Healthcare IT Goal: Computable Semantic-Interoperability
where, specifications, standards, and implementation artefacts are clear, complete, concise, correct, consistent, traceable and easy-to-use.

CIMI

HL7 INTERNATIONAL CLIM

FHIM, using SMEs, Standards, US Regulatory Requirements

CQI, using SMEs, CQF, vMR & QDM Requirements

CIMI, using SMEs, FHIM & CQI Domain Models

CIMI Principles & Reference Models

CIMI Principles & Reference Models

CIMI Principles & Reference Models

Common Stakeholders

FHIM Domain Models

QI Quick & DAF Domain Models

CIMI DCMs CQI eCQMs CDS KNARTs

Manual or using Tools

Manual or using Tools

Manual or using Tools

Interoperability Specifications and Implementation Artifacts CDA, NIEM, FHIR (US Core, QI Core, Profiles, Extensions)
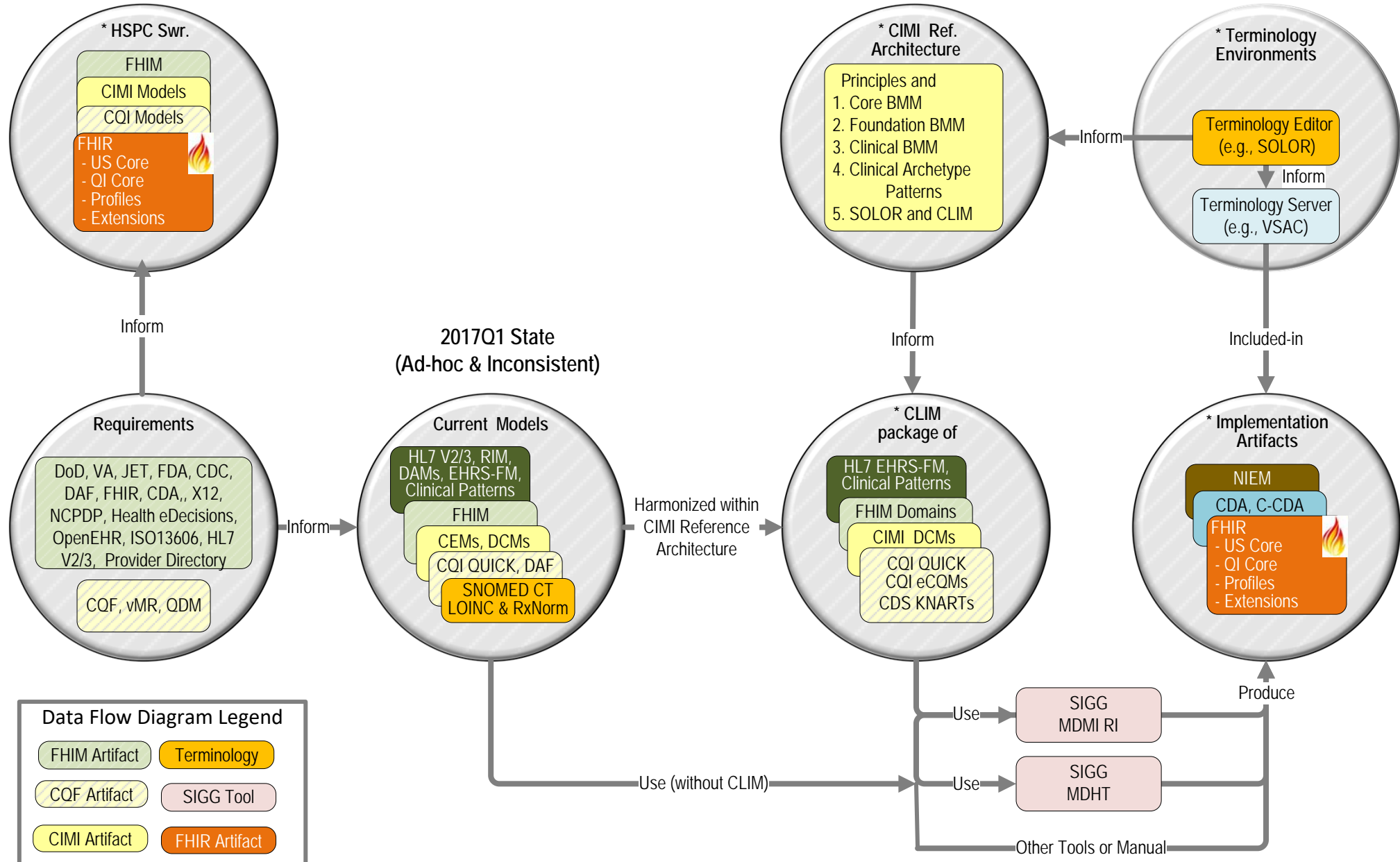
SOLOR SNOMED CT, LOINC and RxNorm Semantics

