

第36回医療情報学連合大会 チュートリアル7
「集積された診療情報を活用するために」

診療情報モデルの標準化と国際動向

2016年11月21日

稲岡 則子

医療情報標準化推進協議会 理事

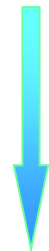
(日本アイ・ビー・エム株式会社 公共サービス事業部)

Enabling the future for Health



HIMSSのInteroperability (相互運用性) 定義

- 米国HIMSS (Healthcare Information and Management Systems Society) 2013年4月発行
 - <http://www.himss.org/sites/himssorg/files/FileDownloads/HIMSS%20Interoperability%20Definition%20FINAL.pdf>
- 3つのレベルの医療ITのInteroperability相互運用性
 - Fundamental(基礎的)
 - Structural (構造的)
 - Semantic (意味的)



Definition of Interoperability

Approved by the HIMSS Board of Directors April 5, 2013

In healthcare, interoperability is the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged.¹ Data exchange schema and standards should permit data to be shared across clinicians, lab, hospital, pharmacy, and patient regardless of the application or application vendor.² Interoperability means the ability of health information systems to work together within and across organizational boundaries in order to advance the health status of, and the effective delivery of healthcare for, individuals and communities.³

There are three levels of health information technology interoperability:⁴ 1) Foundational; 2) Structural; and 3) Semantic.

Goal: Models supporting multiple contexts

- EHR data storage
- Message payload and service payload
- Decision logic (queries of EHR data)
- Clinical trials data (clinical research)
- Quality measures
- Normalization of data for secondary use
- Creation of data entry screens (like SDC)
- Capture of coding output from NLP

診療情報モデルに関連する活動

黒太字：標準化団体による活動

1990

2000

2010

GEHR The Good European Health Record

CEN ENV13606

ISO13606

(2008-2010)現在改訂中

アーキタイプ
Archetype

OpenEHR

GeHR The Good electronic Health Record
オーストラリア

2階層モデリング

HL7

CDA rel2 ISO27932

Clinical Document Architecture

**RIM/D-MIM
Template**

RIM ISO21731

Reference Information Model

各国DCM(Detailed Clinical Model)

CIMI Clinical Information Modeling Initiative
(2011 July) 現在HL7のWG

NHS LRA

Logical Record Architecture for Health and Social Care

SemanticHealthNet
(2011 Jan)

