

June 30, 2017

To: Jason Goldwater
Senior Director, Quality Measurement, NQF

From: Anna Orlova, PhD
Senior Director, Standards, AHIMA

Subject: Comments on the National Quality Forum (NQF) publication entitled “A Measurement Framework to Assess Nationwide Progress Related to Interoperable Health Information Exchange to Support the National Quality Strategy. KEY INFORMANT INTERVIEW SUMMARY REPORT. MARCH 31, 2017” and

“A Measurement Framework to Assess Nationwide Progress Related to Interoperable Health Information Exchange to Support the National Quality Strategy. ENVIRONMENTAL SCAN REPORT MARCH 31, 2017”

Dear Jason:

I am submitting these comments as my personal feedback on the important document that NQF published. Due to the lack of time these comments were not validated by the American health Information Management Association (AHIMA), my employer, and do not represent opinion of AHIMA or AHIMA members on the NQF document.

First of all, I would like to applaud NQF for launching the committee and conducting a project on this very important topic.

Please see below my comments on the current report:

1. Title

I believe that the title is misleading. The document does not contain the “measurement framework” but the observations for the topics that should be included in/inform the development of such framework. I would rename the document by adding “building” or “towards to” at the beginning of the title as follows:

“Building” or “Towards to” a Measurement Framework to Assess Nationwide Progress Related to Interoperable Health Information Exchange to Support the National Quality Strategy.”

2. Definitions

The document does not contain the formal definition of interoperability. It refers to IEEE definition used by ONC, but this definition is deficient as it focuses on technical aspects of interoperability only.

I believe that without national consensus on definition about this important topic, further efforts may not be productive. So, I provide below AHIMA definitions on several key topics as follows:

In 2015, AHIMA developed Comments on the ONC Interoperability Roadmap (URL: <http://bok.ahima.org/PdfView?oid=300817>) provided definitions and called for nationwide consensus for the fundamental terms including:

*** Interoperability**

- * Levels of Interoperability
- * Interoperability Standards and
- * Use Case and National Priority Use Cases

Sections below provide these definitions referenced by AHIMA.

Interoperability. AHIMA support the HL7 definition of interoperability. We proposed to replace the IEEE definition in the ONC Roadmap with the definition of interoperability provided in 2007 by Health Level Seven (HL7) as follows:

"Interoperability" means the ability to communicate and exchange data accurately, effectively, securely, and consistently with different information technology systems, software applications, and networks in various settings, and exchange data such that clinical or operational purpose and meaning of the data are preserved and unaltered."¹

HL7's approach to interoperability is based on the following three interoperability components (pillars)² that specifically focus on the ONC identified barriers 1--3 under "current context" above:

1. **Semantic** interoperability—shared content
2. **Technical** interoperability—shared information exchange infrastructure
3. **Functional** interoperability—shared rules of information exchanges, i.e., business rules and information governance (*"the rules of the road"*).³

In Europe, during the past years, the interoperability framework was formulated (Figure 1).

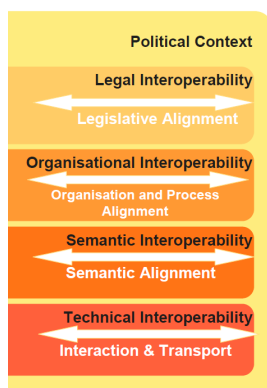


Figure 1. European Union (EU) Interoperability Framework^{4,5}

This framework is consistent with the technical, semantic and functional (organizational and legal) components of interoperability defined by HL7 in 2007.

¹Health Level Seven (HL7). Coming to Terms: Scoping Interoperability for Healthcare. White Paper. 2007. URL: <https://www.hln.com/assets/pdf/Coming-to-Terms-February-2007.pdf>

²Ibid.

³Orlova A. Achieving Health Information Systems Interoperability. JAHIMA. 2015. 86(6): 50-52.

⁴Frømyr J. UN/CEFACT Presentation. Memorandum of Understanding Management Group (MOUMG) Meeting. December 2015.

⁵eHealth Network (2015). Refined eHealth European Interoperability Framework. eHN meeting documents of November, 23, 2015. Retrieved August, 30, 2016, http://ec.europa.eu/health/ehealth/docs/ev_20151123_co03_en.pdf

I believe that HL7 definition of interoperability and its interoperability pillars have to be reflected in the Interoperability Measurement Framework. (Please see more on this topic on Figure 2 and Table 2 below).

