HealthSMART Design Authority

health

IHI Pre-Implementation Project

Best Practice Guide for Adopting Individual Healthcare Identifiers in Victoria

Department of Health

Authorised by the Victoria Government, Melbourne.

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1. Document Overview

1.1 Purpose

The purpose of this document is to provide a Best Practice Guide for Victorian health services in the adoption, use and management of the Individual Healthcare Identifier (IHI) as defined by the National HI Service,

This document seeks to provide guidance in regard to:

- Principles, Business Requirements and Recommendations.
- IHI Pre-Implementation, Adoption and Change Management approaches.
- IHI Use Case Functions.
- IHI Exception management.
- Policies and Procedures.

1.2 Scope

The scope of this document is to provide guidance in relation to implementation of the Individual HealthCare Identifier (IHI) into the health service setting, with specific focus on Health*SMART* health services in Victoria. This Best Practice Guide has been developed with regard to, and as an accompanying document for, other Functional and Technical requirements defined for the introduction of IHI, these additional documents include:

- the Solution Architecture for the Victorian Health sector HealthSMART program capture and exchange of IHIs.
- Business Requirements including Functional and Non-Functional Requirements for the capture, use and maintenance of IHIs within Patient and Client Management Systems, and health services more broadly.
- Functional Design for applications managing the IHI, and interfacing to the HI Service.
- Requirements Specification for Patient and Client Management Systems to capture and exchange Individual Healthcare Identifiers.

This Best Practice Guide does not consider contributions to IHI adoption and management best practice associated with other HI Service channels, such as the telephone support (MSO) and HPOS Internet portal, that will be available in the future.

1.3 Assumptions

The following assumptions have been made in the preparation of this document:

- HealthSMART health services will support the adoption of the IHI.
- The Best Practice Guide is based upon integration of the Individual Healthcare Identifier (IHI), as specified by NEHTA and implemented in the HI Service by Medicare Australia, into the HealthSMART environment based on the current design and operational parameters.
- The HealthSMART program, HealthSMART health services, and PAS applications (iSOFT-i.PM initially) will be able to support the integration of the IHI as an alternative identifier for patients within the Victorian public health sector.

1.4 Intended Audience

The key audience for this document includes:

- HealthSMART stakeholders, including health services
- Health services outside the HealthSMART program
- Victorian Department of Health and Department of Human Services where delivering health supported functions
- Jurisdictional health departments
- NEHTA, and
- IT system providers/developers.

1.5 References and Related Documents

The following documents support the adoption and use of the IHI, or are recommended general reading:

- AS 4590 - 2006 Australian Standard - Interchange of client information
- AS 5017 - 2006 Australian Standard - Health Care Client Identification
- Healthcare Identifiers Act 2010
- Australian Commission on Quality and Safety in Healthcare, Technology Solutions to Patient Misidentification, Report of Review, Final, Oct 2008.

The documents listed below constitute key inputs to the IHI integration design, and also the Best Practice Guide.

- NEHTA HI Service Concept of Operations v 1.0 FINAL Nov 2009
- NEHTA Individual Healthcare Identifiers Business Requirements v 1.0 FINAL Nov 2009
- NEHTA HI Security and Access framework v 1.0 FINAL Nov 2009
- NEHTA HI Business Use Case Catalogue v 1.0 FINAL Nov 2009
- NEHTA HI Service Catalogue v 1.0 Final Nov 2009
- NEHTA HI Service Glossary v 1.0 DRAFT Nov 2009
- Victorian DOH IHI Integration Simplified Functional Design
- Medicare Australia HI Service - Technical Services Catalogue R3A v3.0.2.doc
- Medicare Australia TECH.SIS.HI.01 - SIS - Common Document for SIS v3.0.2.doc
- Medicare Australia TECH.SIS.HI.02- SIS - Common field processing reference document for SIS v3.0.2.doc
- Medicare Australia TECH.SIS.HI.03 - Update Provisional IHI via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.05 - Update IHI via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.06 - IHI Inquiry Search via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.08 - Resolve Provisional IHI- Merge Records via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.09 - Resolve Provisional IHI- Create Unverified IHI via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.10 - Create Provisional IHI via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.11 - Create Unverified IHI via B2B v3.0.2.doc
- Medicare Australia TECH.SIS.HI.12 - IHI Batch Searching v3.0.2.doc
- Medicare Australia HI Service - IHI Searching Guide v0.3 Draft.doc

- Healthcare Identifiers Act 2010.

2. Individual Healthcare Identifier Introduction

2.1 Project Context

The Health*SMART* initiative being undertaken by Department of Health Victoria is the program implementing Victoria's information and communication technology (ICT) strategy to modernise and replace ICT systems throughout the Victorian Public Healthcare Sector (VPHS).

The Health*SMART* program is responsible for managing processes to select applications, configuring these applications to reflect statewide requirements (statewide footprint) and then implementing these applications into participating agencies using the statewide footprint as a base. Health*SMART* is nearing the end of its original work program.

The IHI reference design will be incorporated into the Health*SMART* Solution Architecture, and used as a checkpoint against current and future solutions that are incorporated into the Health*SMART* solution design. The Health*SMART* IHI design will also take into consideration anticipated use of the IHI by other health services in Victoria and the common vendors that deliver applications to the sector.

NEHTA's role in this pre-implementation project has been to provide a consultancy service in regard to the requirements and architecture for IHI, and contribute to practical support, in order to access and learn from a 'test bed' for implementation of IHI.

2.2 Purpose of the HI Service

This section describes the HI Service function and the Healthcare identifiers, including the Individual Healthcare Identifier. The notes provided here are supplied in the HI Service Concept of Operations, NEHTA, 20101.

The purpose of the Healthcare Identifiers Service is to assign, issue and maintain national healthcare identifiers for consumers and providers. Together with the establishment of robust regulatory arrangements to ensure appropriate safeguards for patient health information, this will encourage participation in e-health initiatives

The regulatory arrangements limit the use of healthcare identifiers to healthcare management and communication as part of delivering healthcare services, health service management activities and health research.

E-health is the means of ensuring that the right health information is provided to the right person, at the right place and time, in a secure electronic form. It aims to optimise the quality and efficiency of health care delivery.

The National e-Health Strategy notes that e-health will:

- Ensure the right consumer health information is electronically made available to the right person at the right place and time to enable informed care and treatment decisions
- Enable the Australian health sector to more effectively operate as an inter-connected system overcoming the current fragmentation and duplication of service delivery
- Provide consumers with electronic access to the information needed to better manage and control their personal health outcomes
- Enable multi-disciplinary teams to electronically communicate and exchange information and provide better coordinated health care across the continuum of care
- Provide consumers with confidence that their personal health information is managed in a secure, confidential and tightly controlled manner

[1] HI Service, Concept of Operations, NEHTA, January 2010

- Enable electronic access to appropriate health care services for consumers within remote, rural and disadvantaged communities
- Facilitate continuous improvement of the health system through more effective reporting and sharing of health outcome information
- Improve the quality, safety and efficiency of clinical practices by giving care providers better access to consumer health information, clinical evidence and clinical decision support tools
- Support more informed policy, investment and research decisions through access to timely, accurate and comprehensive reporting on Australian health care system activities and outcomes.

The HI Service is a fundamental building block to achieve this capability and, through the HI Service, identifiers for healthcare individuals, providers and organisations will realise the following:

- uniquely and consistently identify healthcare individuals at the point of care
- consistently associate health information with a healthcare individual within a healthcare context, including all electronic communications (such as discharge summaries and referrals)
- uniquely, accurately and consistently identify healthcare provider individuals and organisations, and the relationship between a healthcare provider individual and an organisation, by providing high assurance identification and authentication for providers:
- when accessing national e-health infrastructure
- in electronic communications between healthcare providers
- in electronic communications with healthcare individuals
- support the development and operation of healthcare provider directory services, to facilitate electronic communications within a healthcare context (such as discharge summaries and referrals)
- support the development and operation of a security and access framework that ensures the appropriate authorisation and authentication of healthcare providers to access national e-health infrastructure.

A foundation component of this is to deliver a consistent national healthcare identifier service for:

- recipients of healthcare services – the Individual Healthcare Identifier (IHI)
- individual providers of healthcare services – the Healthcare Provider Identifier-Individual (HPI-I)
- healthcare organisations – Healthcare Provider Identifier–Organisation (HPI-O).

The HI Service functions include:

- allocate IHIs, HPI-Is and HPI-Os
- enable authorised users to search and retrieve IHIs, HPI-Is and HPI-Os
- maintain data associated with IHIs, HPI-Is and HPI-Os
- enable authorised users to maintain selected data associated with HPI-Is and HPI-Os
- enable authorised users to publish selected data associated with providers
- facilitate the provision of digital certificates for accessing the HI Service and e-health communications
- retire IHIs, HPI-Is and HPI-Os.

It is anticipated that the IHI, HPI-I and HPI-O number and record will be used for a range of purposes within the health system, including:

- electronic authentication systems, such as the National Authentication Service for Health (NASH), will rely on the HI Service for identifying providers and organisations
- systems such as patient administration systems, electronic health records, radiology systems, pathology systems, pharmacy systems, GP systems, etc may use the healthcare identifiers for healthcare individuals and providers
- electronic forms of communication, such as pathology requests, pathology reports, prescriptions, repeat authorisations, referrals, etc may use the healthcare identifiers for healthcare individuals and providers within the communication.

2.3 Individual Healthcare Identifiers Status

There are three Record Statuses of an Individual Healthcare Identifier (IHI) record. The HI Service defines[2] the Statuses as follows,

A Verified IHI – when an IHI record is Verified it means that the person is a known customer of Medicare Australia or DVA or has provided evidence of identity information that has been recorded in the HI Service by the Service Operator to establish the identity of the Healthcare Individual.

An Unverified IHI – when an IHI record is Unverified it means that the identifier was created at a healthcare facility and the individual has not contacted the HI Service to verify the IHI by providing their evidence of identity. Unverified IHI records can be merged to another Unverified or Verified IHI record by the HI Service.

A Provisional IHI – when an IHI record is Provisional it means that the identifier was created at a healthcare facility when the individual was not able to, or not willing to, identify themselves. Provisional records are able to be promoted to an Unverified IHI record or merged with an existing (Unverified or Verified) IHI record via a healthcare facility or updated to a Verified IHI via the HI Service by providing evidence of identity.

There are five IHI Statuses of Individual Healthcare Identifier (IHI).

Active IHI – an IHI is considered Active in the HI Services when:

- it is either Verified, Unverified or Provisional
- it does not have a date of death
- age is not greater than 130 years
- it is not expired.

Deceased IHI – an IHI has a Status of Deceased when it is:

- either Verified, Unverified or Provisional
- there is a date of death present in the record
- has not yet been matched with Fact of Death Data (FoDD) from Births, Deaths and Marriages Registries
- has not yet reached 130 years
- is less then 90 days of no activity (for Provisional records only).

Retired IHI – an IHI has a Status of Retired when it is:

- Verified or Unverified
- there is a date of death present in the record and either
- has been matched with Fact of Death Data (FoDD) from Births, Deaths and Marriages Registries and has had no activity for 90 days or

[2] Healthcare Identifiers Service Information Guide IHI Searching Guide,DRAFT V0.3, Medicare Australia, 2010

- has reached an age of 130 years (Verified IHI records only)
- Expired – an IHI has a Status of Expired when it is either:
- Provisional and there has been no activity on the record for 90 days or
- Unverified and has reached an age of 130 years.

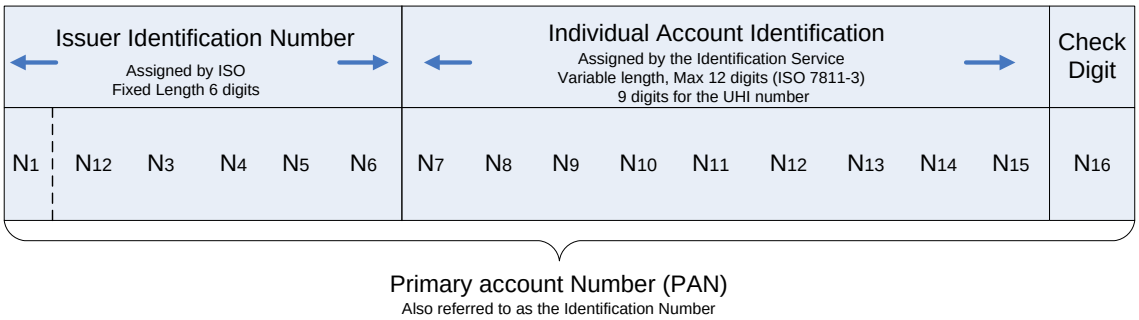
Resolved IHI – an IHI has a Status of Resolved when it is:

- either Verified, Unverified or Provisional
- linked with another record as part of resolving a Provisional record or resolving a duplicate record
- end dated as part of the replica resolution process.

2.4 Healthcare Identifier standards

The specifications of the Healthcare Identifiers are described in a policy document developed by NEHTA.[3] The IHI, HPI-I and HPI-O are unique 16 digit reference numbers that are designed to be machine and human readable and are intended for use on tokens, medical documents, patient wrist bands and other media as appropriate.

ISO 7812 Number (UHI number)



Each of the identifiers is made up of three components: issuer identification number, individual account identification number and the check digit.

- The issuer identification number is the first 6 digits of the identifier. This is a constant for each identifier as follows:
  - For all identifiers, the first 5 digits will be '80036'
  - The 6th digit (N6) will be

    '0' for an IHI
    '1' for an HPI-I; or
    '2' for an HPI-O
- The individual account identification number is the unique reference number
- The check digit will be calculated using all components of the issuer and individual identification numbers. The check digit is computed using the Luhn formula modulus 10 "double-adddouble" check digit [ISO7812].

A healthcare identifier number format for computer displays and printed outputs should read in the following way:

- visually rendered as four groups of four digits, for example:

8003 6012 0456 7891

[3] NEHTA Healthcare Identification HI Service Use of Issuer Identification Numbers Policy, Version 1.6 – 2010

3. Introduction to Best Practice Guide for IHI in the Health Service setting

This Best Practice Guide, for the adoption of the Individual Healthcare Identifier in the Victorian Health System, has been developed with assistance from health service staff who carry responsibility for the maintenance and use of patient identifiers in Victoria's Health*SMART* Hospitals. In addition, expert advice has been supplied by Department of Health, the Victorian GP Division, as well as non Health*SMART* Hospital IT management staff and Medicare HI operations staff. Local Health Service individuals have been brought together as advisors to the Victorian Department of Health and NEHTA Healthcare Identifier Early Adopter Pre- Implementation Project.

The Australian Commission on Safety and Quality in Health Care, Report of Review of Technology Solutions to Patient Misidentification, notes that patient identification errors are associated with harm, or the potential for harm, when incorrect information is used to link a particular individual to an action or activity. The report notes that patient identification errors can be characterised as being caused by:

- *The identity of the patient not being clearly established, such as when one patient is mistaken for another, and / or*
- *The nature of the intended care (including procedures / treatments / medications) is not clearly established, which may result in the correct procedures / treatments /medication not being applied to the correct patient.*

For these errors to be minimised:

- *Every patient must be uniquely identified in an unambiguous manner.*
- *This identification must be maintained consistently throughout the period of care.*
- *Each procedure / treatment / medication must be uniquely identified in an unambiguous manner.*
- *This identification must be explicitly tied to all requests, medications, procedures, devices, etc applied to the patient.* [4]

Introduction of a patient identifier into a clinical setting must therefore be approached with caution, precision and planning. This guide hopes to provide useful advice towards best practice use of the Individual Healthcare Identifier.

[4] Australian Commission on Safety and Quality in Health Care, *Technology Solutions to Patient Misidentification*, Report of Review, 2008

3.1 Best Practice Principles

In order to prevent misidentification or missing Healthcare Identifiers for all Victorian public health patients, the joint NEHTA and Victorian Department of Health IHI Pre-implementation Project has agreed on the following principles of best practice.

3.1.1 Practice Principles

The following overarching Practice Principles apply to the use of the IHI in a health service setting:

- The provision of healthcare services is not dependent on a healthcare individual having or disclosing their IHI number
- Legislation, including the Healthcare Identifiers Act 2010, and supporting regulations govern the use of Individual Healthcare Identifiers. In addition relevant legislation, especially the Health Records Act, and the Victorian and Federal Privacy Acts, must be complied with
    - It is especially important that health services and their staff comply with the permitted uses of the IHI, thereby avoiding all forms of inappropriate use[5]
- Each Healthcare organisation (HPI-O) registered with the HI Service must explicitly declare its level of compliance with IHI standards and processes. A fully compliant organisation is one that can be trusted as a source of e-health messages and related information.
- Each Healthcare system incorporating Healthcare Identifiers must comply with the Compliance, Conformance and Assessment (CCA) criteria devised by NEHTA.[6]
- In HealthSMART health services, the PAS will be the primary location of the IHI. A health service will use a single master application (PAS) for allocating a patient identifier and associated patient details. The same application will be used to perform relevant administrative processes such as merges, etc. The master application will broadcast patient details, via HL7, to applications that require this information to be synchronised.
    - This approach is also recommended for consideration by non-HealthSMART health services.

3.1.2 Business Requirements

The following Business Requirements apply to the use of IHI in a health service setting:

- The IHI should be acquired for each patient at registration and/or close to, or before, presentation. This requirement includes at time of referral for service.
- The IHI will be used as a secondary patient key, in conjunction with the local UR number.
- Systems will accurately display the IHI in association with other patient identifying information.
- Systems will support the retrieval and storage of the IHI with limited human intervention required:
    - Where possible the PAS will automatically request the IHI from the HI Service when the mandatory IHI search data has been completed.
    - Wherever possible the IHI will be transmitted electronically to and from the PAS system.
    - Wherever electronic transmission is not possible a ‘cut and paste’ function should be available.

[5] Section 26 of the Healthcare Identifiers Act 2010.

[6] The NEHTA CCA requirements ensure that the vendor’s system demonstrates proper behaviour in its use of healthcare identifiers. Proper behaviour refers to the manner in which applications acquire, use, and manage healthcare identifier information as this can affect clinical safety, information security and privacy risks and improper behaviour may undermine the integrity and benefits of the HI Service. NEHTA HI Service Roadmap Oct 2010. CCA-26-02-012 V6.0.

    - Where manual data entry is permitted by local policy, then a check digit function must be employed and the system will immediately compare/check the number with the HI Service.
- Where the automated retrieval of an IHI takes longer than 5 seconds to return, it will generally be routed for later resolution, so as not to interrupt the workflow at the front office. Override or configuration functions will exist for local health service choice.
- The IHI, correctly displayed, will be included on all patient identification outputs, such as wristbands, labels, documents, reports, letters, referrals, discharges, orders, etc.
- Wherever possible the IHI will be reproduced in bar code or electronically readable format on outputs.
- A Verified IHI is preferred for all patients that meet the requirements (i.e. patients entitled to Medicare/DVA funded services or those who have provided proof of identity to Medicare Australia).
- Unverified IHI and Provisional IHI will be used ONLY in qualifying circumstances and according to national, state and local policy.
- The IHI and associated Statuses will be retrieved or checked against the HI Service:
    - on registration, presentation and/or update to demographic details
    - on in-coming referral (Including where an IHI is included), and
    - on all outbound clinical information exchanges including the IHI.
- Systems will support data quality improvement by using the IHI assigned to local records to identify potential duplicate records in the PAS or HI Service databases.
- Systems will be accredited to use Healthcare Identifiers by NEHTA Compliance, Conformance and Assessment process and have fulfilled Medicare Australia's Notice of Integration (NOI) process.
- Where feasible Systems should support the following standards:
    - the Australian Standard for Health Care Client Identification (AS 5017 – 2006)
    - the Australian Standard for Health Care Provider Identification (AS 4846 – 2006)
    - the Australian Health Care Client and Provider Identification Handbook
    - AS 4590 Interchange of Client Information, and
    - the National Health Data Dictionary.
- Individual health services will determine their preferred approach to implementing the IHI, including whether an initial data load will be conducted, or whether the IHI will be implemented in stages and over what timeframes. Health services may also choose to implement the IHI Record Status in stages, eg Verified IHI only followed by Unverified IHI and Provisional IHI at later stages.

3.1.3 Assumptions

The following assumptions have been made regarding the use of IHIs in the Victorian Health Sector:

- When health services decide to begin the IHI adoption process, they will undertake to adhere to all compliance requirements and best practice recommendations.
- Medicare Australia has not at this point agreed to implement a Service Request function, however the expectation is that this facility will become available in the future.
- Medicare Australia and NEHTA are considering Address format changes for Searching IHIs or Requesting or Updating Unverified IHIs or Provisional IHIs. The expectation is that these changes will be approved and therefore the current PAS systems will be able to use these functions.
- NEHTA will issue updated Clinical Safety Reviews for each HI Service Release which will need to be considered by jurisdictions and health services at the time of adopting the IHI.

3.1.4 Exclusions

Medicare Australia will offer alternative mechanisms of support for the HI Service through telephone assistance from a Medicare Service Officer (MSO) or web link through HPOS. The functions related to these mechanisms are not explicitly considered in this guide.

3.1.5 Recommendations

The following recommendations have been made regarding the use of IHIs in the Victorian Health Sector:

- The use of Provisional IHIs is not recommended initially. Only when the IHI becomes a primary patient identifier within the local system, or when the IHI becomes a mandatory data element within an e-health message should Provisional IHIs be adopted. Prior to this a local URN should be employed.
- The use of Unverified IHIs is not recommended. Unverified IHIs represent significant risk as they are currently configured to allow any health service to update any demographic data. Unverified IHIs should only be adopted in circumstances where an individual patient/client does not qualify for a Verified IHI and if the IHI is the primary patient identifier within the local system, or when the IHI becomes a mandatory data element within an e-health message.
- Where health services decide to use Unverified or Provisional IHIs it is recommended that:
    - Individuals are given written confirmation of their IHI number and the demographic details used to register them for the Unverified or Provisional IHI.
    - Any update to Unverified or Provisional IHI records received via Referral also results in a Referral Update message to the referrer including updated demographics for the patient/client.
- IHI implementation will occur over time, allowing for the gradual uptake of IHIs during a transition period. During transition an IHI will not be required against all patient records, and Verified IHIs may be the initial focus. At steady state the IHI should be obtained for all current patients and it is assumed ‘external systems’ can be trusted sources of IHI data exchange.
- Background processing of IHI requests is recommended during the transition period (users would not be required to wait for the IHI to be returned before they could proceed to their next task). At steady state, increased reliance on previously retrieved IHIs will reduce the need to obtain or check an IHI at presentation. The volume of searches for IHI is expected to be lower. Obtaining an IHI is expected to operate within acceptable timeframes for front office processing (eg as for current Medicare Card check processing).

