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| Acute Floor Information System | Logo (4cm) |
| Project Brief | |

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Abstract

The Acute Floor Information System (AFIS) project will define, procure and implement a national ICT system to support the information and technology requirements of hospitals’ unscheduled care services. The project will work cooperatively with the Acute Floor Programme to ensure tight coupling between the AFIS solution and the Acute Floor design and implementation. The initial sites to be implemented for the ICT solution will be Cork University Hospital emergency care network and St. Luke's General Hospital, Kilkenny.

The Acute Floor Information System will play a vital role in the delivery of Acute Floor services. The AFIS system will be an operationally efficient and reliable technological solution which will deliver effective patient flow tracking and enable recording of detailed clinical information on all Acute Floor patients. The AFIS system will enable rapid triage, assessment and clinical decision making. It will support multi-disciplinary working and enable efficient referrals and discharges. The system will provide high quality, real-time information to support the operational control and enhanced performance management of services within a busy unscheduled care environment.

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# Introduction

## Project Background

In 2011, an analysis of Emergency Department (ED) Information and Communications Technology (ICT) systems was undertaken by the Emergency Medicine Programme at the request of the Special Delivery Unit. This indicated that ED systems across the country were either inadequate or simply did not exist to provide the functionality necessary to support current standards of information management in emergency care or the needs of patient care staff.

Subsequently the Acute Medicine and Surgery Programmes determined that they required similar functionality and information to support the operation of the existing and emerging Acute Medical Assessment Units (AMAUs) and Acute Surgery Assessment Units (ASAUs). ICT systems are essential to support the management and monitoring of patient experiences and adherence to the 6-hour target for Patient Experience Time (PET), to provide statistical data for service planning and development and to assist clinical programmes with improvement initiatives and governance, whilst all the time supporting visibility at an individual patient level during the provision of patient care.

Increasingly it became obvious that improved levels of patient care and patient access times is required of all EDs, AMAUs, ASAUs and Injury Units (IUs) and that they work together as proposed in the Acute Floor Model in a coordinated way for all unscheduled care patients.

It is vital that our health system has appropriate intelligence on the 1.42 million[[1]](#footnote-1) emergency care presentations that occur each year and this cannot be achieved without the provision of fit-for-purpose ICT systems in all hospitals.

Longer term, ICT systems will provide data to inform decision making and monitor progress regarding the reorganisation of acute hospitals. In the short and medium term, the HSE wishes to move toward an Acute Floor Model where there is a high degree of integration between different patient streaming units, including EDs, AMAUs and ASAUs.

To facilitate the development of acute floors in all relevant hospitals, there is a requirement for a ICT solution that facilitates the integration and seamless transfer of patients between the different units within a hospital. With the proposed development of hospital networks, there will be a similar requirement to facilitate the seamless referral of patients across hospitals within hospital groups.

## Acute Floor Programme

### Acute Floor Model

Unscheduled care is a global challenge, with health systems around the world working hard to match capacity to demand for care in an evolving system. Meeting the size and scale of the health and care challenge with the current Irish service design is not sustainable.

The front door or access point of the service is a fundamental component of the new Acute Floor approach. Its design needs to reflect the increasing complexity of the acutely unwell patient, irrespective of age. The Acute Floor concept is recognised as part of the solution as a platform for enabling front-line change.

The Acute Floor concept relates to co- or proximally-located integrated acute services within a Model 3 or 4 hospital to meet the predicted requirements of patients presenting for unscheduled care through effective and efficient streaming of patients direct to the appropriate clinical services. It broadens the front door to improve rapid access to specialist services and risk assessment, and smooths flow through the acute system.

The intent is to facilitate the seamless provision of person-centred care across the range of specialties involved in the early management of acutely and critically ill patients: an opportunity to bring services together and improve access in a very focussed way, which reflects the shift in complexity of acute presentations.

The majority of attendances to the Acute Floor will still be seen through the emergency medicine service but the development of the Acute Floor provides the potential to stream patients of the appropriate acuity directly to their specialty senior decision makers. Treatment may be either on the spot, by ambulatory or out-patient care, or by admission.

Key features of the Acute Floor include:

