 4, the use of information and the generation of high-quality data were discussed in detail due to the significance of enhancing the appropriate use of good-quality data for a wide range of stakeholders. However, data quality will be further considered in this chapter in the context of developing good information governance practices.[51,52]

Good information governance enables personal health information to be handled legally, securely, efficiently and effectively in order to deliver the best possible service. The main aim of information governance is to create a balance between effectively using information and meeting the needs of the service user while also respecting an individual's privacy. To develop good information governance practices, it is necessary for an organisation to have the structures and processes in place to provide clear direction to staff:

- Responsibility and accountability for information governance must be clearly defined, and the appropriate governance and management structures should be outlined. These arrangements should align to and integrate with the organisation's overall governance structure. Formalised arrangements are essential to ensure that there are clear lines of accountability for information governance. All staff should be aware of their responsibilities for information governance, and management should assign specific tasks to named staff members.

- A culture of information governance is embedded within the organisation through the development of policies and procedures to help all staff to comply with legislation and information governance requirements as well as identifying training requirements on a routine basis. Employees should be promoted and supported by management to engage in good information governance practices as part of their routine working schedule.

- Organisations need to perform information governance assessments to identify good practice and to highlight areas that need improvements. Self-assessments — in the form of internal and external audits, monitoring of key performance indicators (KPIs) and assessing risk — are necessary to examine compliance with policies and

procedures, to identify specific training needs of employees and to ultimately identify and implement improvements to information governance practices based on the findings.

The HIQA review team assessed the information governance and person-centred arrangements at HIPE against Standards 1 and 8 of the Information Management Standards.

The findings will be presented in following sections:

- Information governance structures in HIPE
- Effective arrangements to assess and manage information governance.

5.1 Findings — Information governance structures in HIPE

Information governance is a key component of information management as it is essential to maintain the privacy and confidentiality of individuals, to protect information security, to generate high-quality data and to implement the appropriate safeguards for the secondary use of information.

HIQA identified that the direction in relation to oversight and strategy in respect to information governance within the HPO is not clear. While HIQA was informed that a member of staff has recently been certified in relation to data protection, there is no one with overall responsibility for, or oversight of, information governance within the HPO. At the time of the review, no staff member within the HPO had been assigned the role of data protection officer, with responsibility for protecting the privacy and confidentiality of service users; however, a recruitment campaign was underway to fulfil this role.

HIQA was informed that a Quality Assurance (QA) team is in place within the HPO, which is primarily tasked with reviewing elements of information governance within the HPO (See Table 3). The QA team maintain an issues log to document ongoing information governance issues, which are then discussed at the team meeting. The review team were informed that this team is also tasked with developing a statement of information practices and data quality framework for the HPO.

Table 3. Composition of QA team

	QA team, HPO
Lines of reporting	**Chair:** Head of Data Analytics, HPO **Reporting:** Head of HPO
Purpose	To create a quality focused culture which recognises data and quality assurance approaches as key business resources that must be managed in order to ensure that all of the goals of the HPO are achieved in an efficient, risk minimised manner.
Composition	Head of Data Analytics, HPO Head of HIPE & NPRS Head of Pricing, HPO IT manager, HPO Coding Manger, HPO HIPE Education Manager, HPO HIPE Auditor, HPO Data Analyst, HPO Head of Costing, HPO Business Manager, HPO NPRS Manager, HPO Others as required
Functioning	**Frequency:** Monthly **Documentation:** Terms of reference, agenda and minutes recorded

5.2 Findings — Effective arrangements to assess and manage information governance

HIQA reviewed the arrangements within the HPO which are used to assess and manage information governance. In interview, the review team identified that there was an overall awareness of the significance and importance of information governance within the HPO. However, HIQA also identified that the HPO lacked a strategic and coordinated approach to managing information governance.

5.2.1 Legislation, codes of practice, policies and procedures

In respect to relevant legislation, the HPO informed HIQA that there are three pieces of legislation that they must adhere to. Appendix 14 outlines the relevant legislation, codes of practice, policies and procedures for information governance identified by the HPO. Another key piece of legislation relevant to the management of information is the Freedom of Information Act 2014. Furthermore, at the time of the review, HIQA identified that work was underway within the HPO to fulfil the requirements of General Data Protection Regulation (GDPR).

In interview, the HPO informed HIQA that they follow the HSE ICT generic policies and procedures. However, other than data access policy and user agreement, the HPO did not provide HIQA with evidence of policies and procedures specific to the needs and requirements of the HPO. Furthermore, it became evident through the review that there is little guidance within the HSE to detail appropriate practices in regards to the sharing of HIPE data, in a consistent manner, at a hospital level. A range of methods are used to share HIPE data with data users, including password protecting files and emailing the data, printing data, as well as using secure email transfers developed by ICT departments at a hospital level.

As outlined in Section 3.3, currently HIPE does not have KPIs or a specific audit schedule to review compliance with relevant legislation and policies in the area of information governance including information security. These measures are necessary to regularly provide assurance to senior management with responsibility for HIPE that the programme is managing information governance appropriately. For example, in interview, HIQA was informed that the HPO ensures that access to the patient administration systems within hospitals is based on need. All staff members are provided with role-based access, which is specified and approved by line managers. In relation to privacy and confidentiality, HPO provided evidence that they have policies and procedures in relation to data requests.