3.2 Audit Requirements

To maintain privacy and confidentiality, it is a requirement that the electronic record systems only permit those who have a genuine ‘need to know’ to access a patient’s information. Anyone who has access to search and retrieve information from the HI Service must be ‘approved’ to do so and must have a business reason for any access.

The following assumptions are made in regard to system/health service features which will guard against breaching patient privacy:

1. The Organisation (health service) has policies and procedures which support privacy and security.
2. The Organisation has instituted, and enforces, security access to the HI Service and related data according to the legislative and regulatory requirements. For B2B it is sufficient to provide the user’s name in the message.

a. Based upon this a user who is given access to the PAS must be deemed to have their access to the HI Service approved, at least for IHI access.

3. The local system has role based access controls, to a suitable level of granularity, such as view, read only or edit capabilities.[7]
4. The local system includes a full audit trail of all actions against a patient record.
5. The Organisation has ensured that local systems and practices comply with NEHTA Security and Access Framework standards.

The Healthcare Identifiers Act 2010 and associated Regulations require Health services, through their PAS/Clinical applications, to maintain full audit trails of who accesses an IHI via the HI Service.

Access to the HI Service is restricted to registered Healthcare Provider Organisations and Individual Providers with a HPI-O and/or HPI-I, or an Authorised User. HI Authorised Users are not Healthcare Provider Individuals and are not entitled to an HPI-I number or record. All health service staff without an HPI-I who have access to the HI Service via internal systems storing the IHI, are to be identified as authorised organisational users, and notification provided to the HI Service operator, within the B2B message.

Compliance and conformance requirements include the system's ability to support the inclusion of the individual Authorised Employee's identifying details in all transactions with the HI Service. Identifying details may be:

1. Full Name, or
2. HPI-I, or
3. The employee's Local Identifier.

Healthcare organisations, which do not transmit 1 or 2 above, are further required to keep a retrievable record of each person who accessed a healthcare identifier from the HI Service via the audit processes of the software used. A Health service must keep these records for seven years starting on the day after the person ceased to be authorised.

These requirements are consistent with:

- Clause 8.1 of the Healthcare Identifiers Regulations 2010, which requires keeping a retrievable record of the person who is authorised by the healthcare provider to access healthcare identifiers.
- The HI Technical Services Catalogue, which requires healthcare providers to keep a log of HI Service transactions with user identification.

All HI Service transactions are recorded in Audit Log Journal entries by the HI Service Operator. Organisations are required to log HI Service transactions to facilitate the positive identification of authorised individuals originating HI Service requests. All systems initiating HI Service B2B contact should maintain appropriate Audit logs of all IHI related actions including user id, time, date and action undertaken against a patient record – including viewing.

[7] The role of NEHTA's Security and Access Framework si to address items such as this.

3.3 Change Management approaches

3.3.1 Transition to Steady State

In keeping with an industry best practice approach to any large scale implementation, IHI adoption will occur over a number of phases, the precise nature of which will be determined by each health service. The initial phase is a 'preparation/data cleansing' phase pre implementation, followed by a 'transition state' during which the uptake of IHI will gradually increase to full coverage (at least for active patients), through to the 'steady state' of business as usual.

Uptake of the IHI

A staged approach to adoption of the IHI provides structure to the implementation process and early phases will assist in refining subsequent phases, and consequently make the overall process more effective.

Much of the design work for IHI uptake has needed to address exception handling and processing of IHIs for a small proportion of patient/clients, that is people who may require Unverified or Provisional IHIs.

Changed Status of an IHI record from Active to Retired/Expired/Deceased, or Resolved occurs in addition to the three possible IHI Record Statuses, further increasing complexity.

In a phased approach to adoption of IHIs, health services may firstly concentrate on using Verified Active IHIs and develop mechanisms for processing changed Status for Retired/Deceased or Resolved. A phased approach is possible during transition, as the current URN is a reliable internal mechanism for patient identification. Health services currently have mechanisms for identifying anonymous patients, overseas patients and emergency patients, where the local URN can be employed.

Phasing the IHI adoption as above enables a planned approach to the development of application changes to support IHIs and to organisational change management, including user training. This approach is likely to enable an earlier start to IHI adoption.

The use of Verified Active IHIs on external clinical information exchanges would also help to develop trust in the IHI across the sector, and encourage uptake.

Over time, as current patients in the PAS have Verified Active IHIs allocated, the health service may introduce Unverified and Provisional IHIs. Receiving Unverified and/or Provisional IHIs from external systems however may still be required initially, however this is expected to be of low volume for most health services. All referrals, discharge summaries and orders (external system communications) will require the inclusion of the IHI where it is available.

IHI Management

It is anticipated that a gradual shift in emphasis from initial back office preparation (data cleansing) and resolution (exception handling) to front office data capture and IHI checking will occur over time. This process is represented in the following:

1. Preparation. Front office acquire Medicare number and correct details and back office data cleansing.
2. Adoption – Initial IHI load. Back office function for initial data load.
3. Adoption – Internal use of IHI. Front office for confirmation or data acquisition if an IHI has not been obtained previously. Back office for problem management.
4. Adoption – IHI take up in the sector. Intake manager and/or administration staff for referral processing including IHIs. Back office for problem resolution.
5. Business as Usual. As for 3 and 4, but increased use of the IHI within the health service.

3.3.2 Characteristics of the Transition state

The following bulleted characteristics are meant as a high level indication of the nature of activity during the transition phase.

Note that where a Health service chooses to implement Unverified and Provisional IHIs during the Transition phase then all references to these in Steady State description, should be applied to Transition.

Preparation and preloading

- Data cleansing and quality data capture ensuring accurate demographics with Medicare/DVA card captured against current patients.
- Bulk upload of IHIs on commencement achieves 50+% of all PAS entries for a Verified IHI, and potentially 80+% of all current patients/clients (previous 2 years, or booked or receiving service from the health service currently).
- Batch retrieval and checking of IHIs for selected groups (eg waiting list or appointment entries or designated patients within funding streams/programs such as HARP).

Registration

- All IHI recording will be via electronic medium only (only exception is HIM exception management – Edit function). The system will prevent all manual entry of IHI data by front office users. IHI fields should be read only for most users.
- Automated IHI retrieval/checks with HI Service are preformed against every presentation (system exception for those checked within previous defined period).
- Any delays in retrieval of IHI from the HI Service will not interrupt front office workflows, background processing will continue/complete retrievals.
- Patient records will be able to be retrieved from the PAS by searching with an IHI in association with other demographic data.

Patient Information

- The IHI will be assigned and displayed at all patient/client record identification points – i.e. electronic record patient banner, wrist band and labels, etc. Record Status and Status should be included.
- All clinical data exchange for the patient (electronic/hard copy order/referral/discharge/EHR) will include IHI number, Record Status and Status and patient demographics matched to the IHI (e.g. Name, DoB, and Gender minimum)
- All patient/client related hard copy outputs will include the IHI number, Record Status and Status, correctly displayed when available. Where possible a bar code format for display of the IHI will be used.
- A history of IHI changes and date of any changes will be retained in the patient record.

Clinical data exchange – referral, discharge, electronic health records

- A referral including an IHI will not be stored against the patient record until a system check of patient data against the HI service returns the identical IHI number. If variations occur between the referral IHI and a retrieved IHI the system will enact rules of acceptance, otherwise exceptions are raised which need to be managed by back office staff such as HIMs.
- Preference may be given to exchanging Verified Active IHI data only.
- Acceptance of a Provisional IHI (incoming referral) will be based on continuing circumstances of unidentifiable patient and full recognition of the responsibilities for managing the Provisional IHI once the individual has been identified. Resolution of a Provisional IHI to an Unverified or Verified IHI is required within 90 days before the number

is Expired by HI Service. Notification via Referral Update to referring health services should be made immediately upon resolution of the identity of the individual and obtaining a Verified or Unverified IHI.

Patient Record Maintenance

- The system will allow patient/client IHI record maintenance through the ability to run automated parameterised IHI checks for records within the PAS. Local hospitals will have the ability to choose the parameters and operational characteristics of these checks.
- The system will aggregate IHI retrieval requests for bulk searching, according to schedules adopted by local health services (daily, second daily, weekly, etc), for processing of groups of patients/clients, such as waiting lists or appointments.
- The system will trigger automated retrieval of IHI data for records upon specified demographic data completion/update.
- The system will provide a warning of possible duplicate records based on IHI and other demographic data.
- The system will be able to determine an acceptable IHI, based on a provided Status hierarchy, and will assign it automatically to the patient record.
- The system will allow for manual initiation of selected functions, for example Obtain IHI or Check IHI or Request Unverified IHI at user presentation.
- The system will allow for read only and electronic fill only properties to IHI fields.
- The system will allow for local selection of reporting and patient identification outputs for IHI data, via system configuration settings.
- The system will make available and correctly display all IHI data for HL7 messaging and printed output.
- The system will allow for bar coded and numerical display conforming to the IHI standard display.[8]
- The system will provide a merge function for patient records which includes resolution of conflicting and/ or duplicate IHI data.

3.3.3 Characteristics of 'Steady State'

The following bulleted characteristics are meant as a high level indication of the nature of activity during the steady state phase.

Registration

- Current patient/client records will contain an IHI.
- A minimal number of patient/client records will contain an Unverified IHI and ONLY those patients/clients meeting strict criteria.
- Patient records will be able to be retrieved from the PAS by searching with an IHI and other demographic data. Unique returns should exist with sub folders or linked records identified (i.e. all duplicates are known).
- New patient/client registrations will receive an IHI via an automated search activated by completion of search criteria fields.
- New IHI search requests will be infrequent and potentially therefore returned in real time from the IHI service (<5 secs) populating to the patient/ client record. The expected volume

[8] Specification for a Standards Patient Identification Band, Australian Commission for Safety and Quality in Health Care, Email: mail@safetyandquality.gov.auwww.safetyandquality.gov.au.

of searching the HI Service is much reduced as most patient/client records will contain a Verified IHI and referrals will be received with Trusted IHI information.

- Patient/clients may have tokens which can be swiped or electronically read for IHI retrieval/checking, eg a card with magnetic strip or letter confirming details (with bar coded IHI).
- A Health service may wish at some point to replace the local UR Number with the IHI.
- Requests for Unverified IHIs will be controlled and issued only where a patient/client meets the following criteria and according to local policy:
    - Not eligible for Medicare Australia or DVA funded medical services, and has not presented evidence of identity at Medicare thereby qualifying for a Verified IHI.
    - Patient request anonymity (subject to local policy).
    - Newborns.
    - Health service identifies upgrades of Provisional IHI to Unverified IHI.
- Where a patient is allocated an Unverified (or Provisional) IHI they will be provided with a letter or token that includes their registration demographic information and the IHI details.
- The use of Provisional IHIs will be controlled and only where a patient/client is unconscious and/or unable to provide other identifying details. Local policy will determine the use of Provisional IHIs.
- Where a Provisional IHI is used in the transfer of a patient the receiving health service has an obligation to send an update to the referral to the originating referral service for any upgrade of the IHI for that patient.

Patient information

- Patient/client information within the PAS and clinical systems and on outputs (in all media) will include the IHI (when available) appropriately displayed.

Clinical data exchange

- Electronic referrals containing an IHI will be accepted upon indication of organisation/system compliance status as a trusted source (certificate check) without re-checking the IHI. Referrals from non-compliant organisations/system will require that the IHI be checked prior to updating the patient record.
- Incoming referral information will include predominantly Active Verified IHI and the supporting demographic information, which will equate/match to the locally stored IHI for that patient, or an accurate match to the HI Service record (for a new patient).
- Incoming referral information will include Unverified or Provisional IHIs for a very small percentage of patients/clients.
- IHI checks will be automatically performed for incoming referral and matched IHI records in the PAS. Where a conflicting IHI is returned by the HI Service and this is validated a referral update message will be automatically generated to the referrer. Only the latest IHI will be recorded within the PAS, though the IHI included in the original referral remains associated with that referral.
- When a health service identifies a patient/client IHI with an open referral (current episode by referral), a Referral Update will be sent to the referrer, with the relevant IHI for the patient/client included.
- Less manual processing is expected through reduced incidence of exceptions on Obtain or Check IHI.
- All Unverified and Provisional IHIs will trigger an IHI check prior to exchange.
- The system will warn the user making an electronic referral where a Verified IHI is not available within the system. The user will be prompted to search for or update an IHI.

Patient Record Maintenance

- IHIs in patient/client records will be checked and updated automatically according to a schedule established by the health service (daily, second daily, weekly etc) according to local policy.
- The system will generate reports of possible duplicates based on IHI matched data within the PAS.
- The system will allow for flexible report creation by users, with IHI information as parameters.
- The local health service may wish to transition to using the IHI as the primary key for patient identification.

3.3.4 Change Management Considerations

Health services should implement a business change project to ensure that IHI allocation is used appropriately. This should include:

- review and amendment of business processes for registration and patient identification
- drafting of new policies
- staff awareness communication campaign, explaining how Data Quality incidents impact all data users
- staff training, including regular reviews of staff skills and maintenance of a skills log
- strengthening of back office procedures to detect and resolve issues
- regular audit activities and monitoring use of the IHI at the point of care.

Health services should consider the impact on their service, staff, and business processes, and decide the best implementation plan to suit their circumstances.

Things to consider may include the following.

- Training
    - Are front-office staff trained in the use of the IM&T system and the IHI data?
    - Are the correct check-lists/practices in place to enable staff to correctly identify the patient?
    - Is there sufficient time in the interaction between the front office staff and the patient to correctly identify the patient?
    - Do front office staff have the time and system functionality to be sure the required record does not exist?
    - Are front office staff aware of the consequences of creating duplicates or proliferating Unverified IHIs where a Verified IHI should be found for the patient?
    - Are back office staff trained in best practice on how to effectively search for information and interact with the HI Service?
    - Are staff aware of their responsibilities with respect to the IHI, and potential penalties?
- Data Quality
    - Has the health service undertaken a rigorous exercise pre-implementation to ensure data quality on key HI search fields? For example, Medicare/DVA card coverage, accurate Name, DOB, Gender, address details captured with each presentation.

- Are there adequate processes in place to resolve data quality issues resulting from the allocation of an IHI?
- Are back office staff aware of the Medicare Service Office and channels of assistance in order to work effectively with them to resolve local and national data quality issues?
- Do referral/intake staff know how to interact with the HI service, as in the above point, for resolution of IHI issues?
- Has consideration been given to prioritising certain exception resolutions over others for instance some may be more important, whist others may be optional, according to local policy?

- Activity and Service Users:
  - How busy are the health service registration points (e.g. allocation of IHI may be appropriate for walk in centres but not immediately achievable in A&E)?
  - Is the organisation promoting the importance of the IHI to patients and the importance of supplying consistent demographic details when presenting to the health service?
  - What percentage of intake/admission happens with a referral? Will referrals include an IHI in the future and can it be trusted?
  - Are referrals received electronically and do they come to a central inbox, or number of inboxes? How will they be handled to accommodate checking of IHI upon receipt?

3.3.5 IHI to support e-health messages

The intent is that Healthcare Identifiers will be used to uniquely identify Individuals, Providers and Organisations within secure eHealth transactions such as electronic referrals, discharge summaries, health summaries and prescriptions.

NEHTA has published specifications and processes for standardising electronic data exchange, so that users of systems can safely and efficiently communicate with as wide a variety of other systems as possible.

A system must demonstrate the use of these identifiers in all referral, health summary and electronic transfer of prescription (ETP) transactions (as relevant) to be compliant. The National specifications for secure message delivery have been completed and a technical specification is available through Standards Australia[9]. The secure messaging capability may be provided as a direct extension to a primary care clinical/PAS system, or indirectly via a separate messaging system. The product(s) must have the capability to both send and receive messages. The desired outcome is to enable end-to-end technical interoperability between all products which correctly implement the secure messaging specifications.

The technical details of including the IHI in eHealth messaging are not considered here, however there is an expectation that the system compiling the eHealth message will automatically include the IHI and other required information.

Where relevant the application should provide the capability to send and receive messages as per the following specifications:

- E-Referral Technical Service Specification v1.0 [REF-TSS2010]
- Electronic Medication Management – ETP Endpoint Specification Release 1.1 [ETP-EPS2010]
- E-Discharge Summary Technical Service Specification v1.0 [DS-TSS2010]

Accurate patient identification via IHI, IHI Record Status, IHI Status and patient demographic information is required in the eHealth message for matching with current PAS/Clinical system records or creating new patient/client records to occur. It is the health service's responsibility to provide accurate and current information on referral/exchange of patient/client clinical data, and therefore checking the IHI with the HI Service prior to sending any eHealth messaging is recommended.

[9] http://infostore.saiglobal.com/store/portal.aspx?portal=Informatics.

4. Policies and Procedures Updates

As health services move towards implementation of the Individual Healthcare Identifier, they will also develop local policies and procedures to support sustainable and appropriate use of this identifier. Many of the Business Requirements stated in this guide point to practice changes expected at the local Health Service level.

Health services should implement a business change project to ensure the IHI allocation is used appropriately. This should include:

- review and amendment of business processes
- drafting of new policies and staff awareness communication campaign
- staff training, including regular reviews of staff skills and maintenance of a skills log
- strengthening of back office procedures to detect and resolve issues
- regular audit of activities and monitoring of use of IHI at the point of care.

4.1 Business Requirements

When framing new policies and procedures health services are encouraged to consider the human impact Business Requirements identified in section 3.1.2 above.,

Changed business processes should be supported by relevant policies and updated procedure manuals for staff expected to carry out these processes.

As improved patient safety and quality care is the intent of the Individual Healthcare Identifier, health services' Quality and Safety Committees or responsible individuals, are expected to lead and coordinate necessary policy and procedure changes.

The Victorian Pre-Implementation IHI Project has conducted a review of the clinical risk impact of the IHI introduction. This review has made an assessment informed by the NEHTA Risk Hazard findings for the HI Release 1 (Dec 2009). The Victorian project's review and the NEHTA Release 1 Hazard Review are referenced here and should be considered when adopting the IHI.[10]

Depending on when an implementation occurs at the local level, additional risks, hazards and controls associated with the IHI may have been identified with future HI Service Releases (current HI Release is 3b at Dec 2010) NEHTA will provide a briefing to each jurisdiction's public health authority responsible for Quality and Safety, regarding their latest HI Clinical Risk Assessment findings.

A summary of human behaviour controls for identified hazards in the Victorian review is include here and should be used as a guide for the development of health service policies and procedures. Additional 'system' controls have also been advised and the full report [11] should be used as a guide for local risk assessment.

Organisation Level Controls

- Update Organisation policies and procedures to reflect best practice and compliance requirements for handling IHI.
- Ensure all staff responsible for acquiring, maintaining and using the IHI are appropriately trained, and are aware of their responsibilities under the various Acts (eg the Health Records Act, the HealthCare Identifier's Act 2010).
- Provide comprehensive business change management support to ensure best practice adoption and use of the IHI.
- Adoption of IHI best practice and compliance requirements should be included in Health Service Accreditation standards.

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[10] Vic IHI Pre-Implementation IHI Risk Assessment Report, Nov 2010 and NEHTA Hazard Assessment Report – Health Identifiers Release 1, v 1.0 February 2010.

[11] Vic IHI Pre-Implementation IHI Risk Assessment Report, Nov 2010

- Health services' Quality Assurance systems should ensure use of applications complying with CCA requirements.
- Mandatory elements of the NEHTA Security and Access Framework, including protection of IT systems and data are adopted.
- Responsible Officer (RO) and Organisational Maintenance Role (OMR) responsibilities are allocated and maintained within the organisation. HI Service user access is appropriately recorded and maintained.
- All hospital staff without an HPI-I who have access to internal systems storing the IHI are to be identified as authorised organisational users, and notification provided to the HI Service operator.
- Organisational PKI certificates, used for HI Service access are to be maintained in good order at all times.
- Organisation policies and procedures ensure user access is defined by role.
- Organisations ensure that users can operate independently of remote system response times. Business continuity plans are enacted in worst case scenarios.
- Organisations report apparent missed HI Service SLA's to the HI Service governance body.
- Organisations perform comprehensive testing prior to implementation to ensure accuracy.
- Any potential conflict or question about the allocation of an IHI will be brought to the user's attention, and the user will make the final decision (i.e. no system only driven decision).

The following Hazards were examined by the Victorian project and the associated User level Controls were recommended.

HAZARD: H001 Misidentification of Patient IHI:

User Level:

- The user will search for and identify patients using both IHI and demographic details in combination for the period of transition, in order to ensure the selection of a correct patient record.
- Local policies and processes for registering patients, including IHI capture will include best practice data capture and validation rules.
- Front office user best practice will include asking patients for details on their Medicare/DVA number whilst updating demographics.
- Processes to resolve the situation in which the IHI should be available (for example, for a patient who is eligible for either Medicare or DVA funded services) are reflected in this document, the Best Practice Guide.
- If an IHI is not returned for a Medicare/ DVA eligible patient the IHI field will remain blank until further information is available from the patient.
- For the PCEHR:
    - The user will be required to establish evidence of identity ensuring correct allocation of Verified IHI.
    - The patient will be required to actively provide the health service with access to their PCEHR, requiring correct identification of the patient.
- Where a record is flagged for IHI resolution and is resolved during admission, patient identification outputs should be updated with correct IHI.
- Back office functions exist to manually resolve identified duplicate records, such as records with the same IHI allocated.
- Back office functions exist to merge and unmerge whole or part of patient records.

HAZARD: H002 Inability to identify patient by IHI in clinical care setting.

