Development of an HL7 Version 3 Message for Healthcare Electronic Surveillance

Benjamin A. Kupronis,

James S. Tolson, Jonathan R. Edwards,

Ravi Sampath, Wenkai Li, Kelly Peterson, and

Jerome I. Tokars

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Mission of the Division of Healthcare Quality Promotion (DHQP)

- Protect patients
- Protect healthcare personnel
- Promote safety, quality, and value in the healthcare delivery system

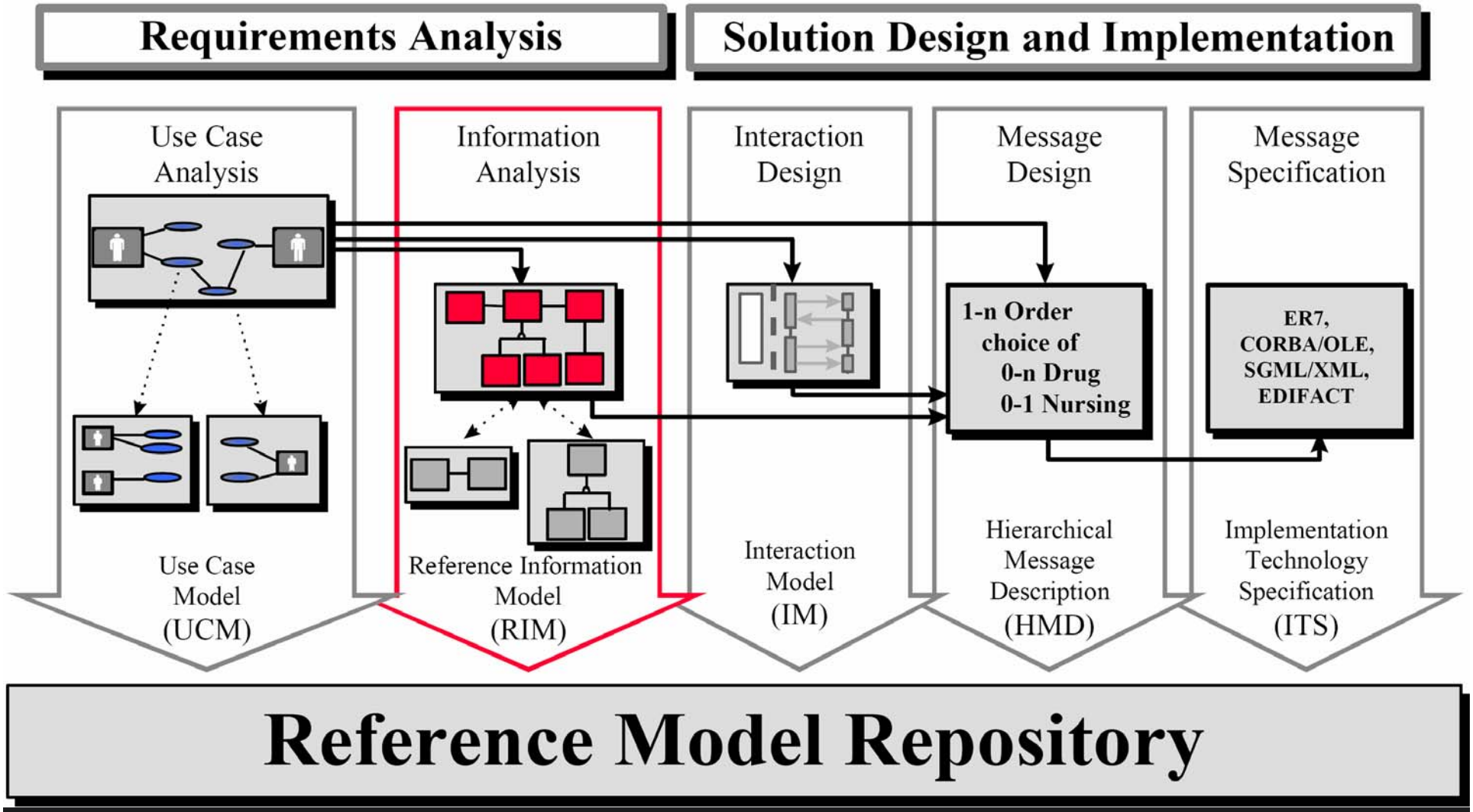
Select NHSN Activities

- Monitor of nosocomial infections.
  - Bloodstream infections
  - Surgical site infections
  - Pneumonia
- Calculate nosocomial infection rates to use for comparison purposes.
- Monitor antimicrobial resistance trends