* A single point of access is through the Acute Floor Hub, for swift two-way communication with GPs and community partners, for rapid access to specialists, advising alternatives to admission or the best course of treatment, or directing to the most appropriate acute service.
* On presentation, patients are streamed by an appropriately trained clinical staff member to the appropriate clinical services, supporting flow and rapidly getting them to the expertise they need. Streaming is distinct from triage, being a swift and immediate signposting to the appropriate clinical service on the Acute Floor, with no duplication of the formal clinical prioritisation of the triage process. Triage will take place within the respective service, whether Emergency Medicine, Acute Medicine or Acute Surgery.
* The clinical service will triage when demand outstrips capacity, such that patients are seen based on clinical prioritisation and cared for by a multi-disciplinary, multispecialty team, led by a senior clinical decision maker on the Acute Floor.
* Early access to senior clinical decision-makers is paramount, supporting patient safety, appropriate resource use, and patient flow. Senior clinical decision-makers in core specialties will be present on the Acute Floor to support decision-making on the floor during peak hours, with robust on call arrangements to ensure continuity of care and patient safety outside core hours. Access to senior clinical decision makers and the use of Early Warning Systems have been demonstrated to improve patient safety, reduce unnecessary admissions and reduce length of stay.
* Conversion of historical in-patient episodes to ambulatory care, together with early senior clinical decisionmakers would be expected to contribute to reduced length of stay.
* Services will operate as a network, within a shared space of co-located, interconnected services, acting as part of a wider integrated health system, as opposed to discrete units or departments
* Capacity is designed around patient needs and the patterns of demand rather than around traditional 9-5 working practices, and will shift to an increasingly predictive, data-driven model. Services designed around averages will consistently not be resourced to actual demand. Demand determines design – of services and teams.
* The design of the services and the space will promote ambulatory assessment and care as a primary option. Bed-based or traditional in-patient provision will no longer be the default. Dedicated pathway development will assist this shift in focus. Ambulatory care should be the first filter before admission is considered. Where admission is required, the flexibility will be needed for short-stay admission or timely access to specialist wards.
* Core diagnostics will be present on or near the Acute Floor to avoid becoming a rate limiting step. Where specialist radiologists are required, remote reporting is encouraged at the hospital group level. The development of GP direct access to specified diagnostics may enable more community-based care, and open up new models of care for those who do not need the full gamut of acute healthcare resources.
* The Acute Floor Hub and governance structures will support integration with primary care, social care and community services, such that patients are discharged without delay, built on proactive, systematic operating practices and governance. Patients will be cared for in the most appropriate setting, which may not be an acute hospital, and may be closer to home. Just widening the front door alone through the Acute Floor will not alleviate system pressures, and requires jointly building, embedding and improving new pathways across the healthcare economy.
* The widening of acute expertise to assess complex patients and frailty, and respond as a multi-disciplinary and multi-specialty team will promote independence and support timely onward care planning.
* Future training will develop broader skillsets for management of the acutely ill patient, and require new roles and career pathways, focussed on multidisciplinary team training and optimal teamworking, to respond to high volume demand and complexity, and to reduce delays and hand offs.
* Activity will be captured through an Acute Floor Information System, which will align to Activity Based Funding (ABF), recognising complexity and recognising the need for rapid access to senior clinical input, and avoiding unintended incentives to admit patients unnecessarily.

The following diagrams illustrate the services available in a model 4 hospital and a model 3 hospital and those that are linked to the Acute Floor:

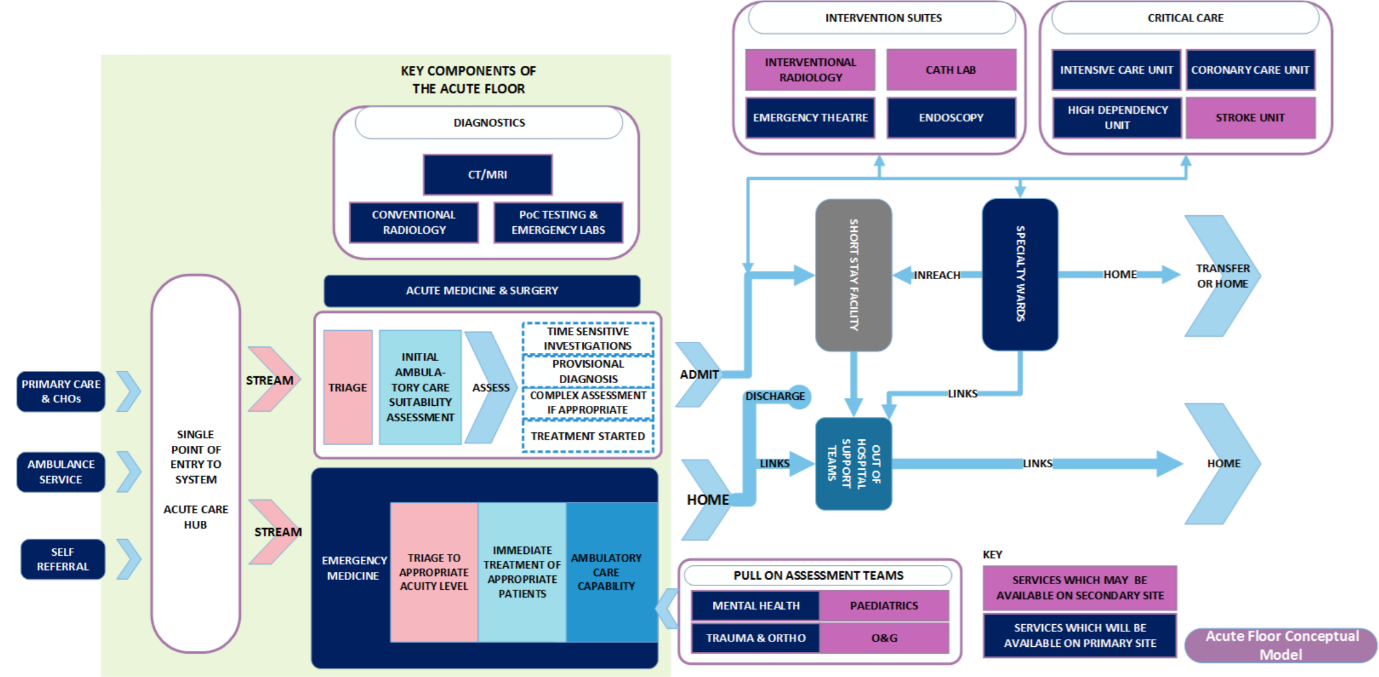
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|  |  |

Note

The Acute Floor Model is currently under development and will continue to evolve into the future. The information presented on the Acute Floor Model in this document is an outline of the planned approach and is subject to change and to some site-specific variation.

