

ICH実装ガイド説明会  
ICH E2B(R3)/M2 Feasibility Testing  
13:35-14:05 演題2

# Health Level 7 (HL7) の概要

2010年2月17日  
東京大学大学院医学系研究科  
臨床疫学システム講座  
E2B(R3)エキスパート  
小出 大介

# ISO/HL7 ICSR

Part 2:  
ISO 27953-2  
[Cover](#)  
[Contents](#)  
[Foreword](#)  
[0 Introduction](#)  
[1 Scope](#)  
[2 Normative references](#)  
[3 Terms and definitions](#)  
[4 Abbreviated terms](#)  
[5 Human Pharmaceuticals](#)  
[Message Specification](#)  
[Annex A \(informative\) HL7](#)  
[Reference Information Model](#)  
[Annex B \(informative\) HL7](#)  
[Data Type Specifications](#)  
[Annex C \(informative\) HL7](#)  
[Vocabulary Specifications](#)  
[Annex D \(informative\): ICH](#)  
[Guideline E2B\(R3\) version](#)  
[3.96, November 2008](#)  
[Annex E \(informative\):](#)  
[ICSR/E2B\(R3\) Mappings,](#)  
[November 2007](#)  
[Bibliography](#)



DRAFT INTERNATIONAL STANDARD ISO 27953-2

Second edition 2008-12-01

**Health informatics – Pharmacovigilance –  
Individual case safety report – Part 2:  
Human pharmaceutical reporting requirements for ICSR**

*Partie 0002:*

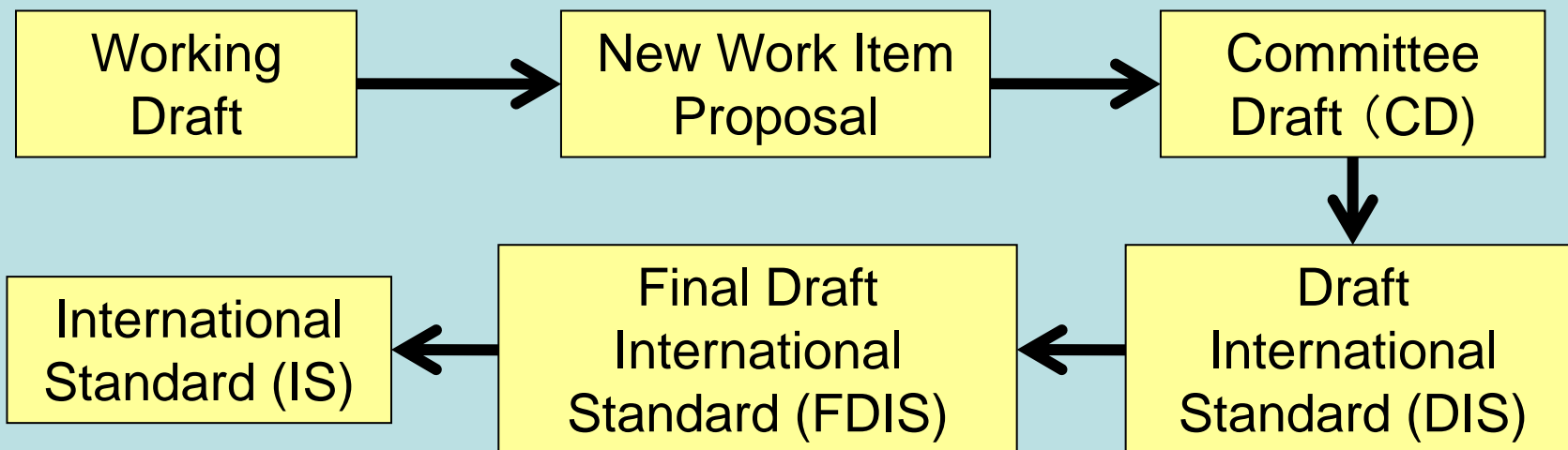
**ISO 27953-2**

This ISO/HL7 document is a Draft International Standard and is copyright-protected by ISO and Health Level Seven. Except as permitted under the applicable laws of the user's country, neither this ISO/HL7 draft nor any extract from it may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission being secured.

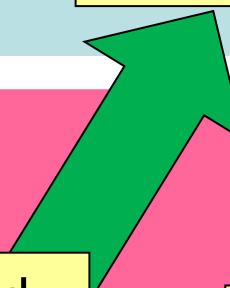
Requests for permission to reproduce should be addressed to either ISO at the address below or ISO's member body in the country of the requester. In the United States, such requests should be sent to HL7.

