Integrating the Healthcare Enterprise

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IHE IT Infrastructure (ITI)

White Paper

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Health IT Standards for
Health Information Management Practices

(HIT Standards for HIM Practices)

15 **Revision 1.1**

20 Date: September 18, 2015
Author: ITI Planning Committee
Email: iti@ihe.net

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Foreword

Integrating the Healthcare Enterprise (IHE) is an international initiative to promote the use of standards to achieve interoperability among health information technology (HIT) systems and effective use of electronic health records (EHRs). IHE provides a forum for care providers, HIT experts and other stakeholders in several clinical and operational domains to reach consensus on standards-based solutions to critical interoperability issues.

The primary output of IHE is system implementation guides, called IHE Profiles. IHE publishes each profile through a well-defined process of public review and trial implementation and gathers profiles that have reached final text status into an IHE Technical Frameworks.

This white paper is published on September 18, 2015. Comments are invited and can be submitted at http://www.ihe.net/ITI_Public_Comments.

For on-going development work, see
http://wiki.ihe.net/index.php?title=HIT_Standards_for_HIM_Practices

General information about IHE can be found at: http://ihe.net.

Information about the IHE IT Infrastructure domain can be found at:
http://ihe.net/IHE_Domains.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at: http://ihe.net/IHE_Process and
http://ihe.net/Profiles.

The current version of the IHE IT Infrastructure Technical Framework can be found at:
http://ihe.net/Technical_Frameworks/.

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50   **CONTENTS**

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1   Acknowledgement

90   This white paper was developed with the support from the American Health Information
Management Association (AHIMA) - the not-for-profit membership-based healthcare association
representing more than 101,000 health information management (HIM) and informatics
professionals who work in more than 40 different types of entities related to our nation's public
health and healthcare industry. AHIMA is committed to advancing information governance in

95   the healthcare industry to ensure the quality and integrity of all types of information necessary to
safe, high quality, cost effective care and the improvement of the health of individuals and
populations.

This white paper was developed as a part of a new globally-focused AHIMA initiative on
Information Governance (IG)[1,2,3] – an organization-wide framework for managing information

100   throughout its lifecycle and supporting the organization's strategy, operations, regulatory, legal,
risk, and environmental requirements.[4] This IG Initiative is a key component of AHIMA's
overall strategy to develop guidelines, operating rules and standards for healthcare
documentation practices.

AHIMA formed a Task Force of HIM professionals – subject matter experts (SMEs) – to provide

105   expertise for aligning HIM practices and capabilities of health information systems through
health information technology (HIT) standards. Their work was facilitated by the AHIMA
Standards Team. Table 1 presents the list of the Task Force members.

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[1] American Health Information Management Association (AHIMA). Information Governance Principles for
Healthcare (IGPHC). Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Principles.ashx

[2] American Health Information Management Association (AHIMA). Information Governance (IG) Infographic –
What is IG? Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Infographic.ashx

[3] Cohasset Associates and American Health Information Management Association (AHIMA). Professional
Readiness and Opportunity. Information Governance in Healthcare White Paper. Minneapolis, MN. 2015. URL:
http://www.ahima.org/~/media/AHIMA/Files/HIM-Trends/IGSurveyWhitePaperCR_7_27.ashx?la=en

[4] American Health Information Management Association (AHIMA). Information Governance. Glossary. URL:
http://www.ahima.org/topics/infogovernance/ig-glossary

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Table 1: AHIMA-IHE White Paper Task Force Members

(in alphabetical order)

Name	Affiliation
Kathleen Addison	Alberta Health Services
Linda Bailey-Woods	Bailey Woods Advisors
Kevin Baldwin	UCLA
Alane Combs	Coastal Healthcare
Funmilola Daniel	Quest Diagnostics
Vicki Delgado	Kindred Hospital Albuquerque
Elisa Gorton	St. Vincent's Medical Center
Sandra Huyck	Beaumont Health System
Satyendra Kaith	Kaplan Higher Education Group
Susan Lucci	Just Associates
Amber Martinez	Precyse
Lori McNeil Tolley	Boston Children's Hospital
Denese Miller	Kennestone Regional Medical Center
Megan Munns	Just Associates
Neysa Noreen	Children's Hospitals and Clinics of Minnesota
Michael Nusbaum	M.H. Nusbaum & Associates Ltd.
Deane Stillar	Alberta Health Services
DeAnn Tucker	Owensboro Health
Lee Wise	Summit Medical Center

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2   Introduction

115   This document, the IHE Information Technology Infrastructure (ITI) White Paper "HIT
Standards for HIM Practices," describes the need for, value and an approach for aligning HIM
business practices (HIM practices) with capabilities of standards-based HIT products to support
information governance in healthcare.

The white paper provides:

120   1.   An overview of HIM practices related to information governance

2.   Detailed analysis of HIM business requirements and best practices checklist related to
information availability, integrity and protection – three of the information governance
principles selected out of a total of eight principles[5, 6, 7]

3.   Five Use Cases derived from these business requirements and best practices for the
125   information availability – in order to guide the development of the functional
requirements for HIT standards

4.   Glossary – definitions of terms, participants (actors), processes (actions) and outcomes of
HIM practices related to the Use Cases

5.   An initial gap analysis of existing HIT standards to support HIM business requirements
130   under selected three IG principles (information availability, integrity and protection) and

6.   Recommendations for HIM community and standards development organizations (SDOs)
for further standardization of both HIM practices as well as capabilities of HIT products
to support these practices.

The white paper describes an approach (methodology) and a roadmap for expanding the list of
135   Use Cases to support business requirements for HIM practices under other information
governance principles in the future. Our effort is aimed to advance the use of standardized
interoperable health information and communication technology (HICT) in healthcare for
improving patient safety and quality of care.

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[5] American Health Information Management Association (AHIMA). Information Governance Principles for
Healthcare (IGPHC). Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Principles.ashx

[6] American Health Information Management Association (AHIMA). Information Governance (IG) Infographic –
What is IG? Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Infographic.ashx

[7] Cohasset Associates and American Health Information Management Association (AHIMA). Professional
Readiness and Opportunity. Information Governance in Healthcare White Paper. Minneapolis, MN. 2015. URL:
http://www.ahima.org/~/media/AHIMA/Files/HIM-Trends/IGSurveyWhitePaperCR_7_27.ashx?la=en

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140 ## 2.1 Need, Goal and Objectives, Scope and Outcome

NEED. In the past decade HIM professionals have been working on implementing health
information and communication technology including various health information systems (HIS)
such as Electronic Health Record Systems (EHRS), Laboratory Information Management
Systems (LIMS) and other HICT products in healthcare and public health organizations. Based
145 on the literature review [8,9,10,11,12,13,14,15,16] we identified the following challenges with HICT
adoption:

1. HIS design flaws

2. Poor HIS usability and improper HICT use

3. Inappropriate documentation capture in HIS

150 4. Errors related to design and use of clinical decision support

5. Errors related to faulty support of HIM practices in HIS

6. Outdated organizational policies to support information capture, management, sharing
   and use in electronic environment because these policies were developed for the paper-
   based environment

[8] Bowman S. Impact of electronic health record systems on information integrity: Quality and safety implications.
Perspectives in Health Information Management. 2013. URL: http://perspectives.ahima.org/impact-of-electronic-
health-record-systems-on-information-integrity-quality-and-safety-implications/#.VU0OLPm6e00

[9] Nguyen L, Bellucci E, and Nguyen LT. Electronic health records implementation: An evaluation of information
system impact and contingency factors. International Journal of Medical Informatics. 2014. 83(11): 779-796.

[10] Kuhn T, Basch P, Barr M and Yackel T. Clinical documentation in the 21st century: executive summary of a
policy position paper from the American College of Physicians. Annals of Internal Medicine. 2015. URL:
http://scholar.google.com/scholar?hl=en&q=Clinical+Documentation+in+the+21st+Century%3A+Executive+Summ
ary+of+a+Policy+Position+Paper+From+the+American+College+of+Physicians&btnG=&as_sdt=1%2C14&as_sdt
p=

[11] Bouamrane M and Mair, FS. A study of general practitioners' perspectives on electronic medical records systems
in NHS Scotland. BMC Medical Informatics and Decision Making. 2013. 13: 58 URL:
http://search.proquest.com.library.capella.edu/docview/1399741170?pq-origsite=summon

[12] Walker JM etal. EHR safety: the way forward to safe and effective systems. JAMA. 2008. 15(3): 272-277. URL:
http://jamia.oxfordjournals.org/content/15/3/272.short

[13] Health Level Seven (HL7). Electronic Health Records System Usability Conformance Criteria, Release 1. 2015.
Health Level Seven (HL7). Comment-only Ballot. URL: http://wiki.hl7.org/index.php?title=EHR_USABILITY

[14] Terry AL etal. Implementing electronic health records. Key factors in primary care. Canadian Family Physician.
2008. 54(5): 730–736. URL: http://www.cfp.ca/content/54/5/730.short

[15] Holroyd-Leduc JM etal. The impact of the electronic medical record on structure, process, and outcomes within
primary care: a systematic review of the evidence. JAMA. 2011. 18(6): 732-737. URL:
http://scholar.google.com/scholar?hl=en&q=The+impact+of+the+electronic+medical+record+on+structure%2C+pr
ocess%2C+and+outcomes+within+primary+care%3A+a+systematic+review+of+the+evidence.&btnG=&as_sdt=1
%2C14&as_sdtp=

[16] Cleveland S and Ellis TJ. Toward a model for customer-driven release management. Proceedings of the
Nineteenth Americas Conference on Information Systems, Chicago, IL. August 2013. URL:
http://scholar.google.com/scholar?hl=en&q=Toward+a+model+for+customer-
driven+release+management.&btnG=&as_sdt=1%2C14&as_sdtp=

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155   7. Inadequate training for HIM personnel and clinicians to operate HIS and

      8. Errors related to vendor's upgrades of HIS systems (i.e., HICT release cycle
         management).

To address challenges that HIM professionals documented while transitioning from the paper-
based to an electronic environment, there is a need to establish cross-collaboration between HIM
160   professionals, standards developers and HIT vendors focusing on the following three efforts to
assure that:

      Effort 1: Functional requirements for HIM practices have been communicated to
         standards developers for creating HIT standards

      Effort 2: Standards are adopted in the HIT products and

165   Effort 3: Standards-based HIT products support HIM practices.

GOALS AND OBJECTIVES. The goals of the white paper are two-fold: (a) inform HIT
standards developers about HIM practices; and (b) to outline a methodology for aligning HIM
practices with the capabilities of HIT products through standards.

170   The following are the white paper objectives:

      1. Demonstrate the alignment between HIM practices (business requirements, practice
         checklists, use cases), and capabilities of HICT products to support these practices

      2. Inform IHE development process by defining Profile Specifier checklist (i.e., functional
         requirements for HIT standards) aligned with the HIM practice checklist

175   3. Inform the development of national and international HIT interoperability standards for
         HICT products for identified HIM practices and

      4. Create the roadmap for the development of these standards.

SCOPE. The white paper is focused on HIM practices related to electronic health information
180   capture, management, sharing and use. This year (Year 1), we developed a methodology for
cross-collaboration between HIM professionals and HIT standards developers concentrating on
*Effort 1 - a systematic approach for specifying functional requirements for HIM practices via use
cases in order to validate existing HIT standards and to guide the development of new standards*.

In the future, we anticipate working with the IHE community on expanding our approach to
185   focus on *HIT standards adoption in HIT products (Effort 2)* and providing feedback on
capabilities of *standards-based HIT products to support HIM practices (Effort 3)*.

In Year 1, we focused on the three information governance principles out of a total of eight
principles as indicated in ***bold, italic font*** below:

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190   *1. **Information availability***
       *2. **Information integrity***
       *3. **Information protection***
       4. Information accountability
       5. Information compliance
195   6. Information transparency
       7. Information retention and
       8. Information disposition.

This white paper presents:

200   1. HIM business requirements under the three principles (information availability, integrity
       and protection)

       2. Results of literature review for the best HIM practices under these three principles
       aligned with the business requirements and

       3. Five Use Cases for information availability (focused on inpatient care settings).

205   In the future, we anticipate continuing the development of additional Use Cases under
       information availability, other IG principles and healthcare settings.

       OUTCOME. We established methodology (a systematic approach) for continuing collaboration
       between HIM professionals and standards developers via specifying

210   a. Business requirements by information governance principle (information availability,
       integrity and protection)

       b. HIM practice checklist based on the analysis of the business requirements and HIM
       practices documented in the literature and

       c. Use Cases and functional requirements to support HIM practices in HIT products.

215   This methodology is described in detail in the correspondent section below. Six specific
       deliverables listed in the Introduction section above are also described in details in the white
       paper.

2.2 Intended Audience

The intended audience of the white paper includes HIM professionals, HIM educators, standards
220   developers, HIT and ICT vendors for all types of clinical, public health and research information
systems and HICT products, and other stakeholders involved in current or planned
implementation of HICT in healthcare, public health and research organizations.

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3 Methodology

3.1 Method

225 In this project, we deployed requirement elicitation method to specify HIM needs for the
standard-based HICT products as follows. Derived from the on-going AHIMA work on the
information governance principles in healthcare, [17,18,19,20] we specified HIM business
requirements by information availability, integrity and protection principles. Further we
conducted literature review on the HIM best practices supporting these business requirements
230 and developed HIM checklists by principle. Drawn from the checklist's items, we developed Use
Cases to specify functional requirements for HIT standards. We further conducted initial analysis
of existing standards from various standard development organizations (SDOs) by business
requirements/HIM practice checklist/Use Cases. Figure 1 presents overview of method deployed.
Numbers (#=XX) on Figure 1 show the number of items developed by each step of the project.