User level:

- The user will identify the patient IHI as soon as possible upon registration to ensure use on all patient identification outputs.
- The User will never rely solely on the IHI for patient identification in a clinical setting.
- In the event of a missing (or altered Status) Verified or Unverified (active) IHI for Referral or Discharge, the IHI field should remain blank.
- In the event of the use of a Provisional IHI in referral, the receiving health service is expected to return a Referral Update message with accurate IHI when patient details are determined. Health services should update patient details appropriately upon receipt of referral updates.
- Local system will perform check of IHI on referrals and comparison with PAS held records however users will perform manual alignment of data prior to acceptance.
- Healthcare services will ensure best practice standards are trained and adhered to in the use IHI for patient identification in all exchanges with external systems.

HAZARD: H003 Privacy of patient information is breached.

User level:

- Role based access exists to patient registration and all HI functions.
- All messages incorporating the IHI transmitted over the Internet to be signed and encrypted.
- Education and training of PAS users and other health service staff with respect to their security responsibilities is conducted.
- Periodic internal (and external) security and access audits are required, to ensure privacy and information security compliance is maintained.

HAZARD: H004 Whole or part of the system is unavailable or access is inappropriately denied.

User level:

- Revert to manual processes on extended non-availability of the HI Service. Business Continuity plans are enacted.
- Report apparent missed HI Service SLA’s to governance body.

4.2 Data Quality Guidelines for Best Practice

The following is a guide[12] to best practice principles regarding data quality in Health Services. This list is not exhaustive and should be added to reflect local policy and procedures:

- Patient demographic information should be checked for accuracy at each patient contact (e.g. admission, visit, interchange between wards/specialists/outpatient clinics and in theatres before surgery).This will ensure patient data is maintained and is as accurate as possible.
- All individual department clinical systems should, where possible, use the PAS as the master patient index which should hold the most up to date patient demographic information.
- Printed labels and patient ID bands should be printed with information from the PAS, once the information has been confirmed.
- Patient demographic information should be checked at the beginning of each attendance and at the beginning and end of each hospital episode, to ensure information flows contain accurate and up to date patient demographic information from admission to discharge.
- Entries held on the PAS system should be used as the master information and should be updated with any changes, such as change of address, change of name, etc.
- Any changes to patient demographics should be reflected on the patient notes to highlight the new information for the patient, and historical data maintained. All unused printed labels containing incorrect information should be disposed of and new patient labels printed.
- Organisations should have written policies and processes in place which address minimum data standards for records, labels, wristbands, attendance, admission and discharge processes and data quality audits and review.
- Regular data quality meetings should be held across the local health service/community to address issues as they arise and collaborative action plans made to address these.
- HI Service tracing (IHI Check) should be conducted on a weekly basis against active records (at a minimum) and where possible this should be more frequent to ensure the information which is held and used is correct and up to date (The HI Service does not currently broadcast changes to an IHI).
- Where the IHI is not known at admission/attendance this should be located as quickly as possible.
- All staff should receive data quality training prior to commencing work within the health service, training updates should be provided and a record of attendance kept.

[12] Adapted from the NHS Number Programme Implementation Guidance, v 1.0, Dec 2008, NHS Connecting for Health.

5. Business Processes for IHI Adoption

5.1 Business Processes

A number of common Business Processes have been identified for the handling of IHIs in the public health service setting. This section considers those business processes involving the patient/client registration flows and information exchange.

The Functional Design for IHI integration includes the following list of the high level Business Processes. Within each Business Process specific Use Cases, eg Search for IHI, are employed. All Business Processes sequence a number of common Use Cases. Reference should be made to the Functional Design Use Case for complete details.

ID	Name
BP1	Patient Registration from a Referral
BP6	Patient Flow
BP2	Unreferred Patient Presentation
BP4	Patient Death Registration
BP7	Create Referral
BP8	Resolve Duplicate Patient Records
BP9	Perform Batch Process
BP10	Resolve IHI Exception
BP11	Attend Appointment/Treatment

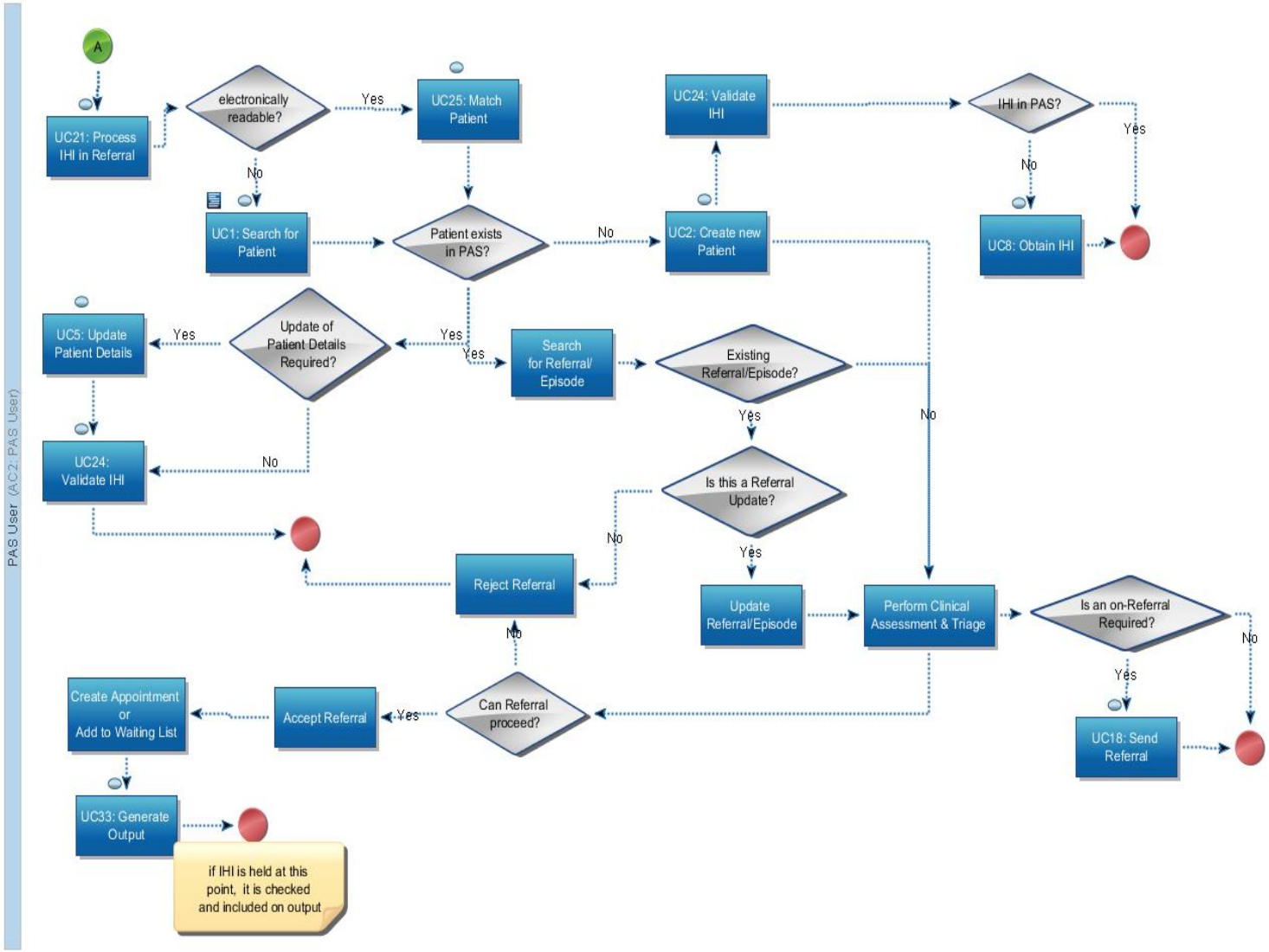
The Business Processes referenced in this document reflect 'typical business flows' in terms of a patient being referred to a health service, presenting for care, the handling of a patient's information internally, through to passing patient information to downstream systems for orders, referrals and eventual discharge.

The overarching Business Processes include

- Patient Registration from a Referral
- Patient Flow (Presentation)
- Unreferred Patient Presentation, and
- Attend Appointment/treatment.

The additional flows (listed above) are sub-processes in each of these major patient pathways.

5.2 Patient Registration from a Referral



The Registration from a Referral business process concentrates on the activity following receipt of a referral prior to patient presentation. This process can be broken down into various stages of activity, as reflected in the diagram above. This scenario concentrates only on the relevant Healthcare Identifier capture within referral received process and not the referral content/request processing.

Step 1: Referral Received

A health service receives a Referral for a service performed at that health service via document, fax or electronic communication. The Referral is assumed to include an IHI.

If the referral is electronic, then an automated acknowledgement message will be returned to the sender with no more detail than acknowledging receipt of the referral message.

Initially a review of the referral is conducted to ensure the services requested are delivered by the health service and an acceptance or rejection, or triaging of the referral may be initiated.

At the point of processing the referral, the system will perform a check of the IHI in the referral against the HI Service prior to any further handling. The aim is to ensure that the information in the referral is accurate and that the latest IHI is available for the referred individual. The Record Status or Status of an IHI can change, therefore a check is required on each referral received (at least during the transition to steady state phase of implementation). An external system may also not have adopted a policy of checking the IHI prior to referral. Also as there is no 'guarantee' of the source or transposition of the IHI captured in another system, the IHI number may not be a correct match to the individual. A referral IHI from an external system is not automatically accepted by the PAS system.

This business rule of checking Referral IHIs will stand as long as the external systems delivering an IHI remain untrusted. A trusted eReferral would originate from an organisation and application that adheres to the same business rules and has demonstrated compliance with HI Service and NEHTA Conformation and Compliance Assessment, as well as this Best Practice Guide. Trusted eReferral deliveries, including the IHI are expected over time. In the meantime, checks will be enacted to ensure accuracy.

If a variation occurs at this point, or the check IHI fails against the referral information the (new) information will be retained against the referral and sent back to the referrer in a Referral Update message.

Step 2: Matching Referral with local Record

If the referral is electronically readable the system will automatically attempt a match of the patient with a PAS records. The Referral demographic and IHI data is searched against the PAS records for a potential current patient/client record match. If the referral is not electronic then the user will search for a match manually, using the application search function that is enhanced to include IHI and/or other demographics. The usual mechanism the PAS application has for storing/linking a referral to a matched PAS patient record will be enacted.

Where a PAS record with an IHI is matched:

If the referral IHI matches perfectly with an IHI held in the PAS and other demographic details are considered to match, then the referral will be assumed to belong to the record in the PAS.

- Should demographic details included in the referral vary from the returned match in the PAS, but are judged to be accurate, then the user may update the PAS record with the referral details. Update of details should always be confirmed with the patient and may need to await presentation.

  [There are also restrictions recommended on updating patient demographics according to the type of Record Status of the IHI. (see Section 6.8 Update discussion). Training of users in the types of updates accepted by the HI Service will be expected, as well as training in the impact and importance of stability in Verified IHI record demographic details. The system will warn of changes to a patient record where fields are mandatory in IHI searches, and will prevent the saving of details where the HI service business rules will be violated.]

Where a PAS record without an IHI is matched:

Where demographic details are returned within a matched PAS record without an IHI, an automated 'Obtain IHI' task is enacted by the system to search and retrieve an IHI **for the PAS record**.

Where no PAS record matched (i.e. create new):

Where a New Patient Registration is initiated the system will use the demographic details and a confirmed IHI (note Referral IHI recently checked) from the referral to populate a new patient registration.

If a referral includes a hard copy or email document including IHI, the recommended process would be for the user to create a new registration from the demographics supplied and then obtain the IHI from the HI service, Note this may only be possible if sufficient details are supplied, including the Medicare number.

- Where insufficient patient demographic data is included, and where supported by local policy, manual entry of the IHI may be available to senior staff followed by checking the IHI and demographics.

Note: The Victorian Health Services placed a moratorium on manual IHI entry, except in exceptional circumstances and to a select group. Accordingly, the Victorian IHI Integration design does not include an option for the user to manually enter an IHI to the PAS IHI record (except for role based Edit exception processing by back office staff such as HIMs).

Where a policy exists to allow manual entry of an IHI to the PAS record, copy and paste techniques are preferred over typed entries. In the case of manual or copy, the check digit function must exist in the application and an immediate check on the number to the HI Service, along with demographic details, is required/recommended.

It is important to recognise the limitations of the check digit function, and to ensure that users are not educated to rely upon it. The check digit will give a measure of whether the number is a valid IHI format, but it doesn't indicate whether the IHI has actually been allocated to a person, or whether the IHI actually applies to that person. It is much safer to follow with a check with the supplied IHI and demographic data, as this DOES provide some degree of surety.

Step 3: Validating matched PAS record IHI with Referral IHI

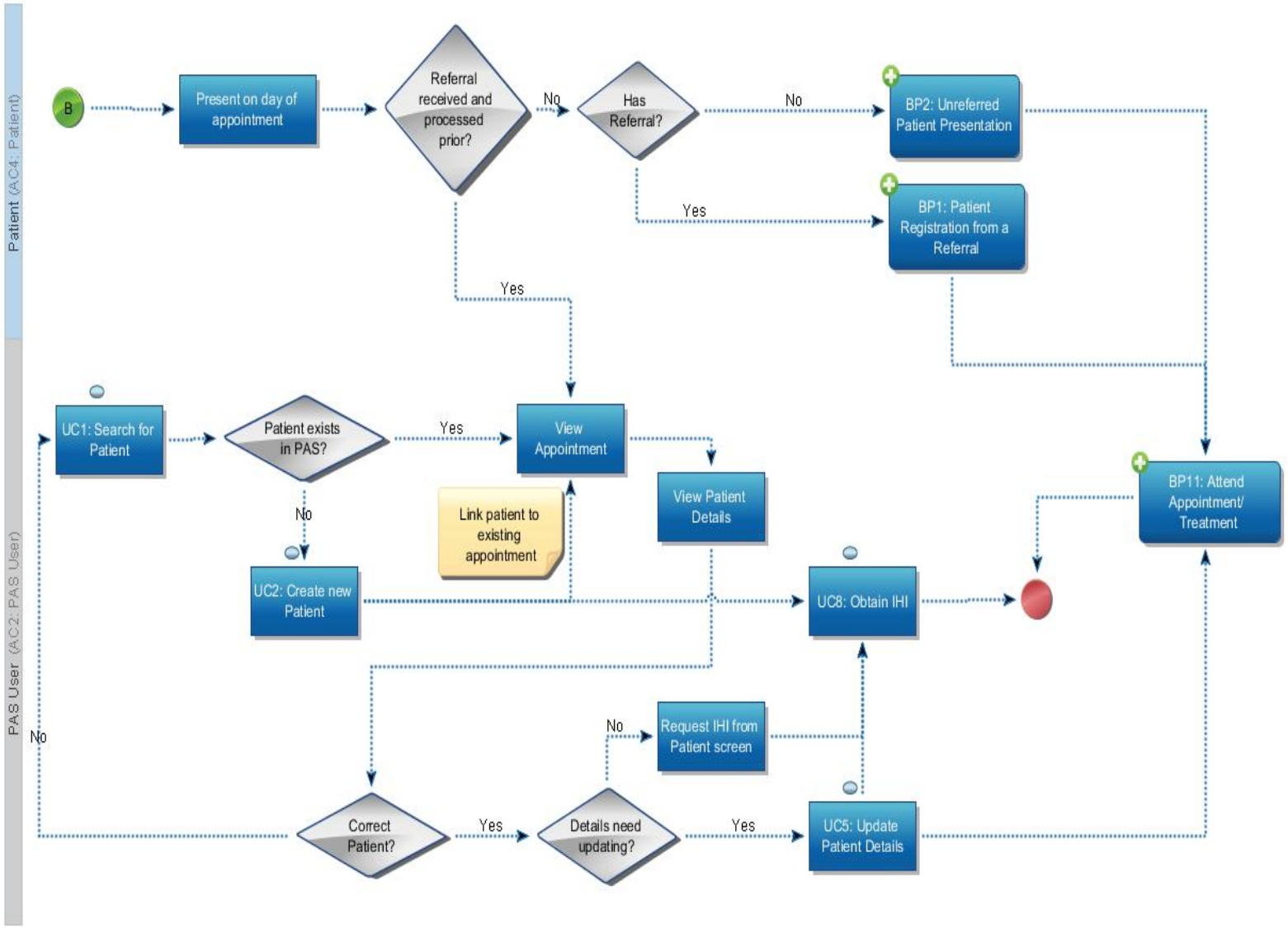
Patient records in the PAS containing an IHI will be compared against the IHI that has been received in the referral, using a process that performs comparisons between the IHI numbers, Record Statuses and Statuses.

Where a perfect match is obtained, the referral is deemed to be a match to the individual in the PAS record and the system links the referral to the patient record (usual processes for referral linking followed). Where a variation occurs, and is not automatically resolvable by the system, exceptions are raised for human intervention and resolution. The difference/variation in IHIs may be one of IHI Record Status (Provisional to Unverified to Verified etc), or Status (active/deceased/retired/expired/resolved). Functional requirements have been set for acceptance of higher Statuses and exceptions raised for clashes. (See Section 6.5 Comparison of IHI below)

If the above processes cannot resolve an incoming Referral IHI to a patient record with an IHI (where they have been matched based on demographic data or manual selection) within the PAS, then resolution may need to be deferred until the individual presents, or the referring party may be contacted by the health service. Standard business rules will apply for how each organisation processes referrals from this point.

Any varying (returned) IHI for an agreed matched patient to the IHI in the referral, should be fed back to the referrer in a Referral Update message.

5.3 Patient Flow



The Patient Flow business process outlines the typical activity around capturing and using the IHI at patient presentation to a health service. It is assumed in this business process that an appointment has been made and a patient's details have been assigned to that appointment. No notion of timeframe is applied here and only those aspects relating to the IHI in this business process are considered. Overlap occurs in application of the same Use Cases as with the previous Business Process – Registration from a Referral, however this scenario focuses on consideration of allocating an IHI with the patient present and/or updating patient details.

A pre-implementation activity at the health service is assumed to have been undertaken to ensure the PAS data includes, wherever possible, accurate demographics and trusted data information (Medicare/DVA). Retrieving an IHI from the HI service relies on matching done on specific demographics – Name(s), DOB, Gender, Address and other trusted data, such as Medicare Number or DVA number. It should be noted that the Registered Medicare details must match exactly for successful search, therefore ensuring capture within the PAS of name, date of birth and gender as registered with Medicare is essential. The Medicare Registered name is generally the Legal name of the person.

All IHIs will be returned from the HI Service via the B2B messaging channel. The system will automatically process (assign) returned IHIs for PAS records which did not include an IHI and for PAS records where an IHI is present the system will undertake confirmation upon checking IHIs prior to assigning. (see Section 5.4 Check IHI below).

Scenario 2: Patient Flow

The patient/client presents at the health service for a pre arranged appointment. The patient/client may bring a referral with them, in which case the user will enact functions from the Registration from a Referral process including checking the referral IHI and validating against the PAS record.

The patient/client may also present with a letter containing details of their previously allocated Unverified or Provisional IHI, hopefully available as a barcode and hence able to be scanned into the local system.

Assuming the appointment has been pre-booked a record will have been placed against the appointment. The PAS user will confirm that the individual presenting and in the record, are the same person. Existing information will be confirmed and additional demographics and other information may be gathered.

Updating patient details in the PAS on presentation is always advisable, however warnings will exist on HI Service mandatory fields, particularly for records with a Verified IHI. The HI Service demographic details for Verified IHI records can only be updated by the individual through Evidence of Identity at the Medicare Service Operator. If a health service changes demographic details (name, DOB, Gender, or address) against a patient record (in the PAS) without gaining assurance that Medicare has also been informed, they may jeopardise being able to check that IHI in future. Medicare retains alias and historical data on Name and Address changes (limit to 2 addresses), and updates to PAS records should retain alias and alternate addresses for HI search iterations. Discussion of Updating Patient records is provided in section 6.8 Updating IHI Details below.

If the presenting patient/client PAS record has an IHI, and the period between the allocation of the appointment and the presentation is significant, then an IHI Check should be initiated. The system will not automatically re-check an IHI which has been checked within a preset period, such as 24 or 48 hours.

If no IHI is present in the PAS record, an 'Obtain IHI' action will be taken. 'Obtain IHI' is initiated as an automated process on new registration or where there is no IHI. The system will determine the optimum search given the data available, and manage the iteration through aliases and alternate addresses. The HI Service search parameters and results are described in section 6.3 Search for IHI.

Functional Requirements have also been included for the application to search the PAS to identify potential duplicate records prior to initiation of the 'Obtain IHI' function. These potential duplicate records are flagged for resolution (see Exception Handling Section 7.2.6). The system will also stop the Obtain IHI process where the record does not meet the minimum data required. Exceptions are raised against

these searches. Where aliases and alternate addresses[13] exist and no initial search returned a match, the system will iterate through alternatives. Where no match is found an exception is raised for resolution.

If Obtain IHI results in No Match found to an IHI, alternative steps may be possible with the patient present. Where no Verified IHI is available due to absence of Medicare or DVA details and inability to match on demographics, it should not be assumed that an Unverified IHI will be retrieved for the patient/client. Only individuals not eligible for Medicare or DVA funding for medical services, and unable or unlikely to present proof of identity at a Medicare Office (such as short term overseas visitors), should be considered for an Unverified IHI. It may also be used for those requiring anonymity and for newborns (according to local policy). An Unverified IHI request may be enacted from the patient screen (if configured and local policy permits). The HI service will not allow an Unverified IHI record to be created that matches any other demographic record details of a another Verified or Unverified IHI record in the HI Service. See section 6.6 Request Unverified below.