2017Q1 Summary and Status

Milestones:
- 2016-01 CIMI became an HL7 workgroup
- 2016 Jan-Sep: CIMI-sponsored HL7 IIM&T investigative study
- 2016-08 ONC, FHA and IPO co-sponsored HIEA Technical Forum
- 2016-09 CIMI-sponsored HL7 IIM&T Project #1316
- 2016-11 HL7 IIM&T briefing to FHA Managing Board
- 2017-01 HL7 Comments-only ballot
- 2017-05 HL7 Informative Standard
- 2017-09 HL7 Standard for Trial Use (STU)
- 2018-09 HL7 Standard for Trial Use (STU)
- 2019-09 HL7 Normative Standard
- 2020-09 HL7-ISO Standard

Collaboration Pilot-Projects (2017Q1); where, #1, #2, #3 indicate May-2017 Ballot inclusion-priority:
- FHIM integration of CIMI Clinical BMM & Archetypes (Patterns) #1 [Galen Mulrooney]
- US Core / QI Core integration of CIMI BMM & Archetypes (Patterns) #1 [Claude Nanjo]
- Patient Care Project #1253 "CIMI Clinical Model Proof of Concept" (Skin Wound Assessment) #1
- Refine PROCEDURE and CONTEXT based on Pilots #1 (Galen Mulrooney and Claude Nanjo)
- Pediatric Bilirubin Management CDS #2, needs code generation library [Ken Kawamoto]
- Zika measure #3 [Ken Kawamoto and Claude Nanjo]
- Immunization Management EHR Functional Model Profile #3 (Steve Hufnagel and Gary Dickinson)
- Family Planning Annual Report (FPAR) – HSPC pilot with ACOG #3 [Stan Huff, Susan Matney]
- Device interfaces MDEpiNet. #3 [Julia Skapik]
- FHIR JET (Joint Exploratory Team) #3 Nona Hall, IPO, VA, DoD

Strategy

where, hope is not a strategy, luck is not a factor and ignorance is not bliss

CIMI

HL7 INTERNATIONAL CLIM

* Planned 2018+ State
(HL7-ISO Standard, Traceable & Consistent)

* HSPC Swr.
- FHIM
- CIMI Models
- CQI Models
- FHIR
  - US Core
  - QI Core
  - Profiles
  - Extensions

* CIMI Ref. Architecture
Principles and
1. Core BMM
2. Foundation BMM
3. Clinical BMM
4. Clinical Archetype Patterns
5. SOLOR and CLIM

* Terminology Environments
- Terminology Editor (e.g., SOLOR)
- Terminology Server (e.g., VSAC)

Inform
Inform

Inform
Inform
Included-in

2017Q1 State
(Ad-hoc & Inconsistent)

Requirements
- DoD, VA, JET, FDA, CDC, DAF, FHIR, CDA,, X12, NCPDP, Health eDecisions, OpenEHR, ISO13606, HL7 V2/3, Provider Directory
- CQF, vMR, QDM

Current Models
- HL7 V2/3, RIM, DAMs, EHRS-FM, Clinical Patterns
- FHIM
- CEMs, DCMs
- CQI QUICK, DAF
- SNOMED CT LOINC & RxNorm

* CLIM package of
- HL7 EHRS-FM, Clinical Patterns
- FHIM Domains
- CIMI DCMs
- CQI QUICK CQI eCQMs CDS KNARTs

* Implementation Artifacts
- NIEM
- CDA, C-CDA
- FHIR
  - US Core
  - QI Core
  - Profiles
  - Extensions

Inform
Inform
Harmonized within CIMI Reference Architecture

SIGG MDMI RI
SIGG MDHT

Use
Use
Use (without CLIM)
Produce
Other Tools or Manual

Data Flow Diagram Legend
- FHIM Artifact
- Terminology
- CQF Artifact
- SIGG Tool
- CIMI Artifact
- FHIR Artifact

Acronyms

where, "when I use a word, it means just what I choose it to mean — neither more nor less." [Alice in Wonderland, Lewis Carroll, 1865]

BMM is CIMI Basic Meta Model components See http://wiki.hl7.org/index.php?title=CIMI_Practitioners%27_Guide

CDA is HL7 Clinical Data Architecture. See http://www.hl7.org/implement/standards/product_brief.cfm?product_id=258

C-CDA is HL7 Consolidated CDA. See http://www.hl7.org/implement/standards/product_brief.cfm?product_id=379

CEM is Intermountain Clinical Element Models e http://www.opencem.org/#/

CDS is HL7 Clinical Decision Support workgroup. See http://wiki.hl7.org/index.php?title=Clinical_Decision_Support

CIMI is HL7 Clinical Information Model Initiative. See http://wiki.hl7.org/index.php?title=Clinical_Information_Modeling_Initiative_Work_Group

CIMI Principles See http://wiki.hl7.org/index.php?title=CIMI_Practitioners%27_Guide

CIMI Reference Models (aka Information Architecture) See http://wiki.hl7.org/index.php?title=CIMI_Practitioners%27_Guide

CLIM is HL7 Clinical Logical Information Model Package of CIMI-Harmonized SOLOR, FHIM, CQF, DCMs, eCQMs and KNARTs
   where, independent organizations maintain the component models and HL7 periodically configuration manages, ballots and standardizes them.