各国の活動： オーストラリア、米国、カナダ、オランダ、
スウェーデン、英国、シンガポール、韓国

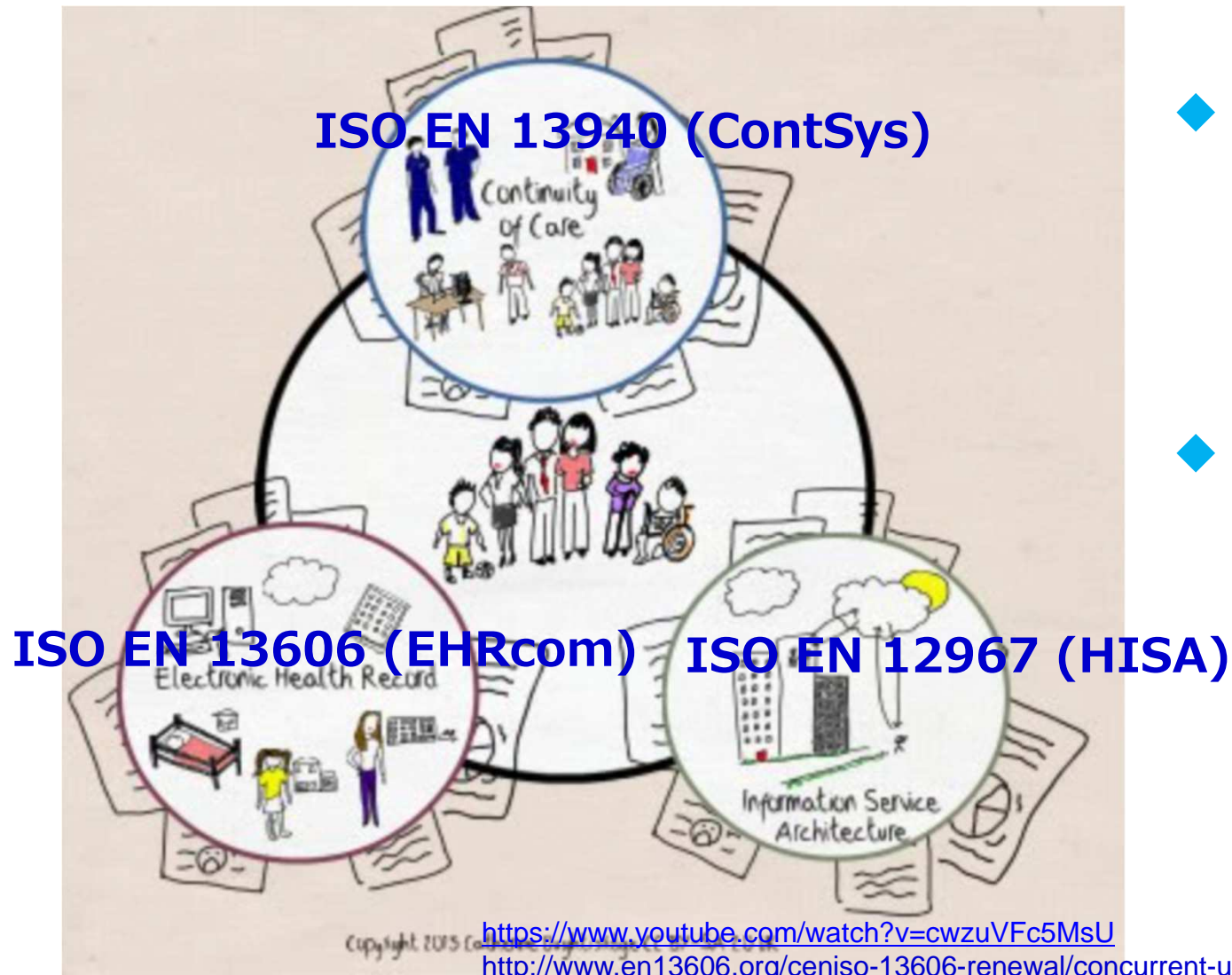
ISO 13606 EHR Communication

- EHRの情報コミュニケーションのための情報アーキテクチャーを規定
- EHR Extract 情報（構造+意味）のコミュニケーションを規定
 - EHRシステムの実装(内部アーキテクチャーやデータベース設計など)を規定するものではない

- Part 1: Reference Model 参照モデル
- Part 2: Archetypes Interchange Specifications アーキタイプ
- Part 3: Reference Archetype and Term Lists 用語リスト
- Part 4: Security セキュリティ
- Part 5: Interface Specification インターフェース仕様

- 2008年から2010年にかけてISO化された。現在改訂作業中。改訂作業に関しては、13940 ContSys (Continuity of Care)、HL7 FHIR等との協調、調査も実施。2017年完成をめざしている。

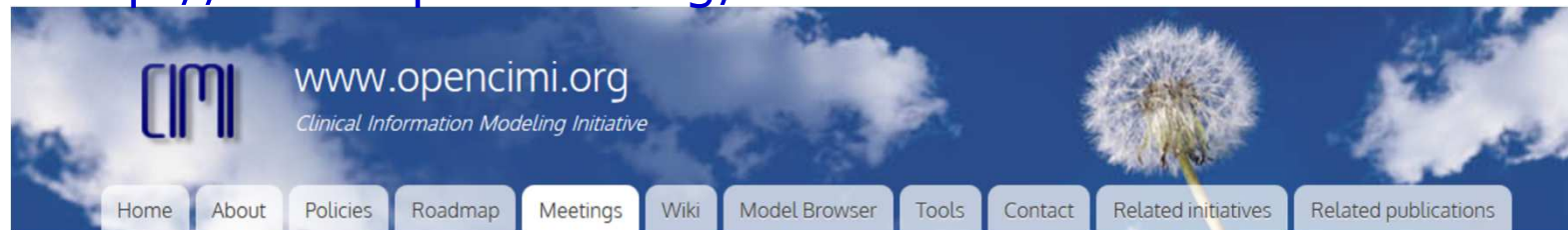
CEN/TC251 同時利用イニシアティブ ~Concurrent Use Initiative~



- ◆ EHRの意味的相互運用性に対して、基本的な3つの国際規格の価値や利用可能性を検討
- ◆ 2012年に開始

CIMI

- **Clinical Information Modeling Initiative**
- 医療情報システム間の相互運用性向上を、共通の実装可能な診療情報モデルによって確立する国際的イニシアティブ
- 2011年に活動開始 現在HL7ワークグループの一つ
- <http://www.opencimi.org/>



Home

Meetings

Click on the meeting for more information like agenda, speakers, and a link to the presentations.