Interoperability Standards. In 2005, health Information technology Standards Panel (HITSP) identified the following categories of standards:

Semantic Interoperability

- Data Standards
- Information Content Standards

Technical Interoperability

- Information Exchange Standards
- Identifiers Standards
- Privacy and Security Standards

Functional Interoperability

- Functional Standards
- Business Standards^{6,7}

The NQF document inconsistently mentions some of these standards. The true interoperability cannot be achieved without ALL these standards to be harmonized to work together.

Use Cases. In computer science a use-case driven approach is the foundational methodology for documenting user needs. During 2005-2009, the American Health Informatics Community identified 152 use cases for which interoperability specifications were developed by HITSP. Table 1 presents the list of use cases developed in the US and European Union.⁸

Table 1. Examples of Business Cases, Use Cases, and Realization Scenarios by Project

US AHIC/HITSP ⁹	EU Antelope Project ¹⁰	EU eStandards Project ¹¹
Breakthrough (Business Cases)	Business Cases	Use Cases/Realization Scenarios
EHR laboratory result reporting	Laboratory	Request and results sharing laboratory workflow
Biosurveillance	Referral and discharge reporting	Referral from primary to secondary care
Emergency response	Patient summary	Exchange of patient summaries cross border Exchange of patient summaries across Atlantic
Consultation and transfer of	Multi-disciplinary consultations	Healthcare provider directory

⁶ Public Health Data Standards Consortium (PHDSC). HIT Standards. URL: <http://www.phdsc.org/standards/health-information-tech-standards.asp>

⁷ Orlova A. An Overview of Health IT Standards. JAHIMA. 2015. 86(3): 38-40

⁸ Bourquard K, Orlova A, Parisot C. Understanding User Needs for Interoperability: Defining Use Cases in eHealth JAHIMA. 2017. 88(6): 42-45

care		
Medical home	Participatory healthcare (chronic diseases)	Workflow care plan management
Remote monitoring	Telemonitoring	Mobile services to empower patients with heart failure
Quality	Radiology	Request and results sharing workflow for radiology
Medication management	Medication	ePrescribing and eDispensing on national/regional scale
Maternal and child health	Neonatal care management	Neonatal care plan management at the local or regional scale
Immunization	Immunization	Immunization information sharing at the local, regional, or national levels
Consumer empowerment		
Patient –provider secure messaging		
Public health case reporting		
Newborn screening		
Clinical research		

Breakthrough areas, business cases, use cases, realization scenarios, technical use cases, and storyboards are concepts used to document user needs. These concepts are used differently by different projects, which create confusion among HIT users and implementers about how the user needs have to be supported. To enable harmonization of various concepts, AHIMA partnered with Integrating the Healthcare Enterprise (IHE) International to form the Use Case Task Force. The task force objectives are to define these concepts and their relationships to facilitate better understanding of the standards-based technical solutions specified in the interoperability standards across users, thus facilitating the adoption of these standards in eHealth interoperability projects.

AHIMA and IHE have been publishing the findings of the Use Case Task Force in a series of articles in the *Journal of AHIMA's (JAHIMA) Standards Strategies* section. The first article in this series¹² provided definitions for the concepts that define user needs for the adoption of HIT to support HIT systems interoperability and information sharing across systems. The second article¹³ presented the hierarchy between concepts, illustrated the hierarchy using the examples of assembling the artefacts in the domain of clinical imaging, and described the approach and standards for building the business cases. The third article¹⁴ presented another example of applying the concept hierarchy in the domain of e-prescribing and medication management and described the approach and standards for building the use

¹² Bourquard K, Orlova A, Parisot C. Understanding User Needs for Interoperability: Defining Use Cases in eHealth JAHIMA. 2017. 88(6): 42-45

¹³ Orlova A, Bourquard K, Parisot C. Understanding User Needs for Interoperability: Standards for Business Cases in eHealth. JAHIMA. 2017. 88(7): 34-37

¹⁴ Orlova A, Bourquard K, Parisot C. Understanding User Needs for Interoperability: Standards for Use Cases in eHealth. JAHIMA. 2017. 88(8): in press

cases and realization scenarios for information exchange in healthcare. The forth article¹⁵ in this series. It presents a framework for implementing use-case driven HIT solutions as well as a collaborative approach for involvement of various stakeholders involved in building and/or affected by these interoperable solutions thus enabling interoperability in healthcare.