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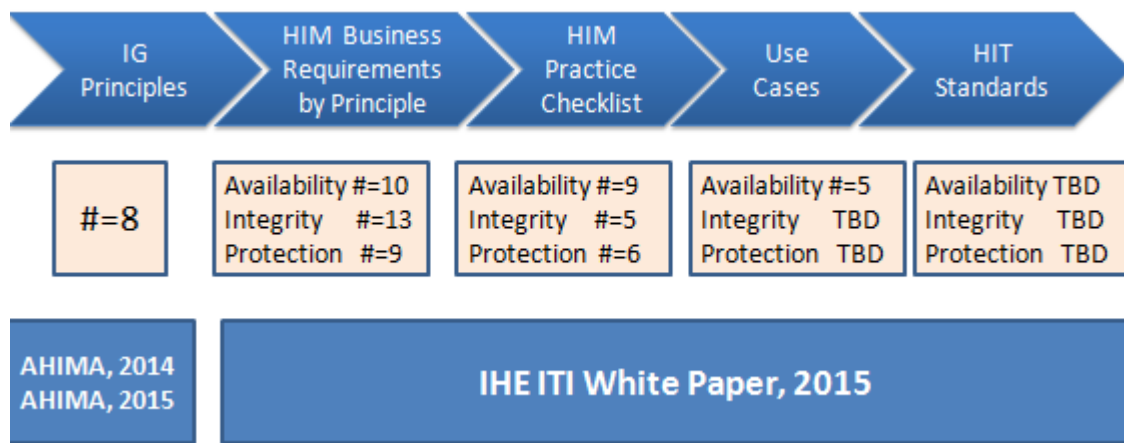
Figure 1: Project Method: Requirements Elicitation

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[17] American Health Information Management Association (AHIMA). Information Governance Principles for
Healthcare (IGPHC). Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Principles.ashx

[18] American Health Information Management Association (AHIMA). Information Governance (IG) Infographic –
What is IG? Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Infographic.ashx

[19] Cohasset Associates and American Health Information Management Association (AHIMA). Professional
Readiness and Opportunity. Information Governance in Healthcare White Paper. Minneapolis, MN. 2015. URL:
http://www.ahima.org/~/media/AHIMA/Files/HIM-Trends/IGSurveyWhitePaperCR_7_27.ashx?la=en

[20] American Health Information Management Association (AHIMA). Information Governance in Healthcare. Pilot
Projects. Work in progress. 2015.

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3.2 Project Participants

240   The project was conducted under the IHE ITI Planning Committee. HIM professionals – subject
matter experts - were recruited via the Call for Participation[21] among those serving on AHIMA
volunteer initiatives as follows:

1. AHIMA Enterprise Information Management Practice Council (EIMPC)

2. Health Information Exchange Practice Council (HIEPC)

245   3. Privacy/Security Practice Council (PSPC)

4. Data and Information Analysis Task Force (DIATF)

5. Clinical Documentation Improvement Task Force (CDITF)

6. Coordination of Care Task Force (CCTF)

7. Consumer Engagement Task Force (CETF)

250   8. AHIMA IG Advisory Group

A total of 19 HIM SMEs were recruited (Table 1). Table 2 describes types of organizations and
HIM roles of volunteers who participated in the Task Force.

Table 2: Task Force Members: Organizations and Roles

Organization	HIM Role	Number of Volunteers
Hospital	Senior Provincial Director	1
	Director, Enterprise Information Management	1
	Director/Manager/Assistant Director	3
	Director/Assistant Director, Privacy	2
	Data Integrity and Applications Manager	1
	Compliance Audit Specialist	1
	HIM Consultant	2
Consultant Entity	HIM Consultant	3
Higher Education	Faculty	1
Laboratory	Senior Customer Service Representative	1
Vendor	Associate Identity Manager	1
	Consultant, Chief Privacy Officer	1
	Consultant, Information Systems	1

255   The overall work on the project was facilitated by the AHIMA Standards Team.

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[21] Integrating the Healthcare Enterprise (IHE). Information Technology Infrastructure (ITI) Planning Committee.
HIT Standards for HIM Practices White Paper. Call for Participation. January 15, 2015.

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3.3 Project Tasks, Timeline and Deliverables

This project was conducted during September 2014 – September 2015. Table 3 describes
projects tasks, timeline and deliverables. Project activities were conducted via biweekly
conference calls of the HIM Task Force members. Representatives from the Task Force and
260   AHIMA Staff also participated in the biweekly meetings of the IHE ITI Planning Committee to
review and critique Use Cases and functional requirements for HIT standards developed by the
HIM volunteers.

The AHIMA staff attended 3 in-person IHE meetings (November 2014, April and July 2015) to
provide progress reports on the project activities.

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Table 3: Tasks, Timeline and Deliverables

Task	Timeframe	Deliverable
Develop and defend proposal to the IHE ITI Committee	Sept.-Nov. 2014	Proposal for the 2014-15 IHE development cycle
Develop project infrastructure	Dec. 2014	Wiki Pages
Assemble AHIMA HIM SME Task Force	Jan. 2015	Call for Participation
Develop project methodology	Jan. 2015	Methodology
Document business requirements and HIM best practices by selected IG principle: availability, protection and integrity	Jan.-April 2015	Business Requirements Literature Review HIM Practice Checklist
Define Use Cases for selected HIM best practices	Feb.-April 2015	HIM Use Case List
Conduct gap analysis of HIT standards to assess their relevance to supporting HIM practice	Mar.-Apr. 2015	Standards Gap Analysis Table
Develop recommendations and roadmap for addressing identified gaps in HIM practices and HIT standards	Mar.-Apr. 2015	Recommendations and Roadmap
Publish draft white paper for public comments	May 2015	Draft white paper
Publish final white paper	Sept. 2015	Final white paper
Communication, outreach and marketing	May-Sept. 2015	Spotlight in HIMSS Media Article in Journal of AHIMA Presentation at AHIMA Convention
Develop proposal for the IHE 2015-16 development cycle	Sept. 2015	Proposal for the 2015-16 IHE development cycle

Figure 2 presents summary of the project activities.
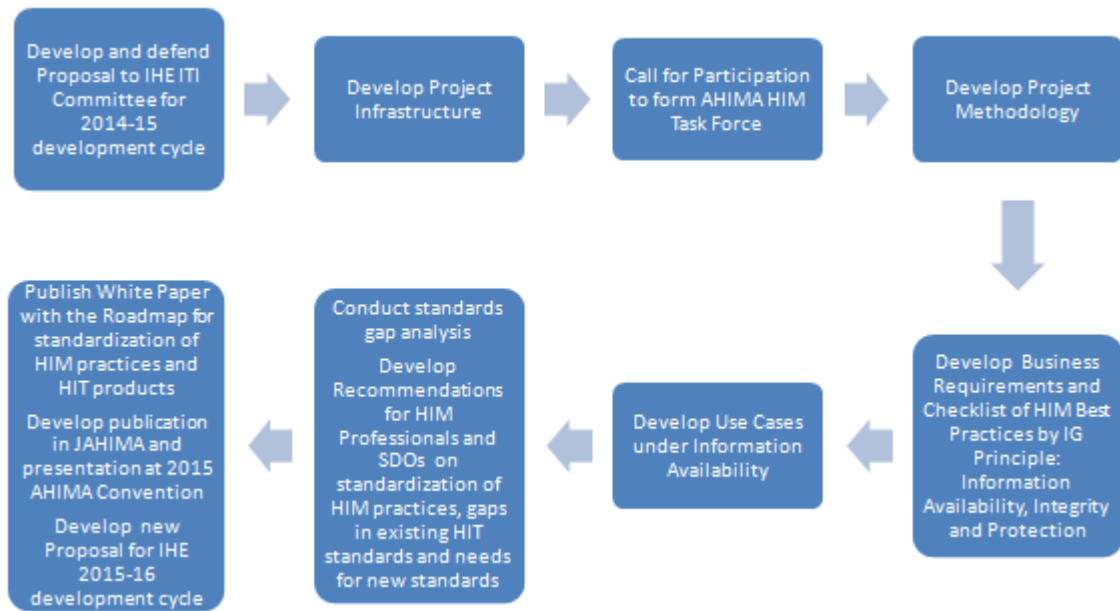
Figure 2: Project Activities

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4   Overview of Health Information Management

4.1 HIM Professionals (Actors)

275   HIM professionals are responsible for ensuring the availability, integrity, and protection of
information that is needed to deliver healthcare and population health services and to make
appropriate healthcare and health promotion-related decisions. Table 4 presents a sample of
current roles of HIM professionals in healthcare organizations.[22]

280   **Table 4: Roles of HIM Professionals in Healthcare Organizations**

HIM Roles		
Data Capture, Validation, and Maintenance		
Chart correction analyst	Data architect	ICD-10 implementation specialist
Classification editor and exchange expert	Data capture design specialist	Information workflow designer
Clinical coding validator	Data dictionary manager	Patient identity manager
Clinical content manager	Data integrity and transition specialist/auditor	Registrar (birth, cancer, device, bone marrow, tissue)
Clinical documentation improvement specialist/supervisor	Data mapper/translator	Research coordinator/associate
Coder	Data quality manager/analyst	Research data abstractor
Coding compliance coordinator/supervisor/manager	Documentations/EHR trainer	Terminology asset manager
Computer-assisted coding validation practice leader	EHR content manager	Voice capture specialist
Privacy Officer	Enterprise patient master index, data integrity analyst	
Data/Information Analysis, Decision Support and Informatics		
Business analyst/data analyst	Data integration manager/analyst	Decision support officer
Claims data analyst	Data integrity and transactions specialist/auditor	Health data analyst/manager/director
Clinical content analyst	Data quality manager/analyst	Health data statistician
Data abstractor/coordinator	Data repository architect/manager/analyst	Health outcomes analyst
Data architect	Decision support analyst	Health data quality engineer

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[22] LaTour K. etal, Health Information Management. Chicago, IL: AHIMA Press. 2013. p. 50.

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The emerging roles for HIM professionals in the new interoperable electronic data sharing
environment include Standards setters, Standards developers, Educators, Chief information
governance officers, Consumer information advocates, Brokers of information. [23]

4.2 HIM Practices (Actions)

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HIM practices are focused on collecting health information, ensuring complete documentation,
maintaining and protecting health data, and appropriately sharing authorized information through
electronic as well as paper-based release of information.[24] Thus HIM practices include various
activities aimed to support basic HIM functions: Capture, Process, Use, Store, and Dispose
health information as depicted in Figure 3 to present an overview of the high level functions to
support information lifecycle.

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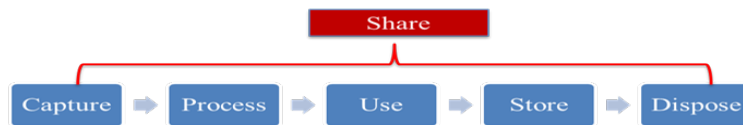
Figure 3: HIM Functions to Support Information Lifecycle

295   Table 5 presents HIM activities under these functions.[25]

Table 5: HIM Activities by HIM Function

Capture	Process	Use	Store	Dispose
Create	Classify	Code	Store	Delete
Enter	Validate	Examine	Preserve	Deprecate
Record	Analyze	Analytics	Archive	Destroy
Dictate	QC/QA	Business Intelligence	Protect	Permanent Store
Write	Compliance	Release		Discover
Receive	Integrate	Discover		Permanent
Interface	Prove	Hold		Archive
Update	Maintenance	Retain		Transition
Capture		Export		
		Transmit		
		Exchange		
		Share		

[23] Van Dolan P. Reframing Roles. American Health Information Management Association (AHIMA) Leadership
Symposium, Chicago, IL July 11-12, 2014.

[24] LaTour, K. etal, Health Information Management. Chicago, IL: AHIMA Press, 2013, p.50.

[25] American Health Information Management Association (AHIMA). Information Governance in Healthcare.
Maturity Model. Work in Progress. 2015

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4.3 Health Information (Products)

300 Quality health information is a product of activity(ties) involved clinician, patient and HIM professionals. It is comprised of all types of health data generated in the process of care delivery within an episode of care and assembled/presented/stored/exchanged in records that include documents/data quires/screens/images/readings, etc. (i.e., all that describes the episode of care). Relevant paper-based documents provided by patient, caregiver and/or clinicians during the episode of care can be scanned and become part of the record of the episode of care.

305 An episode of care consists of various functions, e.g., registration, triage, assessment, testing, care plan, registries, reporting, etc. The order of performing these functions is determined by the type of encounter and specified by organizational policies or jurisdictional law.

Each of these functions is associated with capturing/producing/sharing/using specific information in the records. Table 6 shows the examples of episode of care's functions and
310 correspondent information.