5.2.2 Information governance practices

HIQA identified that all employees are responsible for maintaining appropriate information governance practices, with an awareness of maintaining individuals' privacy and ensuring and improving the quality of data. The review team recognised that the clinical coders were aware of the importance of maintaining the privacy and confidentiality of individuals, which was protected through the physical security within hospitals.

The review team was informed in interview that HIPE data is encrypted prior to leaving a hospital when exporting data to the HPO. In reviewing the management of data breaches, HIQA was informed that there had never been a data breach. If a data breach was to occur, the HPO aligns with the HSE Incident Management Framework to handle the incident and promote learning. However, HIQA did not find evidence of a process in place to document near misses, nor was there a culture where staff were encouraged to learn from incidents. Furthermore, staff tended to be cautious in relation to the use of information as there was a fear of breaching data protection legislation. In line with this, HIQA recognised that further education and training in the area of information governance would create a better balance

between maintaining privacy and security while effectively using information, both internally and externally.

At the time of the review, the HPO had not completed an assessment to identify if a privacy impact assessment (PIA) was required to review potential risks and to implement the necessary controls to help maintain individuals' privacy. As discussed in Chapter 4, another area of potential concern is that the HPO does not have formalised data sharing agreements in place with external data providers. The use of data sharing agreements is recognised as good practice. Data sharing agreements define a common set of rules to be adopted by the various organisations involved in a data sharing arrangement. Robust governance structures are essential to enable appropriate data sharing to occur, providing oversight, assurance and transparency for all data leaving and entering the organisation. A standardised and official approach to data sharing would decrease privacy risks when sharing personal information and also promote data quality across organisations. (See Appendix 10 for further details on data sharing agreements).

Furthermore, the review team found that the HPO does not publish information to describe how HIPE data is used. A simple method employed by organisations to comply with the principle of transparency is to publish a statement of information practices which outlines what information the service collects, how it is used, whom it is shared and for what purpose, the safeguards that are in place to protect it and how people can assess information held about them.[53] While a privacy policy is available online, it needs to be extended to provide specific information, including the collection, use and sharing of information generated and held by the HPO. As required under GDPR, a comprehensive privacy statement or statement of information practices should be developed by the HPO to enhance a patient-centred and transparent approach to the processing of health information.

HIQA was also informed that plans for the implementation of the individual health identifier (IHI) are underway at a hospital level. It was noted that a placeholder field has been developed within the HIPE portal which will capture the IHI data once it becomes available in each hospital. However, HIQA identified a lack of stakeholder engagement in relation to the implementation of the IHI. It is essential that strategic planning and engagement with key stakeholders such as the Office of the Chief Information Officer takes place to ensure successful implementation of the IHI. Furthermore, the introduction of an IHI emphasises the need to conduct a PIA to review and identify the effective use of information by establishing the appropriate and safe data linkage and sharing practices.

HIQA was informed in interview that an ICT strategy for HIPE has not yet been developed. This should be developed as part of an organisation-level strategy.

5.3 Significance of findings — Information governance

Information governance arrangements

- HIQA found that there is an overall awareness of the significance and importance of information governance within the HPO and hospitals. However, HIQA identified that the HPO lacks a strategic and coordinated approach to managing information governance.
- There is a need to assign overall responsibility for information governance within the HPO. The governance arrangements, including reporting structures, need to be clear for all teams with responsibility for information management to ensure that risks are identified, reported and managed appropriately. Arrangements should include specific roles and responsibilities for all aspects of information governance, including privacy and confidentiality, data quality, information security and use of information.
- The HPO currently does not have a robust assurance framework to routinely review adherence to information governance policies and procedures, and current legislation. A systematic approach to monitor information governance performance and to report the findings is essential to provide assurance to senior management that the scheme is managing information governance appropriately. This should include the use of KPIs, audit and risk management.
- HIQA was informed that an ICT strategy for HIPE has not yet been developed. This should be included as part of the overall strategic plan for HIPE (as outlined earlier in Section 3.2.1).

Information security

- In interview, the HPO informed HIQA that they follow the HSE ICT generic policies and procedures. However, other than data access policy and user agreement, the HPO did not provide HIQA with evidence of policies and procedures specific to the needs and requirements of the HPO. The HPO should, therefore, conduct a high-level review to ensure the secure transfer of data from all hospitals to the HPO.
- HIQA was informed that there was no standard policy for the transferring of data to the range of data users at a hospital level. This is essential to ensure a consistent approach to the transfer of data and that clear procedures are in place in the event of a data breach occurring.
- An audit schedule to routinely assess compliance against the relevant information security policies and procedures at a hospital level and within the HPO is not in place.

Privacy and confidentiality

- An organisation with robust information governance practices provides assurances to service users that their personal health information will not be disclosed inappropriately. In line with this, the HPO provided evidence that they have policies and procedures for data requests which they state are consistently applied.