### Patient Pathway

From the hospital’s point of view, the following is a conceptual schematic of the Acute Floor:



From a patient’s point of view, the flow through the Acute Floor will be uncomplicated and swift:



There will be a single point of entry to the Acute Floor for all patients, regardless of the source of referral[[2]](#footnote-2). At this Acute Care Hub, all patients will be rapidly streamed to the appropriate service by a suitably experienced and independent clinician.

More formal Manchester Triage or Early Warning Score (EWS) processes may then be undertaken, as required, once the patient is aligned to the correct part of the service, to ensure that clinical risk is effectively managed within those services.

### Acute Floor Implementation Process

The overall objective of the Acute Floor Implementation Process is to develop and implement an operating Acute Floor Model in a number of Model 3 and 4 hospitals in order to improve quality of care and experience for the patient.

The Acute Floor Model will be implemented by the HSE over a set of distinct project workstreams and allied workstreams. These are illustrated below:



# AFIS Project

## Project Objectives

The objectives of the Acute Floor Information System (AFIS) project are to:

1. Define, procure and implement a national ICT system to support the information and technology requirements of hospitals’ unscheduled care service and the new Acute Floor Model.
2. Work cooperatively within the Acute Floor Programme to ensure tight coupling between the AFIS solution and the Acute Floor design and implementation.
3. Implement the ICT solution in the 2 initial emergency care networks:
   * Cork University Hospital emergency care network
   * St. Luke's General Hospital, Kilkenny
4. Prioritise implementation of AFIS in other hospitals and hospital groups based on readiness and risk assessments.

## Benefits Overview

The AFIS system will enable the management all acute floor patients through their unscheduled care pathway. The diagram and table below provides an overview of the benefits that will be realised as a result of the AFIS project, in order of priority.



Outline descriptions of these benefits are provided in the table below. Detailed descriptions of the specific benefits to be delivered are included in §3: Project Benefits.

|  |  |  |
| --- | --- | --- |
| Priority | Benefit | Summary |
| 1 | Patient Flow Management | AFIS will support the tracking and display of patient journeys along the unscheduled care pathway, enabling hospitals to use real-time dashboards and business intelligence reports to improve performance indicators. |
| 2 | Core Clinical Record | AFIS will deliver a clinical record that includes diagnostics, assessments, procedures and diagnoses to support better deliver of care to patients. |
| 3 | Quality ICT System | AFIS will be easy-to-use, secure and deployed across a range of devices to ensure easy access. |
| 4 | Improved Patient Care | AFIS will improve the quality of data recording by unscheduled care services and will share this information within the acute and primary care services. |
| 5 | Improved Efficiency | AFIS will automate and streamline processes and avoid interrupting the user’s workflow. |
| 6 | Connected & Configurable | AFIS will be a flexible system that can support a wide variety of interfaces and whose data model and user interface can be configured and extended. |
| 7 | Management Information | AFIS will record comprehensive details of each patient journey, enabling new performance indicators and more detailed reports and data extracts. |
| 8 | Extended Clinical Record | AFIS will include a comprehensive clinical record, using SNOMED CT, which will provide detailed, high quality clinical and nursing information to Acute Floor staff and facilitate clinical audit. |
| 9 | Training & Documentation | AFIS will include a comprehensive training package and documentation set. |
| 10 | Supplementary Benefits | AFIS will support workflows that are specific to unscheduled care and will support other improvements for the Acute Floor staff and patients. |

# Project Benefits

## Patient Flow Management

1. Patient flow tracking will mean that Acute Floor staff know who-is-where and the current status and next steps for each patient, through all stages of the unscheduled care pathway.
2. Electronic whiteboards will provide staff with current, accurate patient information without the overhead of looking for a workstation or returning to a central station.
3. Administrative and clinical information for each episode of unscheduled care in EDs, MAUs, ASAUs and other units will support better management and facilitate activity based funding for unscheduled care.
4. Patient Experience Times and wait times will be continually visible to highlight delays and support adherence to national targets.
5. Detailed timestamps for every patient will provide information and for operational management and valuable insights for strategic planning.
6. Comprehensive support for dashboards, reports and business intelligence will enable better management of the Acute Floor.
7. Tracking and increased visibility of patient who are lodging in the Acute Floor will support overall hospital management of patient flow.

## Core Clinical Record

1. A comprehensive and accessible clinical record that includes diagnostics, assessments, procedures and diagnoses will support Acute Floor staff to deliver better health care.
2. Integrated support for triage and assessment tools will facilitate a consistent, documented approach to patient care.
3. The availability and visibility of patient flags will alert staff to and maintain an awareness of important health and safety concerns for patients and staff.
4. Real-time visibility of diagnostic order status and reports will remove repeated searching for results, thereby increasing efficiency.