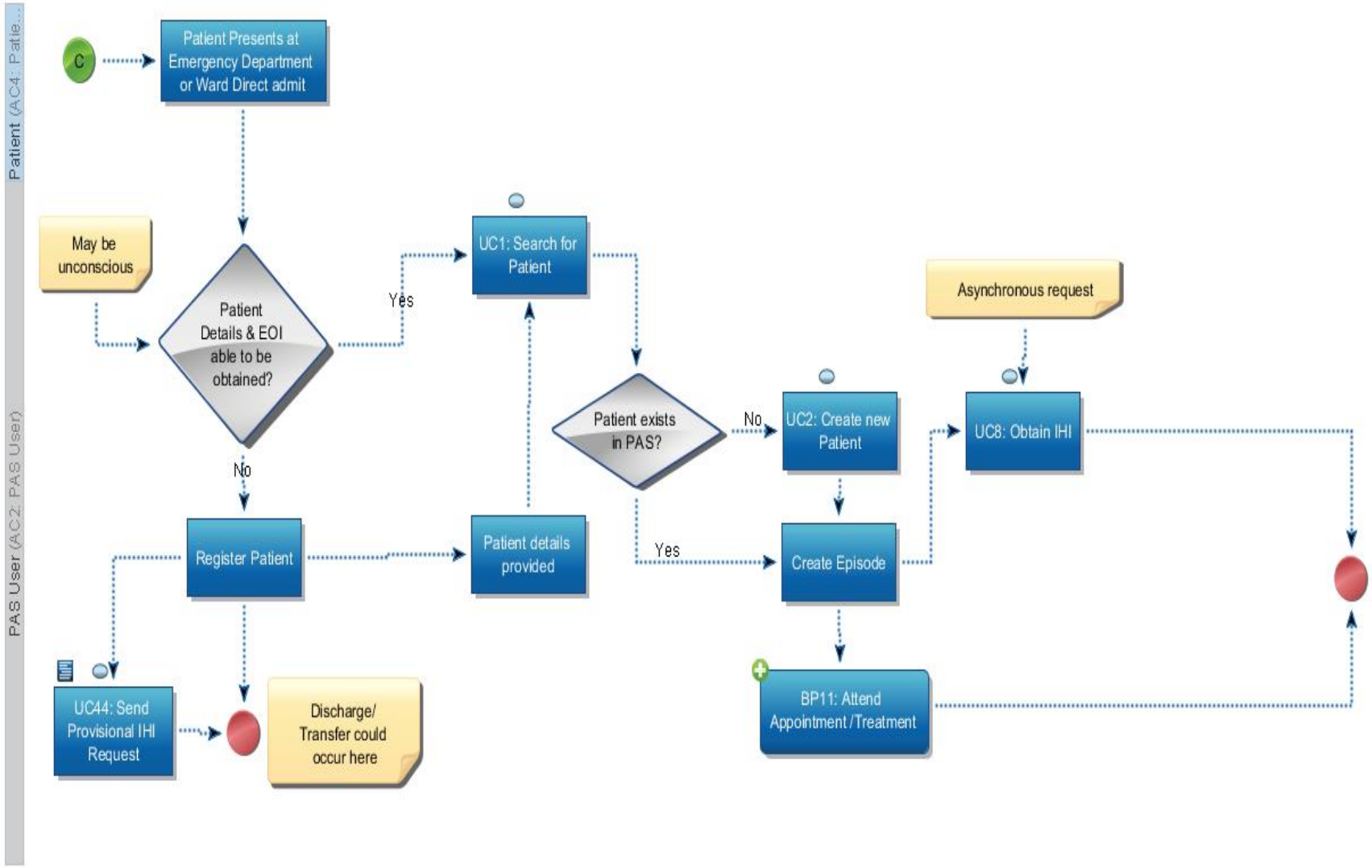
It should be remembered that during transition at least, a patient record can remain without an IHI and the local URN will suffice. The user is not prevented from continuing with a workflow if a search for IHI is unsuccessful, or if the system does not respond in time or exceptions are raised. A back office function is initiated and the request is queued for later sending.

Successful searches for IHI for PAS records will be stored an alternative identifier to be used in conjunction with the UR Number during the patient episode and in exchange with any other parties/systems.

If the health service policy allows creation of Unverified and Provisional IHI it is advisable to also issue the person with written confirmation of the IHI and the demographic details used to create the IHI. These details may assist another health service or the originating health service in future searches for this record, as demographic details may be changed with the HI Service for Unverified and Provisional IHI by any health service.

[13] Current Search requirements are for Addressing which meets the standards of AS4590 -2006 Interchange of client information, and AS5017 -2006 Health Care Client Identification. These require all address details to be transmitted. Medicare Australia is considering a Change request to allow string data, or postcode, State, Country, only.

5.4 Unreferred Patient Presentation



The Unreferred Patient Presentation business process is designed to accommodate situation such as an Emergency Department admission and walk-in requests for service. Whilst the outcome could be quite different in each of these situations the process is similar.

The process generally involves an unknown person presenting and undergoing an identification process (where possible). This initially involves searching the PAS for a potential match, commencing a new registration where required or updating an existing record. An appointment or treatment is then provided. Minimal demographic data is assumed to be available in these situations.

Emergency Department Scenario

In the case of an Emergency Department an individual may present conscious or unconscious / incapacitated. If the person is unconscious, or incapable of identifying themselves, then the health service will typically create an anonymous PAS record and they have the option to create a Provisional IHI.

Provisional IHIs have minimal (usually fictitious) demographic data and expire within 90 days if there is no activity against the HI Service record. The Victorian Health Services have indicated they would not regularly use Provisional IHIs. Where a patient is to be transferred prior to establishing their identity, then a Provisional IHI may be recommended, e.g. in a future scenario where the IHI us a mandatory component of a referral.

When demographic details become available a patient record with a Provisional IHIs may be updated, or an Obtain IHI on a new record or existing PAS record may be actioned. The system will search the PAS for potential duplicates when demographic details are updated/added within the system, prior to updating/Obtaining an IHI (in case a record already exists for that individual). A health service may provide updated details to HI service for a Provisional IHI and then also request a merge with a known patient record.[14] See section 5.6 Request Provisional IHI

If a patient has been transferred out with a Provisional IHI and another health service updates the HI Service record, then the original health service may not be able to locate the Provisional IHI on a further check, or obtain a resolved high level IHI which may have been link to the original Provisional IHI.. The original health service will not have access to or be aware of the updated demographic details. Protocols are needed between health services regarding Referral Update messages including any changed IHI details for an individual, with an IHI, referred. A design decision has been made by the Victorian Health services not to update a Provisional IHI but to focus efforts on identifying the patient and merging the Provisional with a higher level IHI.

Due to the potential delay in retrieving an IHI a background process of obtaining the IHI may be enacted, especially in the Emergency Department scenario. The PAS user in Emergency would not wait for an IHI to return to proceed. This may have implications for patient identification outputs- such as wristbands not able to include an IHI for short stay patients. See Section 5.9 Generate IHI Outputs below.

Walk-In request for Service:

Where a patient/client ‘walks-in’ for a service, the health service will search for a matching patient record within the PAS. A match is confirmed with the individual or a New Registration is created.

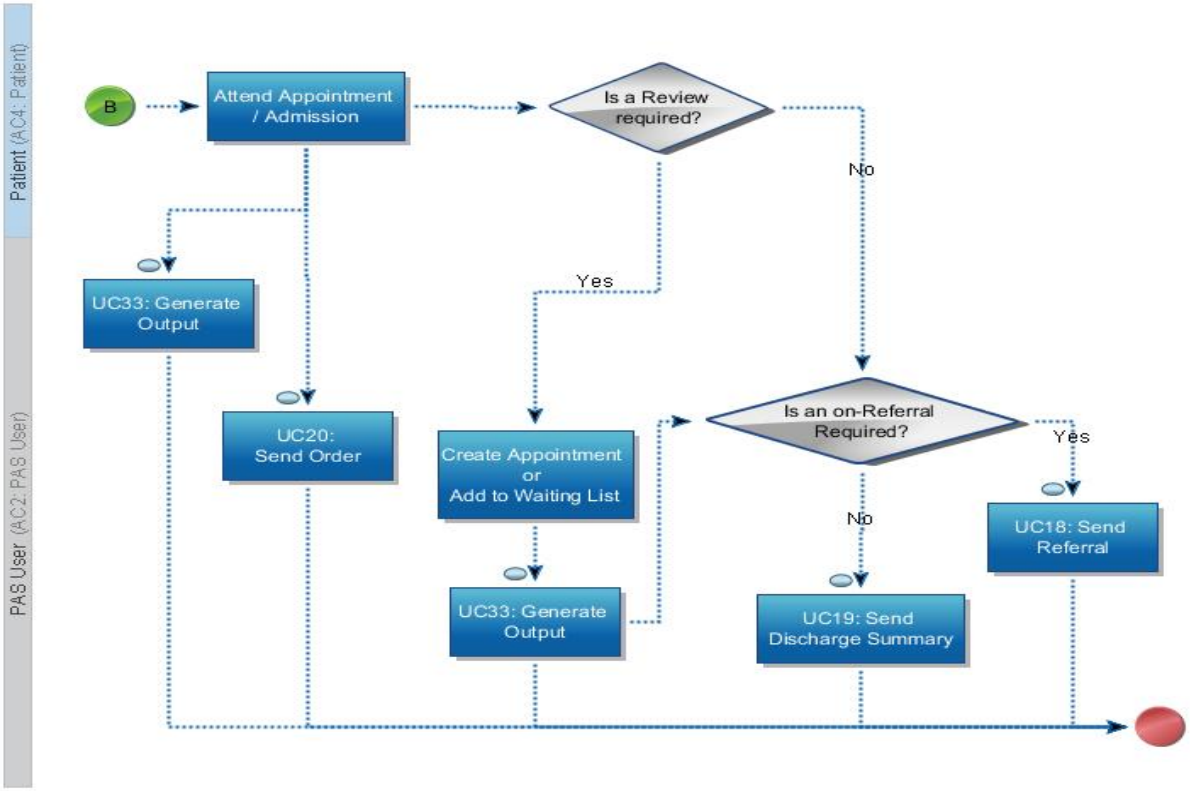
As with the above Patient Flow business process, the system will initiate Check IHI for matched PAS records which have an IHI or enact ‘Obtain IHI’ for records which do not have an IHI.

Where a new patient record is required processes are identical to the previous Patient Flow business process where time is available. Many walk in requests do not supply full demographic details and ‘quick registrations’ may be used. The system will prevent the Obtain IHI from executing where insufficient demographic details are available. Future action against this patient/client record would be expected to result in complete demographics being recorded and an IHI being obtained.

Walk-in booking is common for some services (non admitted/community health services) and often anonymity is requested by the patient/client. Quick registrations are a common practice and full demographic information may be built up over time for these patient/clients.

[14] Victorian Health Services have chosen not to use Provisional IHIs initially. Updating by subsequent health services potentially renders a record no longer retrievable by the originating service.

5.5 Attend Appointment/Treatment



Once a Patient/Client record is processed through registration the IHI will be used in conjunction with the local URN and demographic information to identify the individual. At admission or registration patient related outputs are generated and should contain the IHI where available and feasible. The IHI should be used wherever possible as an alternate identifier for the patient within a health service. It may be used singularly on exchange of patient information with other services.

The IHI should be used wherever patient identifying data is present. This includes using the IHI to search for electronic records, on outputs such as wristbands, labels, all forms and documents and in all correspondence and communications, including administrative and/or clinical data for a patient/client. Every effort should be made to obtain an IHI prior to or at registration. Where this is not possible and the IHI is obtained after commencement, it will be a matter of local policy whether all patient identification material is updated during an admission. Health services are referred to the IHI Clinical Safety Assessment Report, accompanying this guide, where controls are suggested to minimise patient misidentification, and reduce clinical risk during patient care.

Standards exist for the display of the IHI and applications must meet NEHTA Conformance and Compliance Assessment requirements regarding their capture, display and exchange. The IHI will include the number, the Record Status and the Status. Patient banners may only include a number, whereas electronic transmission or hard copy information exchange should include the IHI number, Statuses, and the demographic information used to obtain or check the IHI.

National standards exist for Referral and Discharge data exchange and it is expected that applications will become compliant with these requirements. The Functional requirements for IHI inclusion have been designed to fit with the national standards and local process requirements for Referral and/or Discharge. Other areas, such as ePrescribing (ETP) and pathology/radiology orders, etc, may develop standards for the use of IHIs. Currently the expectation is that the PAS application will have the capability to output the IHI to support any patient data exchange purpose (in keeping with the legislation and regulations).

If the patient record does not contain an IHI at the time of referring on or discharge then the system should enact ‘Obtain IHI’ prior to completion of the relevant workflow. This process should be undertaken during the transition phase of implementation in order to increase the uptake of IHI in the PAS. The system will also check existing IHIs prior to sending all external communication to ensure that the latest

IHI (number and Statuses) is being transmitted, and includes the supporting data that is used to obtain or check the IHI.[15]

Where all patient data is maintained through the PAS, the PAS will feed all downstream internal systems, via HL7 patient demographic details message, including IHI and will maintain automated updates. The preferred architecture (the Health*SMART* model) is that the PAS remains the source of truth for patient administrative details. Downstream systems will be required to 'accept' the IHI and appropriately display and output the IHI as required with other patient identifying information.

[15] External communication is assumed to be any service/system request outside the boundaries of the health service applications which carry the patient details maintained by the PAS.

6. Discussion of IHI Processing Functions

6.1 Web Services

Medicare Australia has advised that the HI Service B2B channel implements synchronous web services. Using synchronous web services has processing (CPU), queuing, persistence and memory management implications for client systems. Essentially a synchronous web service requires that the sending system maintain active listeners in memory to wait for a response, for every call made. Each listener consumes a processing thread, and memory, thereby presenting some challenges to large environments, such as Health*SMART*.

Medicare Australia has further advised that within each 15 minute measurement period the average HI Service response time is to be no greater than 8 seconds. This measurement is at the entry and exit of the Medicare system only and so at the user end the total time must also include outgoing and incoming message processing and the Internet. There is no estimate currently as to what the maximum time may be, however it seems unlikely that the response for an IHI search, obtain or check will be in the sub second range and therefore this is expected to impact the use of the service at the front desk.

If IHIs are not able to be returned within a reasonable timeframe at registration/admission the impact is that patient identification outputs generated at this time may not include the IHI (i.e. patient labels/wristbands,etc). Later retrieval of an IHI may necessitate the re-working of these outputs (with the associated clinical risk).

Medicare Australia is not able, at this time, to give SLA's for online batch searches (100 records or less) or offline batch searches (2000 records) or for assistance requests via HPOS or the telephone support channel (MSO).

Medicare Service Office and HPOS functions are not considered in this guide.

6.2 Batch Searching

The Hi Service Inquiry for IHI (system IHI Search and IHI Check) is available for retrieval through batch searches via online or offline facilities. There are two types of batch searching available through the HI service:

- searching available via B2B channel (100 records or fewer)
- searching available via a secure USB key (open ended in total record count, though up to 2000 records per individual file).

A batch search uses the same rules for searching and match as for the single IHI request (see Section 6.3 Search for IHI below).

Health services will need to consider/decide when to adopt either online or offline searching. Batches of records may be submitted for PAS initial data upload through to regular automated checking and one off instances in between.

Batch searching is not available for patient records with Provisional IHIs.

6.2.1 B2B batch searching

This is an online facility provided by the HI Service.

- Allows organisations to search for up to 100 records in one HI Service request - may be useful for waiting list entries/appointment lists in initial transition period.
- Suitable for use when there are moderate volumes of IHI Searches or Checks to submit, and response time is not a concern.

6.2.2 USB key batch searching

- Enabled through the use of a secure USB key, to be sent to Medicare Australia using registered mail or equivalent
- Allows organisations to search for a large number of records, with up to 2000 records per file (number of records depends on USB capacity. A 4 GB USB key could hold 2000 files each of 2000 records, or 4 million records).
- Suitable for use when there are high volumes of IHI Searches or Checks to submit, and response time is not a concern.

The system facilitates bulk searching/checking of IHIs allocated to patient records via the online or offline batch search facilities. This process may be initiated manually by the user or by the System at defined periods. Batch searching for IHIs does not support checking of Provisional IHIs.

Bulk Search may be required for:

- patient records which exist without allocated IHIs, and there is sufficient information to satisfy criteria for one or more IHI Search types (TDS, basic, full)
- patients with appointment lists or waiting lists, or in other defined groupings to facilitate obtaining IHIs for those patients
- queued requests due to the HI Service Search IHI function having been unavailable for a period (where response time is flexible).

Bulk checks may be initiated for:

- patient records containing Unverified IHIs (frequent checking required so that resolutions can be obtained)
- patient records with Verified IHIs that have not been checked and compared within a pre-determined period
- patients with appointments, on waiting lists or in other groupings to facilitate updating the IHI for those patients
- queued requests due to the HI Service Check IHI function having been unavailable for a period.

The user initiating a bulk check/search will select from criteria to retrieve candidate records, for example:

- URN range (from and to)
- Last IHI update date range (from and to)
- Last update inclusion/exclusion checkbox
- Date of Birth range (from and to)
- First Name (wildcard search allowed)
- Surname (wildcard search allowed)
- Appointment/Waiting List date range (from and to)
- Appointment/Waiting List Type.

When the Check/Search criteria is selected, the system will form the set of records and the user may further select from the records and process the bulk request. Loading of the results will follow later and a report will be generated for the results of the upload to the selected records. Exceptions will be noted for follow-up where check or search was not achieved. The updated record will retain the date of last check or retrieval of IHI through search.

6.2.3 Initial Bulk Uploading IHI to Health Service PAS

The HI Service supports a bulk IHI Search facility prior to go live for all health services, if they choose to implement the IHI via this mechanism.

The bulk upload mechanism allows health services to extract entries from their PAS (in whole or part, for example current patients only), and send for matching of IHIs. The returned file is uploaded to the local PAS at commencement of implementation.

On the basis of as yet unpublished information from Medicare, a health service is recommended to ensure that their records contained accurate Names (Surname at least), Gender and Date of Birth information and request Medicare card information from patients prior to IHI implementation. Health services should also implement processes to check accurate 'registration' name/s for inclusion in their PAS records. Registration Name/s refers to the legal name or names by which the individual is known to Medicare. Only exact matches against the HI Service will successfully return an IHI.

Health services need to consider the advantages of completing a bulk upload for at least the records of patients seen in the previous two years, if not their whole PAS. Initial indications are that matches with Medicare number and accurate demographics are in the order of 80% (with some data manipulation). Health services should note however that the HI Service will not return Date of Death for any IHI records and only records with Retired Status (i.e. confirmed date of death by BDM), or Deceased Status (unconfirmed date of death) post July 1 2010 commencement will indicate deceased patients.

The exercise of extracting the PAS information will require time and resources as data must be partitioned into 2000 records per file, formatted appropriately, transported to and from the HI Service operator via a secure USB, and then the IHIs loaded into the PAS. Health services may elect to ignore IHI search exceptions in this process.

6.3 Search for IHI

'Search for IHI' is used in the Obtain IHI Use Case where:

1. an IHI is not already allocated to an existing patient record in the PAS
2. a new patient record is created, either from a referral or presentation / admission
3. data used for IHI Searching or checking is altered within the patient record (name, DOB, gender, Medicare number, DVA file number, etc), resulting in a new search being required.

A user can also trigger this Use Case for a patient record that does not already have an IHI by requesting it on the Patient screen.

There are three types of searches[16] for IHIs that are available via the HI Service; a basic demographic search, a TDS search and a detailed demographic search[17].

Basic IHI Search

A Basic Demographic search includes the following fields:

- Family Name (Mandatory)
- Given Name (Optional)
- Date of Birth (Mandatory)
- Gender (Mandatory)

[16] There is technically a fourth type, which is defined here as a Check, however the underlying service that is exposed by the HI Service is the same. It is handled separately in this document and in the functional design as it differs on a functional level.

[17] Medicare Australia,Healthcare Identifier Service, IHI Search Guide, Draft v0.3, 2010

TDS Number Search

A TDS number search includes the following fields:

- TDS Number (Mandatory)(Either: Medicare Card Number, IHI Number or DVA File Number)
  - IRN (Optional - may be used when using Medicare Card Number)
- Family Name (Mandatory)
- Given Name (Optional)
- Date of Birth (Mandatory)
- Gender (Mandatory)

Detailed Demographic IHI Search

A Detailed search includes the following fields:

- Family Name (Mandatory)
- Given Name (Optional)
- Date of Birth (Mandatory)
- Gender (Mandatory)
- Full Address (Conditional – Mandatory if other Address details entered).

The HI Service recommends that where a TDS number (Medicare/DVA/IHI) is available then this is the most effective search to locate an IHI. Where a patient has both a Medicare Card number and a DVA file number, the HI Service recommends using the DVA file number. The DVA file number will identify the individual straight away rather than searching by the Medicare Card Number (possibly group) and then further narrowing the search to the individual.

The search results will only include name details sent in the search and not additional data. For example if an alias of Bob is used instead of Robert and Medicare has that alias registered, then Bob not Robert will be returned in the search results.

The search results will not include the address for the Healthcare Individual even if it is used as part of the search criteria. To search using the address one of three types of addresses must be entered: postal address, residential address or international address. The search cannot currently be conducted using a partial address entered.[18] The required address format is currently not supported by Health*SMART* PAS applications and health services may require intermediary addressing software. Medicare Australia and NEHTA are currently considering a change request on the addressing format able to be sent, allowing string data, suburb and postcode options to be used.

There is also the ability to do historical searching by selecting the 'Historical Search Flag' for the HI Service search. When the 'Historical Search Flag' is set to true on the search request to HI Service, the matching process will search on current and historical names and addresses. Medicare will contain historical addresses commencing July 2009. Name changes will be included according to any notifications since registration with Medicare. Note that the HI Service will retain only one historical name per person, though there can be as many aliases as required. Selecting the historical search does impact the response time of an IHI search.

The PAS application automated search will be configured to undertake the most efficient search. In addition the application will iterate through aliases and alternate addresses where available. Searching will halt as soon as an IHI is returned. Each search is a single action and this may delay response times, depending on the processing model (it is entirely feasible for the system to submit 8 searches for a single patient in 1 second). The application will continue searching however the user workflow will not be interrupted. The IHI will be assigned on the patient registration screen being refreshed. If the IHI has not returned successfully then the search may be queued for later resolution.

[18] Current Search requirements are for Addressing which meets the standards of AS4590 -2006 Interchange of client information, and AS5017 -2006 Health Care Client Identification. These require all address details to be transmitted. Medicare Australia is considering a Change request to allow string data, or postcode, State, Country, only.

As searching with a TDS number is the preferred method, health services are encouraged to acquire the Medicare/DVA number of patients either prior to IHI implementation and as the patients present.