- Necessary arrangements for the GDPR should be implemented in order to meet the new legal obligations enacted on the 25 May 2018:

  - HPO currently does not publically report a statement of information practices to outline what information the service collects, how it is used, with whom it is shared and for what purpose, the safeguards that are in place to protect it and how people can assess information held about them.[53] In line with the principle of transparency as outlined in the GDPR, the HPO should clearly outline the circumstances in which it is necessary to seek specific consent for using data beyond the purposes for which the data was collected.
  - The HPO should undertake a review to assess the need for a PIA, which is a mandatory obligation under GDPR, particularly in light of data sharing practices and the impact of the forthcoming introduction of the IHI.[40]

- While the HPO is aligned to the HSE Incident Management Framework when handling data breaches, HIQA did not find evidence that there was a process in place to appropriately document incidents and learning from near misses. It is important to enhance communication and education with staff so that they have the appropriate knowledge and awareness to routinely report both incidences and near-misses.

Training

- Further education and training in the area of information governance would create a better balance between maintaining privacy and security while effectively using information, both internally and externally.

- Information governance education is delivered by means of an online information governance module through HSeLanD; however, currently the completion of this course is not reported. A comprehensive training plan is necessary to embed a culture of information governance within the organisation. The HPO should review if the current training in the area of information governance is sufficient for the needs of the organisation.

5.4 Recommendations — Information governance

Information governance	
9.	**Effective arrangements in place for information governance**
	As part of a strategy and annual business plan for HIPE, effective arrangements should be put in place for information governance within the HPO. This includes: ▪ assigning an individual with overall responsibility for information governance ▪ providing assurance to senior management in relation to adherence to policies and procedures and current and forthcoming legislation for information governance through reporting of KPIs, audit and risk management ▪ developing and implementing a training plan for staff to embed a culture of information governance within HIPE.

6. Conclusion

The aim of this review was to assess the compliance of HIPE with the Information Management Standards. Ultimately, the overall review programme of national data collections in Ireland aims to drive improvements by identifying areas of good practice and areas where improvements are necessary across national data collections.

HIPE is a fundamentally important health information system and is the main health information system used in Ireland to inform healthcare planning, delivery and funding; health promotion; and research.[9] HIPE is designed to collect demographic, clinical and administrative information on discharges and deaths from acute hospitals nationally. It includes information collected from all acute public hospitals, reporting on over 1.7 million inpatient and day case records annually.

The value of HIPE is dependent on good information management principles to facilitate improved accuracy in the underlying data. A comprehensive and high-quality national data collection can only be assured if the organisation manages its information appropriately.[5] To achieve good information management practices, organisations need to implement a sequence of robust arrangements, including devising formalised governance structures and clearly outlining responsibilities throughout the organisation in respect of information management; developing an information management strategy; preparing detailed plans to outline how the organisation will successfully achieve this vision; developing a system to effectively assess the delivery of the plans by monitoring information-related performance indicators and undertaking necessary audits to provide assurance of good practice; and identifying and controlling information-related risks by implementing an integrated risk management policy. Like all other resources within an organisation, information is a resource that must be strategically and effectively managed.

Effective information management leads to enhanced knowledge and understanding for all involved in providing and using the service as it instils confidence in service users, clinicians and all other stakeholders that decisions are made based on high-quality information, the availability of which will ultimately improve outcomes.[5] Furthermore, good information management promotes assurance that information will be held securely, it puts in place the necessary precautions to maintain individuals' privacy and confidentiality, it facilitates greater empowerment and involvement by communicating effectively with the public and, ultimately, it creates a culture in which information will be used more effectively.[27]

The nine recommendations outlined in this report should be considered in conjunction with the findings of this review in order to improve information management practices in HIPE. The HPO, in collaboration with the Acute Hospitals Division, is responsible for preparing and implementing quality improvement plans to ensure that the areas for improvement are prioritised and implemented in order to comply with the Information Management Standards. The HPO should continue to assess the adherence to the standards in between reviews by HIQA to ensure that they are meeting the requirements of the Information Management Standards.

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Appendices

Appendix 1 — Key publications by HIQA in relation to national health and social care data collections

- A catalogue of all national health and social care data collections in Ireland was first published in 2010 and was most recently updated in 2017 — *Catalogue of National Health and Social Care Data Collections in Ireland.*[54] The current catalogue features 120 data collections.
- In 2013, HIQA published *Guiding Principles for National Health and Social Care Data Collections,*[55] which provide current and new national health and social care data collections with advice and guidance on best practice.
- In 2014, HIQA published and submitted to the Minister for Health *Recommendations on a More Integrated Approach for National Health and Social Care Data Collections.*[56] These recommendations emphasise the need for a strategic framework to inform policy development in this area. The implementation of these recommendations has the potential to reduce fragmentation and duplication and ensure a more consistent approach to improving the quality of data collected.
- HIQA has published a number of detailed guidance documents on best practice for information management:
    - *What you should know about information governance: a guide for health and social care staff*[52]
    - *Guidance on information governance for health and social care services in Ireland*[51]
    - *What you should know about data quality- a guide for health and social care staff*[57]
    - *Five quality improvement tools for national data collections, 2017*[53]
    - *Guidance on privacy impact assessment (PIA) in health and social care*[58]
    - *Privacy impact assessment (PIA) toolkit for health and social care.*[40]

Appendix 2 — Methodology to assess compliance — HIPE

Stages of HIPE review

This report is based on the assessment of compliance with the Information Management Standards in HIPE. The stages of the HIPE review are outlined below.