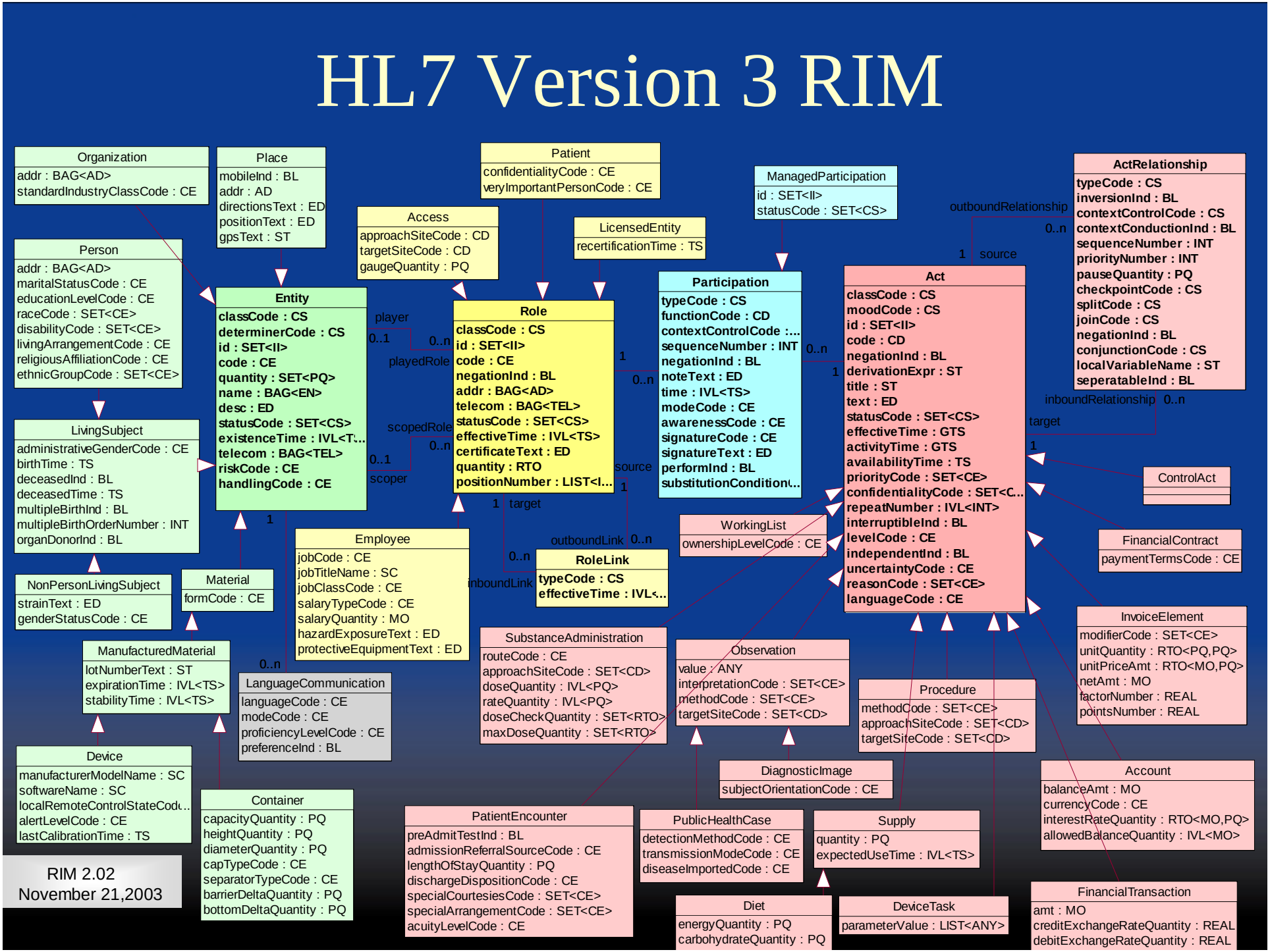
Advantages of HL7 Version 3

- Well-defined object-oriented development methodology
- Based on a Reference Information Model (RIM)
- Rigorous analytic and message building
- Incorporating more trigger events and message formats with very little optionality
- Ability to certify vendors' conformance
- Schema based XML