The HI service will return a match ONLY on exact data matching. Therefore it is advisable that Name, DOB, and Gender data is exact as for the patients Medicare or DVA registration details. The application will indicate in the IHI history table, the data used to obtain a match with the HI service record.

Applications will also scan the PAS database for records which meet the same data criteria for searching, in order to identify potential duplicates prior to searching for the IHI. A 'potential duplicate' message is created against each record and appropriate users are notified of the need for investigation (see Exception Handling PAS Duplicates Section 7.2.6 below).

The system will warn the user of error messages on searches and will prevent searches proceeding that do not have the minimum required criteria.(see Exception Handling Section7).

Potential HI Service responses which are also considered exceptions include the following.

- Where an Unverified IHI is returned – health services will need to develop policies for the use of an Unverified IHI and are recommended to only use Unverified IHIs when warranted; where negotiation occurs with that person present (eg overseas visitors, patients wishing to remain anonymous, newborns where this is agreed - see Section 5.3 Patient Flow). Return of an Unverified IHI may be accepted where the patient can attest to the validity of the IHI.
- Where a Deceased Status is returned because another health service has notified the HI Service that the individual is deceased. The Victorian Health services have decided that this Status will be recorded in the patient history of IHI table only and await confirmed Retired Status for a confirmed death.

6.4 Check IHI

Checking an IHI is a function included in a number of Vic IHI Integration use cases. The purpose is to singly, or in bulk, check the IHI for validity and for any updates/changes made by the HI Service. The HI Service does not currently broadcast changes to IHIs.[19]

Check IHI will be enacted where a patient record (or referral) exists which has an IHI with a Record Status or Status that warrants checking, including:

- Unverified (to check for resolutions to Verified).
- Provisional (to check for resolutions to Unverified or Verified).
- Any type of IHI where the user is aware that the patient is deceased.
- Where the health service has a business rule of checking the IHI Status at regular configurable intervals, eg. every 3, 6 or 12 months.
- The user has generated a "Patient Records without Recently Checked IHIs" report, and is seeking to validate the IHIs allocated to the patient records.

Note that in most cases the system will automatically query the HI Service to check the type and Status of the recorded IHI, such as on a scheduled basis.

Within the application functional rules will apply that restrict the initiating of an IHI Check, as follows.

- All appropriate search criteria must be present.
- Only IHIs with an 'Active' Status will be checked.[20]
- IHIs checked within the previous 24 hours (or configurable period) will be excluded from automated checking.

[19] The HI Service may develop a mechanism of advising number changes. In the absence of this health services will need to regularly check for updated changes to an IHI.

[20] The Victorian design does not incorporate IHIs with Deceased status into the patient record. Where the system does support the Deceased IHI status these records should also be checked.

Check IHI may be enacted against a single patient record IHI or a number of IHIs in a bulk Check IHI function.

Individual IHI Check

Where the individual IHI Check results in an error with an information message 'no exact match' or 'multiple matches found' message from the HI service, the demographic detail sent was not adequate to determine uniqueness and the user is recommended to await the arrival of the patient to confirm further details. This scenario would assume the demographic details within the PAS have been changed since retrieving the IHI previously and no alias has been recorded, or that any details altered in the HI Service have not retained previous alias or historical data. An exception is raised for later resolution if no match is found (see Exception Handling Section 7.1, 7.2.2, 7.2.3, below).

On a successful match the system firstly checks the retrieved number is identical to that in the PAS, then proceeds to compare Record Status and Status. If the number is not identical then a message of a resolved state[21] may accompany the returned IHI, or an exception is raised as an error may have occurred. (see Exception Handling section 7.2.10 below).

Comparison rules exist around correct acceptance or rejection of changed Record Status and Statuses, and exceptions are raised where mismatches/incompatible returns arise (see Section 6.5 Comparison of IHIs below). Where acceptable IHI qualities are returned, the IHI details are assigned by the System to the PAS record IHI fields and IHI history table. Where conflicts result from the Check IHI function the system will present the user with an appropriate message and notify designated users for resolution actions.

Bulk Check IHI

The system facilitates bulk checking of IHIs allocated to patients records via the online or offline batch search facilities in the HI Service. This process may be initiated manually by the user or by the System at defined periods. For record sets of less than 100 items the HI Service online batch may be used. For larger records sets up to 2000 records, they may either be segmented into 100 record groups, or submitted via the offline batch service. See Section 6.2 Batch Search, above.

[21] An IHI number may be 'resolved' through linking to another number/record as part of resolving a Provisional record or resolving a duplicate record, or has been end dated as part of the replica resolution process.

6.5 Comparison of IHIs

The System checks an incoming IHI (from HI Service or a Referral IHI) against the IHI that is held in the PAS for the patient and determines what to do with discrepancies.

Comparison involves identifying the Number, the Record Status and the Status of an IHI returned by the HI service and deciding if there is a variation to the PAS IHI record or Referral IHI. Variations can be automatically acceptable (higher Status) or unacceptable (lower Status). Higher Status variations can be accepted by the system whereas lower Status variations will cause an exception to be raised for investigation.

The following tables represent the potential acceptability and/or exceptions according to held and retrieved IHIs.

Table 1: Where an IHI of a varying NUMBER is returned

	HI Returned IHI		
PAS held IHI	Verified	Unverified	Provisional
Verified	Accept (resolved - will only be performed by MSO)	Exception - error	Exception - error
Unverified	Accept (resolved - will only happen with MSO request by individual EoI)	Accept (resolved - will only be performed by MSO)	Exception - error
Provisional	Accept (resolved – will only happen following successful merge request)	Accept (resolved – will only happen following successful merge request)	Exception - error

Table 2: Where the same number with same or varying Record Status is returned

	HI Returned IHI Record Status		
PAS held IHI	Verified	Unverified	Provisional
Verified	Accept/no change	Exception - error	Exception - error
Unverified	Accept (resolved - will happen with MSO request by individual EoI or notification of duplicates)	Accept/no change	Exception - error
Provisional	Accept (resolved - will only happen with MSO request by individual EoI)	Accept (resolved – will only happen with Resolve Provisional – Create Unverified request)	Accept/no change

Table 3: Where the Same Record Status but different Status is returned

Note that Check IHIs will only be undertaken on Active (or Deceased) Status. Deceased Status is considered to be Active, as the patient death is unconfirmed and notification of Deceased Status is only retained in the IHI history table. The Status of Active remains until Retired is retrieved from HI Service.

	HI Returned IHI Status			
PAS held IHI	Active	Deceased	Retired**	Expired**
Verified/ Active	Accept	Exception (Record in History only)	Accept	N/A
Unverified/Active	Accept	Exception (Record in History only)	Accept	Accept
Provisional/Active	Accept	Exception (Record in History only)	N/A	Accept

** Retired or Expired returned Status will also trigger an exception report for current patients to confirm the death of the patient, or expiry of record.

6.6 Unverified IHI Request

A request for the creation of an Unverified IHI may be made where a PAS user has identified the need to assign an Unverified IHI to the patient record after a search has NOT identified another Verified or Unverified IHI with the same personal and demographic information. The patient may be an overseas visitor, diplomat, or somebody who wishes to remain anonymous, or a newborn, i.e. they are legitimate recipients of an Unverified IHI.

If the health service has elected not to use Unverified IHI (even in transition to a steady state) it should explain their policy for not issuing Unverified IHIs. However should the individual request, and the health service agree to use an Unverified IHI, the health service should also supply the individual with written confirmation of their IHI and the demographic details used to obtain it. This information will be crucial for later retrieval of the Unverified by this or other health services. No evidence of identity (EOI) check is required for the creation of, or change to, an Unverified IHI record.

Prior to requesting the HI Service for the creation of an Unverified IHI, the local system will search for an IHI with the same demographic details as proposed. If the search returns a Verified IHI (or another Unverified IHI from within the PAS) the user should notify the patient of this. An Unverified IHI record cannot be created with exactly the same details as another Unverified or Verified IHI record. The HI Service will also prevent the creation of an IHI record with the same details as any other Verified or Unverified IHI in the HI Service database. A rejection of the request will result if the details match to any other IHI.

One of the following fields needs to be unique:

- Family Name (Preferred Name) (Mandatory)
- First Name (Preferred Name)(Option)
- Date of Birth/Date of Birth accuracy(Mandatory)
- Gender (Mandatory)
- Address (Optional)

Note that if any address details are supplied, the current HI Service business rules require that full address details must be included.

Three types of addresses (mailing, residential or international) can be sent in the request to create the Unverified IHI record. The address is optional and the details captured will not be returned to Healthcare Provider Individuals or HI Users when searched (i.e. it may be searched upon but not returned). The required Address format is currently not supported by Health*SMART* PAS applications and an alternative of intermediary addressing software may be needed. Also Medicare Australia and NEHTA are considering a change request on the addressing format, allowing Address line 1 & 2 and/or Suburb and Postcode only.

The system will ‘allow’ (as a result of user action) the creation of an Unverified IHI and/or as an exception resolution where a Verified or Unverified IHI is not returned.

It should be noted that any health service can update or change all demographic details held against an Unverified IHI. The update of a Name may be via 1) overriding the previous name, which is retained as an historical name, or 2) adding an alias. Where a health service sends only one name in the Update message this will be considered an alias. Where a health service sends both the current and the new name in the Update message, the previously health name is stored in the history table.

New address and contact details are retained as alternatives. The HI service holds two addresses/contacts as current, and as new details are added previous entries are stored in a history table.

Historical details can be searched on in the HI Service by setting the History flag in the search. This will also slow the search however. Only one historical name is retained in the HI Service for each person.

Date of Birth and Gender for an Unverified IHI can also be updated by any health service, however no record of the previous data is retained by the HI Service. Therefore, for instance, if a date of birth is changed or varies for a newborn when registered, the previous record held by a health service with varying DOB will result in a failed search.

Unverified IHIs can only ever be resolved (linked) to a Verified IHI by the individual providing a Medicare Service Operator with evidence of identify and requesting resolution, or in the case of undertaking a newborn Medicare registration.

The following table example indicates the risk associated with updated Unverified IHI demographic information. An originating health service would not be able to locate a match if either Date of Birth or Gender has been changed by another health service. Matches on changed names rely on historical searches or alias having been recorded at the HI Service. The new search will fail in this example as no match is possible with a varying Date of Birth or Gender data.

IHI Demographic Fields	Unverified IHI Details	Updated Unverified IHI details	Details Provided in Update request	New Search on Old Demographics and IHI	New Search line Success/failure with Unverified IHI	Search criteria
Family Name	Smith	Smyth	1. Both supplied	Smith	Match on Smith as historical search	mandatory
			2. Smyth only		Match on Smyth as alias	mandatory
Given Name	Tony	Toni	1. Both supplied	Tony	Match on Tony as historical search	optional
			2. Toni only		Match on Toni as alias	optional
Date of Birth	10/11/2010	11/11/2010	11/11/2010	10/11/2010	Failure – overridden date of birth no match	mandatory
Gender	Male	Female	Female	Male	Failure – overridden gender no match	mandatory
Address	Brunswick	Northcote	Northcote	Brunswick	Match on historical address	optional
Unverified IHI	8003 6098 7654 3210	8003 6098 7654 3210	8003 6098 7654 3210	8003 6098 7654 3210	Match on IHI	optional
Search Result					**Failed – NO Match Found**	

6.6.1 Unverified IHIs for Newborns

The NEHTA expectation is that newborns will be allocated an Unverified IHI at the time of birth with demographic details associated with a parent. At a later date, when the baby is enrolled with Medicare Australia, a Verified IHI will be allocated and will then be able to be retrieved.

The Victorian Health Services do not recommend the use of Unverified IHIs for newborns. There is concern that any health service can change any of the demographic details of an Unverified IHI record without evidence of identity being provided and the originating health service may subsequently not be able to search and retrieve any updates to that IHI. No notifications of changes to IHIs are broadcast by the HI service currently.

It will be a matter of local health service policy whether an Unverified IHI is sought for newborns or local URN only used. The Victorian IHI Project will recommend a review of Unverified IHI for newborns be undertaken by NEHTA. Each health service will need to consider the business case and risks of both for and against allocating an Unverified IHI for a newborn. An Unverified IHI for the newborn may be regarded best practice where the newborn is being transferred to another hospital, or requires multiple service interventions prior to Medicare registration. The potential lack of traceability and security of the Unverified IHI however represents significant risk in its use.

At the time of registration with Medicare, unless the parent/carer is also aware of the Unverified IHI which was associated with their baby, and the demographics associated, resolution of that Unverified IHI through linking to the new Verified IHI will not be achieved. Health Services issuing Unverified IHIs to newborns should ensure the parents/carers are aware of the details.

If the health service chooses to allocate an Unverified IHI for a newborn it should also follow-up with a regular check for update with the HI Service. An automated process of checking of Unverified IHI will accept the new Verified IHI where it has been linked by the HI service. A history of IHI changes will be retained in the patient record for traceability, where this link is achieved.

The use of Unverified IHIs for newborns is not recommended by Victorian Health services at this time. Comments and requests made to NEHTA and Medicare Australia may result in greater controls over Unverified IHIs, and possibly the ability for health services to create Verified IHIs for newborns, or Verified IHI based on Birth Registration, thereby resolving any current concerns.

6.7 Provisional IHI

This use case will apply when the health service has established a policy of requesting Provisional IHIs when patients present and cannot be identified, i.e. they may be unconscious. Typically a Provisional IHI will only be allocated in an Emergency Department.

Victorian Health Services do not recommend the use of Provisional IHIs, at least not until the IHI becomes a primary key for patient identification. It will be a matter of local health service policy as to whether a Provisional IHI for an unconscious or unidentifiable individual is requested of the HI Service.

A Provisional IHI is not to be used when a patient asks to be treated anonymously. The user should advise the patient requesting anonymity (according to local health service policy) that an unverified IHI may be used. (See section 6.6 Unverified IHI Request)

Note also that there is no uniqueness check in the HI Service for Provisional IHI creation requests (based on Name, DOB and gender data), and that Provisional IHIs expire after 90 days of no activity[22] against the record in the HI Service.

The fundamental goal in managing an unidentifiable patient record, with a Provisional IHI, is to identify the patient, and ideally obtain their Verified IHI. The organisation carries responsibility for merging these records locally, and within the HI Service.

An IHI record with Provisional IHI Record Status contains the following fields, all of which are able to be amended by any health service:

- Family Name (Mandatory)

[22] The HI Service considers any activity against the HI Record to reset the count for 90 days. This activity is assumed to include checking/searching/updating against a Provisional IHI record held in the HI Service.

- Given Name (Optional)
- Gender (Mandatory)
- Date of Birth (Mandatory)
- Date of Birth Accuracy Indicator (Mandatory)
- Date of Death (Optional)
- Date of Death Accuracy Indicator (Optional)
- Source of Death Notification (Optional)

As there is no check for uniqueness in the process to create a Provisional IHI record, i.e. there can be many "Joe Citizen, male, 1/1/1950" records, all with different Provisional IHI numbers, health services are urged to maintain similar practices for demographics on Provisional IHIs, as are currently used for temporary records.

Updating/Maintaining a Provisional IHI[23]

A record with a Provisional IHI can be updated, however during the update process all fields sent in the message will override the previous values. The Provisional record will not be included in a duplicate check (in the HI service) against existing IHI records when amending a Provisional IHI record. Potentially therefore a Provisional record may be created for an individual with matching Verified or Unverified IHI Record Status held in the HI Service. The PAS will perform a check against its records prior to creation of a new record and flag any potential duplicates.

The HI Service provides the local user with the ability to resolve a Provisional IHI record by updating a Provisional IHI record to an Unverified IHI record, or requesting a link to a current Verified or Unverified IHI.

No evidence of identity (EOI) process is required for the creation of an Unverified IHI. All rules for creation of an Unverified IHI apply (see above section 6.6), including the recommendation to provide the patient with the details, in hardcopy, of the IHI created and the supporting demographic information.

The following details will be in the request to update a Provisional IHI to an Unverified IHI:

- IHI number (Mandatory)
- Family Name - Preferred (Mandatory)
- First Name - Preferred (Conditional)
- Date of Birth (Mandatory)
- Date of Birth Accuracy Indicator (Mandatory)
- Gender (Mandatory)
- Address (Optional)
- Contact Details (Optional)

The HI Service will perform a duplicate check against all Verified and Unverified IHI records, based on the data provided for the creation of the Unverified IHI record. Data is checked against the preferred name and preferred address. An error message will be returned if the details match an existing IHI record.

The existence of a duplicate (in the HI Service) is notified as an error, but the demographic details are not returned to the Health Service. Another search using the demographic details only (no Provisional IHI) is required to identify the HI Service held record with a varying IHI for those demographic details. The local health service can then request a resolution or linking of the Provisional IHI to the current

[23] The Victorian Health Services do not recommend allocating Provisional IHI and if obtained via referral would discourage updating.

Verified or Unverified IHI. A health service must actively seek a resolution of a Provisional IHI to another identified IHI (Verified or Unverified) by the HI Service.

Health Services are encouraged to search for a Verified/Unverified IHI using the confirmed patient details without updating a Provisional IHI and then request for merge of the two records by HI service.

If a match is found to an existing IHI record:

- the HI Service will link the IHI record with Provisional Status to the existing identified IHI record (Verified or Unverified). All system log transactions will be linked to the existing IHI record
- the HI Service will automatically update the Provisional IHI Status to Resolved after linking is complete
- the record associated with the Provisional IHI number will be end-dated.

The Victorian IHI Integrated Design does not recommend ever updating a Provisional IHI record, having decided that being able to subsequently check the IHI and obtain an Unverified or Verified IHI was of greater importance than the Provisional record having accurate demographic information. As stated above, the health service focus must be on identifying the patient and obtaining a higher value IHI, and merging these records in the HI Service.

6.8 Updating IHI Details

Date of Death

Date of Death (and associated data) should be notified to the HI Service by a health service for a patient with an IHI of any Record Status. This is the only data set able to be updated for Verified IHI records.

For Verified IHI records all other demographic details are registered and maintained through Medicare Australia, though the Victorian IHI Integrated Design allows for notifications to be sent to Medicare Australia when HI Service data is suspected to be inaccurate or out of date. Confirmation of such details however can only be achieved through the individual attending a Medicare Service Office.

When Date of Death is notified to the HI service (for IHIs of a Verified, Unverified or provisional IHI record) a Deceased Status is recorded and an information message returned on future searches. Within 90 days the HI Service Operator will have confirmed (or otherwise) the Date of Death with Births Deaths and Marriages in the relevant jurisdiction. The confirmed deceased individual's HI record will be updated with a Retired Status. When this occurs no Date of Death is supplied on a search.

Updating patient details for Unverified IHI records

In the case of an Unverified IHI, a health service can update all or any demographic details. A system function (UC14: Send IHI Update Request) will automatically update the HI Service Unverified IHI record whenever the local patient record is updated. Note that the NEHTA CCA has created a compliance item that recommends systems provide patient data updates to the HI Service, when updates occur in the local system carrying the IHI. The Victorian IHI Integrated Design will send an update message to the HI Service when certain information (name, DOB, gender, address[24]) has been added to, or changed in, a patient record with an Unverified IHI.

The details provided via the B2B channel, except name fields, will be used to update existing data or enter new data for the IHI record, though these behaviours are not yet explicitly described in the HI Service specification. Name details supplied for Unverified records will be added as new additional (alias) names except when the name is equal to the Registered (Legal) name. When a Registered (Legal) name is supplied the patient record name details will be updated. An historical record is kept of the previous name if both names are supplied in the update message.

[24] Note Address format currently not compliant as captured in PAS systems.

Prior to accepting an update request the HI Service will perform a duplicate search against all other Unverified and Verified IHI records. Only ‘unique’ demographic details will be accepted for an update. Matching data on any existing IHI associated Names, DOB, Gender, Address (as above in create Unverified) will be rejected.

Health Services are cautioned therefore in the use of Unverified IHIs as these represent a risk in regard to future retrieval. If a HI Service individual record for an Unverified IHI is altered in terms of Name (registered), Gender, DOB, then a new search on the previous known demographics and associated IHI may not return a match.(see Section 6.6 Unverified IHI Request, above).

6.9 Generate IHI Outputs

In all output instances below, being able to include the IHI number in human readable and system readable form is recommended. For example the IHI could be included as the IHI number and its Statuses and these all represented as a barcode, as shown below.

8003 6098 7654 3210 V A

6.9.1 Hard-copy documents

All documentation should include the IHI to ensure that it is readily available during the present and future episodes of care. Systems will be configured to automatically include the correctly displayed IHI, including IHI Record Status and Status on all hard-copy outputs. Where this is not possible labels including the IHI should be affixed.

6.9.2 Labels

All labels should be affixed to administrative and clinical documents for a patient and must include the IHI, displayed correctly. The use of labels is the safest way to include the IHI and associated demographics on all hard copies in place of patient identity which would otherwise be retyped and may miss crucial details.

6.9.3 Wristbands – Bar coding & RFID

The Australian Commission for Safety and Quality in Healthcare is encouraging the implementation of standards for wristbands. The Australian health sector is now at the point where future developments in wristband technology could include a barcode and possibly a Radio Frequency Identification (RFID) tag. The Commission’s wristband specifications require the use of a wristband that has the capacity to include a barcode, RFID tag or other form of technology.

When the IHI is altered after the wristband has been attached to a patient’s wrist, a new wristband, which includes the latest IHI, should be fitted and the old wristband should be removed and disposed of in the confidential waste.

For further information and discussion of approaches and standards, please see the Australian Commission for Safety and Quality in Healthcare, Technology Solutions to Patient Misidentification Report of Review, Final, Oct 2008.

6.9.4 Transcription of the IHI – format and display

Wherever possible the IHI should be electronically received and recorded by the local PAS system. Ideally all systems will have bar-code readers and all occurrences of the IHI will be accompanied by a bar code equivalent. Recording the number manually should be avoided.

When acquiring the IHI number from an electronic document, the system should transfer the IHI and related information automatically. If this functionality is not available copy and paste is then preferred above any manual transcription, should manual transcription be supported by local policy. Where copying or manual transcription occurs the system must perform a check digit function locally, and then

request an IHI check from the HI Service immediately, to confirm the number and associated demographic information.

The IHI is a standard format and the display is governed by policies[25] to which all systems carrying the IHI must conform. The NEHTA CCA process will reinforce application conformance.