Stage 1: Self-assessment tool

The self-assessment tool is a questionnaire which enables national health and social care data collections to determine the extent of their compliance with the Information Management Standards. The tool highlights areas where action is required and where improvements can be made. All of the national data collections in Phase 1 of the review programme were contacted in March 2017 and asked to complete the self-assessment tool. The designated contact person in each organisation was asked to complete and return the self-assessment tool within three weeks.
Based on the results of the self-assessment tool and the prioritisation criteria, HIQA performed a focused review of HIPE.

Stage 2: Information request — HIPE

Following a review of the self-assessment tool, a request for additional information was sent to HIPE and the relevant information was returned to HIQA within 10 working days. The information received was used to verify the findings of the self-assessment tool and to identify gaps in the evidence in order to provide clarity of focus for the on-site assessment.

Stage 3: On-site assessment — HIPE

Two on-site assessments were conducted in the head office of the Healthcare Pricing Office (HPO) in Dublin. The aim of the on-site assessment was to gather additional evidence to assess compliance with the Information Management Standards through further documentation reviews, observations and interviews with management and staff.

Stage 4: Report of findings — HIPE

The findings of the assessment of compliance with the Information Management Standards in HIPE are outlined in this report.

Factual accuracy

HIQA provided a copy of the confidential draft of the report of findings to the Head of the HPO and the National Director of Acute Operations to complete a factual accuracy review in June 2018. All comments received were carefully considered by HIQA prior to the publication of this final report.

Developments or changes implemented by the HPO after the draft report was sent to the Head of the HPO for the factual accuracy stage of the review, are not included in this report. The implementation of these changes will be assessed in any follow-up review of information management practices in HIPE.

Appendix 3 — List of hospitals providing data to the HPO[16]

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

Hospital name	County	Hospital type	ABF involvement
University Maternity Hospital, Limerick	Limerick	Non-voluntary	No
University Hospital Limerick	Limerick	Non-voluntary	Yes
Croom Orthopaedic Hospital	Limerick	Non-voluntary	Yes
St. John's Hospital, Limerick	Limerick	Voluntary	Yes
UL Hospital, Ennis	Clare	Non-voluntary	No
UL Hospital, Nenagh	Tipperary	Non-voluntary	No
Saolta Hospital Group			
Roscommon University Hospital	Roscommon	Non-voluntary	No
Portiuncula Hospital	Galway	Non-voluntary	Yes
Galway University Hospital	Galway	Non-voluntary	Yes
Mayo University Hospital	Mayo	Non-voluntary	Yes
Letterkenny University Hospital	Donegal	Non-voluntary	Yes
Sligo University Hospital	Sligo	Non-voluntary	Yes
Children's Hospital Group			
Our Lady's Hospital, Crumlin	Dublin	Voluntary	Yes
Temple St. Children University Hospital	Dublin	Voluntary	Yes
Tallaght Hospital**	Dublin	Voluntary	Yes
No group			
Peamount Hospital	Dublin	Voluntary	No
National Rehabilitation Hospital, Dun Laoghaire	Dublin	Voluntary	No
Incorporated Orthopaedic Hospital, Clontarf	Dublin	Voluntary	No
St. Finbarr's Hospital	Cork	Non-voluntary	No