## Quality ICT System

1. A system that is easy to use, includes intelligent defaults and validation rules, will encourage use and improve data quality.
2. The availability of tablet carts to record clinical records and nursing notes will save time looking for spare workstations.
3. Comprehensive user management and security will enable compliance with GDPR and HSE ICT policies.
4. A well resourced vendor project team will ensure that the system is designed, developed and tested in line with the HSE’s requirement and the evolving Acute Floor Model.
5. Sufficient workstations will be available to facilitate real-time recoding of clinical information, ordering of diagnostics, referrals and patient discharges.

## Improved Patient Care

1. Discharge summaries on patient episodes will be provided electronically to GPs, increasing efficiency and supporting better informed primary care.
2. Integrated support for review clinics and deferred care appointments will avoid long waits and simplify the delivery of this service.
3. Access to current and historic clinical information from all Acute Floors Units will help to eliminate duplication of requests for patient history and repeat assessments.
4. Interfaces with point-of-care devices will improve data quality and reduce transcribing errors.
5. In the event of a patient death, the system will include checks to ensure that all parties are informed and all systems are updated.

## Improved Efficiency

1. The ability to order diagnostics from within AFIS will remove the frustration of multiple system logins, thereby improving efficiency.
2. Built-in generation of letters and other documents will reduce the need to manually produce a wide range of letters, forms and other paper documents.
3. Signing on using swipe cards, the need for just one password and user session migration between devices will reduce frustration and increase efficiency.
4. Integrated support for referrals to specialists outside of the Acute Floor will save form-filling and increase visibility of referral status.
5. The ability to manage service requests for HSCPs, phlebotomy, porters and other services will lead to efficiencies for staff inside and outside the Acute Floor.

## Connected & Configurable

1. The ability to configure and extend the user interface will support unit specific views and the continuing evolution of AFIS.
2. Interfaces to each hospital’s Patient Management System (iPM), and the IHI Register, will ensure consistent patient demographics and will support billing.
3. Integration of AFIS records into the National EHR Shared Record will provide all health professionals with access Acute Floor episode information.
4. The ability to extend the AFIS data model will support the continuing evolution of AFIS.
5. Electronic integration with other ICT systems\* will improve data quality and efficiency. (\* Including NAS, master data, prescribing)
6. The capability to configure new triage and assessment tools will enable the evolution of the AFIS implementation over time.

## Management Information

1. Data extracts will provide key information to third party systems, such as NQAIS Clinical, the PMU/BIU or tools for Activity Based Funding.
2. Movement of patients between Acute Floor Units & zones and within an emergency care network will be easier. Recording timestamps and handover comments will help clarify any questions later.
3. New Acute Floor performance indicators will be available locally and nationally. Consistency will enable comparison and identification of good performance.

## Extended Clinical Record

1. Timely and legible records of nursing notes will support better care and audit.
2. Easy access to scanned and imported documents within AFIS will enable staff to have a more complete picture of the patient’s history.
3. The use of SNOMED CT to record procedures and diagnoses will improve data quality, facilitate information exchange and support ABF.
4. The availability of detailed clinical records will support clinical audit.

## Training & Documentation

1. A comprehensive training package, using the train-the-trainer approach, will drive adoption and support change management.
2. AFIS will facilitate easy access to clinical pathway documents.
3. Easy access to online help and user documentation will help staff manage the learning curve associated with a new ICT system.

## Supplementary Benefits

1. Support for major emergencies is important for patient care and data quality when a significant incident occurs.
2. Support for printing and scanning barcodes will improve data quality help eliminate errors and increase efficiency.
3. Access from phones and other mobile devices will remove the need to find a workstation for quick reviews of patient records.
4. Access to clinical information from Acute Floors across multiple hospitals will be helpful in understanding the patient’s history.
5. Recording of the prescription and administration of medication will improve data quality and efficiency, and will support clinical audit.
6. Configurable prompts for additional information will provide more relevant reports and will support research.
7. Pre-registration of patients referred by GPs and brought by ambulance will increase efficiency at registration.
8. AFIS will enable staff to easily explain conditions using anatomical diagrams and to provide patients with the latest advice leaflets.

# Scope

## User Requirements

The key user requirements for the AFIS solution are:

|  |  |
| --- | --- |
| Requirement | Requirement Description |
| Patient management | AFIS will manage all steps from registration and streaming at the Acute Care Hub until disposition, capturing a detailed administrative record of the patient’s journey.  AFIS will provide electronic whiteboards with real-time information on the patients in each Acute Floor unit and zone.  AFIS will calculate wait times, PETs, boarding times and other operational statistics. |
| Unscheduled Care Record | AFIS will record core clinical details for every patient episode including presentation and triage, observations and assessments, diagnoses and procedures.  AFIS will support recording of patient flags and clinical notes.  AFIS will interface with other ICT systems to provide diagnostics order status updates and reports. |
| Usability and Security | AFIS will be fast and easy to use.  AFIS will be designed to fit in with Acute Floor workflows.  AFIS will meet GDPR and other security standards. |
| Interfaces | AFIS will include comprehensive interface engine, providing a variety of interface and integration options.  AFIS will include interfaces to multiple patient management systems.  AFIS will support messaging using Healthlink and include an interface to the IHI service. |
| Automation | AFIS will include automated generation of documents and discharge summaries.  AFIS will support automation of referrals and service requests.  AFIS will include management of review and referred care clinics. |
| Configurable | AFIS will be a national solution, configured to each site’s needs.  The AFIS data model, workflow and user interface will be configurable by the vendor and by trained HSE staff.  AFIS will support development of new triage and assessment tools and context specific data sets and user interfaces. |
| Management Information | AFIS will include full business intelligence capabilities, supporting real-time information and data analytics.  AFIS will provide administrative and clinical data extracts for a variety of downstream ICT systems. |