CQF is ONC Clinical Quality Framework. See http://wiki.hl7.org/index.php?title=Clinical_Decision_Support

CQI is HL7 Clinical Quality Information workgroup. See http://wiki.hl7.org/index.php?title=Clinical_Quality_Information

DAM is HL7 Domain Analysis Model.

DAF is ONC Data Access Framework (US Core). See http://wiki.siframework.org/Data+Access+Framework+Homepage

DCM is CIMI Detailed Clinical Models. See http://www.opencimi.org/model-browser

eCQM is Electronic Clinical Quality Measure

EHRS-FM is HL7 Electronic Health Record Finctional Model

FHIM is Federal Health Information Model; where, FHIM specifies healthcare domains and their data modules and their data elements. http://FHIMS.org

FHIR is HL7 Fast Healthcare Information Resource standard and workgroup. See http://wiki.hl7.org/index.php?title=FHIR

HcDir is ONC-FHA Provider Healthcare Directory. See http://wiki.siframework.org/Provider+Directories

IIM&T Is CIMI-sponsored HL7 Integration of Information Models & Tools Project. http://wiki.hl7.org/index.php?title=CIMI_Practitioners%27_Guide

JET is DoD-VA Joint Exploratory Team.

KNART is CDS Knowledge Artifact. See http://www.hl7.org/implement/standards/product_brief.cfm?product_id=337

MDHT is SIGG Model Driven Health Tool. See https://projects.eclipse.org/proposals/model-driven-health-tools

MDMI is SIGG Model Driven Message Interoperability.
   The present MDMI Referent Index (RI) scope is the US Core; where, FHIM is used for data-element value-sets.
   FHA's MDMI RI supports all MU2 data elements and >90% of the C-CDA model.
   See http://www.omg.org/mdmi/ and http://www.omg.org/spec/MDMI/ and https://github.com/MDMI/ReferentIndexContent

NIEM is National Information Exchange Package. It provides browser-cased "interoperability" among Federal agencies. See https://www.niem.gov/

QI Core is FHIR Quality Improvement Core Implementation Guide . See https://www.hl7.org/fhir/qicore/qicore.html

QUICK is CQI's Quality Information and Clinical Knowledge logical model, used to specify eCQMs and FHIR QI Core.
   See https://www.hl7.org/documentcenter/public_temp_315E0F18-1C23-BA17-0C73398BA144AB5D/wg/cqi/Defining_eCQMs_Using_CQL.pdf

RI is SIGG-MDMI Referent Index. See https://github.com/MDMI/ReferentIndexContent

RIM is HL7 Reference Information Model

SIGG is FHA Standards Implementation Guide Generator

SOLOR is VA's SnOmed LOinc, Rxnorm; where, HSPC hosts the SOLOR project to provide the terminology foundation for model development.

VSAC is NLM Value Set Authority Center. https://vsac.nlm.nih.gov/

This quote seems applicable to CIMI's quest-of achieving its healthcare IT goal of "Computable Semantic-Interoperability."

"It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who neither know victory nor defeat."
Theodore Roosevelt, Apr 23, 1910, Sorbonne, Paris, France

Supporting Documents

HL7 IIM&T Project Scope Statements	https://1drv.ms/f/s!AlkpZJej6nh_IIQOuPJcL2rf5BVoXQ
IIM&T Technical Forum Summary	https://1drv.ms/w/s!AlkpZJej6nh_k9gyRVADgOvM5SIJkQ
IIM&T Work Breakdown Structure	https://1drv.ms/f/s!AlkpZJej6nh_IKc00J3Kh2BTkopPnA
IIM&T Briefing Slides	https://1drv.ms/p/s!AlkpZJej6nh_k9dE-b_DAO8HSNNT6Q
IIM&T Reports	https://1drv.ms/w/s!AlkpZJej6nh_k9dQ2qQnRuQM8gbu8A
CIMI Wiki	http://wiki.hl7.org/index.php?title=Clinical_Information_Modeling_Initiative_Work_Group
CIMI Minutes	http://wiki.hl7.org/index.php?title=CIMI_Minutes
CIMI Newsletters	http://wiki.hl7.org/index.php?title=CIMI_Newsletters
CIMI Practitioners' Guide	http://wiki.hl7.org/index.php?title=CIMI_Practitioners%27_Guide
CIMI Modeling, Architecture, Methodology and Style Guides	
	http://wiki.hl7.org/index.php?title=CIMI_Modeling,_Architecture,_Methodology_and_Style_Guides

These are not clickable links; where,
You must copy the link into a browser to access the content.
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Acknowledgement

where, collaboration grows with a strong SME base

- **CIMI Co-Chairs**
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  Linda Bird BIT, IHTSDO
  Galen Mulrooney, FHA and VA contractor
  Richard Esmond, PenRad LLC

- **Members of the following SDOs**
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  The Open Group Healthcare Forum POC: Jason Lee
  ISO/CEN, POCs: Gerard Freriks, William Goossen, Gary Dickinson

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  Federal Health Architecture (FHA)
  Interagency Program Office (IPO),
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  Veterans Administration (VA)
  Federal Drug Agency (FDA),
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