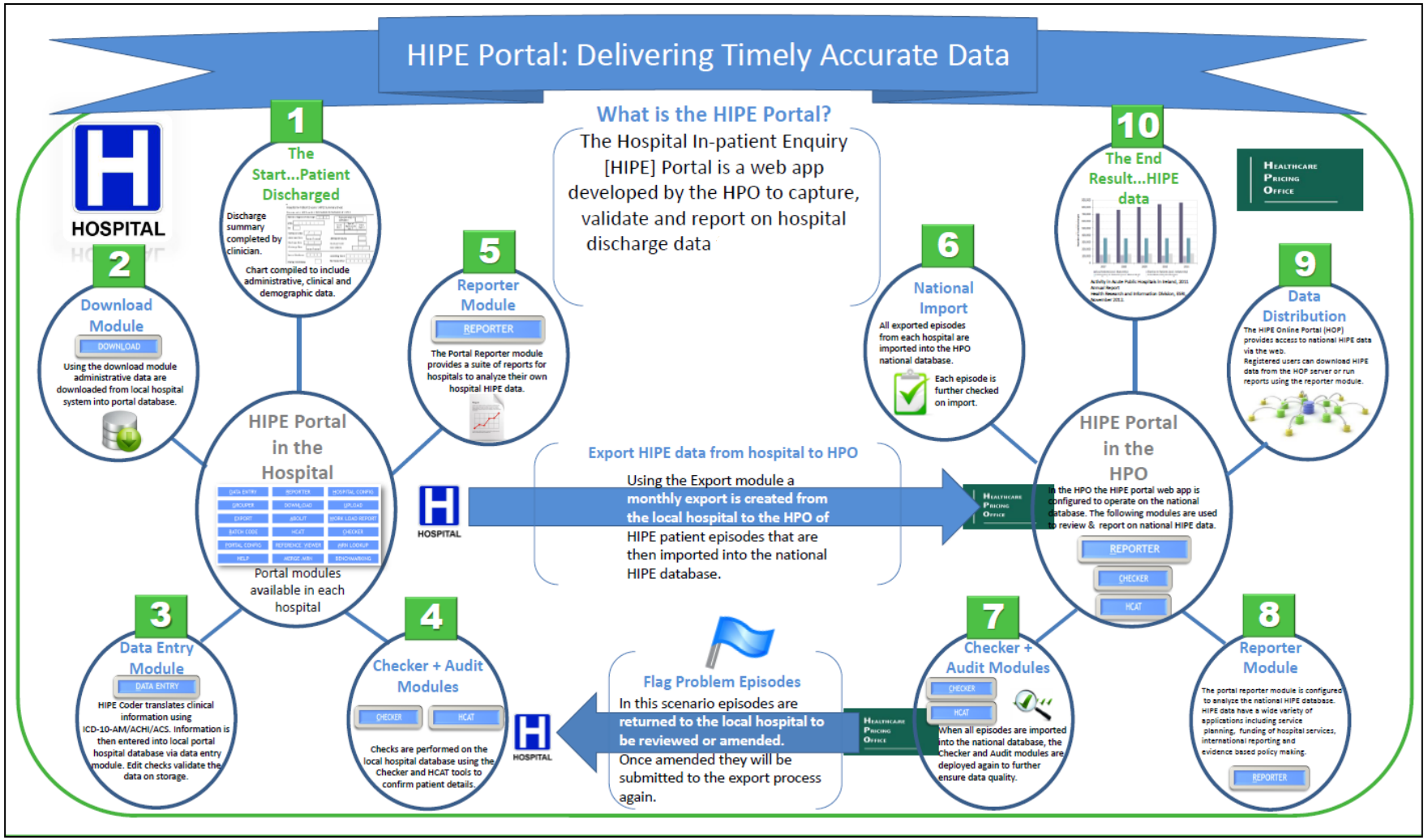
Total number of hospitals participating in 2016: 53

*Includes St. Luke's Radiation Oncology Network centres located in Beaumont and St. James Hospitals.

**For reporting purposes, discharges ages 17 and older from Tallaght Hospital are included in the Dublin Midlands Hospital Group.

Appendix 4 — HIPE portal[59]

The HIPE portal is explained in the diagram below.



Appendix 5 — Functionality of modules within the HIPE portal

The key modules used at a hospital level

The clinical coders and HIPE Co-ordinators use a range of modules within the HIPE portal to manage the collection of data. These include:

- **Download module**: The Patient Administrative System (PAS) is used within each hospital to identify patients that have been discharged and need to be downloaded to the HIPE portal for coding which is completed using the download module. The HIPE coders use this list of recently discharged patients to identify which medical records need to be retrieved and subsequently coded.
- **Data entry module:** The clinical coders use the data entry module to enter the relevant information from the medical record to the HIPE portal. The data entered should conform to expected values.
- **Checker Module and HCAT (Audit) module**: The HIPE portal also offers a Checker and audit module, which enables the coder to perform data checks to improve the quality of the data. The clinical coder is expected to run data quality reviews and appropriately correct the HIPE data before cases are completed and the file is exported to the HPO on a monthly basis. The HPO receives data from all hospitals on a monthly basis. Once the data is received from each hospital, the HPO runs additional quality checks through the Checker and audit module. If issues emerge, the HPO can send queries back to the hospital for clarification.
- **Reporter module**: The HIPE Co-ordinator and delegated staff also have access to the reporter module, which enables the HIPE unit to analyse data for the hospital.

The key modules used at the HPO level

The HPO also frequently use the Checker[†††] and audit module and the reporter module on the HIPE portal.

- **Reporter module:**The finalised data is added to the HIPE master file, at which point the reporter module can also be used by the HPO to run national activity reports. The HPO distributes data and information using a number of methods including publishing reports, the HIPE Online Portal (HOP) and by providing files to specific organisations though a secure network.

[†††] The Checker Tool was developed by the HPO to run standard quality checks on HIPE data.