The HL7 Version 3 Message Development Framework



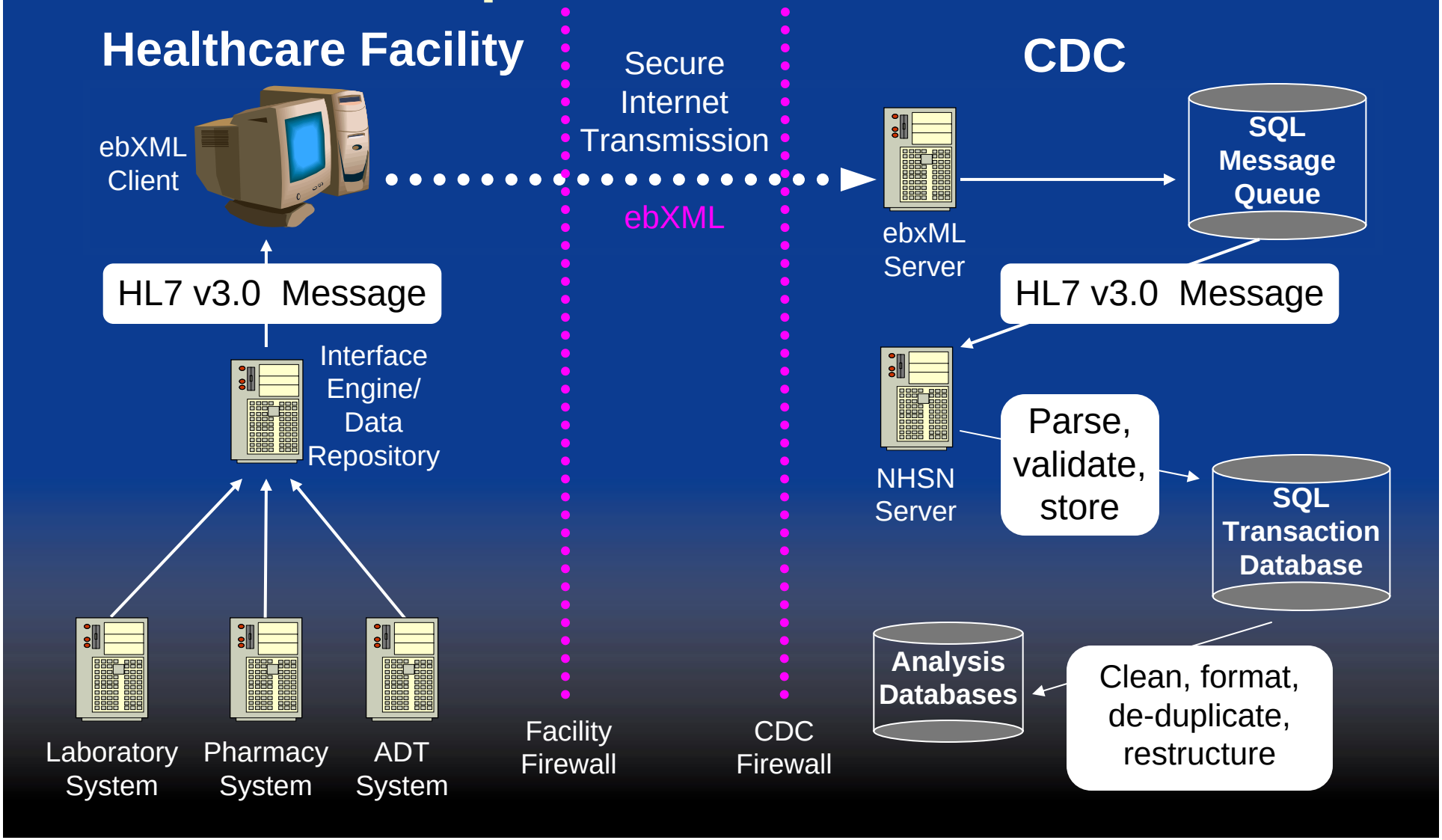
HL7 Version 3 RIM



Content of Messages

- Laboratory Microbiology Susceptibilities
- Pharmacy Orders/Administrations
- Admission/Discharge/Transfer Data
  - Patient Information
  - Discharge Diagnoses
  - Patient Management