Table 6: Functions of the Episode of Care and Examples of Health Information in the Record

Episode of Care's Functions	Examples of Information in the Record
Visit Registration/Admission	Patient and Facility Demographics, Billing, Consent for Information Exchange (opt-out/opt-in)
Triage	Triage Notes and Vital Signs
Assessment	History and Physical, Problem List, Medication Reconciliation, Preliminary Diagnosis and Care Plan
Laboratory and Diagnostic Testing	Consent for Procedure, Test Orders and Test Result Reports
Diagnosis and Care Plan	Confirmed Diagnosis and Updated Care Plan
Prescription	Medication Order and Dispense Report
Progress notes	Daily Notes, Treatments, Interventions, Procedures, etc.
Summary of Care	Transfer Summary or Discharge Summary
Discharge/Transfer/Disposition (ADT)	ADT Record

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315   Figure 4 presents the hierarchy of the record content such as:

Level 1 – **Lifetime Record** – longitudinal record that includes records from all episodes of care over the patient's lifetime (prenatal care – birth – life – death)

Level 2 – **Episode of Care Record** – multiple information components (records, documents, forms, etc.) generated within various functions of the episode of
320   care (Table 6)

Level 3 – **Function's Record Component** – specific record(s) (e.g., registration record, admission record, test order record, test result reports record, etc.) generated within a specific function of the episode of care (Table 6)

Level 4 – **Data Entry Record** (record at data entry level) – representation of data in a
325   record component associated with a specific function (e.g., test order document/form, care plan document/form, public health report/form, etc.). Standardized representation of data entry in the document/form is achieved by using Health Level Seven (HL7) Continuity Care Document (CCD)/Clinical Document Architecture (CDA) standard,[26] HL7 Fast Health Interchange
330   Resource (FHIR) standard[27] and/or other information content standards.
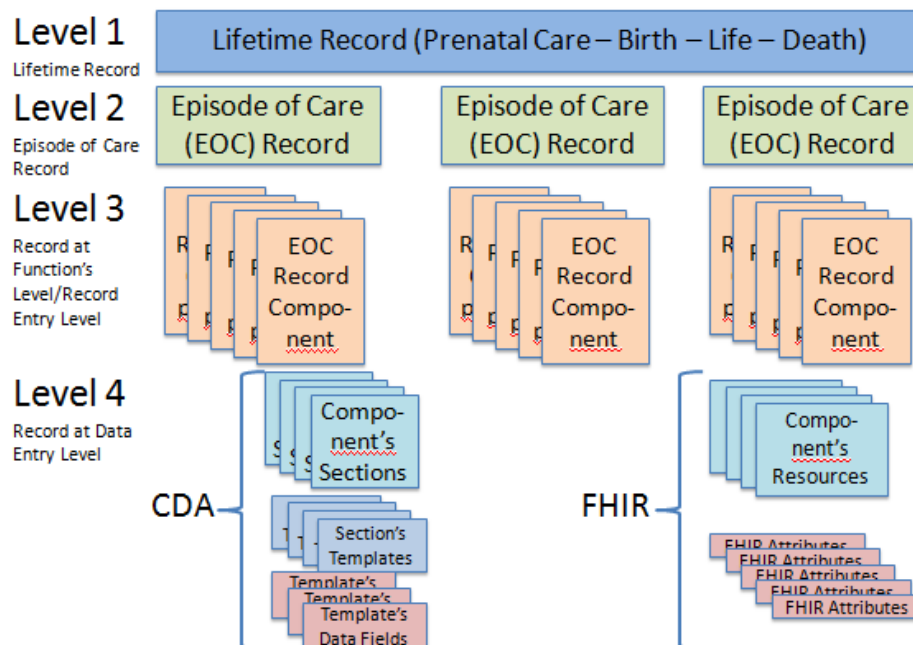
Figure 4: Record Content Hierarchy

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[26] Health Level 7 (HL7). Clinical Documentation Architecture (CDA) Release 2. 2005. URL: http://wiki.hl7.org/index.php?title=Structured_Documents
[27] Health Level 7 (HL7). Fast Healthcare Interoperability Resources (FHIR). 2014. URL: http://www.hl7.org/fhir/

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Figure 5 presents the examples of the Episode of Care's functions and record components
335   generated at a specific function in the process of care.
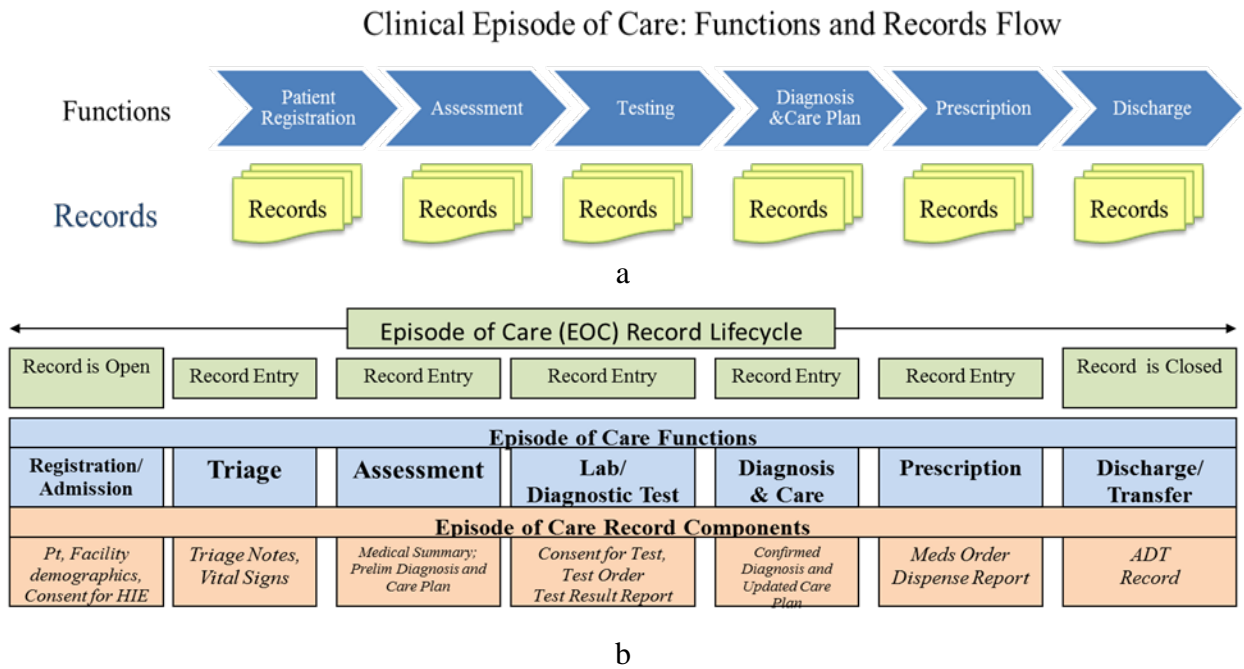
Figure 5: Examples of Episode of Care's Functions and Records/Documents:

a – High level view of the episode of care functions and documentation and

b – Detailed view of episode of care functions and documentation.

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4.4 Information Governance

Information governance is described as an accountability framework that "includes the
processes, roles, standards, and metrics that ensure the effective and efficient use of information
in enabling an organization to achieve its goals."[28] In short, information governance defines the
350   rules imposed on the information as a product. According to the ARMA International (formerly
the Association of Records Managers and Administrators), [29] generally accepted recordkeeping
principles include:

1. Accountability

355   2. Transparency

3. Protection   Record Attributes

4. Integrity

5. Compliance

6. Availability

360   7. Retention   Record States

8. Disposition

Please note that principles 1-5 represent the attributes of the record, principles 6-8 represent the
states of the record lifecycle.

365   In 2014 AHIMA launched Information Governance Initiative to adopt these IG principles for
healthcare - IGPHC[TM] .[30,31] The eight principles are broad and comprehensive and coincide with
one another in many instances. The principles operate in tandem to establish trust by clinicians,
patients, regulators, and others with whom the organization interacts.[32]

Figure 6 presents AHIMA framework for information governance that enables organizational
370   policies and processes to support information lifecycle.[33]

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[28] ARMA International (formerly the Association of Records Managers and Administrators). Generally Accepted
Recordkeeping Principles. Information Governance Maturity Model. 2013. URL; http://www.arma.org/principles
[29] Same
[30] American Health Information Management Association (AHIMA). Information Governance Principles for
Healthcare (IGPHC). Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-
Trends/IG_Principles.ashx
[31] Cohasset Associates and American Health Information Management Association (AHIMA). Professional
Readiness and Opportunity. Information Governance in Healthcare White Paper. Minneapolis, MN. 2015. URL:
http://www.ahima.org/~/media/AHIMA/Files/HIM-Trends/IGSurveyWhitePaperCR_7_27.ashx?la=en
[32] Datskovsky G, Hedges R, Empel S, Washington L. Evaluating the information governance principles for
healthcare: compliance and availability. JAHIMA 86, no.6 (June 2015): 54-55.
[33] Green D. Information Governance Update. Presentation at the Health Information Management and Systems
Society (HIMSS) Annual Convention. Chicago IL, April 12-16, 2015.

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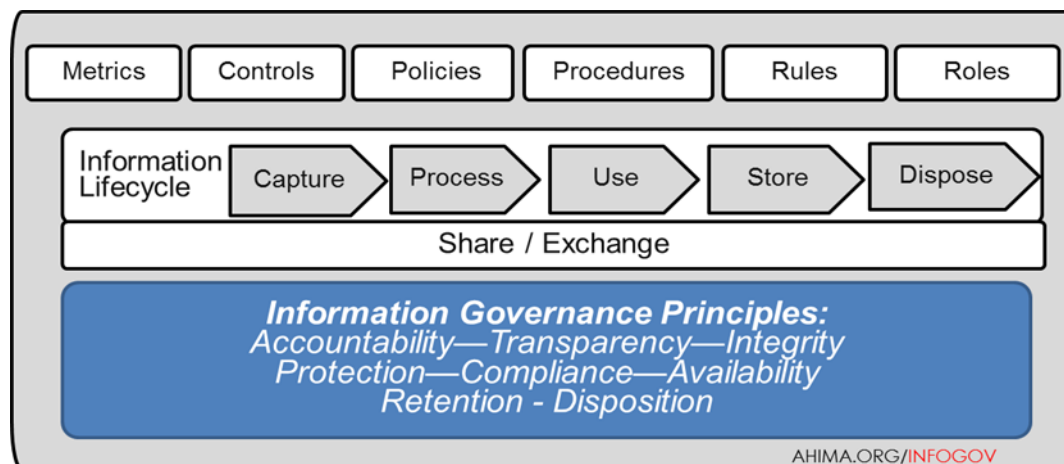
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**Figure 6: AHIMA Information Governance Framework: Organizational Policies, Processes
and Roles for Information Lifecycle[34]**

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The authority on establishing organizational policies and processes as well as specific
documentation generated via these policies and processes and/or mandated by regulatory bodies
falls on a Committee comprised of representatives from clinical, business and technology
departments within the healthcare facility.[35,36]

380   These representatives may include:

- Patient care providers

  - Clinicians (MDs, PA, RNs, residents, other credentialed providers) and

  - Staff who supports ancillary services (laboratory, radiology, pharmacy, etc.

- Practice administrators (physician's assistants, medical group administration)

385 - Health information services directors/medical informatics officers (Chief Medical
    Informatics Officer (CMIO))

- Health information technology department (Chief Information Officer (CIO))

- Health information directors (HIM, Clinical Documentation Improvement (CDI), Release
  of Information (ROI))

390 - Compliance officers (legal and regulatory support) (Chief Legal Officer (CLO), Auditor)

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[34] Green D. Information Governance Update. Presentation at the Health Information Management and Systems
Society (HIMSS) Annual Convention. Chicago IL, April 12-16, 2015.
[35] Forms Management. Hospital Policy. University of Vanderbilt, Nashville TN. June 12, 2000
[36] Quinsey CA. Managing forms and legal electronic health records. JAHIMA, July 2007, p.58-59

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- Purchasing and financial managers (Chief Financial Officer (CFO)) and

- Vendors (document scanning, master patient index (MPI)/EMPI, diagnostic imaging, EHR, laboratory, etc.) and

- Other.

395   Please note that this Committee may have various titles (Form Management Committee, HIT Committee, etc.) and carry out different responsibilities in different organizations. Further efforts are needed to assure standardization of Committee's efforts in defining HIM practices and documentation when implementing information governance within an organization. This is specifically important because in the interoperable, electronic information sharing environment,

400   a lack of sound organizational policies and practices on HIM may compromise shared data, information and knowledge. Our suggestions regarding standardization of the Committee's efforts are presented in the Recommendation section below.

To carry out project activities, in Year 1 we selected 3 information governance principles (information availability, integrity and protection). Sections that follow provide definitions and

405   business requirements for the selected principles based on the AHIMA information governance principles in healthcare (IGPHC). [37]

4.4.1 Principle of Information Availability: Business Requirements

Information Availability is defined as the ability of an organization to maintain information in a manner that ensures *timely, accurate, and efficient* retrieval of information by authorized

410   entity,[38] i.e., information shall be available upon request of authorized entity.

This information may be used by:

- The healthcare team, patients, and other caregivers

- Authorized members of the workforce and others authorized users consistent with regulations

415   - Legal and compliance authorities for discovery and regulatory review purposes and

- Internal and external reviewers for purposes including but not limited to payer audit, financial audit, case management, and quality assurance.

Table 7 presents HIM business requirements under **Principle of Information Availability** to retrieve, use, audit, and manage information.

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[37] American Health Information Management Association (AHIMA). Information Governance Principles for Healthcare (IGPHC). Chicago, IL. 2014. URL: http://www.ahima.org/~/media/AHIMA/Files/HIM-Trends/IG_Principles.ashx=

[38] Same.