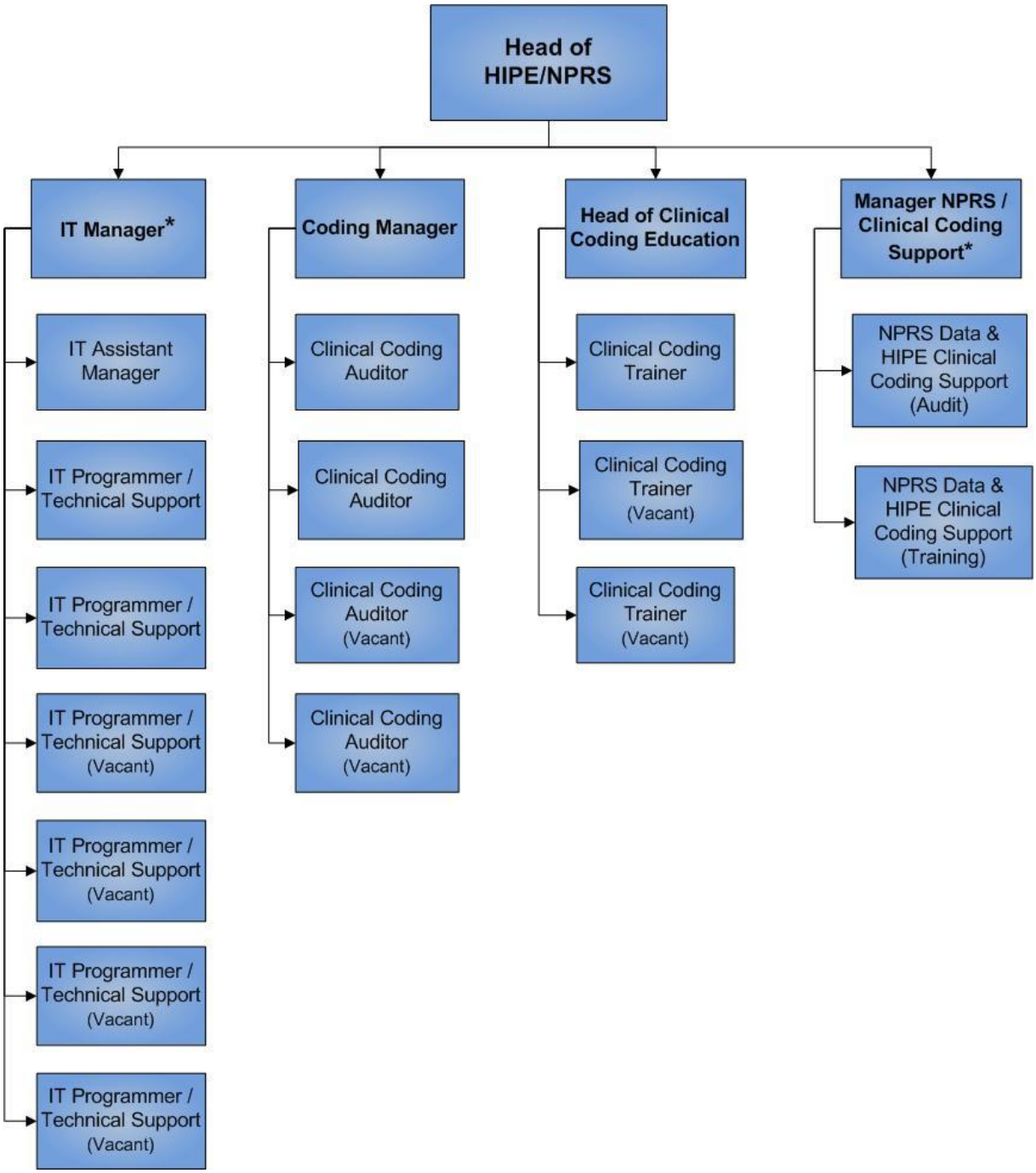
Appendix 6 — Uses of HIPE data

Use of data	Description of use	Users	Examples
Healthcare management, performance and planning	▪ To review the provision of care at a hospital and national level within the acute setting. ▪ To review indicators of performance across hospitals. ▪ To organise and manage the distribution of services across the country. ▪ To help manage services at a hospital level, such as for reviewing bed capacity, theatre utilisation and staffing requirements.[36] ▪ To derive national quality indicators to review performance and compare against international health systems. ▪ To plan healthcare services in Ireland both within the acute setting and beyond, as discharge data can inform service requirements for the primary and tertiary care settings.	HSE	National Quality Assurance Improvement System (NQAIS) Clinical enables hospitals to analyse their own HIPE data to provide detailed feedback to clinicians and managers, which helps to optimise length of stay for safe patient care and to improve the flow of patients through the acute setting.[60] HIPE data was used to review healthcare requirements to meet the needs and demands of the population in 'Planning for Health- trends and priorities to inform health service planning for 2017' [61] HSE operational plan for the acute hospital division uses HIPE data to plan for healthcare needs into the future.[62]
		Department of Health	The National Healthcare Quality Reporting System (NHQRS) makes publicly available information on the quality and safety of healthcare across the Irish health system, using HIPE data as one of the data sources for deriving these statistics.[63]
		OECD	HIPE is used by the OECD to create the report which compares health and healthcare provision across 35 members' states. This report identifies the leading causes of hospitalities in OECD countries and the results are used to guide management of services.[11]
		WHO	HIPE data is used to generate statistics required by the World Health Organisation (WHO) for the Hospital Morbidity Database (HMDB) which is a tool for the analysis and international comparison of morbidity and hospital activity patterns across countries.[64]