I believe that the NQF framework will benefit greatly from identifying/applying the use cases as specific examples for the measures of interoperability/information sharing via the means of HIT.

3. Framework Methodology

The sample size of the interview participants is very small - “eight key informant interview candidates.” The interview’s outcomes are not generalizable and have to be considered as anecdotal.

The literature reviewed is quiet impressive, however, without the definitions and overall comprehensive vision for interoperability, the findings are very qualitative/descriptive not quantitative

Appendix D. The NQF Panel is comprised of distinguished providers and informatics specialists. Participation of HIT vendors, health information management (HIM) professionals and standard developers, however, might contribute different perspectives in the development of the interview instruments, overall methodology and outcomes.

4. Framework Components

The NQF document does not present any framework. It is also lacking the comprehensive approach to describe the complexity of interoperability. This may be the deficiency of the methodology that provided example of anecdotal experience with or study on the specific aspect of interoperability.

The NQF document refers to the “ONC Interoperability Roadmap that identified “four core distinctive, but interconnected domains:

- Exchange of data across disparate systems
- Availability of data to facilitate interoperability
- Use of interoperability to facilitate decision making
- Impact of interoperability on health/health-related outcomes”

NQF framework uses further the ONC “domains” to develop the NQF framework... However, the ONC domains themselves cover only sporadic aspects but not the full spectrum of interoperability needs under the semantic, technical and functional interoperability components.

In Europe, the interoperability framework (Figure 1) includes six layers (Figure 2) under the technical, semantic and functional (organizational and legal) components of interoperability. Table 2 provides details of these layers.

¹⁵ Bourquard K, Orlova A, Parisot C. Understanding User Needs for Interoperability: Collaborative Approach. JAHIMA. 2017. 88(8): in press

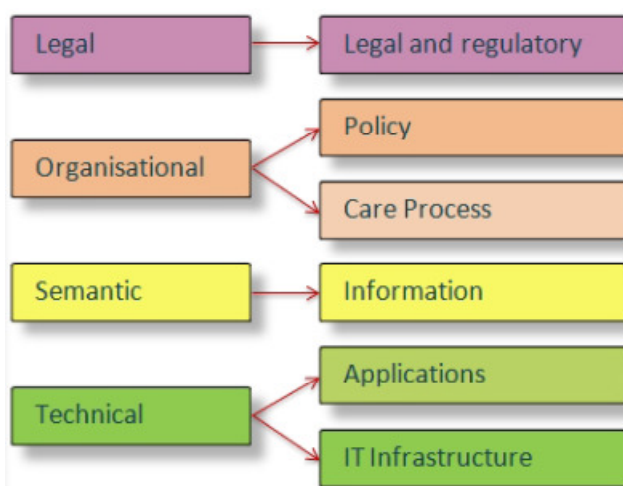


Figure 2. European Union (EU) Interoperability Framework: Detailed View.¹⁶

Table 2. EU Interoperability Framework and Hierarchy of Concepts Alignment¹⁷

EU Framework Layers	
Functional Interoperability (Legal and Organizational Regulation and Policies)	
1. Legal and regulatory framework	
2. Organizational policies for information exchange needs and collaboration agreements	
3. Collaborative care and workflow processes	
Semantic Interoperability (Content)	
4. Information content and exchange structures	
Technical Interoperability (IT Infrastructure)	
5. Applications and services: Transport and exchanges services	
6. IT Infrastructure: Communication protocols including security and privacy constraints	

5. Framework Development Methodology

Development. I propose to develop interoperability measurement framework around 6 layers identified by the EU Interoperability framework (Figure 2, Table 2) using specific US national priority use cases (Table 1) solicited from the various HIT stakeholders and selected via a consensus-based process. AHIC and EU use cases (Table 1) and Meaningful Use use cases can be considered/re-evaluated as a start.