6.9.5 Sharing of the IHI

The IHI will be shared within and between health services with the inclusion of the number on all documents and correspondence, including electronic messaging. The IHI should be included along with other patient identification data, especially the patient demographic information used to obtain or check the IHI.

In the transition phase of the IHI implementation the number should be checked with the HI Service prior to being exchanged with other health service systems, or included on a hardcopy output. The latest IHI should be included in all correspondence, electronic or hard copy. Comparison of the latest IHI will encourage the sharing of an accurate IHI for all patients.

[25] NEHTA, HI Service Use of Issuer Identification Numbers Policy Version 1.6, March 2010

7. Exception Handling

The following section considers the Victorian IHI Integrated Design Exception Types. These Exceptions are raised where automatic (system) resolution is not achieved when enacting specific IHI Use Cases. All Exception types draw upon common Resolution functions. Management of Exceptions is undertaken by back office staff (such as HIMs) with specific role based access to the appropriate resolution functions.

7.1 Resolution of Exceptions

The following table represents the range of Exception Types and Resolution Types available when managing an error message or failure of an expected IHI Use Case function. Exceptions are raised by the system against specific use case functions where the expected outcome does not result, such as where Search IHI results in No Match, or where any error message is returned by the HI Service.

As demonstrated below there are a number of common Resolution Types for all Exceptions. Choice of resolution type or resolution pathway will depend on a number of factors particular to each exception. For ease of discussion of the Exception Types, Resolution Types are firstly considered.

	Resolution Type																		
Exception Type	**Wait for Presentation**	**Investigate**	**Contact Help Desk**	**Contact Patient**	**Awaiting Resolution**	**Potential Replica**	**Send Service Request**	**Ineligible for Verified IHI**	**Unresolvable**	**Needs Resolution by HI Service**	**Check IHI**	**Patient Details Updated**	**Request Unverified IHI**	**Edit IHI**	**Resolved**	**Refresh IHI**	**Merge Patients**	**Reset Merge**	**Accept Returned Status**
No Match	√			√			□	√				√	√	√					
No Match on Check IHI	√						√					√		√	√	√			
Incomplete Request Criteria	√			√								√							
PAS Duplicate		√							√			√					√		
Status Integrity							√									√			
System Failure			√												√				
Provisional IHI											√						√		
Returned IHI PAS Duplicate		√								√		√		√			√		
Potential Deceased		√			√							√			√				
Data Error												√			√				
Multiple Matches	√			√			√					√		√	√				
Multiple Matches on Check IHI	√			√			√					√		√	√				
HI Duplicate Data	√		√									√		√	√	√			
Unknown			√												√				
Business Rule Violation	√			√											√	√			
HI Merge Failure							√								√			√	
Inconsistent Referral IHI	√			√		√						√			√				
Current Patient IHI Anomaly		√					√					√			√				√
HI Service Processing			√				√								√				
Resulting Status	**Pending**							**Suspended**			**None**	**Closed**							

7.1.1 Resolution Types

Most Resolution Types below build upon techniques already used within health services to resolve problems with patient information. Enacting certain Resolution strategies will also assign a Status to the record exception management. Where final resolution is not achieved an exception may result in a 'pending' or 'suspended' Status. These states indicate where further action is required before the exception can be considered closed. Where an exception is unresolvable, the exception is 'suspended'. All exceptions will be managed by back office staff (HIMs) undertaking a number of processing steps. Resolution may occur over time depending on the exception type.

Some resolution types may require the user to contact the Medicare Service Office (MSO) by telephone or use the HPOS (web portal). Generally this guide does not detail the use of these mechanisms, as they are not activated by the application.

Resolution Type	Description	Resulting Exception Status
Wait for Presentation	This resolution type is suggested when the patient is expected to present within a reasonable timeframe in order for information provided to be clarified or additional information to be obtained to resolve an issue.	Pending
Contact Patient	This resolution type is recommended when resolution cannot await patient presentation. The patient or their Carer or their GP (with prior consent assumed) may be contacted for further clarification or information required to resolve the issue. Where an issue arises relating to Referral supplied information, no additional consent is required from the patient to contact the referrer for clarification or additional data.	Pending
Investigate	This resolution type is suggested when some discrepancy exists or assumption has been made which requires a detailed examination and confirmation such as a deceased patient enquiry or checking whether two records actually refer to the same individual, prior to a merge of two records.	Pending
Awaiting Resolution	This resolution type is selected when the HI Service operator has been asked to investigate an issue or exception, and the health service is awaiting a response.	Pending
Patient Details Updated	This resolution type is used when additional or changed patient demographic details have been provided and the patient record has been updated.	Closed
Ineligible for Verified IHI[26]	This resolution type is selected when, a search for a Verified IHI has failed and further investigation indicates that the individual is neither eligible for Medicare or DVA funded services, and nor have they not sought Verified Status from Medicare.	Suspended
Request Unverified IHI	This resolution type is selected when an individual does not currently have a Verified IHI and wishes to request an Unverified IHI (subject to local policy).	Closed
Merge patients	This resolution type is selected when evidence has been obtained to clearly identify PAS duplicate records requiring a merge. This resolution type requires additional data to be entered, being: • Secondary IHI (optional)	Closed

[26] All people either living in, or visiting, Australia are eligible for a Verified IHI. This Resolution Type cannot be altered without altering the functional design model; this should be read as "Does not currently have a Verified IHI".

Resolution Type	Description	Resulting Exception Status
	• Secondary URN (mandatory) Selection of this resolution type will trigger the Merge Patient process in the PAS.	
Send Service Request	This resolution type will be selected when further information or clarification is required from the HI Service operator. This resolution type requires additional data to be entered, being: • Request Details (mandatory) Selection of this resolution type will send a Service Request to the HI Service.	Pending
Needs Resolution by HI Service	This resolution type is selected when advice has been sent to HI Service and resolution is required at their level, e.g. in the case of suspected HI Duplicates.	Suspended
Check IHI	This resolution type is selected when an IHI Check is required. Selection of this resolution will trigger an IHI Check to be performed against the patient record.	No change
Accept Returned Status	This resolution type is selected when a check has been performed, but an anomaly has been identified that halts the update from proceeding. Selection of this resolution type will trigger an update of the previously returned IHI Record Status and Status.	Closed
Resolved	This resolution type is selected when a number of other steps have been taken (manual or otherwise) and the issue is resolved.	Closed
Unresolvable	This resolution type is selected when the exception is determined to be unresolvable after previous other steps have been taken.	Suspended
Edit IHI	This resolution type is selected where a user has system permission to manually change/add an IHI entry. This resolution type requires additional data to be entered, being: • Primary IHI (mandatory) The update information may have been retrieved form telephoning the Medicare Service office or from HPOS access. Selection of this resolution type will trigger an IHI Check and subsequent Update to the Patient Record.	Closed
Refresh IHI	This resolution type is selected when a User has system permissions to reactivate a search of IHI that will clear out the IHI that is held for the patient and perform a new IHI Search.	Closed
Potential Replica	This resolution type is selected when the health service suspects that there is a Replica record for an individual in the HI Service. Selection of this resolution type will trigger the sending of a Replica Notification to the HI Service.	Pending
Reset Merge	This resolution type is selected when a previous Merge has failed in the HI Service, and the user wishes to re-try it. Selection of this resolution type will trigger the sending of a Merge Request to the HI Service.	Closed

Resolution Type	Description	Resulting Exception Status
Contact Help Desk	This resolution type is selected where a system failure, HI service system failure or unknown errors occur.	Pending

Resolution Status and Alerts

The following Alert Types and their associated display messages will be used by the system to notify users that a record is subject to certain conditions. The Alert is displayed for certain exception types during resolution, depending on a Status allocated by the resolution type being undertaken. Not all exceptions carry alerts, as the user will not need to be aware constantly of all exception resolution. Measures of safety have been applied to inform where an alert may be necessary.

Alert Name	Message	Exception Types – Alert Usage	Description
Unstable IHI	The IHI is currently undergoing exception processing.	No Match (search IHI) – pending Status No Match (Check IHI) – pending Status	This message will display for users attempting to undertake a Search/Check IHI function subsequent to the initial action which raised the exception. Until resolution these records should not be included in subsequent searches/Checks.
Deceased	The patient may be deceased.	Potential Deceased – pending Status	This message will be displayed against patient records where a Deceased Status has been returned by the HI Service. This Status is unconfirmed. This action will **not** activate the PAS Deceased patient process.
Potential Duplicate	Duplicate record may exist: [Other URN].	PAS Duplicate – pending and suspended Status IHI Duplicate in PAS – pending or suspended Status	This message will display against potential duplicate records warning users of the existence of an alternate record.
Ineligible for Verified IHI[27]	Ineligible for Verified IHI as at [date].	No Match – suspended Status	This message will display against records of individuals who are not currently registered with Medicare. No Verified IHI will result until the individual attends Medicare with Evidence of Identity to obtain a Verified IHI.

[27] See footnote 26.

7.2 Exception Types

7.2.1 No Match (All Criteria Sets)

Why did this occur?

No match may occur after the system has initiated any form of IHI search to the HI Service, including the ID Number search, the basic demographic search and the full demographic search. The minimum information required for a successful IHI search is:

Mandatory Information:

- Family Name
- Gender
- Date of Birth.

Optional information:

- Given Name
- Address[28]
- Trusted Data Source – Medicare number or DVA number.

If no Medicare or DVA number is held by the local system and the remaining search data sent does not match exactly with that held in the HI Service (Medicare) database then there will be a 'no match' message returned. If the search data was minimal, then a Multiple Match message may return and the user is prompted to add more information to narrow the search.

The system will undertake a series of searches iterating through known aliases and addresses until it locates a match or exhaust all possible combinations. If the HI Service holds one of these aliases, (either as an alias or as the name) then a match will be returned. However, if still no match occurs then the information held in the PAS does not match with that in the HI service.

Consider the following scenario. The PAS has a patient record for Tony Rossi, with an alias of Antonio Rossi. The HI Service data only has a record for Antonio Rossi. No legal/registered name has been identified yet.

PAS Data

Main Record
First Name: Tony
Surname: Rossi

Alias
First Name: Antonio
Surname: Rossi

HI Service Data

First Name: Antonio
Surname: Rossi

1. The System will first perform a search on "Rossi", DOB and Gender. and may not obtain a single match within the HI Service data.

[28] Address currently requires compliance with AS4590 and AS5017 requiring individual fields for every item in address. Where address is used the FULL address must be supplied, not partial details. There is change request presently to allow string data addressing as an alternative.

2. The System will then add additional criteria to the search, being the First Name and the search on “Antonio Rossi” will obtain a match. The System will also flag the Alias as the Registered Name and will then use that name in subsequent searches.

In the next scenario, the PAS has a patient record for Tony Rossi, with an Alias of Antonio Rossi. The HI Service data only has a record for Antony Rossi. No legal/registered name has been identified yet.

PAS Data	HI Service Data
Main Record **First Name:** Tony **Surname:** Rossi **Alias** **First Name:** Antonio **Surname:** Rossi	**First Name:** Antony **Surname:** Rossi

The System will then perform a search on “Tony Rossi” and will not obtain a match with the HI Service data. The result of this will be an IHI Exception with a type of “No Match (Single Criteria Set)” and a message of “No match found and no criteria refinement available.”

1. The System will then go on to perform a search on “Antonio Rossi” and again will not obtain a match. The result of this will be a “No Match (Single Criteria Set)” IHI Exception with a message of “No match found and no criteria refinement available.”

The System will determine that there are no more Aliases to search on and will then raise a “No Match (All Criteria Sets)” IHI Exception with a message of “No unique match found. All demographic information was exhausted”.

In this scenario, there will be 3 IHI Exceptions raised for the one patient search. The first two Exceptions should be closed via manual resolution but the third Exception remains open for resolution as per the processes described below.

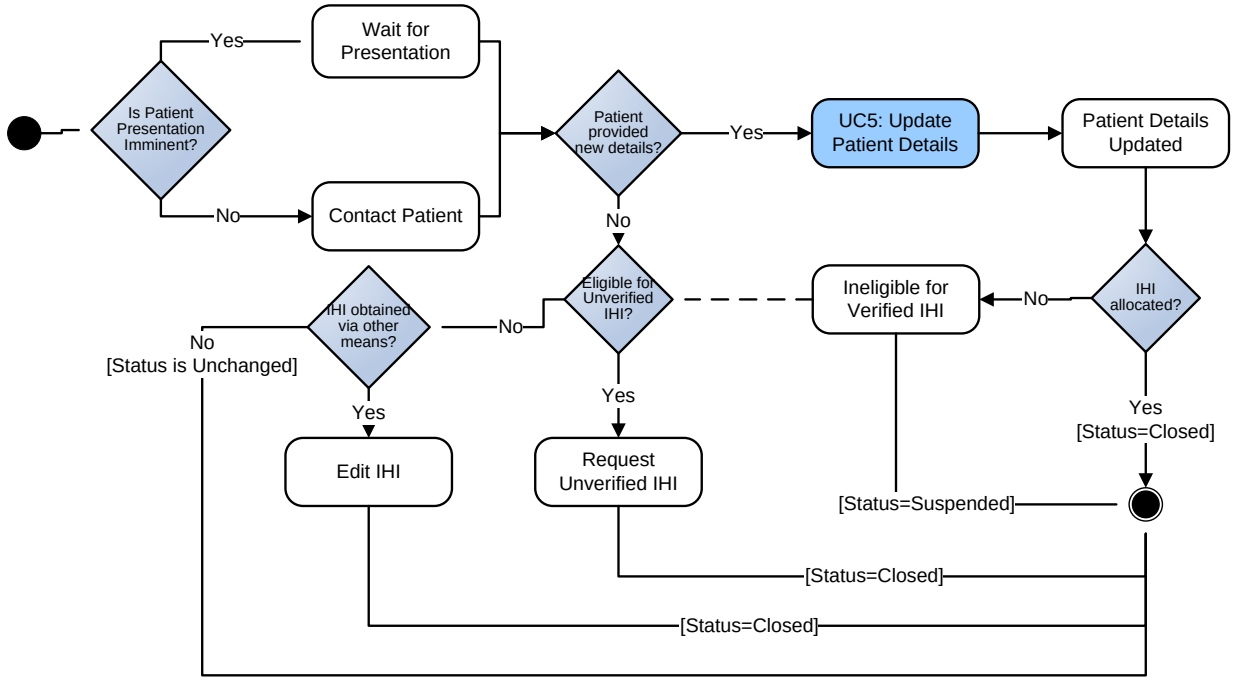
How can this be resolved?

Resolution actions will depend on when an IHI is being sought. If the IHI is being sought at Referral time (without an IHI appearing on the Referral), then the referrer may be contacted for clarification or additional details. When the IHI is being sought at presentation time then the patient may provide more details. The user should contact the patient/client or their referral source (GP) to ascertain the exact details for the individual. Remember that exact details as registered with Medicare for that individual are required for a successful match with the HI Service data. For example, if an alias, or preferred name, is used in the PAS but not known to Medicare (and it is not the legal/registered name), then no IHI match will result. If the date of birth held in the PAS varies to that in Medicare, then no match will occur. A number from a Trusted Data Source (TDS) may also not have been available for the search, or may not belong to the individual (possible shared Medicare card practices).

If additional data is obtained, it can be entered into the PAS (as alias information) and a new search conducted. If incorrect data is held by Medicare, the patient should be advised to contact Medicare to adjust details in that database.

If the user is able to establish that the individual is, for example, an overseas visitor who has not sought registration with the HI Service for a Verified IHI, it is recommended to consult with the patient before taking any further action to create an Unverified IHI (see Section 6.6 above).

The following pathway is recommended for resolution of “No Match (All Criteria Sets)” exceptions.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Wait for Presentation: will result in an exception Status of 'pending' until patient presents. An alert will go against the record: IHI currently undergoing exception processing.
- Contact Patient: will result in an exception Status of 'pending' until patient contacted. An alert will go against the record: IHI currently undergoing exception processing.
- Patient Details Updated: if an IHI is allocated, will close the exception.
- Ineligible for Verified IHI[29]: will suspend the exception until further confirmation with patient. An alert will go against the record: Ineligible for Verified IHI at [date].
- Request Unverified IHI: will send a request for an Unverified IHI to the HI Service and close the exception.
- Edit IHI: will close the exception.

7.2.2 No Match on Check IHI

A message of No Match on Check IHI indicates a data management failure in the end to end HI Service 'community', indicating that inconsistent or incorrect IHI related information has been sent from one health service to another.

Why did this occur?

The Check IHI function compares the IHI held in the PAS with that held in the HI Service subsequent to the initial retrieval of the IHI. It is designed to provide confirmation that the IHI and associated demographic data are correct and match the information held in the HI Service, or to obtain a new IHI for a patient when their previous IHI has been resolved, or to check for changes of Status to an IHI record.

This is a search using the IHI held in the PAS as criteria, in addition to demographic detail.

The Check IHI function may be initiated against a single record, for instance, prior to sending a referral out or a discharge summary. A "No match on Check IHI" Exception Type may result when the

[29] See footnote 26.

demographic details of the individual have changed in the PAS and have not (yet) been updated with Medicare Australia, or vice versa. The HI Service returns a message of “no match found”. It must be recognised that this is a high severity error, and it is expected to happen rarely, though when it does happen the implications are serious.

This message may also have arisen at the time of Referral into the health service when the Check IHI is performed against the referral data sent from another system. This would require contacting the referrer to check the patient details, and query their system, asking questions like “Did they manually type in a number?”, “Have they checked their number against the HI Service prior to referral?”, “Are any of the demographic details they have supplied in the referral incorrect for that individual?” An indication of the processes undertaken and an assessment of the accuracy of the referring system data is required.

This message may also arise when the PAS performs a regular (automated) check against the IHI numbers that are held in the PAS.

For the Check IHI to return No Match, the patient demographic details held in the PAS or in the HI Service must have been changed subsequent to the previous retrieval or check of the IHI, with the original information not having been retained (eg a change to DOB or gender at the Medicare end, or multiple changes to Medicare names, so that one historical record is lost).

For a Verified IHI, demographic details may only be changed if the owner of the IHI presents to the Medicare Service Office with Evidence Of Identity (EOI). An end user at the health service may have updated local demographic details inadvertently in the PAS, despite system warnings against this. The HI Service does not accept updated details from local health services for Verified IHIs (other than date of death).

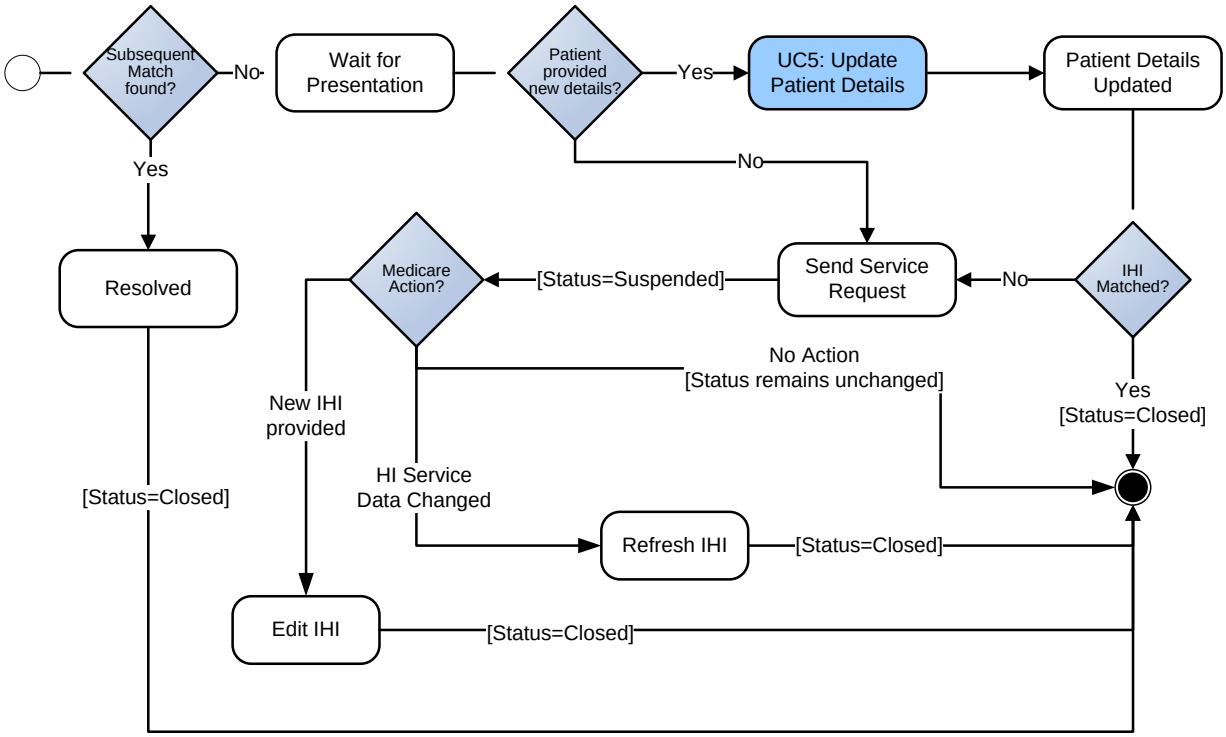
If this IHI Exception Type results from an IHI Check against an Unverified or a Provisional IHI (Victoria does not recommend using/updating a Provisional IHI) then it can safely be assumed that the demographic details have been altered (note: demographic details for these IHI Record Statuses can be changed by any health service).

If there appears to have been no change of demographics by the individual since the last IHI Check, then a service request may need to be raised with the HI Service for assistance with resolution.

How can this be resolved?

As the system will iterate through alias details, the first thing to do is to check if a subsequent match was found. If so, this exception can safely be closed, using the “Resolved” Resolution Type. A changed demographic detail since originally retrieving the IHI will not match unless that new detail has also been updated with Medicare, however system saved alias details should match.

