

National Committee on Vital and Health Statistics
Subcommittee on Standards
Listening Session
Healthcare Standards Development, Adoption and Implementation

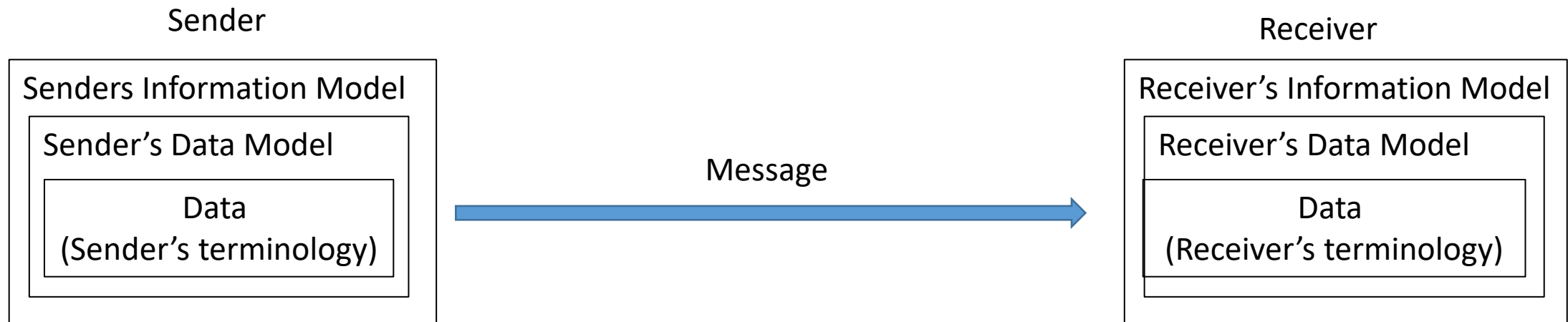
August 25, 2021

PANEL 3: Semantic Harmonization of Standards

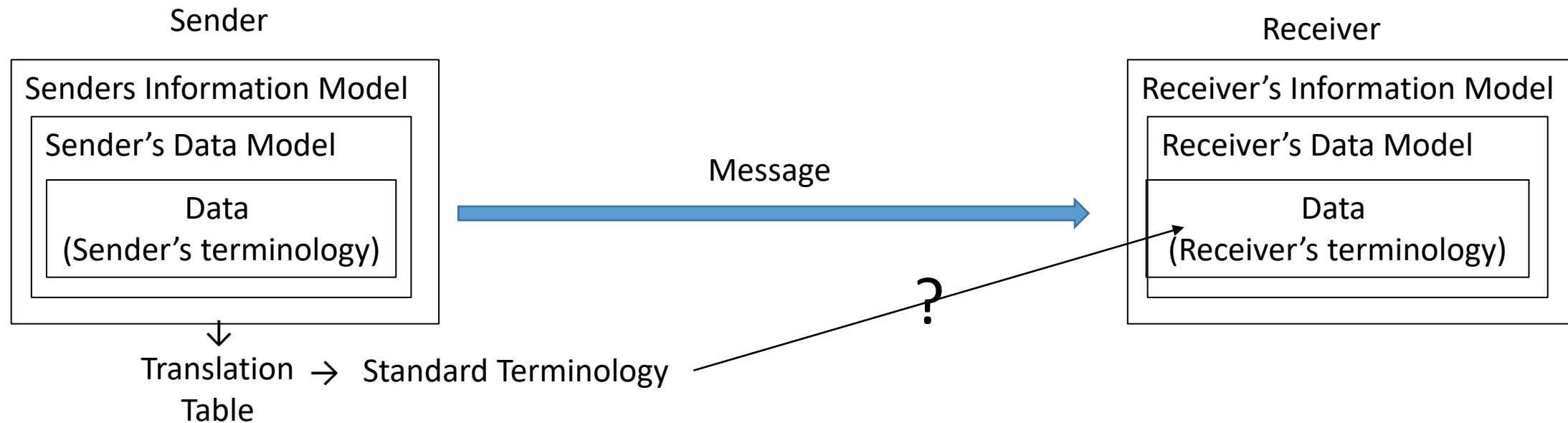
James J. Cimino, MD

Director, Informatics Institute, University of Alabama at Birmingham