# 標準化に向けたバロット(投票)

ISO



HL7



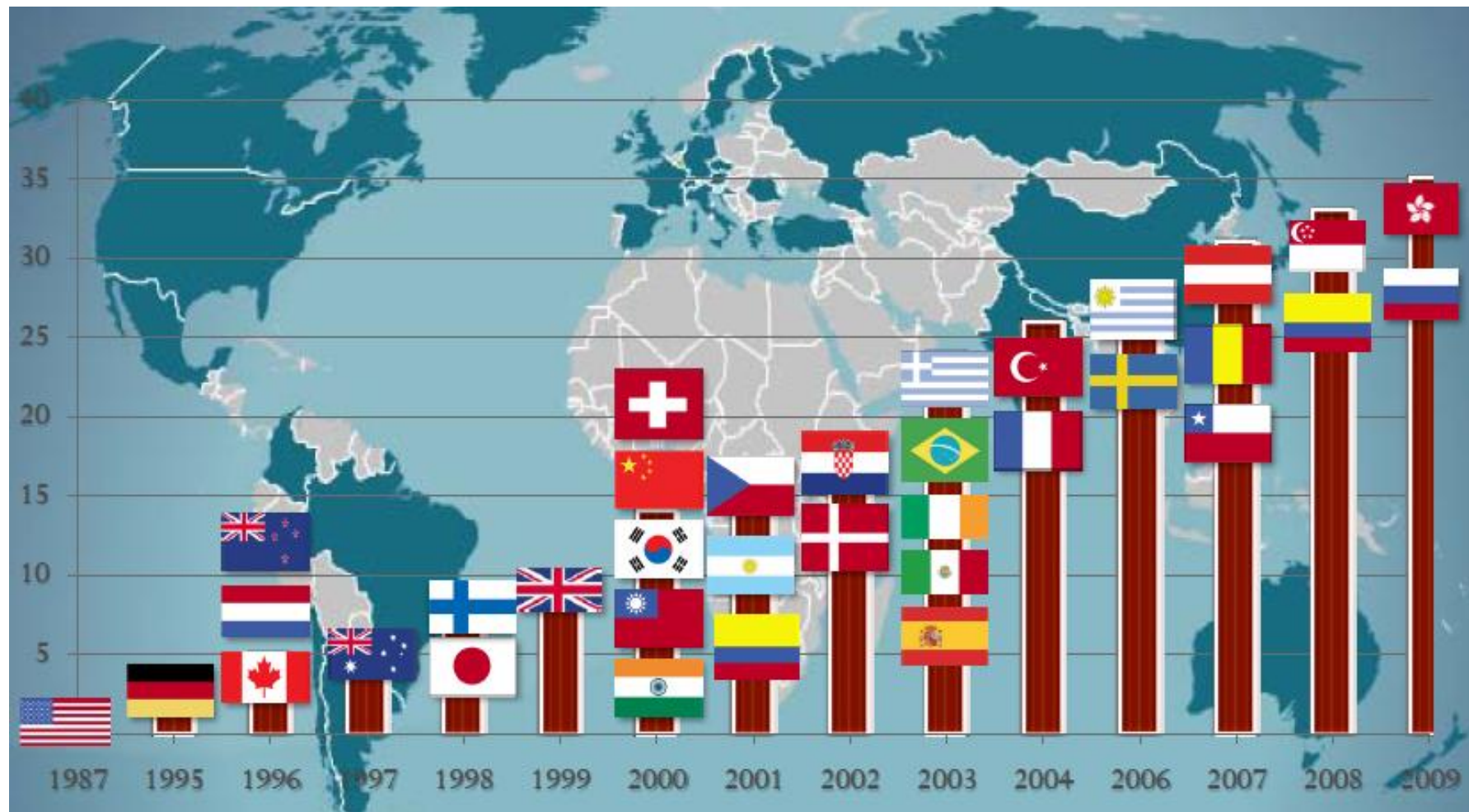
# HL7とは

- ・ヘルスケア分野のSDO (Standards Development Organization)
- ・非営利のボランティアな団体 (Not-for-profit Organization)
- ・民主的で、誰でも参加して意見を述べることができる
- ・本部は米国ミシガン州
- ・会員は55カ国以上から2300人以上(国際支部は35カ国)
- ・日本HL7協会は保健医療福祉情報システム工業会(JAHIS)内に設置

## <歴史>

- ・1987年 米国内で初会合、V1.0を発行
- ・1994年 American National Standards Institute (ANSI)公認団体
- ・1996年 V2.2 ヘルスケア分野初のANSI登録標準、V3の開発も始まる
- ・1998年 日本支部である日本HL7協会が誕生
- ・2006年 V3のReference Information Model (RIM)がISO標準に承認