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Table 7: HIM Business Requirements: Health Information Availability

Health Information Availability: Business Requirements
1. Ability to capture and maintain information in a manner that ensures timely, accurate (complete and correct), and efficient access and retrieval.
2. Ability to search, identify, locate and retrieve patient specific information in continually expanding volumes of information and across multiple systems including various electronic HIS and manual systems (paper-based document locations, storages, etc.). This requirement is focused on tracking sources where information resides (HISs, other HICT products and manual systems).
3. Ability to access information across various systems (electronic and manual) and across patient populations. This includes the abilities to search, identify, locate, and retrieve the information required to support organization's ongoing activities via queries. This requirement is focused on how information from various sources is accessed.
4. Ability to assemble information from disparate electronic systems, both internal and external to the actual or virtual location(s) of the organization.
5. Ability to address multiple demands for having the right information available at the right time for the right requestor.
6. Ability to access information created with legacy hardware and software systems. In case of impending system obsolescence, information with organizational value should be migrated to currently supported hardware and/or converted into a machine-readable format.
7. Ability to maintain metadata services across all participating systems assigning structural and descriptive characteristics to information including data provenance information (authors and dates of creation, modification, sending, receipt, access, etc.).
8. Ability to ensure levels of redundancy, failover, contingencies and other risk management practices to minimize risks of non-availability of information due to a disaster, system malfunction, or data corruption.
9. Ability to maintain the workforce capabilities on the most current methods to capture, maintain and access information assuring the work processes consistencies despite of workforce turnover.
10. Ability to enable trust of requestor in information by ensuring the timeliness, accuracy (completeness and correctness), and efficiency of information availability based on implementation of business requirements 1-9 above.

We further used business requirements on health information availability to (a) identify HIM
best practices Checklist via literature review, (b) develop Use Cases specifying functional
425   requirements for HIT standards, and (c) conduct preliminary gap analysis of existing standards
supporting these business requirements (please see below Appendices A, B and D, respectively).

4.4.2 Principle of Information Integrity: Business Requirements

Information integrity – the state of being whole or unimpaired – is defined as the ability of data
to maintain its structure and attributes to assure representation of intended content and
430   meaning.[39]

Table 8 presents HIM business requirements under **Principle of Information Integrity**.

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[39] In formulating this definition we revised the original definition of information integrity in AHIMA Pocket
Glossary, 2013. We will work to update AHIMA definition in the future as needed.

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Table 8: HIM Business Requirements: Health Information Integrity

Health Information Integrity: Business Requirements
1. Ability to maintain information in a manner that ensures confidence in its authenticity, timeliness, accuracy, and completeness.
2. Ability to maintain integrity of information to comply with safety, quality of care, and compliance with applicable voluntary, regulatory and legal requirements.
3. Ability to maintain integrity of information in adherence to the organization's policies and procedures.
4. Ability to provide appropriate workforce training on information management and governance to support integrity of information.
5. Ability to enable trust of requestor in the integrity of information by ensuring the authenticity, timeliness, accuracy, and completeness, admissibility of records for litigation purposes.
6. Ability to ensure integrity of information through reliable system controls that support the organization's ongoing activities across various systems.
7. Ability to manage integrity of information received from disparate electronic systems, both internal and external to the actual or virtual location(s) of the organization.
8. Ability to demonstrate oversight by senior management of adherence to approved policies and procedures necessary to maintain reliability of information.
9. Ability to ensure reliability of data and information based on the nature and type of healthcare organization processes and systems for creation and capture, processing, and other applicable stages of the information's lifecycle.
10. Ability to implement ongoing quality control measures to include field-specific data edits built into systems/applications; monitoring and correction of patient identity errors; monitoring and correction of documentation completeness and data accuracy; and ongoing data quality controls, and monitoring and correction in adherence to existing standards.
11. Ability to prove reliability and integrity of information through audit process to validate measures for ensuring the reliability and integrity of information.
12. Ability to monitor hardware, network infrastructure, software, storage, and other system components for reliability of performance.
13. Ability to maintain formal change control processes as part of a reliable information environment.
14. Ability to test HIS capabilities to support business requirements 1-13 including validation of data and all appropriate metadata.

435   4.4.3 Principle of Information Protection: Business Requirements

Information Protection is defined as guarding against "(1) inappropriate acquisition, access, disclosure or use of protected health information as well as (2) loss, tampering, and corruption of health information."[40] Thus part 1 of this definition relates to protection of Information Availability and part 2 – to protection of Information Integrity.

440   Table 9 presents HIM business requirements under **Principle of Information Protection**.

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[40] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. p.134

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Table 9: HIM Business Requirements: Health Information Protection

Health Information Protection: Business Requirements
1. Ability to ensure appropriate levels of protection from breach, corruption and loss of information that is private, confidential, classified and essential to business continuity or otherwise requires protection.
2. Ability to consistently apply and enforce levels of protection to information, regardless of medium, from the moment the information is created until the moment it reaches or exceeds its retention period and is appropriately disposed. This specifically includes adherence to security, privacy and confidentiality requirements (rules, regulations, policies) when determining a method for the final disposition of information, regardless of source or media. This applies whether the disposition is archival, transfer to another organization, preservation for permanent storage, or destruction.
3. Ability to establish an audit program that defines a clear process for verifying whether sensitive secure information is being handled in accordance with the organization's policies and procedures.
4. Ability to manage and balance compliance with the varying degrees of protection, mandated by laws, regulations, and/or organizational policies for information generated and managed by an organization.
5. Ability to provide security, business continuity, and disaster recovery processes that will ensure continued operation and continued protection, during and after periods of failure or disruption.
6. Ability to assign and manage appropriate levels of information access and security clearance to all members of the workforce and other authorized parties relevant to their roles or duties.
7. Ability to maintain appropriate security safeguards, clearly defined and enforced by organizational policies, designed to protect electronic information from being inappropriately viewed, e-mailed, downloaded, uploaded, or otherwise proliferated—intentionally or inadvertently, even by individuals with legitimate access to the system.
8. Ability to provide physical security safeguards of computing and access devices or any equipment containing private, secret, or confidential information or intellectual property of the organization.

4.5 HIM Practice CheckList

445   Based on the literature review we developed HIM Practices Checklist of best practices used in
HIM for information availability, integrity and protection. We aligned this Checklist with the
business requirements described in Tables 7-9 above. Appendix A presents the HIM Practice
Checklist by business requirements under selected information governance principles:
availability, integrity and protection. Appendix A also reveals the gaps between the business
450   practices, best practices and the use cases. These identified gaps outline where additional
business requirements and use cases need to be developed.

4.6 HIM Practice Use Cases

We further used the HIM Practices Checklist (Appendix A) to develop five Use Cases under
information availability principle. We utilized an iterative development, vetting and validation
455   approach working both with the HIM SMEs and IHE ITI experts. The following are the Use
Cases developed to date:
   Use Case 1: All documents are accounted for within a specific time period post completion
        of the episode of care
   Use Case 2: Record is closed as complete within a specific time period post completion of
460   the episode of care
   Use Case 3: Documents within the record can be viewed by or released to the external
        requestor

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Use Case 4: An audit log of the episode of care record
Use Case 5: An audit log of requests for release of information and accounting of disclosures

465 These Use Cases are limited to the inpatient care settings. Detailed description of the Use Cases
is provided in Appendix B.

4.7 Glossary

To assure the use of consistent terms and definitions across Use Cases we developed a Glossary
of terms and concepts used in HIM practices (Appendix C). In some cases we used definitions
470 from the AHIMA HIM Glossary;[41] in others, we developed our own definition. We anticipate
updating the AHIMA HIM Glossary by revising current definitions and/or adding new
definitions as needed.

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[41] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information
Management and Technology. Chicago, IL. 2014

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5   Gap Analysis of HIT Standards to Support HIM Practices

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Based on the business requirements, we conducted a high level analysis of HIT standards
developed by standards development organizations which may be applicable to HIM practices.
Initially, we focused on identifying standards from the following SDOs:

- International Organization for Standardization (ISO)

- American Society for Testing and Materials (ASTM) and

- Health Level Seven (HL7).

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Appendix D presents the framework for the gap analysis of HIT standards that we used. It
contains examples of ISO, ASTM and HL7 standards by HIM business requirements under the
selected three IG principles. In the future, we anticipate carrying out the detailed analysis of
these and other standards by Use Case. This analysis will include the detailed review and

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selection of IHE standards (integration and content profiles) by Use Case.

Please note that Appendix D contains only the standard's identification number (ID) from the
correspondent SDO not the title of the standard or its description. On the project wiki pages,[42]
we developed supporting table that contains the ID, title and abstract for the standards listed in
Appendix D.

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[42] IHE-AHIMA White Paper HIT Standards for HIM Practices. Project Wiki Page. URL:
ftp://ftp.ihe.net/IT_Infrastructure/iheitiyr13-2015-
2016/Planning_Cmte/WorkItems/HIM_Practices/Standards_Table_0507/

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490 **6 Recommendations**

Working on the analysis of the HIM business requirements (Tables 7-9), HIM Practices
Checklist (Appendix A) and Use Cases (Appendix B), we identified gaps in both HIM practices
as well as standards development. For example, Table in Appendix A contains cells with the
statement of "*Additional alignment between Business Practice and Checklist item is needed*" that
495   indicates the gap between best practices described in the literature and business requirements
statements from Tables 7-9. We will work to address these gaps in the future.

The list of recommendations was developed to improve alignment between HIM practices and
HIT standards. These recommendations were aimed to (1) HIM professionals and (2) Standards
developers. Table 10 presents our recommendations for affected stakeholders to better align HIM
500   practices and capabilities of HIT products through standards.

Table 10: Recommendations to HIM Professionals and SDOs

Recommendations for HIM Professionals
A. Standardize policies for organizations' Form Management Committee[43] including

1. Standardize/harmonize scope and operations of the Committee according with the information governance principles
  2. Harmonize/standardize Committees' policies across healthcare organizations
  3. Develop a template of organizational policy related to documentation development and management
  4. Define standardized set of documentation for the Episode of Care
    a. Collect applicable documents that are available for a complete Episode of Care
    b. Define policies on the Open and Closed Records and the processes and timeliness of the record completion. This includes finalizing definitions on Open records, e.g., Incomplete, Lost, Delinquent, Cancelled
    c. Define policy that outlines how clinicians are notified of Open and Closed records when
      i. Procedures ordered but not performed
     ii. Documentation components are missing or
    iii. Signatures are missing. [44]
  5. Define a minimum set of content to be analyzed for timeliness and completeness in the legal record
  6. Define data provenance of content and source
    a. Metadata tags such as the who, what, when, where, why

B. Designate HIM representatives to participate at HL7 Working Groups including
1. HL7 Community-based Collaborative Care (CBCC) Workgroup   a. Review Patient Friendly Consent Directive standard ballot[45,46]

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[43] Please see note that the name of this Committee may vary in different organizations.

[44] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information
Management and Technology. Chicago, IL. 2014. p.77

[45] Health Level Seven (HL7). Patient Friendly Consent Directive. URL:
http://wiki.hl7.org/index.php?title=HL7_Patient_Friendly_Consent_Directive_Project

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b. Review Data Provenance Model[47] – key concerns include:
   i. ensuring confidence/authenticity/reliability of information for clinical decision-making by knowing who, what, when, where, why
   ii. capturing who, what, when, where, why for auditing, accounting of disclosure and access-controls
   iii. re-use of clinical information for research purposes (who, what, when, where, why)
   iv. legal issues related to data provenance in healthcare

2. HL7 EHR Workgroup
   a. Normalize definitions for records/document lifecycle. Specific examples of statements from the HL7 EHR Functional Model standard[48] are provided in italic below. (Strikethrough text and underlined italics are the proposed changes).

   *"**Record Infrastructure RI. 1.4**, Function; Record Completeness, Conformance Criteria:*
   Statement: Manage Record Completeness.
   Description: The EHR-S must provide the ability for an organization to define <u>minimum elements</u> and timeframes for completion at the <u>report level</u> and at the <u>record level</u>."
   1. Discuss and define the use of terms: minimum element, report level, record level.

   "Provide a report that identifies completion and timeliness status by patient/ health record number or other specified parameters."
   2. Is this Audit trail report?

   "Prior to disclosure for legal proceedings or other official purposes, an organization analyzes the health record for completeness. EHR systems must provide the ability to ~~define~~ <u>capture</u> a minimum set of content to be analyzed for timeliness and completeness and provide a <u>report of the status</u>."
   3. EHR system will not define a minimum set of content prior to release of information (ROI). This is the work of the Form Management Committee (see above).
      3.1 Propose to change "define" to "capture".
      3.2 Define a report of status?

   *"**Care Provision Support (CPS) 3.3.12:** The system SHOULD provide the ability to render an indicator that a patient record is <u>incomplete</u> (e.g., not finalized or authenticated/signed) when a discharge or transfer order is entered into the system.*
   4. Replace the term "incomplete" with the "open" throughout the standard.

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[46] HL7 Community-based Collaborative Care (CBCC) Workgroup. Patient Friendly Consent Directive.URL: http://wiki.hl7.org/index.php?title=Community-Based_Collaborative_Care
[47] Health Level Seven (HL7). HL7 Data Provenance Project. URL: http://wiki.hl7.org/index.php?title=HL7_Data_Provenance_Project_Space
[48] Health Level Seven (HL7). Electronic Health Record Functional Model Release 2. 2014. URL: http://www.hl7.org/implement/standards/product_brief.cfm?product_id=269

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3. HL7 FHIR (Fast Healthcare Information Resources) Workgroup
  a. Normalize definitions for records/document lifecycle. Review of EHR System Functional Model - Record Lifecycle Events Implementation Guide ballot[49].
 	