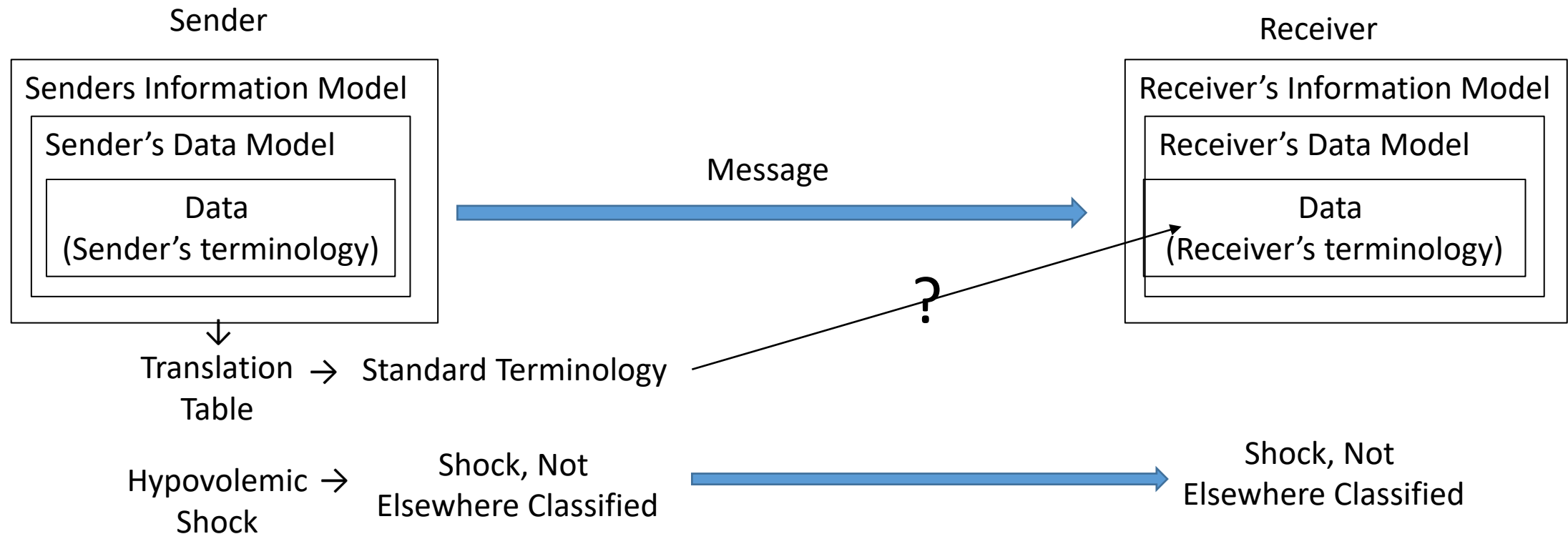
Semantic Interoperability – the ability of computer systems to exchange data with unambiguous, shared meaning. (Wikipedia)



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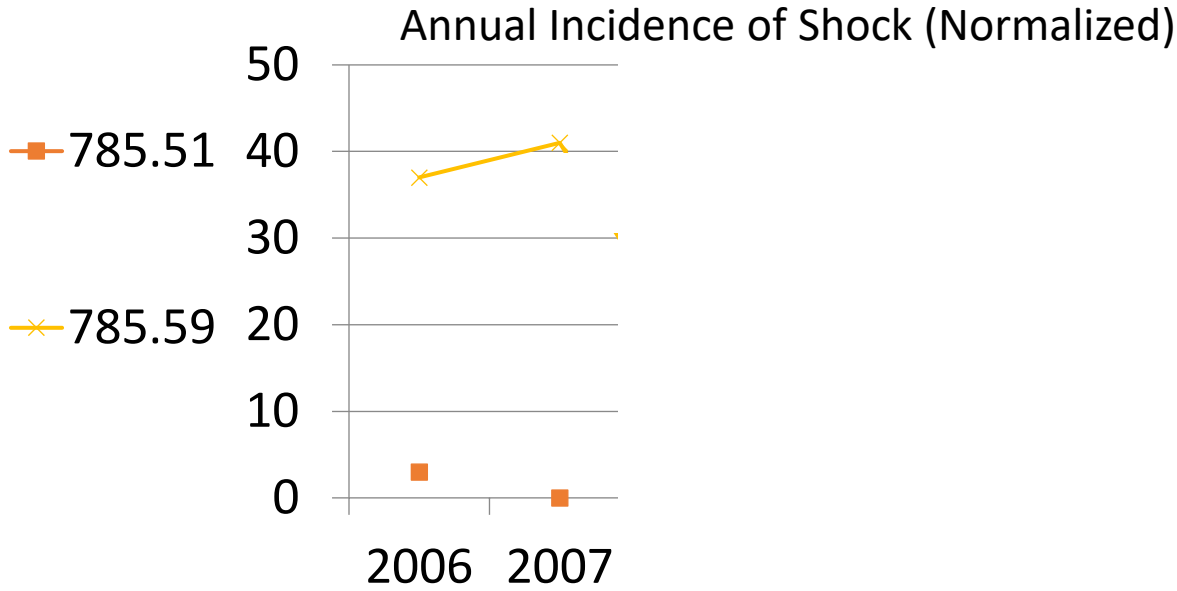
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Semantic Drift in ICD-9-CM