## Implementation Sites

The emergency care networks in which the AFIS solution will initially be implemented are:

* Cork University Hospital emergency care network, including:
  + Cork University Hospital (CUH)
  + Bantry
  + Mallow
* St Luke’s General Hospital, Kilkenny (SLK)

During the initial phase of the project, the subsequent implementation sites will be prioritised.

The table below provides an overview of the two initial sites:

|  |  |  |
| --- | --- | --- |
| Metric[[3]](#footnote-3) | CUH | SLK |
| Hospital Information |  |  |
| Hospital type | 4: Tertiary | 3: General |
| Number of Acute Floor staff | 300 | 120 |
| Overall hospital staff | 4000 | 1300 |
| ED/AMAU/ASAU Attendances |  |  |
| ED attendances | 64,717 | 36,000 |
| AMU attendances | 4,200 | 8,000 |
| ASAU attendances |  | 5,000 |
| Total attendances to Acute Floor |  | 49,000 |
| ECN Units |  |  |
| Bantry IU | 5,052 | - |
| Bantry MAU | 3,900 | - |
| Bantry staff | 40 | - |
| Mallow IU | 6,318 | - |
| Mallow MAU | 3,600 | - |
| Mallow staff | 40 | - |
| Admissions / Discharges |  |  |
| Admissions from Acute Floor | 21,848 | 12,000 |
| Discharges home from Acute Floor | 39,900 | 37,000 |
| Scheduled Care |  |  |
| OPD attendances | 210,000 | 50,000 |
| Inpatient discharges | 45,000 | 19,000 |
| Day cases | 80,000 | 15,000 |

## AFIS Users

The primary users of the Acute Floor Information System will be the staff who provide unscheduled care within the Acute Floor. Use of AFIS will be an integral part of the daily role of primary users.

The primary users will include:

* Administration support staff
* Nursing staff
* Emergency medicine consultants
* Acute medicine consultants
* Surgical consultants
* Paediatric consultants
* NCHDs
* Health and Social Care Professionals

The secondary users are those whose use of AFIS is infrequent or who use part of the system. They may also have limited access to patient data.

The secondary users may include:

* Unscheduled care service and hospital management
* Bed management & hospital administration
* Data managers
* Inpatient ward staff
* Radiology and laboratory depts
* Social workers
* Psychiatric services
* Patient accounts

## System Requirements

* AFIS will be a national ICT system, configured to each hospital’s needs but recording consistent data across all sites.
* The AFIS architecture will deliver the system capacity, performance, availability and resilience required by a busy, 24x7 acute floor environment.
* Acute Floor staff will have with access to unscheduled care records for patients, regardless of the which hospital they attend.
* AFIS will use SNOMED CT as the primary vocabulary for recording clinical information.
* AFIS will provide robust security and user management functionality, including a detailed system audit of all activity.
* AFIS will be configured to support both large and small screen devices and will accept input via keyboard, mouse, touchscreen and barcode.
* User input will be checked against intelligent validation rules to promote data quality.
* The solution provided will include independent environments for production, test and training.
* AFIS will provide comprehensive support to integrate and interface with other clinical and non-clinical solutions. Multiples standards will be supported to provide bi-directional real-time information flows and batch data transfer.

The diagram below provides an outline of the potential integration and interface requirements:



## Additional Requirements

User experience

The AFIS solution must be efficient to use for busy Acute Floor staff. This requires comprehensive user interface and system design to ensure that viewing and updating patient information can be achieved quickly with the minimum necessary keystrokes, mouse clicks and screen touches.

Training and User documentation

Training will be provided by the vendor using a combination of “train-the-trainer” and vendor-led training approaches. The vendor will provide innovative training tools, such as online training and e-learning tools. The AFIS solution will include online, context aware user documentation.

In addition to regular users, the AFIS solution will be used by locum / temporary staff and other infrequent users. The user interface design and availability of a variety of training materials will facilitate rapid familiarisation with the most commonly used system functionality.

System support and improvement

The AFIS solution will operate continuously and a support model will be put in place that includes 24x7x365 support. The vendor will the primary support channel and the support service will include full management of server and application software, database management, software installation and configuration and interface development.

It is understood that the AFIS solution will evolve after its initial go-live and the support service will include options for continuous improvements to and optimisation of the AFIS solution.

Project management

Strong project management capabilities for large projects such as this are essential. Quality will be an important theme throughout the project to ensure that the AFIS solution meets expectations and that the planned benefits are achieved.