    1. Replace "Record Amendment" with "Record Retraction" that includes Record Amendment and Record Addendum.

C. Review documentation on Provenance from the World Wide Web Consortium (W3C)[50,51]
1. Review W3C documents addressing Provenance that can be summarized as follows: "*Provenance of a resource is a record that describes entities and processes involved in producing and delivering or otherwise influencing that resource. Provenance provides a critical foundation for assessing authenticity, enabling trust, and allowing reproducibility. Provenance assertions are a form of contextual metadata and can themselves become important records with their own provenance.*"
Recommendations for Standards Development Organizations
A. Health Level Seven (HL7)

1. HL7 Community-based Collaborative Care (CBCC) Workgroup
   a. Enable review of the Patient Friendly Consent Directive and Data Provenance Model to incorporate recommendation from HIM professionals (above)
 	
2. HL7 EHR Workgroup
  a. Enable review of the HL7 EHR Functional Model standard to incorporate recommendation from HIM professionals (above)
 	
3. HL7 FHIR (Fast Healthcare Information Resources) Workgroup
  a. Enable review of EHR System Functional Model - Record Lifecycle Events Implementation Guide ballot[52] to incorporate recommendation from HIM professionals (above)

B. Integrating the Healthcare Enterprise
1. Enable review of the IHE profiles with HIM professionals for developed Use Cases.

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[49] Health Level Seven (HL7).Electronic Health Record System Functional Model - Record Lifecycle Events Implementation Guide. URL: http://hl7-fhir.github.io/ehrs-rle.html

[50] World Wide Web Consortium (W3C). Provenance. URL: http://www.w3.org/standards/techs/provenance

[51] World Wide Web Consortium (W3C). Provenance XG Final Report. URL: http://www.w3.org/2005/Incubator/prov/XGR-prov-20101214/

[52] Health Level Seven (HL7).Electronic Health Record System Functional Model - Record Lifecycle Events Implementation Guide. URL: http://hl7-fhir.github.io/ehrs-rle.html

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7 Roadmap

505   The ultimate goal of our efforts described in this white paper was to have the HIM principles and
practices to be supported by interoperable standards-based HICT products. The HIM principles
and practices represent a missing component in the collaboration between HIT vendors,
professional associations, and government to craft a portfolio of interoperable HIT standards for
electronic document sharing. We believe that we demonstrated that our work fills this missing
510   component.

The deliverables presented in this White paper – Business requirements for Information
Availability, Integrity and Protection (Tables 7-9), HIM Practice Checklist (Appendix A), Use
Cases (Appendix B) and examples of HIT standard gap analysis by business requirements
(Appendix D) as well as the consensus-based process employed to develop these deliverables –
515   outline the overall methodology for aligning the HIM practices needs with the capabilities of
HIT products to support these needs. Through this effort we built the foundation for the
amalgamation of the HIM and HIT universes (Figure 7).
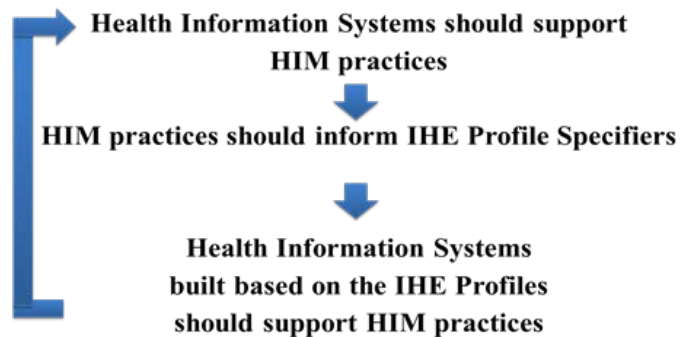
520   **Figure 7: Amalgamation of HIM and HIT Universes**

Based on our productive experience of HIM professionals working together with IHE experts we
are determined to continue this effort in the future. We will focus on the following efforts for our
future collaboration:

525   2015-2016

1. Continue to elicit business requirements for additional 5 information governance
    principles using the format of Tables 7-9: Accountability, Transparency, Compliance,
    Retention and Disposition

2. Continue to populate HIM Practice Checklist for additional principles based on the
530   literature review of the best HIM practices (Appendix A)

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3. Continue to develop Use Cases for the HIM practices under Information Availability,
   Integrity and Protection (Appendix B). Specific examples of Use Cases for the 2015-16
   development cycle will include:

   Use Case 6: Data Quality
535   Use Case 7: Copy and Paste
   Use Case 8: Patient Registration
   Use Case 9: Patient Matching
   Use Case 10: Transition of Care

4. Undertake detailed gap analysis of HIT standards by Use Case starting with those
540   developed in Year 1 based on the preliminary analysis conducted for the business
   requirements (Appendix D)

5. Define the timeline for the completion of the development of the HIM practice Use Cases
   based on the experience from Years 1and 2 to expedite requirement gathering for new
   HIT standards

545   6. Define the maintenance process for developed Use Cases and

7. Identify automated tools to assist in the development and maintenance of the Use Cases.

Based on the outcomes from efforts 1-7, we anticipate developing a comprehensive Roadmap
(milestones, partners, outcomes, metrics for success, supporting infrastructure, i.e., automated
550   tools, and training) for enabling standardization of HIM practices and HICT products to support
these practices.

We will further work with IHE to transition from our current *Effort 1: functional requirements
for HIM practices have been communicated to standards developers for creating HIT standards*;
to launching activities in support of the *Effort 2: standards are adopted in the HIT products* and
555   *Effort 2: standards-based HIT products support HIM practices.*

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Appendix A: HIM Practice Checklist

Business Requirements	HIM Practice Checklist Examples[53]	Use Case
Health Information Availability (A)		
1. Ability to capture and maintain information in a manner that ensures *timely, accurate* (*complete and correct), and efficient* access and retrieval.	**A1.** All documents can be accounted for and the record closed as complete within a specific time period post patient discharge in accordance with governmental regulations, accreditation organizations, or organizational policy.	**A1.1**. All documents can be accounted for within a specific time period post completion episode of care/encounter. **A1.2**. Record is closed as complete within a specific time period post completion of the episode of care/encounter
2. Ability to search, identify, locate and retrieve patient specific information in continually expanding volumes of information and across multiple systems including various electronic HIS and manual systems (paper-based document locations, storages, etc.). This requirement is focused on *tracking sources where information resides (HISs, other HICT products and manual systems).*	**A2.** Single or multiple groups of documents within the electronic medical record can be viewed by or released to the requestor.	**A2.1.** Single and multiple (submission sets) documents within the electronic medical record can be viewed by or released to the requestor for treatment, payment, and healthcare operations use and disclosure. **A2.2**. Single and multiple (submission sets) groups of documents within the electronic medical record can be viewed by or released to the requestor for use and disclosure requiring a signed authorization.
3. Ability to access information across various systems (electronic and manual) and across patient populations. This includes the abilities to search, identify, locate, and retrieve the information required to support organization's ongoing activities via queries. This requirement is focused on *how information from various sources is accessed.*	**A2.** Single or multiple groups of documents within the electronic medical record can be viewed by or released to the requestor.	**A2.1** and **A2.2** (above)
4. Ability to assemble information from disparate electronic systems, both internal and external to the actual or virtual location(s) of the organization.	**A2.** Single or multiple groups of documents within the electronic medical record can be viewed by or released to the requestor.	**A2.1** and **A2.2** (above)
5. Ability to address multiple demands for having the right information available at the right time for the right requestor.	**A2.** Single or multiple groups of documents within the electronic medical record can be viewed by or released to the requestor.	**A2.1** and **A2.2** (above)

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[53] Grzybowski, D. Strategies for electronic document and health record management. AHIMA, Chicago, IL. 2014. pp. 31, 40, 47, 159

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Business Requirements	HIM Practice Checklist Examples[53]	Use Case
6. Ability to access information created with legacy hardware and software systems. In case of impending system obsolescence, information with organizational value should be migrated to currently supported hardware and/or converted into a machine-readable format.	**A2.** Single or multiple groups of documents within the electronic medical record can be viewed by or released to the requestor.	**A2.1** and **A2.2** (above)
7. Ability to maintain metadata services across all participating systems assigning structural and descriptive characteristics to information including data provenance information (authors and dates of creation, modification, sending, receipt, access, etc.).	To be developed (TBD)	TBD
8. Ability to ensure levels of redundancy, failover, contingencies and other risk management practices to minimize risks of non-availability of information due to a disaster, system malfunction, or data corruption.	TBD	TBD
9. Ability to maintain the workforce capabilities on the most current methods to capture, maintain and access information assuring the work processes consistencies despite of workforce turnover.	TBD	TBD
10. Ability to enable trust of requestor in information by ensuring the timeliness, accuracy (completeness and correctness), and efficiency of information availability based on implementation of business requirements 1-9 above.	**A1.** All documents can be accounted for and the record closed as complete within a specific time period post patient discharge in accordance with governmental regulations, accreditation organizations, or organizational policy.	**A1.1** and **A1.2** (above)
11. *Additional alignment between Business Practice and Checklist item is needed*	**A3.** A log of all requests and accounting of disclosures is kept as an audit trail and can be referenced as needed.	TBD
12. *Additional alignment between Business Practice and Checklist item is needed*	**A5.** Maintenance of an inventory of discontinued (retired), archived, and disposed, revised, current forms according to governmental regulations. Maintaining an inventory that is complete, accurate and continually updated based on the organizational policy. Legal health record definition and records retention policy.	TBD

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Business Requirements	HIM Practice Checklist Examples[53]	Use Case
13. *Additional alignment between Business Practice and Checklist item is needed*	**A8.** Focus on system interoperability and integration requires that information and service quality be added as a new health information dimension. Key considerations become accuracy and completeness of data, excellent information access, continued availability of data, supported overall by data provenance, privacy and security safeguards.	TBD
14. *Additional alignment between Business Practice and Checklist item is needed*	**A9.** Disclosing of records require written authorization by the patient and approval by the compliance officer if not otherwise allowed by law. A written record is kept by the compliance officer and available for audits.	TBD
Health Information Integrity (I)		
1. Ability to maintain information in a manner that ensures confidence in its authenticity, timeliness, accuracy, and completeness.	**A4**. Full chart management functionality (i.e., Record Lifecycle Management) to verify the identification of location of the source of the release, completeness of the documents being released, and destination for the release or review are available in the release of information software.	TBD
2. Ability to maintain integrity of information to comply with safety, quality of care, and compliance with applicable voluntary, regulatory and legal requirements.	**I5.** Accurate capture of patient data by electronic health record system. Reduction of medical errors that cause inaccurate recording of patient data such as allergies and medications, compromising quality of care and patient safety.	TBD
3. Ability to maintain integrity of information in adherence to the organization's policies and procedures.	**I1.** Performance of a daily duplicate medical record number and account number validity checking process in place. Enterprise-wide process exists for notification of duplications. Process of merging paper and electronic records	TBD
4. Ability to provide appropriate workforce training on information management and governance to support integrity of information.	**I2**. Proper training and support of system user is paramount to preventing system errors that can potentially contribute to suboptimal healthcare quality.	TBD
5. Ability to enable trust of requestor in the integrity of information by ensuring the authenticity, timeliness, accuracy, and completeness, admissibility of records for litigation purposes.	**A1**. All documents can be accounted for and the record closed as complete within a specific time period post patient discharge in accordance with State and Federal regulations, accreditation organizations (e.g., Joint Commission, Det Norske Veritas Healthcare - ISO 9000), or organizational policy.	**A1.1.** All documents can be accounted for within a specific time period post completion episode of care/encounter. **A1.2.** Record is closed as complete within a specific time period post completion of the episode of care/encounter.

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Business Requirements	HIM Practice Checklist Examples[53]	Use Case
6. Ability to ensure integrity of information through reliable system controls that support the organization's ongoing activities across various systems.	TBD	TBD
7. Ability to manage integrity of information received from disparate electronic systems, both internal and external to the actual or virtual location(s) of the organization.	**A6**. Standard and complete capture of patient data by electronic health record system. For example; normal laboratory results with a normal reference range, 24 hour clock, pain scale with reference, with appropriate references (case definitions) for all results, findings, interpretations, care plans, standards of care (clinical pathways) allergies, and medications. To ensure integrity of patient data (prevent inaccurate recording of patients data and protect against compromising quality of care, and patient safety), see reference to integrity. **A7.** Operate (maintain, monitor, test, update, verify, validate) timely system interfaces that ensure accurate interchange of data using a validated (trusted) information exchange system (sender-receiver interfaces). System interface problems can lead to poor decisions, delays, data loss, errors, unnecessary testing, and system downtime.	**A3.1.** An audit log of the episode of care record
8. Ability to demonstrate oversight by senior management of adherence to approved policies and procedures necessary to maintain reliability of information.	**I3.** Improved information quality (integrity) is perceived by providers as a result of electronic health record implementation; demonstrated by the following attributes, accuracy, timeliness, accessibility to current data, and availability.[54]	TBD

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[54] Nguyen L, Bellucci E and Nguyen LT Electronic health records implementation: An evaluation of information system impact and contingency factors. International Journal of Medical Informatics. 2014. 83(11): 779-796.