Funding	▪ To enable the delivery of activity-based funding (ABF), where funded is based on the volume of services provided and the complexity of the patient population.[26]	HSE	Good quality HIPE data is a cornerstone of ABF as it forms the foundation for determining diagnosis-related group (DRGs). Under-coding and up-coding of HIPE data can result in negative consequences for the hospital system as recently demonstrated in Galway University Hospital (GUH), which is reported to have lost over three quarters of a million euro in 2017 due to inaccurate or incomplete clinical coding.[65]
Policy making	▪ To inform policy making. ▪ To produce healthcare-related publications.	Department of Health	'Health Service Capacity Review' forecasts future capacity requirements in acute hospitals, primary care and in services for older persons up to 2031 using HIPE data.[66] 'Health in Ireland Key Trends' used HIPE data to help provide an insight into trends for demographics, population health, hospital and primary care, health service employment and expenditure.[67] 'The Framework for Safe Nurse Staffing and Skill Mix' used HIPE data to forecast future nurse requirements by identify trends in patient-level diversity and complexity.[68]
		OCED	Health policy overview in Ireland used HIPE data and highlighted that further progress could be made to promote efficient use of hospital resources.[69]
Research	▪ To inform research that is of public value.[70] ▪ To support HIQA in undertaking health technology assessments	Universities and state agencies	Academic researchers and state agencies regularly use HIPE to inform health research in specific areas; a number of examples include cardiology, bone health, diabetes and infectious diseases. [71,72,73,74] HIQA used HIPE to help make recommendations in relation to the appropriateness and potential impact of introducing clinical treatment thresholds for tonsillectomy in Ireland.[75]

Clinical audit, regulation and quality improvement	▪ External data repositories also depend on high quality HIPE data to inform their audit activity	NCRI, NOCA, Clinical programmes, HIQA	The National Cancer Registry uses HIPE data as its second main source of cancer diagnosis and outcomes.[76] The National Office of Clinical Audit (NOCA) uses HIPE data as a principal source of information for the National Audit of Hospital Mortality (NAHM).[47] HIPE data is used by the National Sepsis Clinical Programme to examine the outcomes of sepsis in hospitals in Ireland.[46] HIPE data is also used by the HIQA in inform statutory investigations such as those carried out in the Adelaide and Meath Hospital, Dublin incorporating the National Children's Hospital (AMNCH), and Mallow General Hospital investigations[77,78]

Appendix 7 — Organisational structure for the HIPE unit, HPO



Appendix 8 — Implementation of Pavilion Health report recommendations[13]

Recommendation 1: HPO to facilitate sharing of best practice that currently exists within the current hospital network.
Recommendation 2: Increase Coding Service Managers profile as a key member of the hospital management Team Establish Coding Advisory Committee to support and develop system wide quality improvement initiatives and report back to local hospital management team
Recommendation 3: HPO capacity be increased through recruiting: • auditors to support a national audit programme. • trainers, recruited from the HIPE Clinical Coding workforce, and located initially in the HPO Dublin office but over time perhaps moving to a more regional model.
Recommendation 4: DRG assignment: • education and awareness for HIPE management and Clinical Coders • HIPE Clinical Coder access after coding an episode, including Weighted Units.
Recommendation 5: Develop an independent tool for better estimating the Clinical Coder workforce needs at a hospital level.
Recommendation 6: Increase the use of quality tools; all HIPE Clinical Coders should use quality tools and correct the errors identified in a timely manner (within 1 week of coding).
Recommendation 7: Medical records: • ensure compliance with the current national medical records standard. • seek national standards review of the structure of the medical record to meet clinical as well as classification needs.

Recommendation 8:
Increase medical clinician involvement:
- establish committee with membership from HIPE Clinical Coders and Clinicians; ensure regular scheduled meetings, while a key objective of this committee would be to improve the quality of the discharge summary and address quality improvement objectives.
- development and distribution of aids (e.g. an email template for queries) and the introduction and monitoring of query protocols.

Recommendation 9:
Implement a standard HPO audit process calibrated with internal audits at hospitals.

Recommendation 10:
In hospitals where Clinical Coder staffing is greater than 5 Whole Time Equivalent (WTE), a workforce structure and common job specification be designed as follows:
- Trainee Coder
- Competent Coder
- Senior Coder (internal auditor / on the job trainer / mentor)
- Manager
- Quality Control Manager working on system wide quality initiatives.

Recommendation 11:
Develop a national standard for HIPE Clinical Coder remuneration based on skill level.

Recommendation 12:
Develop a comprehensive training plan to support clinical coding in Ireland.

Appendix 9 — Statement of purpose[53]

The statement of purpose should contain the following information about the national data collection:

- full legal name
- the year it commenced operation
- contact details, including website information
- name of the managing organisation
- target population
- overall function and purpose
- aims and objectives
- list of data providers
- legal basis
- source of funding
- governance and managing structure
- national legislation and standards that it must adhere to
- international legislation and standards it must adhere to
- document version number
- date it is effective from
- signatures of all parties responsible.

Appendix 10 — Data sharing agreements

Data sharing agreements should document, at a minimum, the following:

- The purpose(s) of sharing
- Legal basis for sharing (if applicable)
- The potential recipients or types of recipients and the circumstances in which they will have access
- The data to be shared
- Data quality – relevant data quality dimensions
- Data security
- Retention of shared data
- Individuals' rights – procedures for dealing with access requests, queries and complaints
- Review of effectiveness/termination of the sharing agreement
- Sanctions for failure to comply with the agreement or breaches by individual staff.