If the number is an Unverified or Provisional IHI, then changed demographics (in the HI service) may not be able to be returned to the Health Service. Historical and alias details are retained by Medicare and will be included in a search on their side, however if Gender of Date of Birth have been altered in the Medicare database then there is no available retrieval of this from previous data.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Wait for Presentation: will result in an exception Status of ‘pending’ until patient presents. An alert will go against the record: IHI currently undergoing exception processing.
- Patient Details Updated: if an IHI is matched, will close the exception.
- Send Service Request: will result in an exception Status of ‘pending’ until the HI Service responds. An alert will go against the record: Pending Medicare Service Request response.
- Resolved: will close the exception.
- Edit IHI: will allow for input of the IHI that will then update the patient record after a successful check, and then close the exception.
- Refresh IHI: will clear out the IHI and perform a new search, and then close the exception.

7.2.3 Multiple Matches

Why did this occur?

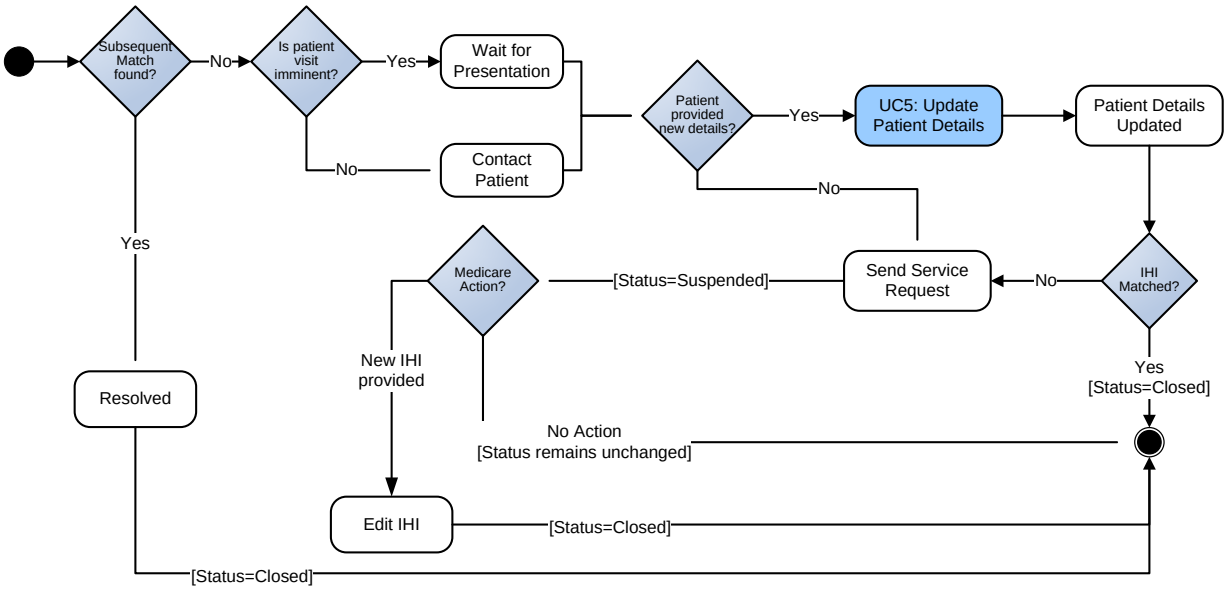
Multiple matches on search criteria sent to the HI Service may occur where only minimum mandatory data have been sent in a search and have matched with more than one HI Service record (i.e. not enough data to distinguish an individual). Where multiple records match the search criteria entered, an error message will be returned. The HI Service responds, indicating it matched to more than one matching record. A message stating 'Multiple matches found.' will be returned. An exception will be raised if this message is returned by the HI Service.

The system will automatically add patient demographic information to the search when this error occurs, should more information be available. This error is very unlikely to occur for a TDS search, hence the recommendation to use Medicare and DVA file numbers for IHI searching.

Where the failures continue and the Medicare card is available and should be matching, a request for assistance to the HI Service (via the service request mechanism) is raised. Potentially there may have been a replica created in the HI Service and a no match found message is returned, as the IHI has been 'Resolved' as part of a replica resolution' the information message returned will state: This IHI record is a duplicate IHI record that has been resolved to IHI number <IHI Number>.

How can this be resolved?

The system will have supplied all variables in a search (including alias searches where available), so the user can only wait for, or contact the patient to confirm details or provide additional details for a search.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to be achieved in a single action.

- Wait for Presentation: will result in action 'pending' until patient presents. An alert will go against the record: *IHI currently undergoing exception processing*.
- Contact Patient: will result in action 'pending' until patient contacted. An alert will go against the record: *IHI currently undergoing exception processing*.
- Patient Details Updated: will close the exception.
- Send Service Request: will result in action 'pending' until HI Service responds. An alert will go against the record: *Pending Medicare Service Request response*.
- Edit IHI: will close the exception.

7.2.4 Inconsistent Referral IHI

Why did this occur?

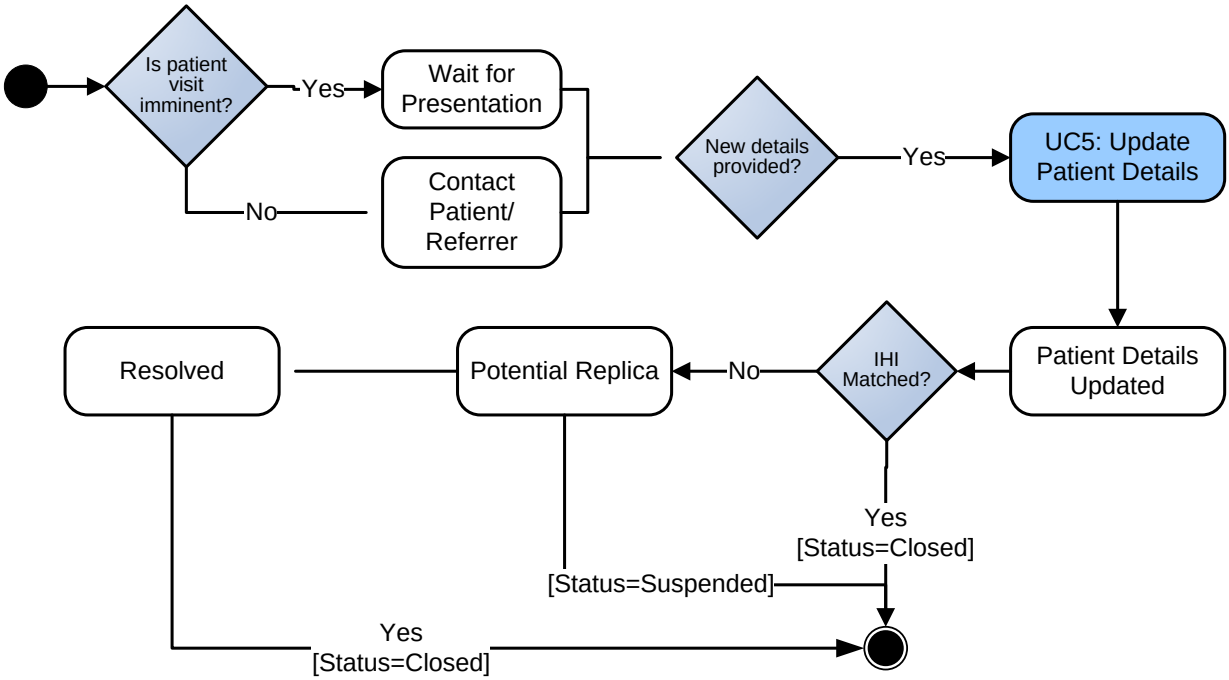
The System performs a consistency check on the IHI included in the referral, by checking it and determining if it matches the IHI held in the HI Service for the record. This processing is intended to provides a degree of certainty that the information included in the referral is accurate, and matches with the Medicare held detail for that individual.

However, if the IHI and supporting data in the referral fail the consistency check, this may have occurred because the IHI is incorrect, or the patient's demographic data doesn't match the IHI. An "inconsistent Referral IHI" exception is raised and the original referral IHI is retained against the referral but not 'accepted' into the PAS at this point.

How can this be resolved?

As the referral has been received ahead of the patient presentation, the user must either wait for presentation to confirm details or contact the patient or referrer to confirm details. As there is no certainty of the practices of the sending organisation and their IT system, the user cannot be sure that the correct IHI has been supplied or correctly transposed to the referral, and the IHI should not be trusted.

Upon presentation of the patient or contact with the referrer, and confirmation of all details, another consideration may be that the HI Service has a replica record. A Service Request may be forwarded to the HI Service operator for then to action, and provide a resolution.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to be achieved in a single action.

- Wait for Presentation: will result in exception Status of 'pending' until patient presents. An alert will go against the record: IHI currently undergoing exception processing.
- Contact Patient: will result in exception Status of 'pending' until patient contacted. An alert will go against the record: IHI currently undergoing exception processing.
- Patient Details Updated (in the PAS): will close the exception
- Potential Replica: will send a notification request to the HI Service regarding the potential replica and result in an exception Status of 'suspended' until a response is received from Medicare. An alert will go against the record: IHI currently undergoing exception processing.

- Resolved: will close the exception

7.2.5 Incomplete Request Criteria

Why did this occur?

The System determines that it is missing one or more of the mandatory data items that form the criteria set required for a request to the HI Service. The request to the HI service will be stopped.

If this message is returned by the HI Service then there has been a serious error in the application behaviour which should have prevented the request from being sent to the HI Service.

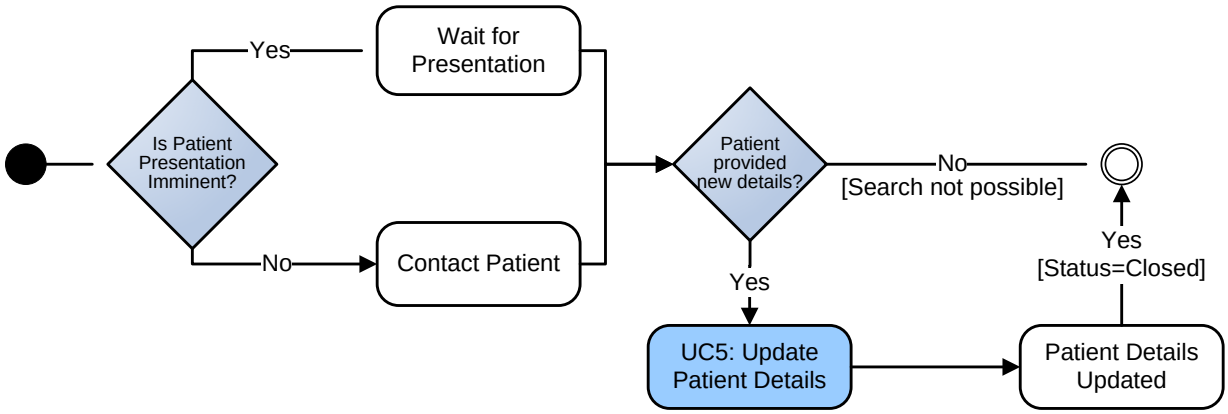
The minimum criteria sets are as follows:

Attribute	Search for IHI (non-TDS)	Check IHI	Request Unverified IHI	Request Provisional IHI
Family Name	Mandatory	Mandatory	Mandatory	Mandatory
Name Usage			Mandatory	
IHI		Mandatory		
Date of Birth	Mandatory	Mandatory	Mandatory	Mandatory
Date of Birth Accuracy Indicator			Mandatory	Mandatory
Gender	Mandatory	Mandatory	Mandatory	Mandatory

Additional information may be available (address/ first name) but the minimum set above must be present.

How can this be resolved?

The user is advised to contact the individual or await presentation to update the demographic details required.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Wait for Presentation: will result in exception Status ‘pending’ until patient presents. An alert will go against the record: IHI currently undergoing exception processing.
- Contact Patient: will result in exception Status ‘pending’ until patient contacted. An alert will go against the record: IHI currently undergoing exception processing.
- Patient Details Updated: will close the exception.

7.2.6 PAS Duplicate

Why did this occur?

The system will perform a check for records within the PAS which meet the same search criteria being submitted for an Obtain IHI action. The initial search criteria will include the Medicare number where available. This search should result in minimal duplicates, as the same Medicare number would need to be held in more than one record.

Where a Medicare number is not available, and the PAS records match on Name, Date of Birth and Gender, the system will keep 'adding' data to distinguish a single record, If more than one record in the PAS is found with **matching demographic** criteria then the records will be flagged as potential duplicates **prior to sending** in Obtain IHI request.

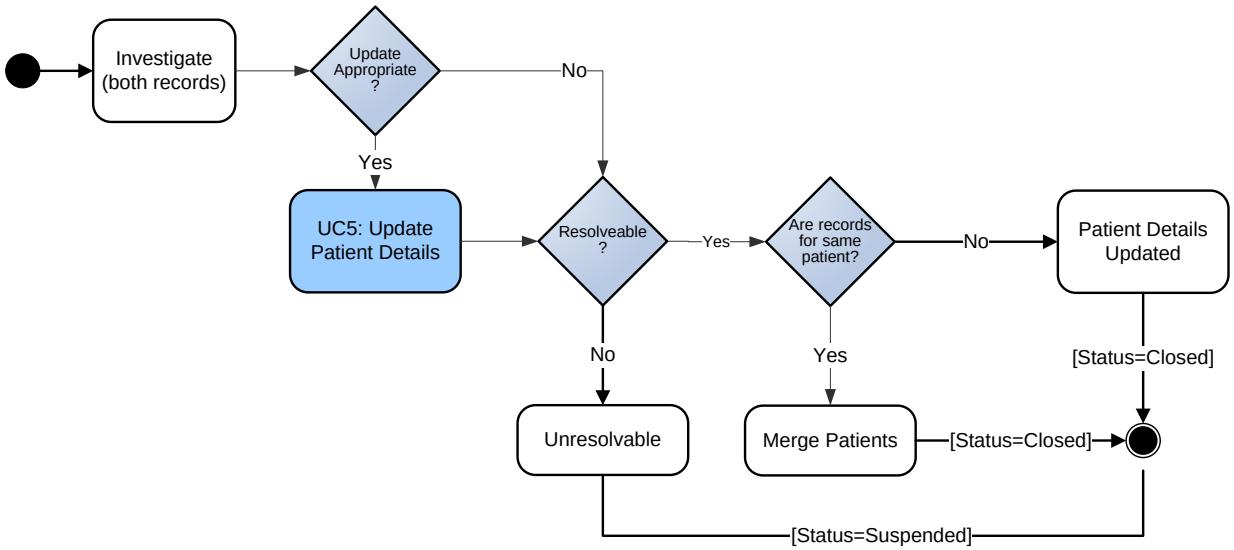
How can this be resolved?

Resolution of duplicates should follow the same rigorous process currently undertaken by a Health Service.

The identity of each individual must be established in order to confirm that the records refer to the same individual. All demographic details must be confirmed against each record before the decision is taken that the records are for the same person.

If the IHI has been retrieved and the duplicate is identified via matched IHIs within the PAS, then a health service may be more certain that the records refer to the same individual – however confirmation is still needed, as the HI Service may also be incorrect.

Where the Health Service establishes that two records for two separate people exist with the same IHI, then the process of notifying a HI Duplicate is enacted (see Section 7.2.8 below).



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Investigate: will result in an exception Status of 'pending' until resolved. An alert against the record will include "Duplicate Record May Exist ([include other URNs])".
- Patient Details Updated: will close the exception (not duplicates).
- Merge Patients: will initiate the Merge Patients function and close the exception.
- Unresolvable: will suspend the exception (indeterminable).

7.2.7 Returned IHI PAS Duplicate

Why did this occur?

This occurs where an Obtain IHI (search/retrieve) has been enacted and the returned IHI is being updated into the PAS record. The System has determined that the returned IHI already exists in the PAS against at least one other record. The update process proceeds, but an Exception is raised for each additional instance of this IHI in the PAS.

If the IHI being retrieved is matched with an IHI record held within the PAS, then a Health Service may be more certain that individuals are the same – however confirmation is still needed, as the HI Service may also be incorrect. This would normally indicate the PAS includes a duplicate record for the one individual.

There will be some circumstances where this can happen quite legitimately, and there is actually no real exception, eg a Provisional IHI is assigned to a patient who is transferred to another hospital prior to being identified, A subsequent IHI Check returns a Verified IHI which matches another record in the PAS, indicating that these records should be merged (some confirmation required).

There is a significant amount of processing in the design to handle this, especially when one of the records has either a Provisional or an Unverified IHI.

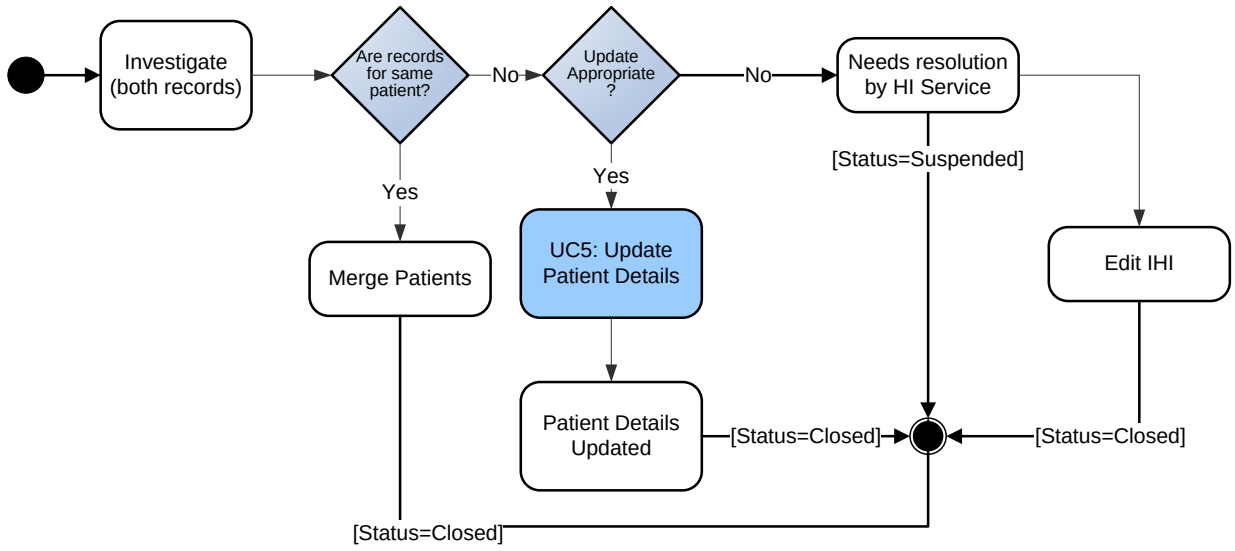
How can this be resolved?

Resolution of duplicates should follow the same rigorous process currently undertaken by a Health Service.

The identity of each individual must be established in order to agree that duplicate records exist. All demographic details must be confirmed against each record before the decision is taken that the records are for the same person.

Where the health service has established that the two records are for the same individual then a merge process can be undertaken.

Where the Health Service establishes that two records for two separate people exist with the same IHI, then the process of notifying a HI Duplicate is enacted.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Investigate: will result in an action of ‘pending’ until resolved. An alert against the record will include "Duplicate Record May Exist ([include other URNs])".
- Patient Details Updated: will close the exception (not duplicates).

- Merge Patients: this performs a mere of the patient records in the local PAS and will then send a merge request, or notification to the HI Service and close the exception.
    - Please note that to request an automated record merge in the HI Service, one of the records must have a Provisional IHI.
- Needs Resolution by HI Service: will result in an exception Status of ‘suspended’ until resolved. An alert against the record will include "Duplicate Record May Exist ([include other URN’s])".
- Edit IHI: allows for a new IHI to be recorded against one of the patient records and will close the exception.

7.2.8 HI Duplicate Data

Why did this occur?

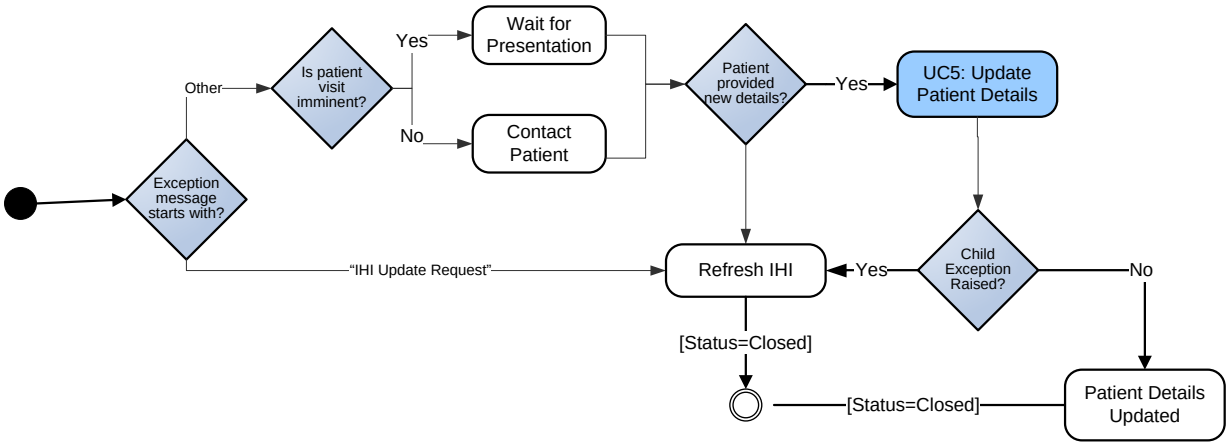
The HI Service Duplicate Data exception is raised where a set of demographic data for a patient is duplicated within the HI Service for another individual. This exception will occur when a Send Unverified IHI Request, or a Send IHI Update Request (for an Unverified or Provisional IHI) results in a matched record within the HI Service database. The HI Service determines that there is an existing Verified or Unverified IHI record with the same details.

How can this be resolved?

Where the Health Service establishes that a record for the same individual exist in the HI service, then the process of confirming or changing the proposed details for the request needs to be undertaken by the user. The HI Service will not return the details in the message, simply advising that a record already exists for the details provided.

If the original request was for an Update to IHI details, the user should ‘Refresh the IHI’ which will enact a search using the proposed demographic details and return the current IHI.

If the original request was for creation of an Unverified IHI, the user will need to consult with the individual and perform further updates to demographic details to resolve the exception through refresh or provision of other details establishing uniqueness.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Wait for Presentation: will result in an exception Status of ‘pending’ until patient presents. An alert will go against the record: IHI currently undergoing exception processing.
- Contact Patient: will result in an exception Status of ‘pending’ until patient contacted. An alert will go against the record: IHI currently undergoing exception processing.
- Patient Details Updated: will close the exception (not duplicates).