# eHealth Ireland

## Office of the CIO

The Office of the Chief Information Officer (OCIO) is the HSE office responsible for the delivery of technology to support healthcare across Ireland. The OCIO embraces all voice, video and data communications technologies and provides one central management point for all purchases of hardware, software, telecommunications, ICT developments and advisory services.

The OCIO is also responsible for turning the eHealth Ireland Strategy into a reality, ensuring that technology supports healthcare efficiently and effectively throughout the whole system. The core of the eHealth Ireland strategy is to bring improved population well-being, health service efficiencies and economic opportunity through the use of technology enabled healthcare provision.

## eHealth Strategy and Sláintecare

The eHealth Strategy for Ireland 2013 and the subsequent Knowledge and Information Plan outline how the use of modern information systems and technologies to integrate and coordinate the delivery of healthcare can ensure improved patient outcomes, greater efficiencies of delivery, and higher levels of transparency and improved ease of access. The eHealth Strategy advocates the introduction of a national electronic health record (EHR).

This approach is strongly supported by the Sláintecare Report 2017. The Sláinetecare Implementation Strategy lists as one of its 10 strategic actions to “put in place a modern eHealth infrastructure and improve data, research and evaluation capabilities”. The AFIS solution provide key eHealth infrastructure to capture data in unscheduled care services.

## National Electronic Health Record

A national electronic health record (EHR) is a comprehensive and combined solution that supports the creation and sharing of key patient information.

Four primary components have been identified that constitute the National EHR:

* National Shared Record
* Community Operational Systems
* Acute Operational Systems
* Integration Capability

The national EHR will consist of core operational solutions along with the ability to aggregate data from these systems into a comprehensive national record, accessible to health and social care professionals, and to patients, service users and carers.



The opportunity afforded by a national EHR is to create a future environment that is information rich, supporting improvements in care, and making a step change in the availability of patient information across the various organisations within the remit of the HSE.

## Health Identifiers Programme

The provision of health identifiers for individuals and health service providers was identified as a key enabler for eHealth Strategy for Ireland. The IHI is intended to safely identify the individual and to link their correct health records from different systems together showing their medical history. The Health Identifiers Act allows for the establishment and maintenance of national registers for Individual Health Identifiers and Health Service Provider Identifiers (Practitioners and Organisations).

The Health Identifiers programme will deliver:

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

## Integrated Patient Management System

The patient management system in use in the two initial sites is the iPatient Manager system from DXC. It is referred to as the Integrated Patient Management System (iPMS).

iPMS is the main information system supporting day-to-day operations in hospitals and is used to record all patient activity including referrals, waiting lists, admissions, outpatient appointments / attendances, emergency department attendances and transfers / discharges.

For outbound interfaces from iPM, the AFIS vendor will work with the standard iPM messages as output. Any filtering, code mappings or message manipulations will be handled by the AFIS vendor.

As every inbound interface to iPM is slightly different, there will be a specific development by DXC (iPMS vendor) based on what the AFIS vendor provides. If the inbound interface is HL7, the inbound messages will adhere to standard HL7 protocols.

## Medical Laboratory Information System

The national Medical Laboratory Information System (MedLIS) project will deliver a standardised laboratory information system that supports the delivery of laboratory medicine and meets the needs of patients and their health care providers. The deployment model for the new national MedLIS will be based on a central single instance of the software and database.

The MedLIS project will replace all existing laboratory information systems in the 43 HSE & Voluntary laboratories with the Cerner Millennium system. all laboratory disciplines will be replaced including biochemistry, immunology, endocrinology, haematology, microbiology, virology, histopathology, cytopathology, autopsy services, blood transfusion, histocompatibility & immunogenetics (tissue typing) and molecular diagnostics.

The MedLIS system will also provide for the delivery of functional interfaces to multiple external systems, including order communications resulting and reporting, patient administration systems, Healthlink and other national clinical systems, including AFIS.

The MedLIS and AFIS implementation projects will run concurrently. The two initial sites currently use the CSC APEX/iLAB system and will move to MedLIS in due course.

## National Integrated Medical Imaging System

The National Integrated Medical Imaging System (NIMIS) project has implemented a Picture Archive and Communication System (PACS), a Radiology Information System (RIS) and a Voice Recognition (VR) system in 38 hospitals across Ireland. Patient images and reports are stored and distributed electronically.

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

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

The NIMS system is used in St. Luke’s General Hospital, Kilkenny. The radiology system used in Cork University Hospital emergency care network is from Agfa.

## Healthlink

Healthlink is the National Messaging System, allowing any hospital or secondary healthcare facility to send messages to GPs via a central database managed by Healthlink. Healthlink provides a web interface for GPs to view and download messages that are addressed to them. Healthlink exclusively supports HL7 version 2.4. In version 2.4 there are two options for message encoding: the standard encoding or the newly introduced XML encoding. For a message to be successfully handled by Healthlink, it must at least conform to the corresponding Abstract Message Structure definition for standard encoding, or the corresponding XML Schema for XML encoding.