# HL7国際支部について



# HL7のねらい

特定の部門やシステムに特化したものでなく、  
施設間・システム間での臨床情報や管理情報を扱う、

ヘルスケア領域でのデータ交換標準の作成

「電子化ヘルスケア情報の包括的枠組みに関する標準」

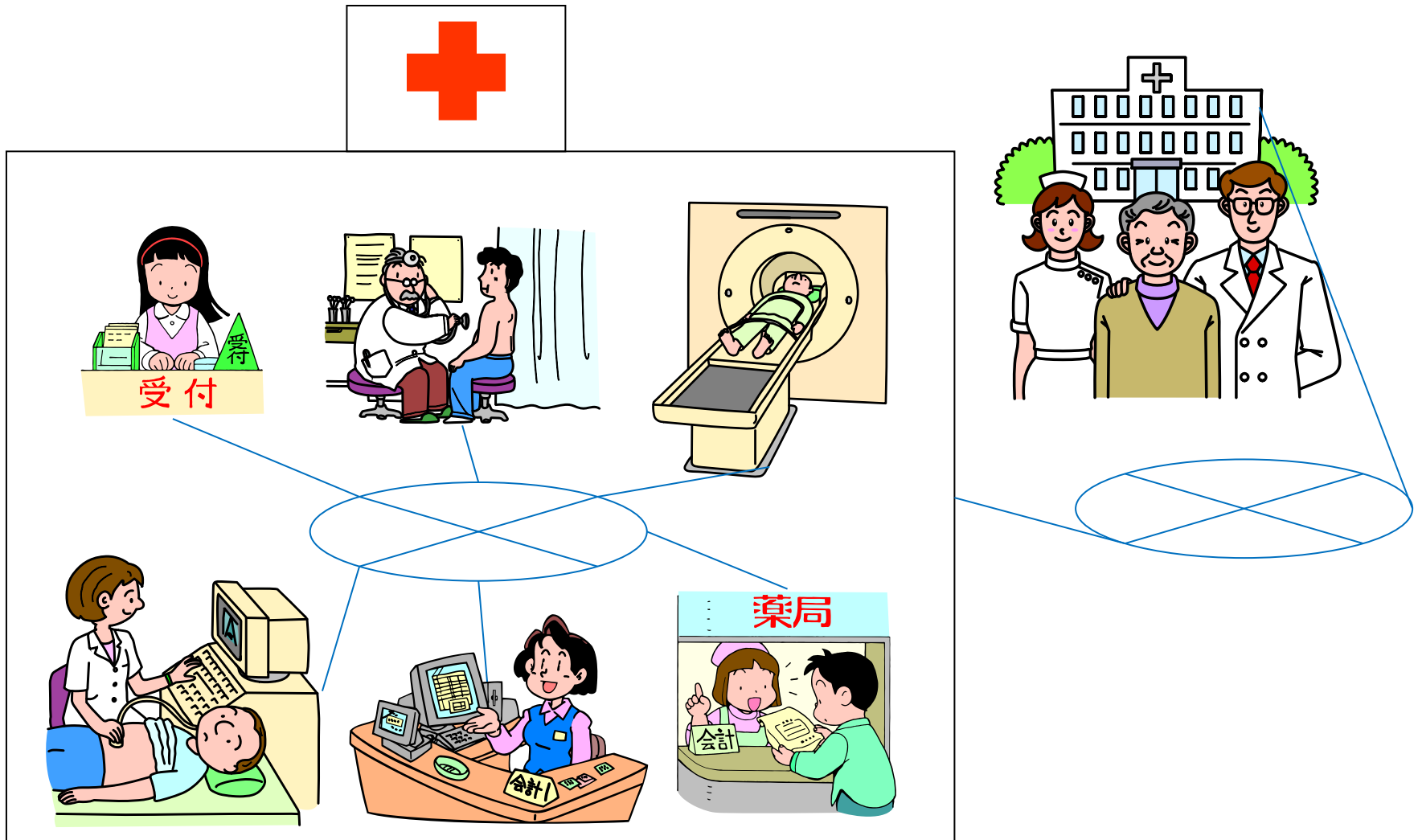
OSI (Open System Interconnection)の第7層アプリケーション層に由来し  
Health Level 7と名付けられたものであり、物理的規格等は制定していない

日本サイト：<http://www.hl7.jp/>

国際サイト：<http://www.hl7.org/>



# ヘルスケア領域でのデータ交換標準



# OSI (Open System Interconnection)参照モデル の7層とTCP/IPの4階層モデル



7	アプリケーション層	アプリケーション層
6	プレゼンテーション層	HTTP, SMTP, TELNET, FTP, SNMP, MIME, HTML
5	セッション層	
4	トランスポート層	トランスポート層 TCP, UDP
3	ネットワーク層	インターネット層 IP, ICMP
2	データリンク層	ネットワークインターフェース層 イーサネット, FDDI (ハードウェア) (光ファイバー, 同軸ケーブル)
1	物理層	