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Diagnosis	ICD9-CM Code	ICD9-CM Name
Cardiogenic Shock	785.51	Cardiogenic Shock
Septicemic Shock	785.59	Shock without Mention of Trauma, NEC
Hypovolemic Shock	785.59	Shock without Mention of Trauma, NEC



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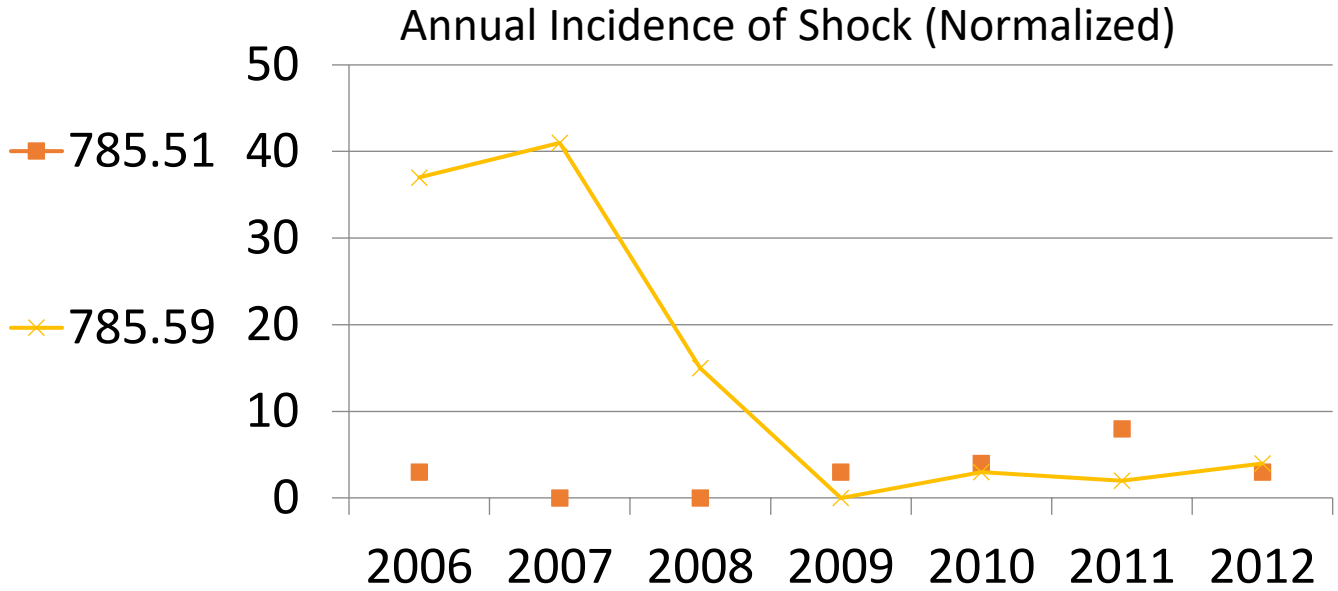