Appendix 11 — International examples of initiatives to improve the quality of discharge data

Type of initiative	International examples of initiatives in practice
Audit and feedback [79,80,81,82]	**Independent audits of data quality conducted on an annual basis across each NHS Trust in the UK** Outcomes The findings of such audits enabled the monitoring and comparison of the performance levels of Trusts with financial consequences in cases of poor quality data. Subsequent NHS policy and frameworks reflected the recommendations produced as part of the audits.
	Routine audits conducted in Australia to systematically examine the standard of clinical coding Outcomes Such audits help to protect the integrity of financial incentives within the health system and promote the importance of adhering to standardised coding classification systems. The audits promote accountability whereby coders are held accountable for the outcomes of these audits with the potential for financial penalties for the hospital, in the event of misclassification.
Clinician engagement and education [83,84]	**The introduction of 'physician champions' in Canada to improve communication channels between clinical coders and clinicians.** Outcomes Following training on coding classification systems, physician champions serve as an accessible resource for their peers, promoting the importance of high quality clinical documentation on the clinical coding process. Champions also manage queries from coding departments and identify training opportunities to improve coders' knowledge, based on the queries presented to clinicians within a hospital.
	Clinical Documentation Improvement (CDI) Programmes to improve clinical documentation in Australia. Outcomes Ensures higher levels of consistency in clinical documentation between healthcare professionals and emphasises the importance of high quality clinical documentation.

	Improved patient safety, quality of care and continuum of care throughout a patient's journey in hospital.
	Training around high quality clinical documentation during clinician education in the UK. Outcomes Promotes the importance of high quality, reliable clinical documentation – at an early stage of training – and its impact on the clinical coding process. Conveys the clinician's contribution to coding and instil confidence and appreciation of coded data.
Coder education[82]	**In Australia, coders undergo extensive internal training upon employment and are subject to ongoing reviews of their work.** Outcomes Coders receive specific training to ensure they are equipped with the necessary skills and knowledge to apply the specific clinical coding standards to ensure high quality coding outputs. Such extensive training and performance reviews help to preserve the integrity of the funding system in Australia to ensure coding is accurate and reliable.
	Development of Clinical Coding Committees across most states and territories in Australia Outcomes Promotes transparency within clinical coding practice and advocates the importance of clinical coding across a variety of settings. Promotes the development and recognition of the role of coders to other healthcare professionals, supporting effective engagement and communication with clinicians and the wider hospital network.
Organisational change[82]	**Hierarchical structures developed within coding departments across Australia** Outcomes Promotes a wider pool of expertise within the coding environment with a focus on data quality; coding managers, coding

	educators and coding auditors work together as a team.
Financial incentives and penalties[82]	**Financial incentives for high quality coded data** Outcomes The introduction of Payment by Results (PbR) has resulted in improvements to data quality in the NHS; such incentives serve to ensure appropriate reimbursement for services provided by hospitals.
	Financial penalties for poor quality coded data Outcomes Coders are held accountable for the outcomes of audits and financial penalties are applied in cases where data is poorly coded or misclassified. Accountability and financial penalties have led to increased improvements in the quality of coded data.

Appendix 12 — List of organisations that request data from the Healthcare Pricing Office (HPO)

List of organisations that request data from the HPO.
Department of Health
Department of Finance
Department of Public Expenditure and Reform
Units within the HSE
Ireland East Hospital Group
RCSI Hospital Group
Dublin Midlands Hospital Group
University of Limerick Hospital Group
South/South-West Hospital Group
Saolta Hospital Group
Children's Hospital Group
State Claims Agency
Health Information and Quality Authority
Economic and Social Research Institute
Health Research Board
Institute of Public Health
National Suicide Research Foundation
Comptroller and Auditor General
Academics including students
Insurance companies
Consultancy companies
Voluntary organisations
Other government departments

Appendix 13 — List of organisations with access to the HIPE Online Portal (HOP)

Organisations with access to the HIPE Online Portal (HOP)
RCSI Hospital Group
UL Hospital Group
Saolta Hospital Group
Ireland-East Hospital Group
Dublin Midlands Hospital Group
South-South West Hospital Group
Children's Hospital Group
HSE Business Intelligence Unit
HSE Health Intelligence Unit
HSE Acute Hospitals
HSE Health Protection Surveillance Centre
HSE Special Delivery Unit
Health Information and Quality Authority
National Cancer Control Programme
National Treatment Purchase Fund
Cross Border Development

Appendix 14 — Relevant legislation, codes of practice, policies and procedures for information governance identified by the HPO

Legislation	▪ Data Protection Act, 1988 ▪ Data Protection (Amendment) Act 2003 ▪ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data.
Codes of practice	▪ HIPE Download format (for transfer of data from external systems to HIPE) ▪ HIPE Upload format (for transfer of data to external systems from HIPE) ▪ Australian Coding Standards as published by National Centre for Classification in Health (NCCH), 2013: The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (8th Ed): NCCH, Australian Health Services Research Institute, The University of Wollongong. ▪ Irish Coding Standards as published by the Healthcare Pricing Office.
Policies and procedures	▪ Data access policy ▪ Data user agreement ▪ Application form for access to HIPE data.

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