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Business Requirements	HIM Practice Checklist Examples[53]	Use Case
9. Ability to ensure reliability of data and information based on the nature and type of healthcare organization processes and systems for creation and capture, processing, and other applicable stages of the information's lifecycle.	**A6.** Standard and complete capture of patient data by electronic health record system. For example; normal laboratory results with a normal reference range, 24 hour clock, pain scale with reference, with appropriate references (case definitions) for all results, findings, interpretations, care plans, standards of care (clinical pathways) allergies, and medications. To ensure integrity of patient data (prevent inaccurate recording of patients data and protect against compromising quality of care, and patient safety), see reference to integrity. **A7**. Operate (maintain, monitor, test, update, verify, validate) timely system interfaces that ensure accurate interchange of data using a validated (trusted) information exchange system (sender-receiver interfaces). System interface problems can lead to poor decisions, delays, data loss, errors, unnecessary testing, and system downtime.	TBD
10. Ability to implement ongoing quality control measures to include field-specific data edits built into systems/applications; monitoring and correction of patient identity errors; monitoring and correction of documentation completeness and data accuracy; and ongoing data quality controls, and monitoring and correction in adherence to existing standards.	**A6** and **A7** above.	TBD
11. Ability to prove reliability and integrity of information through audit process to validate measures for ensuring the reliability and integrity of information.	TBD	TBD
12. Ability to monitor hardware, network infrastructure, software, storage, and other system components for reliability of performance.	TBD	TBD
13. Ability to maintain formal change control processes as part of a reliable information environment.	TBD	TBD
14. Ability to test HIS capabilities to support business requirements 1-13 including validation of data and all appropriate metadata.		

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Business Requirements	HIM Practice Checklist Examples[53]	Use Case
15. Additional alignment between Business Practice and Checklist item is needed	**I4.** Appropriate workforce education and training on information management and governance and ongoing technical support has been proven to support improved electronic health record system proficiency resulting in successful adoption and use.[55]	TBD
16. Additional alignment between Business Practice and Checklist item is needed	**I5.** Accurate capture of patient data by electronic health record system. Reduction of medical errors that cause inaccurate recording of patient data such as allergies and medications, compromising quality of care and patient safety.[56]	TBD
17. Additional alignment between Business Practice and Checklist items is needed	**P1**. To support information integrity, MPI services for matching patient should be aligned with EDMS where episode of care records are managed. "MPI contain the correct number of entries in the right sequence, so that it has episode of care integrity within its account number."	Future Patient Matching Use Case
Health Information Protection (P)		
1. Ability to ensure appropriate levels of protection from breach, corruption and loss of information that is private, confidential, classified and essential to business continuity or otherwise requires protection.	TBD	TBD
2. Ability to consistently apply and enforce levels of protection to information, regardless of medium, from the moment the information is created until the moment it reaches or exceeds its retention period and is appropriately disposed. This specifically includes adherence to security, privacy and confidentiality requirements (rules, regulations, policies) when determining a method for the final disposition of information, regardless of source or media. This applies whether the disposition is archival, transfer to another organization, preservation for permanent storage, or destruction.	**P3.** Full release of information functionality, including tracking receipts for requests, gathering electronic medical records from all facilities, and processing those files, the billing and collections associated with the release, and the actual distribution of the copies for the records.	TBD

[55] Nguyen L, Bellucci E and Nguyen LT Electronic health records implementation: An evaluation of information system impact and contingency factors. International Journal of Medical Informatics. 2014. 83(11): 779-796.
[56] Bowman S. Impact of electronic health record systems on information integrity: Quality and safety implications. Perspectives in Health Information Management. 2013. pp. 2, 3, 7. URL: http://perspectives.ahima.org/impact-of-electronic-health-record-systems-on-information-integrity-quality-and-safety-implications/#.VU0OLPm6e00.

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Business Requirements	HIM Practice Checklist Examples[53]	Use Case
3. Ability to establish an audit program that defines a clear process for verifying whether sensitive secure information is being handled in accordance with the organization's policies and procedures.	**P6.** Employ a break-the-glass emergency access methodology to override access control measures designed to protect patient privacy and confidentiality. Utilize audit trails to monitor compliance with organization privacy policy and procedures.	TBD
4. Ability to manage and balance compliance with the varying degrees of protection, mandated by laws, regulations, and/or organizational policies for information generated and managed by an organization.	**P2.** Global or universal authorization can be filed at the enterprise (medical record number) vs. individual episode of care.	TBD
5. Ability to provide security, business continuity, and disaster recovery processes that will ensure continued operation and continued protection, during and after periods of failure or disruption.	TBD	TBD
6. Ability to assign and manage appropriate levels of information access and security clearance to all members of the workforce and other authorized parties relevant to their roles or duties.	**P4.** Enforce a need to know (minimum necessary) privacy and security policy for all users of patient-protected information and records as opposed to open access.	TBD
7. Ability to maintain appropriate security safeguards, clearly defined and enforced by organizational policies, designed to protect electronic information from being inappropriately viewed, e-mailed, downloaded, uploaded, or otherwise proliferated—intentionally or inadvertently, even by individuals with legitimate access to the system.	**P3.** Full release of information functionality, including tracking receipts for requests, gathering electronic medical records from all facilities, and processing those files, the billing and collections associated with the release, and the actual distribution of the copies for the records.	TBD
8. Ability to provide physical security safeguards of computing and access devices or any equipment containing private, secret, or confidential information or intellectual property of the organization.	**P5.** Limit clinician documentation entry to only those practitioners who are associated with a specific patient within the system.	TBD

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Appendix B: HIM Practice Use Cases

Sections below describe Use Cases developed from the harmonized HIM business requirements
and HIM practices Checklist (Appendix A) under information availability (A) principle as
565   follows:

> Use Case A1.1: All documents are accounted for within a specific time period post
> completion of the episode of care
>
> Use Case A1.2: Record is closed as complete within a specific time period post
> completion of the episode of care

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> Use Case A2.1: Documents within the record can be viewed by or released to the external
> requestor
>
> Use Case A3.1: An audit log of the episode of care record
>
> Use Case A3.2: An audit log of requests for release of information and accounting of
> disclosures.

575   The following numbering convention was used to manage the Use Cases:

B.1 Use Case A1.1:

> B – Appendix B
>
> 1 – order number in which Use Case is listed in Appendix B
>
> A – Availability principle

580

> 1 – HIM Practice #1 as listed in the Checklist (Appendix A)
>
> 1 – number of the Use Case under HIM Practice #1(Appendix A).

Information Governance Principle: Health Information Availability

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HIM Practice A1. All documents are accounted for and the record closed as complete within a specific time period post patient discharge in accordance with State and Federal regulations, accreditation organizations (e.g., US Joint Commission,[57] Det Norske Veritas Healthcare - ISO 9000[58]), or organizational policy.[59]

B.1 Use Case A1.1: All documents are accounted for within a specific time period post completion of the episode of care

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[57] The Joint Commission. URL: http://www.jointcommission.org/

[58] Det Norske Veritas Healthcare. URL: http://dnvglhealthcare.com/

[59] Grzybowski, D. Strategies for electronic document and health record management. AHIMA, Chicago, IL. 2014. p.40

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590   This Use Case is focused on inpatient encounter. Other types of encounter (outpatient, long-term care and others) are out of scope and will be addressed in the future.

The statement "**all documents**" is referred to open and closed records generated within the episode of care (Figures 5 and 8). Please see Use Case A1.2 for the description of open and closed records states.

595   The term "**record**" is used in the context of the episode of care, i.e., level 2 of the record hierarchy depicted in Figure 4 above.

The term "**accounted for**" means that the EHR system shall support all types of medical documentation, i.e., records (paper and electronic) generated during a specified timeframe of an episode of care.

600   The list of records and personnel involved in defining and maintaining these records are specified by organizational policies.[60] The authority on establishing organizational policies and processes as well as specific documentation (records) generated via these policies and processes and/or mandated by regulatory bodies falls on a Committee (Form Management Committee or other name may be used for this Committee) comprised of representatives from clinical, business

605   and technology departments within the facility.[61,62]

If other facilities are involved in providing services, data sharing agreements between two facilities shall define the policies on how documentation will be accounted for when shared.

The custodian of the records within the facility is the health information management (HIM) department (former medical records department).

610   Figure 8 presents the episode of care record lifecycle that include various functions (registration/admission, triage, assessment, testing, diagnosis confirmation and care plan, prescription, discharge/transfer) performed in the context of a clinical pathway; records generated within each function; as well as record sharing between EHR and ancillary systems (diagnostic testing, pharmacy) involved in the clinical pathway. Examples of these functions and

615   records generated by function are presented in Table 5 above.

Figure 8 also presents various HIT applications (APP) – technical actors – involved in documenting clinical pathway within the episode of care. Specific examples of participating information systems (technical actors) include:

1. EHR System – Record Originator

620   2. Ancillary System 1 (e.g., Laboratory, Radiology, etc.) – Record Receiver (order) and Record Originator (result report)

3. Ancillary System 2 (Pharmacy) – Record Receiver (prescription) and Record Originator (prescription dispense report).

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[60] Forms Management. Hospital Policy. University of Vanderbilt, Nashville TN. June 12, 2000
[61] Same
[62] Quinsey CA. Managing forms and legal electronic health records. JAHIMA, July 2007. p.58-59

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Please note that every participating technical actor in addition to function-specific records also
exchange the following documentation:

1. Notification of Document Availability (Sender to Receiver)

2. Acknowledgement of Document Receipt (Receiver to Sender).

The time period for documentation/record completion depends on the record type as defined by
each specific function/event/step within the episode of care, i.e., function-specific workflow
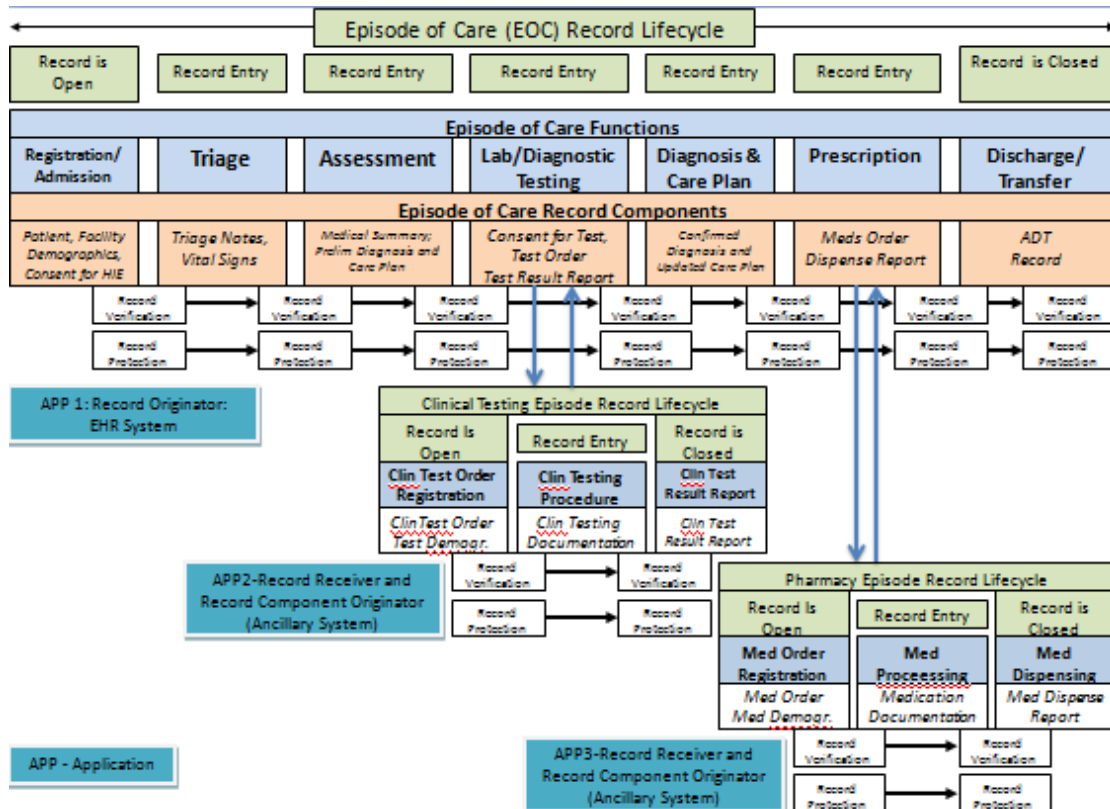steps and sub-steps (Figure 8).

**Figure 8: Example of Episode of Care and Various Information Systems (Technical
Actors) Involved in Documenting Clinical Pathway**

The "**Start and the End**" of each function/event/step within the episode of care are defined by
the creation and completion of the correspondent record related to the specific
function/event/step.

More specifically, the start of the episode of care is defined by the initial interaction of the
patient with the healthcare facility (e.g., present at the facility, e-mail, phone or other). This
initial interaction sets into motion the chain of functions/events/steps defined by the clinical
pathway of activities for a specific episode of care. This initial interaction acts as a trigger of a
specific clinical pathway (Table 11).

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Table 11: Relationship between Episode of Care's Flow of Events and Documents

Episode of Care	
Clinical Pathway by <Function: Registration, Assessment, Testing, etc.>	
Flow of Events	Records
Initial interaction with healthcare facility (visit, e-mail, phone)	
Step 1	Record 1 – output for Step 1 and input /trigger for Step 2
Step 2	Record 2 – output for Step 2 and input/trigger for Step 3
Step 3	Record 3 – output for Step 3

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For example, for patient registration, the start of the registration process is triggered by the patient presenting at the facility in person or contacting the facility by phone or via e-mail. Registration staff initiates the command "Register a New Patient" or "Look up Existing Patient" in the facility's EHR system to initiate the specific record for Step 1. This record may contain several documents/forms (Patient Registration Form, Medical and Social History Update Form, Information Exchanges Consent Form, patient's privacy and confidentiality protection forms,

650

etc.).