# Terminology

## Abbreviations

|  |  |
| --- | --- |
| Abbreviation | Description |
| ABF | Activity Based Funding |
| AFIS | Acute Floor Information System |
| AMAU | Acute Medical Assessment Unit |
| AMU | Acute Medical Unit |
| ANP | Advanced Nurse Practitioner |
| APAU | Acute Paediatric Assessment unit |
| ASAU | Acute Surgical Assessment Unit |
| ASU | Acute Stroke Unit |
| CAD | Computer Aided Dispatch |
| CCU | Coronary Care Unit |
| CDU | Clinical Decision Unit |
| CNS | Clinical Nurse Specialist |
| CT | Computed Tomography |
| ECG | Electro Cardio Graph |
| ECN | Emergency Care Network |
| ED | Emergency Department |
| EHR | Electronic Health Record |
| EM | Emergency Medicine |
| ePCR | Electronic Patient Care Report |
| EU | Emergency Unit |
| EWS | Early Warning Score |
| GP | General Practitioner |
| HCAI | Health Care Acquired Infection |
| HSCP | Health and Social Care Professionals |
| HSE | Health Service Executive |
| ICT | Information & Communications Technology |
| IHI | Individual Health Identifier |
| ICU | Intensive Care Unit |
| ICD-10-AM /ACHI/ACS | International Statistical Classification of Diseases – 10th revision –Australian Modification; Australian Classification of Health Interventions; Australian Coding Standard |
| IU | Injury Units |
| LIS | Laboratory Information System |
| MAU | Medical Assessment Unit |
| MDT | Multi-Disciplinary Team |
| MedLIS | Medical Laboratory Information System |
| NCHD | Non-Consultant Hospital Doctor |
| NIMIS | National Integrated Medical Imaging System |
| OCIO | Office of the Chief Information Officer |
| OPD | Out Patient Department |
| PAS | Patient Administration System |
| PET | Patient Experience Time |
| RFID | Radio Frequency Identifier |
| SDU | Special Delivery Unit |
| SSU | Short Stay Unit |

## Definitions

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| --- | --- |
| Acute Floor | An integrated service configured to manage unscheduled care demand. This may be co- or proximally located clinical and support services which work together to manage unscheduled demand on a day to day basis. |
| Acute Care Hub | A single point of access to the Acute Care system, both a real and virtual space supported by telecommunications and ICT-based contact for timely two-way communication between community, social care and primary care services, specialists within the hospital and other hospital sites. |
| Acute Medical Unit (AMU) | An Acute Medical Unit (AMU) is a facility whose primary function is the immediate and early specialist management of adult patients with a wide range of acute medical conditions who present to a Model 4 (tertiary) hospital. Its aim is to provide a dedicated location for the rapid assessment, diagnosis and commencement of appropriate treatment. Physicians, supported by a multidisciplinary team, will carry out patient assessment and treatment. It is envisaged that AMUs will operate on a 24/ 7 basis. If required, patients can be admitted to the short stay medical beds within the unit for a short period for acute treatment and/ or observation where the estimated length of stay is less than 48 hours. |
| Acute Medical Assessment Unit (AMAU) | An acute medical assessment unit (AMAU) will operate as an AMU with the following exceptions: It will be located in a Model 3 (general) hospital; the hours of operation may vary from 12 to 24 hours, 7 days per week, depending on service need; and it will not have contiguous short stay medical beds. |
| Acute Surgical Assessment Unit (ASAU) | An acute surgical assessment unit (ASAU) provides a dedicated, transitory, centralised service area where acutely ill surgical patients can be assessed prior to being admitted to a Model 3 or 4 hospital or otherwise treated and discharged. An ASAU’s principle function is to provide the patient with early senior decision making. This should result in improved patient flow with better access to assessment tools and therapies. |
| Healthlink | Web-based messaging service which allows the secure transmission of clinical patient information between Hospitals, Health Care Agencies and General Practitioners. |
| Hospital Groups and Community Healthcare Organisations (CHOs) | Grouping of facilities including hospitals and community services with clearly defined roles and mutually agreed interdependencies, existing under a comprehensive governance structure with a robust system for assuming responsibility and accountability. |
| Senior clinical decision maker | A clinician who can establish a diagnosis, define a care plan with the patient’s involvement, and discharge a patient without routine reference to a more senior clinician. |
| Streaming | Streaming is the process of allocating patients to different physical areas/ services, pathways or processes, to improve efficiency and effectiveness. The main objective of streaming is to ensure that the patient is directed to the correct location/ service and to the correct person to manage their clinical needs at the earliest appropriate opportunity. Streaming should always be performed by a trained clinician. Streaming may include streaming to collocated or specialist services, or patients may be streamed to off-site services. |
| Unscheduled care | Health and/or social care which cannot reasonably be foreseen or planned in advance of contact with the relevant service. As the need for unscheduled care can occur any time, services to meet this demand must be available 24 hours a day, seven days a week. |

# Document Control

## Purpose

The Project Brief provides explains the background to the Acute Floor Information System project, an outline of the Acute Floor Model, the eHealth environment and the scope of the Acute Floor Information System (AFIS) project.