| Location | Venue | |
|--|--|-----------|
| Orlando 2016 | CIMI Orlando meeting | 2016, Jan |
| Atlanta 2015 | CIMI Atlanta Meeting in Conjunction with HL7 | 2015, Oct |
| Salt Lake City 2015 | CIMI Modeling Task Force | 2015, Aug |
| Copenhagen 2015 | IHTSDO April meeting Copenhagen | 2015, Apr |
| Amsterdam 2014 | IHTSDO November meeting Amsterdam | 2014, Nov |
| Oakland / San Francisco 2014 | CIMI Modeling Task Force | 2014, Sep |
| Phoenix 2014 | Combined with the HL7 Work Group meetings | 2014, May |

Last meeting

[Orlando 2016](#)
2016, Jan
January, 11-13 2016

New documents

- [Modeling Options](#)
- [Model Development and Review](#)
- [AML - OMG Archetype Modeling Language](#)

Archetype Modeling Language

- UML profiles and stereotypes for representing CIMI models in UML

Date: December 2015



OBJECT MANAGEMENT GROUP®

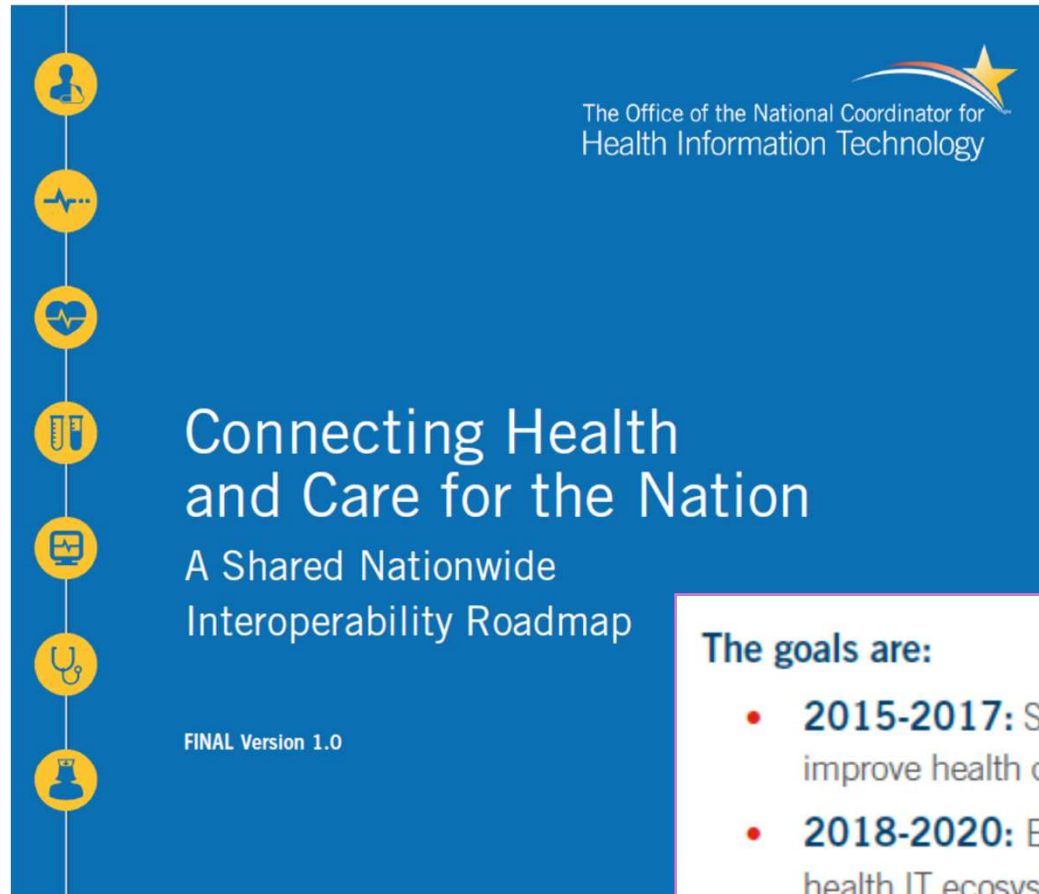
Archetype Modeling Language (AML)

