Procuring Interoperability: Achieving High-Quality, Connected, and Patient-centered Care Through Strategic Technology Acquisition Specifications

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Report background, organization, and action priorities

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Background

- Medical errors result in as many as three million preventable adverse events each year, costing as much as $17 billion in excess annual medical costs.
- Several of the most common causes of medical errors (drug, diagnostic and failure to prevent injury) can be directly addressed by better exchange of data between patients, medical devices, EMRs and other health technology.

Preventable medical harm: *Over 100,000 lives, in the U.S. alone.*
The lack of interoperability imposes a substantial burden on care providers, contributing to staff burnout and tremendous waste.

Documentation, manually entering readings from devices into charts, and manually programming devices accounts for over 1/3 of a hospital nurse’s time.

Enhancing automatic and seamless exchanges of data can immensely increase productivity while positively affecting other measures as well, including patient safety.
How Do We Move Toward Interoperable Systems for Healthcare?

- Desire is for modular, open architecture systems
- Purchasers must take control of their destiny and require interoperability through procurement specifications
- Requires a shared vision and consistency to ensure end state is truly open
- Will hear from other industries including the Department of Defense about transforming the way they procure systems to drive this change
Three Tiers of Interoperability

**Macro-tier: National, Regional**
- Health Information Exchanges
- State, Local Health Depts.
- Radiological, Lab Services
- Commercial Pharmacy
- Payers

**Meso-tier: Hospital, Clinic**
- Electronic Health Record
- Medical Specialty-specific IT systems (e.g. PACS)
- Administrative IT

**Micro-tier: Point-of-care**
- Point-of-care devices, software
- Wearables
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- Medical Records
- Administrative Systems

**Micro-tier: Point of Care**
- Family
- Patient
- Clinician

Inter-facility exchange

Intra-facility exchange
Three Tiers of Interoperability

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- Medical IT Systems

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Driving Interoperability

➢ In other industries, investments in technology and interoperability improved quality and productivity

➢ The purchasers of technologies drive interoperability through procurement contracts

➢ Healthcare could further use procurement to advance interoperability and improve quality and productivity
Action Priorities

**Commit**
Declare interoperability as a primary organizational priority; form an Interoperability Steering Group; develop a roadmap and champion acquisition strategy.

**Identify**
Identify the set of interoperability goals and requirements for the procurement process to deliver on organizational priorities and patient outcome goals.

**Collaborate**
Create a multi-institutional strategy to develop and align on common contracting requirements to move toward the next generation of interoperable systems.

**Specify**
Use specifications to state clear interoperability requirements in existing and future request for proposals and contracts.

**Assess**
Establish and monitor short-term and long-term metrics for performance to advance system-wide learning and improvement.
Technical Supplement

Sezin Palmer, Johns Hopkins Applied Physics Laboratory
Approach

Technical Supplement A: Overarching Framework

Technical Supplement B: Approach to Identifying Requirements

Technical Supplement C: Examples of Interoperability Specification Language

Technical Supplement D: Case Studies
Approach – Overarching Framework

- Interoperability Steering Group
- Long-range Interoperability Roadmap
- Interoperability Needs Identification Process
- Procurement Specification Process
Interoperability Steering Group

Decision-making body to guide procurement including interoperability-related requirements and specifications

- Advocates and facilitates interoperability and open architecture improvements across healthcare information systems and medical devices
- Defines interoperability requirements, writes specification language for procurement documents
- Organizational champion that motivates and executes procurement framework to achieve interoperability
Long-Range Interoperability Roadmap

Multi-year plan that includes incremental objectives for improving interoperability

- Establishes milestones for planned development and procurement to move the organization toward the vision
- Develops roadmap through engagements with stakeholders
- Roadmap shared broadly within the healthcare organization; updated at least annually
Interoperability Needs Identification Process

**Documentation of interoperability-related needs**

- Many approaches available – focused on N-squared diagram
- Used to represent interfaces and interactions between systems, people, etc.
- Systematic way to identify and define interfaces – and interface requirements – based on information and workflow interactions in the healthcare setting
- Can capture numerous interacting entities and dynamic processes
**Procurement Specification Process**

*Translation of needs to procurement specifications to include in requests for proposals*

- Provides requirements for implementation of specified interfaces between technologies

- Data exchange standards and how they are to be implemented must be defined

- Leverage existing processes and tools (e.g. ONC/HIT’s Interoperability Standards Advisory guidance – identifies best-practices on data exchange standards, implementation guides and integration profiles)
Recommendations

- Purchasers take control – require interoperable solutions
- Think long-term; leverage resources to establish standards for data exchange among digital systems with end state in mind
- Ensure specific language that defines requirements for interoperability and data exchange standard to be used and implemented is included in RFPs
- Ensure long-term commitment to vision is embraced across the organization; requires strong leadership to see it through