## Version History

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| --- | --- | --- | --- |
| Version | Date | Changes | Contributors |
| 02 | 01-Mar-2019 | First version | MG BD (A) |

A=Author, R=Reviewer

## Approvals List

This document requires the following approvals.

|  |  |  |  |
| --- | --- | --- | --- |
| Approval Authority | Name | Version | Approval Recv? |
| AFIS Project Board | Chairperson | 01 | Yes |

1. Unscheduled Care Services

The table below includes the full list of unscheduled care services and the phases in which these hospitals’ AFIS implementations may take place. Those listed in phase 6 have clinical ICT systems, or plans for same, and so are less likely to proceed with implementation.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Phase | Hospital | Group | Model | Services | ED Vol.[[4]](#footnote-4) |
| 1 | St Luke’s Hospital, Kilkenny | Ireland East | 3 | ED, AMAU, ASAU | 48,304 |
| 1 | Cork University Hospital | South/Sth.West | 4 | ED, AMU, ASAU | 64,717 |
| 1 | Bantry General Hospital | South/Sth.West | 2 | IU, MAU | 5,052 |
| 1 | Mallow General Hospital | South/Sth.West | 2 | IU, MAU | 6,318 |
| 2 | Galway University Hospitals | Saolta | 4 | ED, AMU, ASAU | 63,308 |
| 2 | Letterkenny University Hospital | Saolta | 3 | ED, AMAU | 41,872 |
| 2 | Portiuncula University Hospital | Saolta | 3 | ED, AMAU | 25,617 |
| 2 | Sligo University Hospital | Saolta | 3 | ED, AMAU | 48,194 |
| 2 | Mayo University Hospital | Saolta | 3 | ED, AMAU | 37,077 |
| 2 | Roscommon University Hospital | Saolta | 2 | IU, MAU | 6,195 |
| 3 | University Hospital Waterford | South/Sth.West | 4 | ED, AMU | 55,423 |
| 3 | University Hospital Kerry | South/Sth.West | 3 | ED, AMAU | 35,997 |
| 3 | Mercy University Hospital, Cork | South/Sth.West | 3 | ED, AMAU | 51,616 |
| 3 | South Tipperary General Hospital | South/Sth.West | 3 | ED | 41,629 |
| 3 | Mercy Injury Unit Cork | South/Sth.West | - | IU | - |
| 4 | Mater Misericordiae University Hospital | Ireland East | 4 | ED, AMU, ASAU | 76,132 |
| 4 | Midland Regional Hospital, Mullingar | Ireland East | 3 | ED, AMU, ASAU\* | 35,911 |
| 4 | Our Lady’s Hospital, Navan | Ireland East | 3 | ED, AMAU | 20,141 |
| 4 | Wexford General Hospital | Ireland East | 3 | ED, AMAU, ASAU\* | 42,317 |
| 4 | St. Columcille’s Hospital | Ireland East | 2 | IU, MAU | 7,570 |
| 4 | Smithfield Rapid Injury Clinic | Ireland East | - | IU | - |
| 5 | St. James’s Hospital | Dublin Midlands | 4 | ED | 49,520 |
| 5 | Naas General Hospital | Dublin Midlands | 3 | ED, AMAU | 29,844 |
| 5 | Midland Regional Hospital, Portlaoise | Dublin Midlands | 3 | ED | 37,955 |
| 5 | Midland Regional Hospital, Tullamore | Dublin Midlands | 3 | ED, AMAU | 33,216 |
| 6 | Beaumont Hospital | RCSI | 4 | ED | 57,008 |
| 6 | Connolly Hospital, Blanchardstown | RCSI | 3 | ED, AMAU | 39,198 |
| 6 | Cavan General Hospital | RCSI | 3 | ED, AMAU | 38,644 |
| 6 | Our Lady of Lourdes Hospital, Drogheda | RCSI | 3 | ED, AMAU, ASAU | 60,079 |
| 6 | Louth County Hospital, Dundalk | RCSI | 2 | IU | 11,083 |
| 6 | Monaghan General Hospital | RCSI |  | IU | 4,549 |
| 7 | Children’s University Hospital, Temple St. | Children’s | C | ED | 50,071 |
| 7 | Our Lady’s Children’s Hospital, Crumlin | Children’s | C | ED | 37,517 |
| 7 | Tallaght Hospital (Adult) and (Paed) | Dublin Midlands | 4 | ED, AMU, ASAU | 83,746 |
| 7 | St. Vincent’s University Hospital | Ireland East | 4 | ED, AMU | 54,008 |
| 7 | St. Michael’s Hospital, Dun Laoghaire | Ireland East | 2 | ED | 18,765 |
| 7 | University Hospital Limerick | UL Hospitals | 4 | ED, AMU, ASAU | 67,818 |
| 7 | Ennis Hospital | UL Hospitals | 2 | IU, MAU | 10,631 |
| 7 | Nenagh Hospital | UL Hospitals | 2 | IU, MAU | 8,699 |
| 7 | St. John’s Hospital, Limerick | UL Hospitals | 2 | IU, MAU | 11,094 |

\* = Planned ASAU

1. HSE National Service Plan 2018 – Expected activity for 2018 [↑](#footnote-ref-1)
2. Examples: Self-presenting, GP referral, ambulance, community services, nursing home [↑](#footnote-ref-2)
3. Volumes quoted are per annum [↑](#footnote-ref-3)
4. Source: HSE Management Data Report 2017 - All Emergency Presentations ([link](https://www.hse.ie/eng/services/publications/performancereports/december-2017-management-data-report.pdf)) [↑](#footnote-ref-4)