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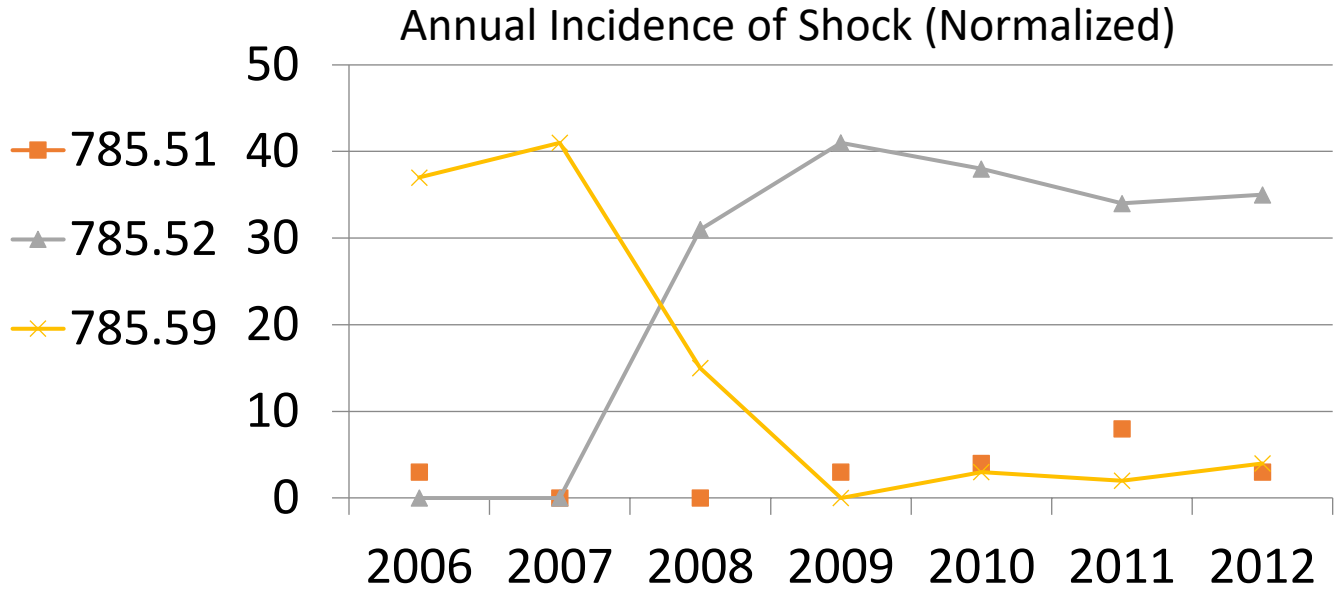
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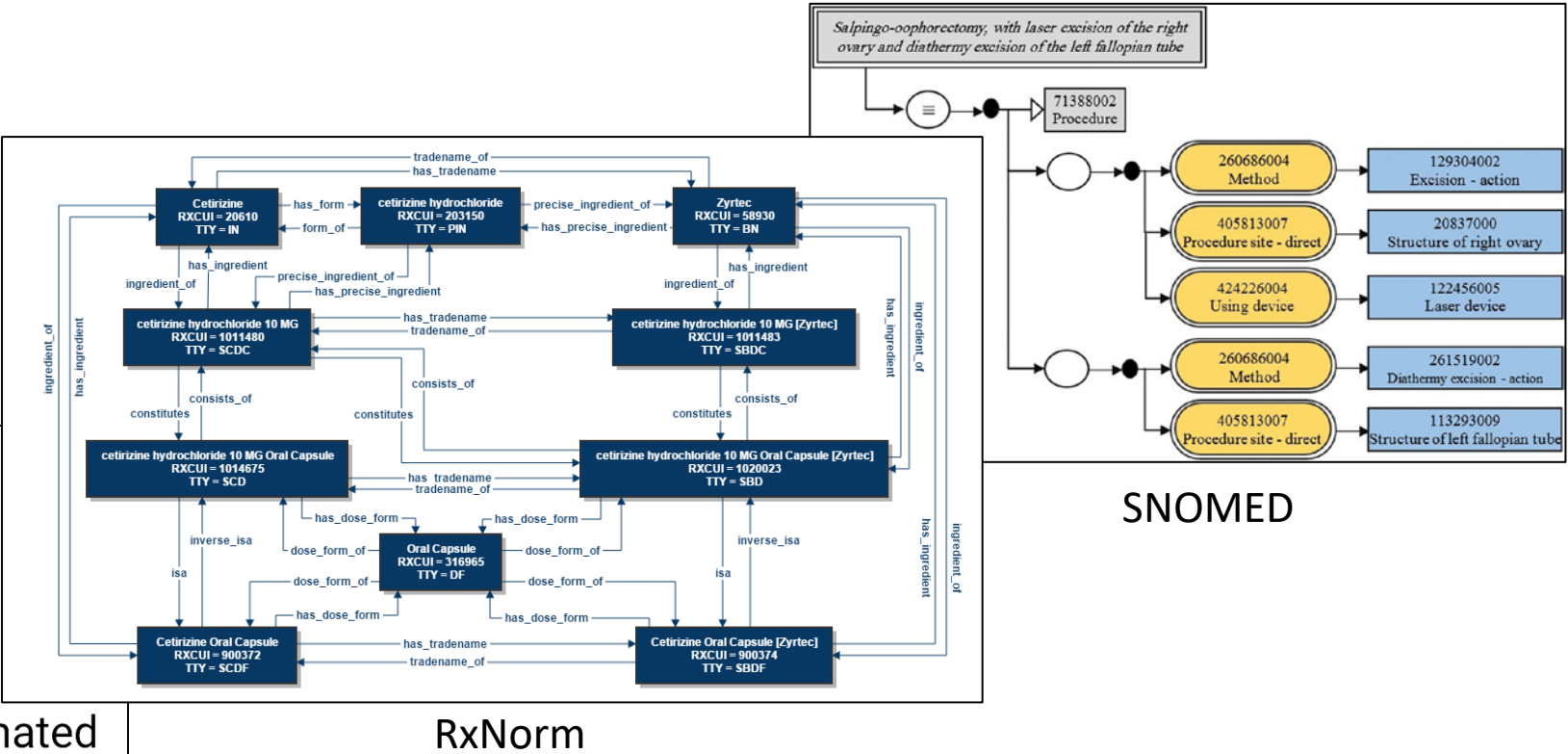
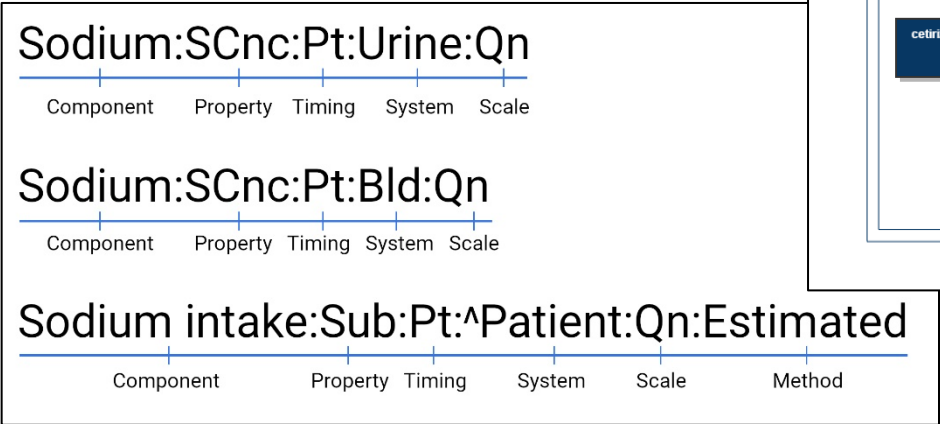
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Semantic Harmonization - The process of combining multiple sources and representations of data into a form where items of data share meaning.