- Refresh IHI: will perform a new search for an IHI and close the exception (not duplicates – a previous resolution to a different number may have occurred).
- Edit IHI: allows for a new IHI to be recorded against the patient record and will close the exception.

7.2.9 HI Merge Failure

Why did this occur?

The HI Merge Failure exception will be raised when the sending of a Merge Request to the HI Service returns a business error.

Circumstances that cause an exception like this to arise are:

- The IHI Record sent up as the Provisional Record is not Provisional
- The IHI Record sent up as the Unverified/Verified Record is not Unverified/Verified
- An IHI sent in the message is not found in the HI Service
- An IHI sent in the message does not have a Status of Active or Deceased.

How can this be resolved?

This exception can be resolved by re-initiating the merge with correct data, or sending a service request to the HI Service if the Health Service is certain the error was not made by them.

The system will provide the following resolution types:

- Send Service Request: Send Service Request: will result in an exception Status of ‘pending’ until the HI Service responds. An alert will go against the record: IHI currently undergoing exception processing.
- Reset Merge: where record data has been updated or confirmed, resetting merge will re-initiate the merge request to the HI Service and close the exception.
- Resolved: will close the exception.

7.2.10 Status Integrity

Why did this occur?

An exception of Status Integrity is raised when a comparison of a held IHI and a retrieved IHI from the HI service do not pass the acceptable automated updating processes.

An exception will be raised where a lower Record Status or Status for the IHI is returned by the HI Service.

The following tables represent the potential acceptability and/or exceptions according to held and retrieved IHIs, and are duplicated from Section 6.5 above.

Table 1: Where an IHI of a varying NUMBER is returned

	HI Returned IHI		
PAS held IHI	Verified	Unverified	Provisional
Verified	Accept (resolved - will only be performed by MSO)	Exception - error	Exception - error
Unverified	Accept (resolved - will only happen with MSO request by individual EoI)	Accept (resolved - will only be performed by MSO)	Exception - error
Provisional	Accept (resolved – will only happen following successful merge request)	Accept (resolved – will only happen following successful merge request)	Exception - error

Table 2: Where the same number with same or varying Record Status is returned

	HI Returned IHI Record Status		
PAS held IHI	Verified	Unverified	Provisional
Verified	Accept/no change	Exception - error	Exception - error
Unverified	Accept (resolved - will happen with MSO request by individual EoI or notification of duplicates)	Accept/no change	Exception - error
Provisional	Accept (resolved - will only happen with MSO request by individual EoI)	Accept (resolved – will only happen with Resolve Provisional – Create Unverified request)	Accept/no change

Table 3: Where the Same Record Status but different Status is returned

Note that Check IHIs will only be undertaken on Active (or Deceased) Status. Deceased Status is considered to be Active, as the patient death is unconfirmed and notification of Deceased Status is only retained in the IHI history table. The Status of Active remains until Retired is retrieved from HI Service.

	HI Returned IHI Status			
PAS held IHI	Active	Deceased	Retired**	Expired**
Verified/ Active	Accept	Exception (Record in History only)	Accept	N/A
Unverified/Active	Accept	Exception (Record in History only)	Accept	Accept
Provisional/Active	Accept	Exception (Record in History only)	N/A	Accept

** Retired or Expired returned Status will also trigger an exception report for current patients to confirm the death of the patient, or expiry of record.

How can this be resolved?

Exceptions will be identified where the System determines that the Record Status or Status of the provided record is lower than that of the original record. This includes:

- Verified returning Unverified or Provisional
- Unverified returning Provisional
- Provisional returning alternate Provisional
- Retired Status returning Active or Expired Status
- Expired Status returning Active or Retired or Deceased Status.

These are seen to be errors and need investigation by the HI Service. Once the Service Desk has responded the user can Refresh the IHI, which will clear the current IHI and search again.

The system will provide the following resolution types:

- Send Service Request; will result in action 'pending' until HI Service responds. An alert will go against the record: IHI currently undergoing exception processing.
- Refresh IHI: will close the exception.

7.2.11 Potential Deceased

Why did this occur?

An exception of Potential Deceased is raised when a Status of Deceased may be received from the HI Service as a result of a Check IHI or Obtain IHI request.

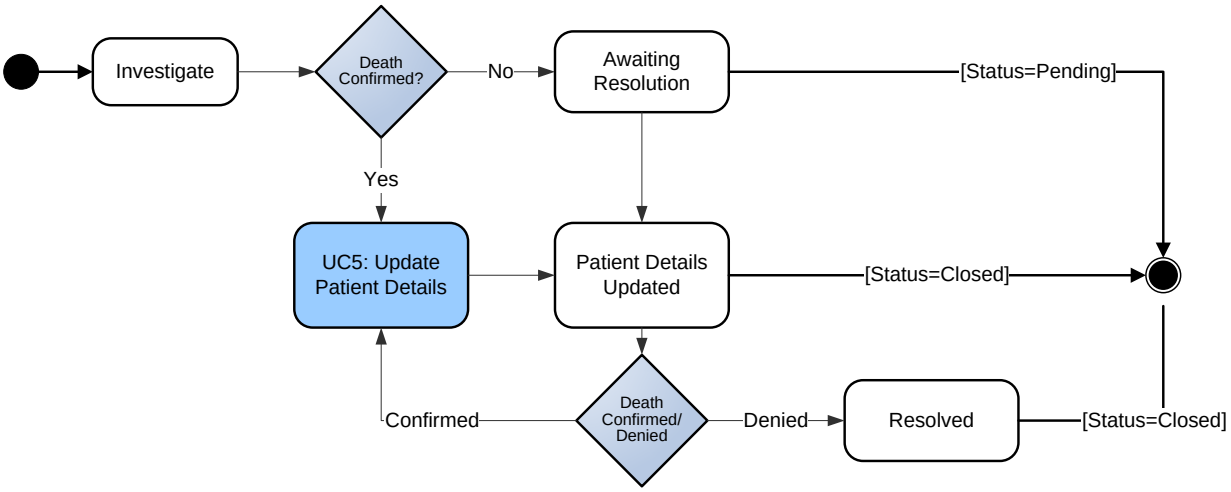
The HI Service can be informed of a Deceased patient by any health service via Update Patient Details. The HI Service will accept a Date of Death and will then change the Status of the record to Deceased. At a later date, the HI Service will confirm the death with the Registry of Births Deaths and Marriages, changing the IHI Status to Retired (for a Verified IHI) or Expired (for an Unverified IHI).

As this Deceased Status information is unconfirmed, the recommended action by health services is to consider the record as that of a 'potential deceased' patient. The Status will be recorded in the patient IHI history file only (i.e. not automatically update the Status of the IHI) and an exception is raised so that the matter may be investigated locally, in addition to waiting for the HI Service update to Retired/Expired Status on confirmation from BDM.

How can this be resolved?

The System will note the Deceased Status in the IHI history file only, and an exception is raised for manual resolution. An Investigation should follow before the Health Services triggers the internal PAS process for a deceased patient.

Note: the reason for raising this exception is to provide a warning to the health service to investigate prior to enacting any otherwise planned contacts with this patient, e.g. appointment notification letters, admission/follow up letters, etc. Otherwise the resolution is simply to wait for the retired message to become available (following the BDM fact of death notification), i.e. no other activity is required.



The System will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Investigate; will result in an exception Status of 'pending' until resolved. An alert against the record will include: 'The patient may be deceased'.
- Patients Details Updated: will close the exception.
- Awaiting Resolution: will result in an exception Status of 'pending' until resolved. An alert against the record will include: 'The patient may be deceased'.
- Resolved: will close the exception.

Where the Health Service has investigated but may not be able to confirm the death of a patient, or chooses not to investigate, then the Awaiting Resolution type may be used. This action will assume that the health service is awaiting further confirmation from the HI Service via a Retired/Expired Status on future check, or some other mechanism with Births, Deaths and Marriages(which the local service may have established) to confirm date of death.

7.2.12 Current Patient Anomaly

Why did this occur?

Where the user has performed the function to Search, Check IHI or Update an IHI and an IHI is returned with a Status of Retired, Expired or Deceased, one of the following has occurred:

- the record has reached 130 years of age.
- the Date of Death has been confirmed.
- 90 days has elapsed since any action was recorded against that (Provisional) record.

An exception is raised against these Statuses, following a positive test result of 'current patient' even if the Status is acceptable in the hierarchy of Status referred to in 6.9 Status Integrity above, as it will require further action by the health service against the patient record.

How can this be resolved?

1. Where the PAS held Record Status is Provisional with Active Status and an Expired Status is returned from the HI Service, the System will check if the patient is current. Where the patient is current, a Current Patient Anomaly exception is raised. For the Expired Status to be returned from HI Service, it is assumed that there has been 90 days without further action against this record in the HI Service. The number is expired and not able to be used against this patient any longer.

Health services should endeavour to identify patients at the earliest possible opportunity. The patient details should be updated, where possible and result in a new search for an IHI.

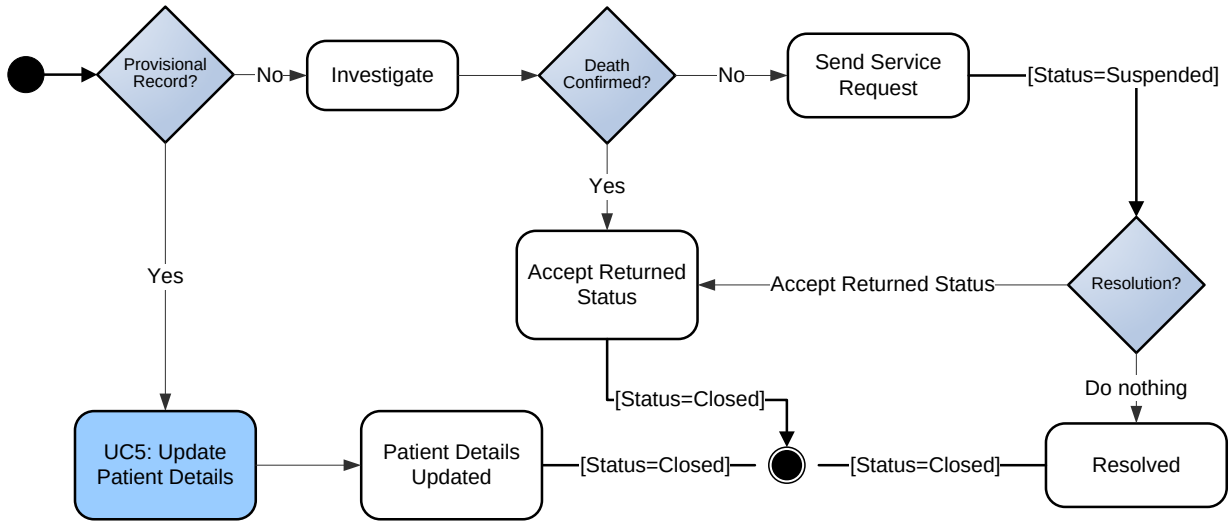
2. Where a record with a **Retired** or **Expired** Status is returned for **a current patient** (other than Provisional IHI), the system will raise a 'Current Patient Anomaly' exception with a notification to undertake an investigation to confirm the death of the patient.

The possible investigation options for a current patient with a returned Retired/Expired IHI Status include:

- Contact Next of Kin or Referral source to establish death and date of death, or
- Contact BDM for State extract of deaths and match on patient demographics to establish date of death, or
- Assume the death of the patient is correct (Retired/Expired Status allocated only to records of people >130 years old or with confirmed Date of Death)
    - Where the Record Status is Unverified an Expired Status applies where the record has reached 130 years old or a Date of Death is confirmed.

If the death is confirmed, the user can choose to accept the Returned Status.

Alternatively, if there can be no confirmation and the health service is certain the person is not deceased then a Service Request should be sent to the HI Service for resolution.



The system will provide the following resolution types and the user may indicate the stage along the pathway of resolution, particularly as it may be unusual for a resolution to achieved in a single action.

- Investigate: will result in an action of 'pending' until resolved. An alert against the record will include: 'The patient may be deceased'.
- Accept the returned Status will update the Status into the patient record and close the exception.
- Send a Service Request: will result in an action of 'suspended' until resolved. An alert against the record will include: 'The patient may be deceased'.
- Patient Details Updated: will close the exception.
- Resolved: will close the exception.

7.2.13 Unknown

Why did this occur?

An ‘Unknown’ exception is raised when a search of the HI Service returns a message stating: ‘Please contact Help Desk’ to resolve the unknown error. The Help Desk referred to is the local health service Help Desk.

This HI Service message type is included to indicate an error which could not be otherwise identified.

How can this be resolved?

The user is advised to contact the Help Desk to obtain any further information.

The system will provide the following resolution types:

- Contact the Help Desk; will result in an exception Status of ‘pending’ until the problem is resolved. An alert will go against the record: IHI currently undergoing exception processing.
- Resolved: will close the exception

7.2.14 HI Service Processing

Why did this occur?

When the local system or user performs a Check IHI and the HI Service returns a Record Status of Provisional, an exception is raised with an exception type of "HI Service Processing".

An exception is required as a Provisional IHI needs resolution as quickly as possible.

If the IHI forwarded for checking was not originally a Provisional IHI, then the HI Service should be contacted as an error may have occurred.

An error in the processing of the Check IHI request at the local level may also have occurred requiring resolution through contacting the Help Desk.

How can this be resolved?

The system will provide the following resolution types:

- Contact the Help Desk: will result in an exception Status of ‘pending until the HI Service responds. An alert will go against the record: IHI currently undergoing exception processing.
- Resolved: will close the exception
- Send Service Request: will result in an exception Status of ‘pending’ until resolved. An alert against the record will include: ‘IHI currently undergoing exception processing’

7.2.15 System Failure

Why did this occur?

The HI Service determines that the request message is invalid.

In certain circumstances this may represent a serious system problem:

- a message became corrupted in transit, or
- the local system (the PAS) and the HI Service have implemented different message structures. This would be regarded in a significant failure in the change control process.

How can this be resolved?

The system will provide the following resolution types:

- Contact the Help Desk: will result in an exception Status of 'pending' until the HI Service problem is resolved. An alert will go against the record: IHI currently undergoing exception processing.
    - The local Help Desk may need to arrange for a roll-back to an earlier working version of the messaging interface. The local help desk may need to involve IT support staff, developers, and consult with the HI Service operator
- Resolved: will close the exception.

7.2.16 Data Error

Why did this occur?

The HI Service responds to any type of request, indicating a data level business error. This will indicate that the data sent through to HI Service failed validation in some way. Updating of the patient details in the PAS or other supporting information will be required. For example the message may read: The family name contains invalid characters. Only alpha and numeric characters, apostrophes and hyphens are acceptable. Spaces must not appear immediately before or after apostrophes and hyphens.

The full set of rules may be reviewed in the Vic IHI Integrated Detailed Design documents, or in the Medicare Australia HI Service Specifications.

While the IHI Integrated Design must cater for this error, the occurrence of this exception is expected to be very unusual, as the System will check data compliance with the HI Service rules before sending a request.

The PAS is expected to implement, or already have implemented, a set of data rules consistent with those described in the HI Service Specifications.

This exception may also reflect a misalignment between the rules in the local system and the rules in the HI Service, in which case the magnitude of the problem is significantly greater, and the Help Desk will need to be contacted.

How can this be resolved?

The system will provide the following resolution types:

- Patient Details Updated: will close the exception
- Resolved: will close the exception

7.2.17 Business Rule Violation

Why did this occur?

Where the user has attempted to complete a function which is not valid for the request type then this exception will be raised. An exception of a Business Rule Violation will be deemed to occur where actions conflict with the type of request. For example where the user is attempting to request a Provisional IHI be resolved to an Unverified and the number is not a Provisional IHI. Or this could occur where the message contains non death data for an Update request for a Verified IHI.

The System will implement rules that enforce compliance with the HI Service business rules, so an error of this type may be serious. A "one off" error may reflect an isolated problem, while repeated errors of this type suggest a misalignment between the local System and the HI Service.

How can this be resolved?

The user will attempt to correct the action according to the requirements of the request. This may mean having to await the patient presentation or contact the patient.

The system will provide the following resolution types:

- Wait for Presentation: will result in an exception Status of ‘pending’ until the HI Service responds. An alert will go against the record: IHI currently undergoing exception processing.
- Contact the patient: will result in an exception Status of ‘pending’ until the HI Service responds. An alert will go against the record: IHI currently undergoing exception processing.
- Resolved: will close the action
- Refresh IHI: will clear out the IHI and perform a new search, and then close the exception

7.2.18 Provisional IHI

Why did this occur?

The system regularly performs a background scan for patient anomalies in the database. A report of results can be run for managing patient anomalies. In order to reduce the proliferation of Provisional IHIs, any patient records with a Provisional IHI will be identified for follow up.

An exception is required as a Provisional IHI needs resolution as quickly as possible.

How can this be resolved?

The system will provide the following resolution types:

- Check IHI: will initiate the Check IHI function, to determine if the Provisional IHI record has been resolved in the HI Service.
- Merge Patients: for situations where the main patient record is available in the PAS, will initiate the Merge Patients function and close the exception

8. Glossary

Term	Description
A & E	Admissions and Emergency (departments)
After Presentation	A term used to describe when the patient is present in the health service, i.e. on or after presentation. This enables health staff to validate Medicare and demographic details directly with the patient.
AS	Australian Standard
Authorised Employee	An authorised employee is a staff member of a health service (HPI-O) who is duly authorised by the health service to access the HI Service.
B2B	Business to business, a term used to describe the web service based functions implemented in the HI Service.
BDM	Birth, Deaths & Marriages
Before Presentation	A term to describe the period prior to a patient presenting at the health service, in which a referral may be received, an entry created on a waiting list, and an appointment made, with the appropriate notifications. The patient is not readily available to confirm their Medicare number or demographic details, though this can be done via telephone, email, letter, etc.
CCA	A NEHTA group responsible for Compliance, Conformance and Accreditation.
CMS	Community Management System
DOB	Date of Birth
DoH	Victorian Department of Health
DVA	Commonwealth Department of Veterans' Affairs
ED	Emergency Department
EOI	Evidence of Identity
Episode	A single admission to a health service for a particular condition or conditions, or A period of care for a particular condition, often covered by a single referral (supporting multiple admissions or attendances).
ETP	Electronic Transfer of Prescriptions
FoI	Freedom of Information
HI	Healthcare Identifier Service
HIM	Health Information Manager, a specialist in the management of health information, including patient records.
HIS	Health Information Service, a department within a health service that provides information management services especially for patient records.
HPI-I	Healthcare Provider Identifier – Individual. A unique number to be assigned to every person involved in healthcare service delivery.
HPI-O	Healthcare Provider Identifier – Organisation, a unique number that will be assigned to all organisations involved in healthcare service delivery
HPOS	Health Professional Online Services, a portal provided by Medicare Australia.
HSD	The Victorian Human Services Directory
Health*SMART*	The Victorian Department of Health Health*SMART* program is responsible for managing processes to select, configure and implement applications to reflect state wide requirements (state wide footprint) into participating healthcare agencies. Additionally, the Health*SMART* program is responsible for

Term	Description
	establishing and managing the shared ICT infrastructure that is required to support these applications and agencies use of them.
ICT	Information and Communications Technology
ID	Identity or identifier
IEC	International Electrotechnical Commission, an international standards body which focuses on electrical, electronic and related technologies.
IHI	The Individual Healthcare Identifier, which Medicare Australia allocated to every active Medicare and DVA enrolee, on the 1st July 2010.
IHI Record Status	There are three record statuses of IHIs: • Verified • Unverified • Provisional
IHI Status	There are five IHI Statuses of IHIs: • Active • Deceased • Retired • Expired • Resolved
IIN	Issuer Identification Number
IP	Inpatient
IRN	Individual Reference Number, used on the Medicare card to identify each individual whose name appears on the card.
ISO	International Standards Organisation
Local identifier	The local identifier refers to a unique identifier assigned to a health service worker, such as a network identifier for login purposes, or an application ID to be used for application access.
MSO	Medicare Service Operator
NASH	The National Authentication Service for Health (NASH) project being delivered through NEHTA will deliver the first nationwide security service to enable healthcare organisations and individuals to exchange e-health information.
NEHTA	National eHealth Transition Authority
NOK	Next of Kin
OID	Object Identifier
OMR/OMO	Organisational Maintenance Role/Organisational Maintenance Officer.
OP	Outpatient
OPD	Outpatient Department
P&CMS	Patient and Client Management System, also abbreviated to PCMS.
PAS	Patient Administration System – a system used for the recording of patient and provider information to support management and coordination of service provision. Within Health*SMART* this functionality is provided by either a consolidated Patient and Client Management System (P&CMS) through the iSOFT iPM application, or Community Management System through the Trak application for stand-alone metropolitan community health centres.
PCEHR	Personally Controlled Electronic Health Record
PKI	Public Key Infrastructure
Referral	A referral is defined within the Australian standard as “the communication with

Term	Description
	the intention of initiating patient/client care transfer, from the provider making the referral (the originator) to the provider expected to act on the referral (the destination)." In the context of this document a referral is used as a representative health service request or report, and the reader should consider Orders (pathology, diagnostic imaging, etc), discharge summaries, etc.
RO	Responsible Officer
SLA	Service Level Agreement, a contractual agreement that defines the required levels of services required from a vendor/supplier. For example, a common SLA may define that the system be available 98% of the time, and 100% of the time during working hours.
System/s	System/s is the term used to describe the local health service application used to capture and exchange the IHI. This application may be a PAS or Clinical System carrying patient identification data. The Health*SMART* preferred application for capturing and exchanging the IHI is the PAS system.
TDS	Trusted Data Source, which refers to Medicare Australia and the Commonwealth Department of Veterans' Affairs in the initial allocation of IHIs within the HI Service. In the context of the IHI Pre-Implementation project, an organisation participating in e-health messaging, who has met the compliance/accreditation criteria, is also referred to as a trusted data source.
UC	Use case, part of the UML standard used to document tasks or business process steps.
UML	Unified Modelling Language. An international standard for documenting the design of an application.
URN	Unit Record Number
VPHS	Victorian Public Healthcare Sector