For the functions that follow the registration (Step 1), the completed set of documents/forms for Patient Registration in EHR (Record 1) serves as a trigger to begin the next step, e.g., triage (Step 2) that triggers the Record 2 set of documents/forms (e.g., the history and physical form) to be completed.

655

Patient's registration, admission, disposition, and discharge/transfer define the status (states) of the patient's interaction within the healthcare facility. EHR system must support the document flow across all patient states within the episode of care (Figure 8 and Table 11). EHR system must also capture change in these states via the Open and Closed record status associated with each state. (Please see Use Case A1.2 for Open and Closed records as well as Use Case A3.1 for

660

the Audit log of the records in the episode of care).

In EHR system the patient status (state) is typically monitored in the Capacity/Bed Management application. For example, under disposition when patient is moved to another floor for testing, all previous documents in the record that triggered this new state (input documents) and new documents generated by this new state (output documents) must be captured in EHR.

665

Please note that Patient Status (data element, field) was traditionally used for billing. Now this field may be used as a trigger to determine the corresponding documentation in the record.

The **end** of a specific function as well as the episode of care, at large, is defined by providing capabilities to electronically sign the output document. This action is called "Verified by Authentication" and includes the time stamp (date and time) of verification for each output

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document. The completion of this capability is done by obtaining signature of an authorized person including digital signature on a specific document. Furthermore, within each document there can be multiple authentications as defined by organizational policy.

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B.2 Use Case A1.2: Record is closed as complete within a specific time period post completion of the episode of care

675   There are two states of the record/document - **Open and Closed** - that represent the state of the record.

Open record is a record (one document) or a set of record components (several documents/forms) that is/are created to begin a new function (level 3 in the record hierarchy, Figure 4). This includes open records for patient care, as well as incomplete and delinquent
680   records.

An <u>open record</u> has to be completed within a defined timeframe for a specific function. The Committee (Forms Management Committee) defines policies on the processes and timeliness of the record completion, e.g., 30 days for discharge summary as per the requirements of the US Joint Commission and US Medicare conditions of participation.

685   EHR system must support capabilities to notify the clinician

1.   When the record is open

3.   When the record is outside of the time limits set for a specific function

4.   Ready to be signed, i.e., verified by authentication, and

5.   When the record is closed.

690

The record remains <u>open</u> until all its components are assembled and the appropriate documents are authenticated according to organizational policies.[63]

Record completion is the process defined by the organizational policy. This process specifies activities of the authorized personnel to be able to

695   1.   Open (initiate the new record)

2.   Access existing record to contribute new information

3.   Access existing record to modify/correct existing information and

4.   Close a specific component of the record and/or the full record.[64]

In order to close the record, each activity (1-4) has to be verified by authentication (i.e., signed)
700   by authorized personnel involved in this activity.

In the paper-based environment the term **"retraction"** (go back) was used to access the record for correcting information that was inaccurate, invalid, or made in error. Retraction is aimed to modify the Open record [65] (see activity 3 above). The term <u>retraction</u> is used in HIM to modify

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[63] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. p. 32
[64] Same, p. 126
[65] Same, p. 130

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existing information in the record through record <u>amendment</u> or <u>addendum</u>**,** i.e., modification of
705   the original record entry.

Whenever, changes are made to the record (e.g., new document was added, the part of the record
was revised, etc.) the changes/revisions must be reviewed and approved by the authorized person
in accordance with organizational policy and jurisdictional law.

An audit trail must capture all modifications done to the record. (Please see Use Case 3.1 below
710   about audit trail for retraction.)

<u>Closed record</u> is the record that

1. Contains all necessary clinical information to substantiate the care rendered

2. Verified by authentication by the authorized clinician or other designated personnel

3. Meets the requirements of the legally defensible health record as defined by
715   organizational policies and/or

4. Administratively closed record, i.e., closed based on the administrative decision with
      documentation supporting this decision.

EHR system must have capabilities to assure the completion of the records by the authorized
720   personnel, as follows:

1. Generate a list of Open records for all patients of a clinician on a daily basis upon
      opening the EHR

2. Generate notifications about the record for which the timeframe is expiring, so clinician
      could act upon this notification as follows:

725   a. Close the record supplying appropriate description for the reason of the record
            closure

            b. Sending reminder to the:

               i. Patient via phone, e-mail, etc.

              ii. Ancillary system(s)

730   c. Other.

3. Generate audit reports on records generation, retraction for modification (amendment or
      addendums) and completion. (Please see Use Case 3.1 below about audit trail for
      retraction).

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735 | **HIM Practice A.2.** Documents within the electronic medical record can be viewed by or released to the external requestor.

B.3 Use Case A2.1: Documents within the record can be viewed by or released to the external requestor

740 This Use Case is focused on effective delivery of the **release of information (ROI)** by a facility according to organizational policies defined by the facility's Committee. [66,67,68]

Release of information (ROI) is defined as the process of disclosing patient identifiable information from the health record to another party. [69]

ROI function is based on

745
1. Availability of all documentation that comprises a current and accurate Legal Health Record (LHR) and Designated Records Set (DRS) in EHR system (see Use Case A1.1)

2. Ability of the record custodian (HIM department) to maintain LHR and DRS in EHR system

3. Ability to assemble all records in a timely manner in LHR and DRS and

4. Ability to provide LHR and DRS to the authorized external requestor.

750 Examples of information that may be requested by external requestor [70,71] may include, but are not limited to:

- Disclosures of protected health information (PHI) that are not for treatment, payment, or delivery of healthcare operations

- Disclosures for research purposes

755
- Disclosures to government agencies (excluding intelligence/national security)

- Disclosures to public health authorities (public health reporting including vital statistics records reporting)

- Disclosures on adverse event reporting, e.g., to US Food and Drug Administration (FDA)

- Disclosures for specialized government functions

760
- Disclosures to employers

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[66] Forms Management. Hospital Policy. University of Vanderbilt, Nashville TN. June 12, 2000
[67] Same
[68] Quinsey CA. Managing forms and legal electronic health records. JAHIMA, July 2007. p. 58-59
[69] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. p. 128
[70] Stuard S. Developing a plan of action – How to conduct an accounting of disclosures. JAHIMA 2003. 211(7): 4-5.
[71] Downing K and McLendon K. Checking in on accounting of disclosures. JAHIMA 2013. 84(11): 50-52.

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- Disclosures to health oversight agencies

- Disclosures to law enforcement, e.g., suspected domestic and child violence and abuse reporting

- Disclosures to employers

765
- Disclosures regarding deceased persons

- Disclosures for specialized government functions and

- Disclosures for workers' compensation purposes.

ROI function is supported by the **electronic document management system (EDMS)** application, designed to serve as a platform from which release of information is managed.[72]

770 Basic ROI workflow consists of at least the following steps:

1. Capture the request for information from the requestor

2. Verify that the request for information is not in violation of the privacy, confidentiality and security rules, jurisdictional law and organizational policies

3. Verify the requestor's rights to view information requested

775 4. Assemble information that was requested

5. Verify the assembled information by authorized person

6. Authorize the release of assembled information to the requestor

7. Release information to the requestor

8. Record information requests and releases in the audit trail.

780 Each step in the ROI workflow may have additional sub-steps. Involvement of specific actors (both business actors (facility's personnel) and technical actors (information systems including both internal and external (ancillary) systems) in these steps has to be further defined/modeled.

Each of these steps is associated with specific data content. For example, data for Step 1 – capture the request for information from the requestor – shall at least include

785 1. Patient's Full Name

2. Medical Record Number

3. Other Patient Information, e.g., date of birth, address, etc.

4. Date(s) of Service Requested

5. Expiration Date of Authorization

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[72] Kohn D. How information technology supports virtual HIM departments. JAHIMA. 2009. 80(3). URL: http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_043005.hcsp?dDocName=bok1040035

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790   6. Requestor Name

7. Requestor Address

8. Request Date of Request

9. Request Purpose

10. Timeframe for Request, i.e., when requestor anticipates to receive the information

795   11. Date When Information Was Released

12. Charge for Information Release

Please note that, specification of the data content is out of scope of this white paper. To define data content for specific requests, in the future, we will work with the IHE Content Committees, e.g., Patient Care Coordination (PCC), Quality, Research and Public Health (QRPH) and others as needed.

Risk mitigation procedures for ROI must be supported by the EHR system. Examples of these procedures may include (a) recording of all requests for information, (b) accounting of all disclosures, and other. Please see Use Case A3.1 below regarding audit trail that may be applicable to enabling these procedures.

> **HIM Practice A.3.** A log of all requests and accounting of disclosures is kept as an audit trail and can be referenced as needed[73]

B.4 Use Case A3.1: An audit log of the episode of care record

810   This Use Case is focused on the maintenance of logs for the episode of care records for clinical documentation improvement and audit purposes. The retention of these logs will be done according to the federal and state regulation and organizational policies defined by the facility's Committee. The following states of the record can be recorded in the audit log:

- Record Creation – Record is Open

815   - Record Retraction for Corrections, Modification, Amendments and Addenda

- Record Completion – Record is Closed

- Record Access by Authorized Users

  - Clinicians involved in patient care and

  - Patient or Caregiver

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[73] Grzybowski, D. Strategies for electronic document and health record management. AHIMA, Chicago, IL. 2014. p. 40**.**

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820 • Record Assembled for the Release of Information (See Use Case A2.1 above)

Please note that, specification of the data content is out of scope of this white paper. In the
future, we anticipate collaborating with IHE Content Committees to define data content for these
states of the record.

B.5 Use Case A3.2: An audit log of requests for release of information and accounting of disclosures

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This Use Case is focused on the maintenance ROI and information disclosure logs for risk
mitigation and audit purposes. The retention of these logs should be done according with the
organizational policies defined by the facility's Committee. There is a need to review existing
IHE and HL7 standards that could potentially provide examples of audit log use cases for ROI

830 and disclosures similar to the ones specified in Use Case A2.1 above.

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Appendix C: Glossary

Term	Definition
Clinical pathway	A flow of activities and documentation derived from the clinical guidelines as related to a specific episode of care (Figures 5 and 8). Clinical pathway is a tool designed to coordinate multidisciplinary care planning for specific diagnoses and treatments. [74] Clinical pathway – also known as a clinical workflow document (specification or checklist) – is developed by physicians (medical informaticians) at the facility. It serves as a practice management protocol. This protocol defined information and data requirements (forms, documents) associated with the episode of care. The information and data requirements (forms, documents content) are also called case definitions, i.e., specific instructions on how to document specific activity within the function based on the clinical guidelines. [75] The oversight of the correct recording of information according to the clinical pathway protocol and case definition is conducted by the facility's Clinical Documentation Improvement (CDI) team of the HIM department. CDI team is also involved in developing templates (standardized formats) for forms and documents used in the clinical pathway to document the episode of care/encounter. [76]
Designated record set	Organizations may be required to identify their designated record set, which is defined as a group of records maintained by or for a covered entity that is: The record of what you acted upon to treat the patient. 1. The medical records and billing records about individuals maintained by or for a covered healthcare provider 2. The enrollment, payment, claims adjudication, and case or medical management record systems maintained by or for a health plan 3. Used, in whole or part, by or for the covered entity to make decisions about individuals." [77] With the definition of the designated record set in mind, the organization must identify the content and data sets specific to their facility. Once the necessary information for the designated record set has been determined, it is required that this information and content be defined and documented within organizational policies.
Disclosure	Defined by federal regulations disclosure as "the release, transfer, provision of, access to, or divulging in any other manner of information outside the entity holding the information." [78]
Electronic document management system (EDMS)	A multi-component health information technology system designed to serve as a single central platform from which release of information is managed. [79]

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[74] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. p. 28

[75] Children's Medical Center. Guide to clinical documentation improvement. 2nd Edition. Dallas, TX. 2015.

[76] Solicit from SMEs the samples of such templates and/or provide the link to the examples of these templates.

[77] American Health Information Management Association (AHIMA). Release of Information Toolkit. May 2013. URL: http://library.ahima.org/xpedio/groups/secure/documents/ahima/bok1_050184.pdf.