- Bowles KH, et al. Journal Nurs Admin. 2013 Jun;43(6):355.

LOINC



AUTOMATED TRANSLATION BETWEEN MEDICAL TERMINOLOGIES USING SEMANTIC DEFINITIONS

JAMES J. CIMINO, M.D., AND G. OCTO BARNETT, M.D.

MD Computing, 1990. Mar-Apr;7(2):104-9.

SIXTEEN MeSH TERMS AND THE CLOSEST MATCH FOUND IN ICD-9*

Table 1

MeSH	ICD-9
Aortography	Contrast aortogram (88.42)
Cerebral angiography	Contrast cerebral arteriogram (88.41)
Portography	Portal contrast phlebogram (88.64)
Fluorescein angiography	Eye fluorescein angiography (95.12)*
Heart function tests	Other cardiac function test (89.5)
Echocardiography	Diagnostic ultrasound—heart (88.72)
Electrocardiography	Electrocardiogram (85.92)
Vectorcardiography	Vectorcardiogram (89.53)
Polarcardiology	Vectorcardiogram (89.53)
Exercise test	Cardiac stress test not elsewhere classified (89.44)
Phonocardiography	Phonocardiogram (89.55)
Plethysmography	Plethysmogram (89.58)
Myocardial revascularization	Coronary vessel aneurysm repair (36.91)
Aortocoronary bypass	Aortocoronary bypass not otherwise specified (36.10)
Internal mammary-coronary artery anastomosis	Single internal mammary-coronary artery bypass (36.15)
Splenorenal shunt, surgical	Intra-abdominal venous shunt (39.1)*

*Most of the matches are virtually exact; an asterisk indicates a term for which no better ICD-9 term exists.

Panel Members

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Head of Terminology
SNOMED International

Questions for the Panel

- What does semantic harmonization mean to you?
- What is the current state from your perspective?
- If you're actively working on solutions, briefly describe.
- What should be done – what's worth doing in the next 5-10 years?