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JOHNS HOPKINS
UNIVERSITY

Section B

Principles, Standards, and Challenges

Principles and Characteristics of “Perfect” Identifier

- *Accessible:* available when required
- *Assignable:* by a trusted authority after a properly authenticated request
- *Atomic:* single data item with no sub-elements having separate meanings
- *Concise:* as short as possible

Principles and Characteristics of "Perfect" Identifier

- *Content-free:* no dependence on possibly changing or unknown information
- *Cost-effective:* maximum functionality with minimum investment to create and maintain
- *Controllable:* only trusted authorities have access to linkages between encrypted and non-encrypted identifiers
- *De-identifiable:* ability to create a number of encrypted identifiers with same properties

Principles and Characteristics of "Perfect" Identifier

- *Governed:* has entity responsible for overseeing system
- *Incremental:* capable of being phased in
- *Linkable:* can link health records together in both automated and manual systems
- *Mappable:* able to create bidirectional linkages between new and existing identifiers

Principles and Characteristics of "Perfect" Identifier

- *Mergeable:* can merge duplicate identifiers to apply to the same individual
- *Networked:* supported by a network that makes services available universally
- *Permanent:* never to be reassigned, even after a holder's death
- *Portable:* can be moved from system to system

Principles and Characteristics of "Perfect" Identifier

- *Retroactive:* can assign identifiers to all existing individuals when system is implemented
- *Secure:* can encrypt and decrypt securely
- *Scalable:* can be used at various levels of technology capabilities
- *Standard:* compatible if possible with existing or emerging standards

Principles and Characteristics of "Perfect" Identifier

- *Technology-neutral:* can be used with different types of technology
- *Unambiguous:* minimizes misinterpretation risks
- *Unique:* identifies one and only one individual or entity
- *Universal:* applies across boundaries
- *Usable:* processable by both manual and automated means
- *Verifiable:* can determine validity without additional information

National Health Standards for Unique Identifiers

- Standards for individuals
  - Individual providers
  - Patients
  - Others

- Standards for organizations
  - Provider organizations
  - Payers
  - Employers
  - Others

- Standard identifier for systems and processes

- Standard identifier for devices

The National Provider ID (NPI)

- Established under HIPAA in 2004

- Defined as a unique randomly assigned national 10-digit (all-numeric) identifier
  - No “intelligence” built into number
  - Last digit = “Check-Digit” to validate integrity of number
  - First digit expected to be limited to a *1*, *2*, *3*, and *4*
    - Each sequence (i.e., all numbers starting with a *1)* will allow for up to 100 million numbers (1234567891)
    - All numbers assigned to date start with a *1*

The National Provider ID

- Issued by federal government (HHS)
  - National Payer and Provider Enumeration System (NPPES)
  - https://nppes.cms.hhs.gov
- Applies to all individual health care providers and provider organizations subject to HIPAA
- Required to be used on electronic transactions

The National Provider ID

- Will replace all other “proprietary” provider identifiers (assigned by payers and others)

- Will not replace other identifiers such as the TaxID, the state license number, the DEA number

The National Provider ID

- Providers eligible to obtain an NPI
  - Must meet the definition of “health care provider” under HIPAA
  - Individual health care providers include physicians, dentists, psychologists, therapists, nurses (not all), chiropractors (not all), and many other health care providers

The National Provider ID

- Providers eligible to obtain an NPI
  - Must meet the definition of "health care provider" under HIPAA
  - Individual health care providers include physicians, dentists, psychologists, therapists, nurses (not all), chiropractors (not all), and many other health care providers
  - Provider organizations include hospitals, clinics, pharmacies, long-term facilities, home health, etc.