Based on the robust methodology references above, those measure for semantic, technical and functional interoperability can be truly invaluable. Focus on the inconsistent current ONC Interoperability Roadmap's domain creates inconsistencies/deficiencies in the NQF framework as well as follows:

¹⁶ eHealth Network (2015). Refined eHealth European Interoperability Framework. eHN meeting documents of November, 23, 2015. Retrieved August, 30, 2016, http://ec.europa.eu/health/ehealth/docs/ev_20151123_co03_en.pdf

¹⁷ Bourquard K, Orlova A, Parisot C. Understanding User Needs for Interoperability: Collaborative Approach JAHIMA. 2017 88(9-10). In Press.

TABLE 1. ELEMENTS TO DEVELOP MEASURES TO SEND, RECEIVE, FIND, AND USE INTEROPERABLE DATA –

- focused in technical interoperability only; where is “capture”; what if data are not even collected to send, receive, find and use?
- Examples are not comprehensive; where is notification of data availability, acknowledgement of data receipt and other interoperability steps that create trusted information
- What standards are referenced? What does this statement mean: “use of standard data formats and technologies, such as direct to provide a common framework” and other statements that refer to standard...

TABLE 2. SUMMARY OF MEASURE CONCEPTS

- This table present examples of possible use cases, however, presented classification is inconsistent
 - why “Lab results sent to public health agencies” is under public health but not also in care coordination or integration; there are many examples of statements that may belong to various sub-groups
 - why care coordination does not include lab results sent to ordering provider?
 - innovation section contains highly research areas for which national consensus and/or interoperability standards are not available, e.g., enhanced lab report, better understanding of commobidities, more effective screening, better understanding of event and medical causes, etc. – these topics can be premature for inclusion into measure development
 - statements like “reduction in”, “real-time”, “assurance of screening”, “greater accuracy, “more effective” have to be well defined before the interoperability standards for them and corresponding measures could be developed
 - why device related statements are listed in two different group:
 - Integrating a medical device into an EHR is under “interoperability enabled process” (what does the latter mean? Why this is not integration?)
 - Use of standardized medical reports with data from medical devices is under “integration”
 - And so on

TABLE 3. POTENTIAL CLINICAL AREAS FOR MEASUREMENT OF INTEROPERABILITY

- This table presents examples and the way of prioritizing the possible clinical use cases/domains however the number of publications is very limited to make prioritization.

TABLE 5. DIMENSIONS FOR MEASURE CONCEPTS TO EVALUATE DATA EXCHANGED ACROSS THE CARE CONTINUUM

- Categories under Dimension column are: Data Sources, Integration, Aggregation, Transport, Standardization, Measurement
 - Where is the purpose (use cases) for which these 6 activities are performed

TABLE 6. DIMENSIONS FOR MEASURE CONCEPTS TO EVALUATE DATA EXCHANGED TO DEVELOP A LEARNING HEALTH SYSTEM

- Categories under Dimension column are: Data sources, Integration, Connectivity, Measurement, Aggregation
 - Where is the purpose (use cases) for which these 5 activities are performed

- Why 5 not 6 as above in Table 5? Where is standardization?
- Why Connectivity not Transport?
- Is care continuum a main source of LHS data? Why separate tables?

Testing. It is very important to test interoperability measures. The NQF survey document stated: “When evaluating both current measures and measure concepts, respondents emphasized the need to create a test environment to validate interoperability-sensitive measures and to determine the data sources that capture that information. The test framework would allow the framework to prioritize measures by identifying those that have the most impact on clinical quality, patient experience, and reduction in the costs of care.”

It is not clear though how this testing will be enabled. Interoperability strongly depends on the adoption of interoperability standards. Standards have to be developed for the national priority use cases (the latter do not exist in the US now), tested by SDOs (i.e., IHE Connectathons) and also in the HIT products (the latter does not exist now in the US). It will be important to define how testing of (a) standards, (b) standards-based products and (3) interoperability measures could be connected all together.

Certification. If developed comprehensively, the NQF Interoperability Measurement Framework could serve as an integral part of the certification of HIT products.

6. Collaboration with AHIMA

Appendixes D/C present a distinguished panel of members.

AHIMA Standards Task Force, a collaborative of over 70 subject matter experts in health information management, information governance and HIT standardization, will be happy to contribute into the development of the NQF Framework by joining the Panel, if possible. Resumes of possible candidates from the AHIMA Standards Task Force can be available upon request.

Please contact me at anna.orlova@ahima.org and 443-824-8440, if you have any questions regarding my responses.