V1.0 – Beta 1

OMG Document Number: dtc/2016-01-02

Standard document URL: <http://www.omg.org/spec/AML/1.0>

米国の医療相互運用性ロードマップ

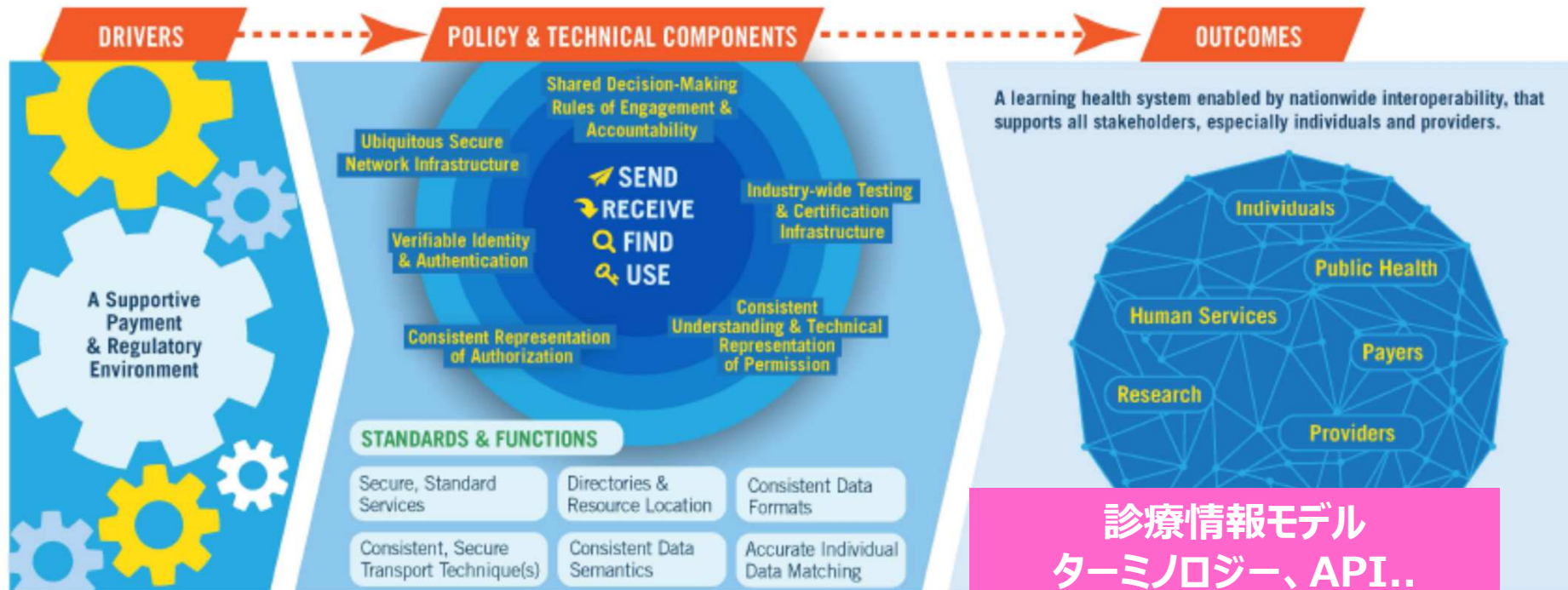


- 2015年10月ONC (the Office of the National Coordinator for Health IT)

The goals are:

- **2015-2017:** Send, receive, find and use priority data domains to improve health care quality and outcomes.
- **2018-2020:** Expand data sources and users in the interoperable health IT ecosystem to improve health and lower costs.
- **2021-2024:** Achieve nationwide interoperability to enable a learning health system, with the person at the center of a system that can continuously improve care, public health, and science through real-time data access.

米国の医療相互運用性ロードマップ



診療情報モデル
ターミノロジー、API..

段階的
実装
メンテナンス

FHIR Fast Healthcare Interoperability Resources
OpenAPI

| CATEGORIES OF STANDARDS | FUNCTIONS OF STANDARDS | EXAMPLES OF REAL WORLD USE OF THE STANDARDS |
|--------------------------------------|--|--|
| VOCABULARY & CODE SETS (SEMANTICS) | The information is universally understood | RxNorm Code for Ibuprofen is 5640 |
| FORMAT, CONTENT & STRUCTURE (SYNTAX) | Information is in the appropriate format | C-CDA packages up data in the appropriate format |
| TRANSPORT | The information moves from point A to point B | SMTP and S/MIME to send the C-CDA from one setting to another |
| SECURITY | The information is securely accessed and moved | X.509: to ensure it is securely transmitted to the intended recipient |
| SERVICES | Provides additional functionality so that information exchange can occur | DNS+LDAP: to find the recipient's X.509 certificate to encrypt a message |

ご清聴ありがとうございました