[78] United States Department of Health and Human Services (HHS). National Institutes of Health (NIH). How can covered entities use and disclose protected health information for research and comply with the privacy rule? URL: http://privacyruleandresearch.nih.gov/pr_08.asp

[79] Kohn, D. How information technology supports virtual HIM departments. JAHIMA. 2009, 80(3): URL: http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_043005.hcsp?dDocName=bok1040035

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Term	Definition
Form/Document /Screen	The terms "Form", "Document" and "Screen" are used interchangeably in this white paper. This is a broad category that is being used for input modes. Form/document/screen is the representation of knowledge assembled from data collected during the Episode of care/Encounter or Function/Record Entry. Formal definitions of these terms are the following: Forms are pages that allow users to fill in and submit information[80] Document is any analog or digital, formatted and preserved "container" of data or information.[81]Screen prototype is a sketch of the user interface of each screen that is anticipated in a project.[82] Information in the Form/Document/Screen can be delivered as scanned document, pdf, structured text (based on HL7 CDA or FHIR standards) or message (string of data). The content for specific forms/documents generated under the episode of care/encounter's functions such as patients demographic, assessment notes, test orders and results, care plans, medication prescriptions and other (Table 1) is out of scope for this white paper. It may be developed under the IHE Content Profiles in the future.
Episode of care/ Encounter	In this White paper, the **episode of care/encounter** is referred to a visit or multiple visits or interaction(s) between patient and provider and/or ancillary services within the facility. The type of episode of care/encounter is defined by the service type (e.g., inpatient, outpatient, emergency department (ED), long-term care and others). Additional discussions are needed to align the terms for episode of care/encounter/ and visit with terminology used by other countries. The term "episode of care" is also the unit of payment under the home health prospective payment system (HHPPS)[83] Term **interaction** includes phone calls, e-mail communication, telemedicine sessions, e-visits and other. Specific states of the interaction (**registration, admission, disposition, discharge or transfer)** are the **states** of the patient's interaction, as described under **Start and the End of the Episode of Care/Encounter** below.
Function, event, step	The episode of care/encounter is comprised of **functions/events/steps**. The **Function** of the episode of care/encounter is defined as entity or the activity that involve a single healthcare department, service area or discipline, [84] e.g., visit registration/admission; triage; nurse's and physician's assessment; laboratory and diagnostic testing; diagnosis and care plan; prescription; discharge/transfer/disposition and other (Figure 5). The **Event** is defined as an action or activity that occurs within a system and/or network, inclusive of its boundaries.[85] The **Step** is defined as a sub-action or sub-activity that occurs within a specific event of care.
Legal health record (LHR)	The subset of all patient specific data created or accumulated by a healthcare provider that constitutes the organization's official business record, and is typically used when responding to formal requests for information for legal and legally permissible purposes[86]

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[80] McGraw H. Dictionary of Scientific and Technical Terms. 2003

[81] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. p. 49

[82] Same, p.133

[83] Same, p. 55

[84] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. 2014. p.62

[85] Health Information Management and Systems Society (HIMSS). Dictionary of Healthcare Information Technology Terms, Acronyms and Organizations. 2010. p.49

[86] Servais CE. The legal health record. AHIMA, Chicago, IL

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Term	Definition
Data provenance	This is a very broad topic that has many meanings in different contexts. The W3C Provenance Incubator Group developed a working definition of provenance as: "Provenance of a resource is a record that describes entities and processes involved in producing and delivering or otherwise influencing that resource. Provenance provides a critical foundation for assessing authenticity, enabling trust, and allowing reproducibility. Provenance assertions are a form of contextual metadata and can themselves become important records with their own provenance." [87]
Record	According to HIMSS, **record** is defined as a document stating results achieved or providing evidence of activities preformed. [88] Our record definition analysis showed the need to define further the relationship between records generated throughout healthcare delivery in the context of record lifecycle for the lifetime record, episode of care record, function record and record entry. We proposed the following record hierarchy and definitions: **Lifetime Record (prenatal, birth-death)** is defined as longitudinal health record, i.e., a permanent, coordinated patient record of information that was acted upon to treat the patient, listed in chronological order and maintained across time from birth to death. [89] **Record of Episode of Care (admission-discharge)** is defined as full medical documentation generated during the episode of care, i.e., in a period of continuous medical care performed by healthcare professionals in relation to a particular clinical problem or situation. This period may include one or more healthcare services given by a provider. (For our purposes we are limiting the definition to inpatient status.) **Documentation:** The recording of pertinent healthcare findings, interventions, and responses to treatment as a business record and form of communication among caregivers. [90] **Record at the Function Level or Record Entry** is defined as full medical documentation generated during the activities performed under a function. It is defined as the notation made in a patient's health record, whether paper or electronic, by the responsible healthcare practitioner to document an event or observation associated with healthcare services provided to the patient. [91] For some functions, this can be o**ne document, e.g., registration form;** for other functions, in which several documents may comprise the record entry, e.g., testing: consent for procedure, test order, test result report. Please note that in the standards development organizations (HL7, ISO), the term Record Entry is used for a single document only. **Record at Data Entry Leve**l is defined as a collection of parts that are related to, or associated with, a record for a specific activity. Using the terminology of the HL7 Clinical Document Architecture (CDA) standards, these parts follow the following hierarchy: record's **Sections, Templates** and **Data Fields**. Using terminology of HL7 Fast Healthcare Information Resource (FHIR) standard, these parts can be represented as record's "**resources.**" These parts of the record can be completed by various business actors.

[87] World Wide Web Consortium (W3C). Provenance XG final report, 2010. URL
http://www.w3.org/2005/Incubator/prov/XGR-prov-20101214/
[88] Health Information Management and Systems Society (HIMSS). Dictionary of Healthcare Information
Technology Terms, Acronyms and Organizations. 2010. p. 101
[89] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information
Management and Technology. Chicago, IL. 2014. p.88

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Term	Definition
Release of information (ROI)	The process of disclosing patient identifiable information from the health record to another party.[92]
Use	Under federal regulations; use of PHI is "the sharing, employment, application, utilization, examination, or analysis of such information within an entity that maintains such information."[93]

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[90] Same, p.50
[91] Same, p.70
[92] American Health Information Management Association (AHIMA). Pocket Glossary of Health Information Management and Technology. Chicago, IL. 2014. p.128
[93] United States Department of Health and Human Services (HHS). Administrative Data Standards and Related Requirements: Definitions

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Business Requirements	Standards Development Organizations		
	HL7	ISO	ASTM
Health Information Availability			
1. Ability to capture and maintain information in a manner that ensures *timely, accurate (complete and correct), and efficient* access and retrieval.	EHRS FM R2	ISO/HL710781 ISO/IEEE IS 11073-10101 2004 ISO/IEEE IS 11073-10103 2014 ISO/IEEE IS 11073-10201 2004 ISO/IEEE IS 11073-10404 2010 ISO/IEEE IS 11073-10407 2010 ISO/IEEE IS 11073-10408 2010	E1633 - 08a
2. Ability to search, identify, locate and retrieve patient specific information in continually expanding volumes of information and across multiple systems including various electronic HIS and manual systems (paper-based document locations, storages, etc.). This requirement is focused on *tracking sources where information resides (HISs, other HICT products and manual systems).*		ISO/TS TS 14265 2011	E2369-12
3. Ability to access information across various systems (electronic and manual) and across patient populations. This includes the abilities to search, identify, locate, and retrieve the information required to support organization's ongoing activities via queries. This requirement is focused on *how information from various sources is accessed.*			E1384-07
4. Ability to assemble information from disparate electronic systems, both internal and external to the actual or virtual location(s) of the organization.	CDA R2		E2369-12
5. Ability to address multiple demands for having the right information available at the right time for the right requestor.	EHRS FM R2	ISO/HL710781 ISO IS 13606-1 2008 ISO IS 13606-2 ISO IS 13606-3 2009 ISO/TS TS 14265 2011	E1744-04 E2369-12 E2473
6. Ability to access information created with legacy hardware and software systems. In case of impending system obsolescence, information with organizational value should be migrated to currently supported hardware and/or converted into a machine-readable format.			
7. Ability to maintain metadata services across all participating systems assigning structural and descriptive characteristics to information including data provenance information (authors and dates of creation, modification, sending, receipt, access, etc.).	EHRS FM R2	ISO/TS TS 17948 2014	E1384-07

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Business Requirements	Standards Development Organizations		
	HL7	**ISO**	**ASTM**
8. Ability to ensure levels of redundancy, failover, contingencies and other risk management practices to minimize risks of non-availability of information due to a disaster, system malfunction, or data corruption.			
9. Ability to maintain the workforce capabilities on the most current methods to capture, maintain and access information assuring the work processes consistencies despite of workforce turnover.			
10. Ability to enable trust of requestor in information by ensuring the timeliness, accuracy (completeness and correctness), and efficiency of information availability based on implementation of business requirements 1-9 above.	EHRS FM R2 CDA R2	ISO/HL710781 ISO IS 13606-1 2008 ISO IS 13606-2 ISO IS 13606-3 2009	E1633 - 08a E2369-12
Health Information Integrity			
1. Ability to maintain information in a manner that ensures confidence in its authenticity, timeliness, accuracy, and completeness.	EHRS FM R2	ISO/HL710781 ISO/IEEE IS 11073-10101 2004 ISO/IEEE IS 11073-10103 2014 ISO/IEEE IS 11073-10201 2004 ISO/IEEE IS 11073-10404 2010 ISO/IEEE IS 11073-10407 2010 ISO/IEEE IS 11073-10408 2010	E1633 - 08a
2. Ability to maintain integrity of information to comply with safety, quality of care, and compliance with applicable voluntary, regulatory and legal requirements.	EHRS FM R2	ISO/HL710781	
3. Ability to maintain integrity of information in adherence to the organization's policies and procedures.	EHRS FM R2	ISO/HL710781 ISO IS 22600-1 2014	
4. Ability to provide appropriate workforce training on information management and governance to support integrity of information.			
5. Ability to enable trust of requestor in the integrity of information by ensuring the authenticity, timeliness, accuracy, and completeness, admissibility of records for litigation purposes.	EHRS FM R2	ISO/HL710781	
6. Ability to ensure integrity of information through reliable system controls that support the organization's ongoing activities across various systems.	EHRS FM R2	ISO/HL710781 ISO IS 22600-1 2014	
7. Ability to manage integrity of information received from disparate electronic systems, both internal and external to the actual or virtual location(s) of the organization.	EHRS FM R2	ISO/HL710781 ISO/IEEE IS 11073-10101 2004 ISO/IEEE IS 11073-10103 2014 ISO/IEEE IS 11073-10201 2004 ISO/IEEE IS 11073-10404 2010 ISO/IEEE IS 11073-10407 2010 ISO/IEEE IS 11073-10408 2010 ISO IS 13606-3 2009	E1384-07 E2369-12 E2473

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Business Requirements	Standards Development Organizations		
	HL7	ISO	ASTM
8. Ability to demonstrate oversight by senior management of adherence to approved policies and procedures necessary to maintain reliability of information.			
9. Ability to ensure reliability of data and information based on the nature and type of healthcare organization processes and systems for creation and capture, processing, and other applicable stages of the information's lifecycle.	EHRS FM R2	ISO/HL710781 ISO/IEEE IS 11073-10101 004 ISO/IEEE IS 11073-10103 2014 ISO/IEEE IS 11073-10201 2004 ISO/IEEE IS 11073-10404 2010 ISO/IEEE IS 11073-10407 2010 ISO/IEEE IS 11073-10408 2010 ISO/TS TS 21547 2010	
10. Ability to implement ongoing quality control measures to include field-specific data edits built into systems/applications; monitoring and correction of patient identity errors; monitoring and correction of documentation completeness and data accuracy; and ongoing data quality controls, and monitoring and correction in adherence to existing standards.			E2117- 06
11. Ability to prove reliability and integrity of information through audit process to validate measures for ensuring the reliability and integrity of information.	EHRS FM R2	ISO/HL710781 ISO IS 22600-1 2014	E2147-01
12. Ability to monitor hardware, network infrastructure, software, storage, and other system components for reliability of performance.			
13. Ability to maintain formal change control processes as part of a reliable information environment.			
14. Ability to test HIS capabilities to support business requirements 1-13 including validation of data and all appropriate metadata.			
Health Information Protection			
1. Ability to ensure appropriate levels of protection from breach, corruption and loss of information that is private, confidential, classified and essential to business continuity or otherwise requires protection.	EHRS FM R2	ISO/HL710781 ISO IS 27799 2008	

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Business Requirements	Standards Development Organizations		
	HL7	ISO	ASTM
2. Ability to consistently apply and enforce levels of protection to information, regardless of medium, from the moment the information is created until the moment it reaches or exceeds its retention period and is appropriately disposed. This specifically includes adherence to security, privacy and confidentiality requirements (rules, regulations, policies) when determining a method for the final disposition of information, regardless of source or media. This applies whether the disposition is archival, transfer to another organization, preservation for permanent storage, or destruction.	EHRS FM R2	ISO/HL710781 ISO IS 27799 2008	
3. Ability to establish an audit program that defines a clear process for verifying whether sensitive secure information is being handled in accordance with the organization's policies and procedures.	EHRS FM R2	ISO/HL710781	E2147-01
4. Ability to manage and balance compliance with the varying degrees of protection, mandated by laws, regulations, and/or organizational policies for information generated and managed by an organization.	EHRS FM R2	ISO/HL710781 ISO IS 22600-1 2014 ISO IS 27799 2008	
5. Ability to provide security, business continuity, and disaster recovery processes that will ensure continued operation and continued protection, during and after periods of failure or disruption.	EHRS FM R2	ISO/HL710781	
6. Ability to assign and manage appropriate levels of information access and security clearance to all members of the workforce and other authorized parties relevant to their roles or duties.	EHRS FM R2	ISO/HL710781 ISO IS 17090-1 2013 ISO IS 17090-2 2008 ISO IS 22600-1 2014 ISO IS 27799 2008	
7. Ability to maintain appropriate security safeguards, clearly defined and enforced by organizational policies, designed to protect electronic information from being inappropriately viewed, e-mailed, downloaded, uploaded, or otherwise proliferated— intentionally or inadvertently, even by individuals with legitimate access to the system.	EHRS FM R2	ISO/HL710781 ISO IS 17090-1 2013 ISO IS 17090-2 2008	
8. Ability to provide physical security safeguards of computing and access devices or any equipment containing private, secret, or confidential information or intellectual property of the organization.			

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