- Enumeration started May, 2005
  - 2.4 million NPIs issued
    - 1.9M individuals
    - 0.5M organizations

- Required to begin to be used by May, 2008

The National Payer ID

- Each health plan needs to be identified in health care transactions
- Health plans offer multiple plan products
- Consumers enroll in specific plan products
- Providers “enroll” into specific health plan’s provider network via contracts
- Consumers and providers relate to each other via a plan product
- Potential need to identify at a more granular level (plan product)

The National Payer ID

- Status of standard
  - Being established under HIPAA
  - National Committee on Vital and Health Statistics held hearings and submitted recommendations to HHS on the adoption of a Plan ID
  - Currently CMS is preparing the proposed regulations that will establish the standard
  - Expected to enumerate every legal health plan entity plus some plan product component level
    - Medicare, Medicaid, commercial, self-insured products
  - Expected to also be a 10-digit identifier (following the NPI enumeration system)
  - Expected to use NPPES for enumeration
  - Numbers could start with *7*, *8*, or *9* to avoid conflict with NPI

The National Employer ID

- Employers also need to be identified into the health care system

- HIPAA established the standard for employer identification
  - Employer Identification Number (EIN)
  - Assigned to every legally established employer in the country
    - Except sole-proprietorships
  - Does not require any re-enumeration: it already exists, is assigned, and will continue to be assigned
  - A health care provider organization *is also* an employer (will have an EIN and an NPI)
  - Currently in place and being used in the health care system

The National Patient ID

- The ultimate challenge: how to uniquely identify individual patients across multiple, disparate, external, and un-related systems
  - Between two providers
  - Between a provider and a payer
  - Between private and public sector, etc.
  - Across RHIOs
  - Across the NHIN?

The National Patient ID

- Today's realities
  - Each provider assigns an ID to each patient ("medical record number")
  - Each payer assigns an ID to each enrollee ("consumer enrollment ID")
  - Employers generally use the Social Security number of employees
  - In some cases the same patient is assigned two or more IDs by a provider or a payer
  - Many provider and payer organizations have established "master patient indexes" and "record-linkage systems"
  - Regional networks establishing "record locator services"

The National Patient ID

- Standards work to date
  - Initially to be developed by HHS as part of HIPAA
  - Congress de-funded the effort (in effect, stopping any efforts being done)
  - Some states exploring the adoption of a unique patient ID within the state

The National Patient ID

- Shift in focus
  - Efforts moving away from unique IDs and into standard methods to achieve reliable and valid patient record matching and record linkages across organization, networks, and information exchanges
  - Office of National Coordinator implementing NHIN prototypes that included testing of methods and techniques to uniquely link records across organizations
  - Private entities promoting various methods for establishing a match between a patient and his/her records distributed across a network
    - Statistical Probabilistic Matching Method
    - Record locator service systems (RLS)

- Still much work to be done

New and Emerging Health Standard Identifiers

- IP address
  - System identification
  - Security protections
    - I.e., identification, authentication, non-repudiation

- **Uniform resource identifiers (URI)**
  - Used in computing and networking to identify system resources and part of a larger Internet information architecture that is composed of:
    - *Uniform resource name (URN):* used for identification of a resource
    - *Uniform resource characteristics (URCs):* provides meta-data about resource
    - *Uniform resource locators (URL):* provides location for finding resource

New and Emerging Health Standard Identifiers

- OIDs
  - *Object identifier:* an identifier used to name an object
  - Hierarchical structure that includes a namespace defined using the ASN.1 (Abstract Syntax Notation One) of the ITU-T (International Telecommunications Union–Telecommunications Standardization Sector)
  - Assigned by country, by sector within country, and by authority within sector

Bottom Line

- There are several components of the system that need to be uniquely identified (person, entity, system, device)
- Unique identifiers are a critical infrastructure/building block component of an interoperable health information system
- While standards exist, have been adopted, and are in use for information systems and devices, standards for uniquely identifying individuals and organizations are only beginning to be adopted and used

Bottom Line

- There are important limitations on the National Provider Identifier system that will need to be addressed in order to achieve full, universal, ubiquitous status

- The unique patient identifier in the United States is not seen as a viable, realistic option yet
  - Instead, alternative patient identification systems are being considered
    - Including record linkage systems and probabilistic record matching methods

Thank You

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Coming up Next …