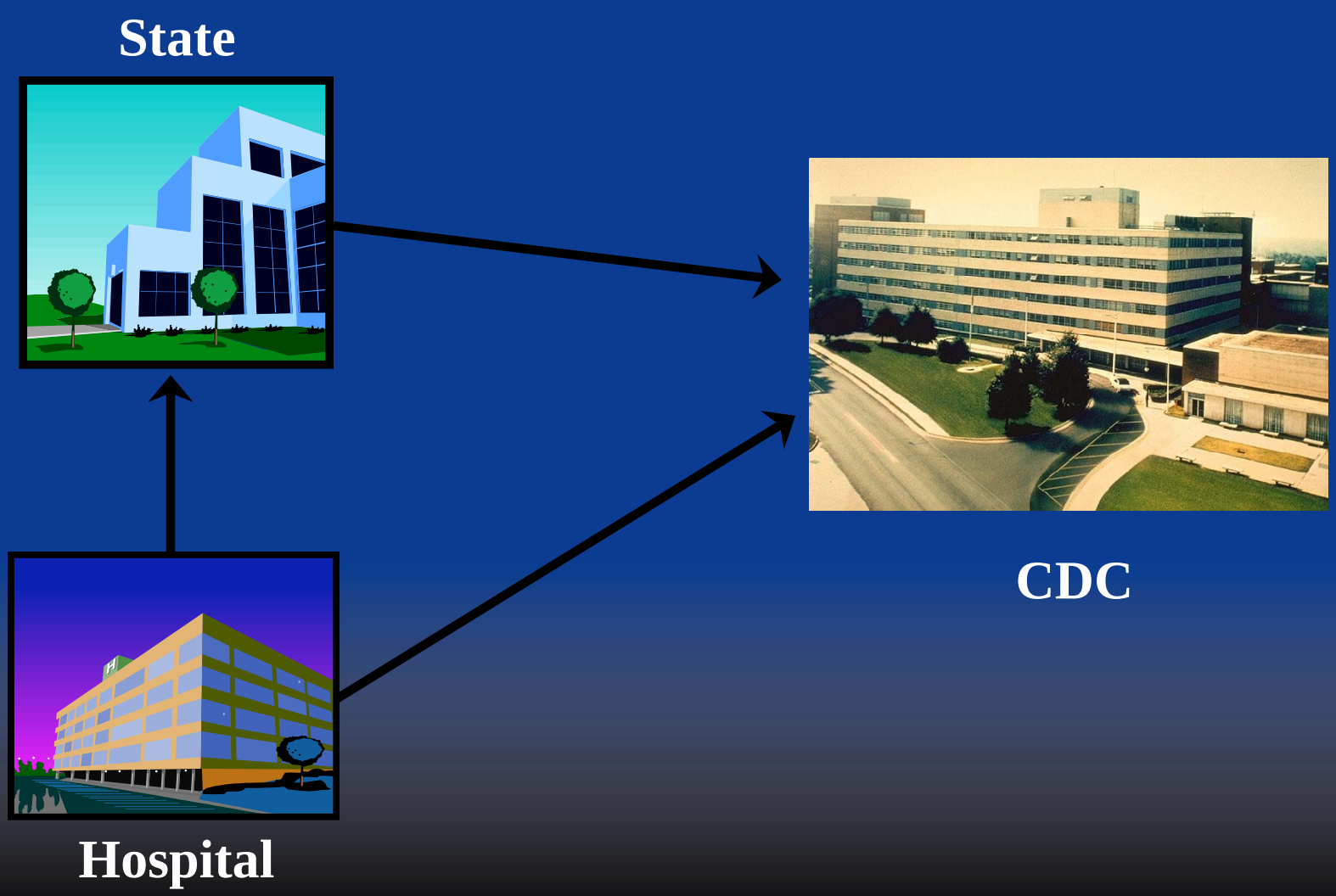
Data Transmission and Manipulation Overview



DHQP V3 Message Features

- Follows balloted RIM when possible
- Coded elements have standard vocabulary
  - LOINC, SNOMED, HL7 V3 (Gender, race, ethnicity, units of measure, GTS), ICD-9, NDC, RX-Norm
- Each coded element has a standard, owner, and transmitter codes

Possible Paths of V3 Data



V3 Standard Message Tradeoffs

- Easier for receiver to analyze
  - Standard vocabulary
  - Data model harmonization
- Not compliant with existing 2.x messages
  - 2.x has multiple vocabularies
  - 2.x has multiple data models
- V3 still in development
  - Standard in flux
  - Able to influence message structure/content

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