# HL7を使う理由



The standards all federal agencies will adopt are:

- ❖ Health Level 7 (HL7) messaging standards to ensure that each federal agency can share information that will improve coordinated care for patients such as entries of orders, scheduling appointments and tests and better coordination of the admittance, discharge and transfer of patients.
- ❖ National Council on Prescription Drug Programs (NCDPC) standards for ordering drugs from retail pharmacies to standardize information between health care providers and the pharmacies. These standards already have been adopted under the Health Insurance Portability and Accountability Act (HIPAA) of 1996, and ensures that parts of the three federal departments that aren't covered by HIPAA will also use the same standards.
- ❖ The Institute of Electrical and Electronics Engineers 1073 (IEEE1073) series of standards that allow for health care providers to plug medical devices into information and computer systems that allow health care providers to monitor information from an ICU or through telehealth services on Indian reservations, and in other circumstances.
- ❖ Digital Imaging Communications in Medicine (DICOM) standards that enable images and associated diagnostic information to be retrieved and transferred from various manufacturers' devices as well as medical staff workstations.
- ❖ Laboratory Logical Observation Identifier name Codes (LOINC) to standardize the electronic exchange of clinical laboratory results.

# 新たな治験活性化5カ年計画

(平成19年3月30日 文部科学省・厚生労働省)

1. 治験等の中核病院・拠点医療機関の体制整備
2. 治験等を実施する人材の育成と確保
3. 国民への普及啓発、参加促進
4. 治験実施の効率化、企業負担の軽減

治験のスピードアップとコスト低減を図るため・・・(中略)・・・治験データのIT化による効率化を一層推進する。

(4) 症例の集積性を高める等によるモニタリング効率の向上

例えば、CDISC に準拠した標準仕様によるEDC とHL7 に準拠した標準仕様・・・

5. 規制の適正化、被験者保護の向上

# HL7 のメンバーシップ

## HL7本部

### ◆ 個人会員

年会費\$675

### ◆ 学生会員

年会費\$140

### ◆ 団体会員

年会費\$1,200(1票:年商\$1M以下)  
~\$24,500(12票:年商\$50M以上)

### <団体会員の例>

EMA、NHSなど

FDA、CDCなど

GSK、Lilly、Pfizerなど

Microsoft、Intelなど

## 日本HL7協会

### ◆ 個人会員

入会金2,000円、年会費8,000円

### ◆ 学生会員

入会金2,000円、年会費4,000円

### ◆ ユーザー会員

入会金5,000円、年会費30,000円

### ◆ 本部会員兼

入会金2,000円、年会費800円

### ◆ 事業法人会員

入会金20,000円、年会費100,000円

### ◆ 賛助団体会員

入会金不要、年会費100,000円

# HL7会議の開催

**Oct 2010 Plenary (Oct 3-8) Cambridge, MA**

**May 2010 WGM (May 16-21) Rio de Janeiro, Brazil**

Jan 2010 WGM -- Phoenix, AZ

2009年11月HL7セミナー(医療情報学会:広島)

Sep 2009 (Plenary) - Atlanta, GA

2009年7月HL7総会及びセミナー(東京)

May 2009 WGM - Kyoto, Japan

2009年2月HL7セミナー(東京)

Jan 2009 WGM - Orlando, FL

2009年11月HL7セミナー(医療情報学会:横浜)

Sep 2008 (Plenary) - Vancouver, BC, Canada

2008年7月HL7総会及びセミナー(東京)

May 2008 - Phoenix, AZ

2008年3月HL7セミナー(東京)

Jan 2008 WGM - San Antonio, TX

国際会議参加費: 事前(会員: \$770 非会員\$1,045) 通常(会員: \$1,045 非会員\$1,350)

# HL7 ワーキンググループ (57WG)

Affiliate Due Diligence  
Anatomic Pathology  
Architectural Review  
Arden Syntax  
Attachments  
Child Health  
Clinical Context Object Workgroup  
Clinical Decision Support  
Clinical Genomics  
Clinical Interoperability Council  
Clinical Statement  
Community Based Collaborative Care  
Domain Experts Steering Division  
Education  
Electronic Health Records  
Electronic Services  
Emergency Care  
Financial Management  
Foundation and Technology Steering  
Division  
Generation of Anesthesia Standards

Governance and Operations  
Government Projects  
Health Care Devices  
Imaging Integration  
Implementable Technology  
Specifications  
Implementation / Conformance  
Infrastructure and Messaging  
International Council  
International Mentoring Committee  
Marketing  
Modeling and Methodology  
Orders and Observations  
Organizational Relations  
Outreach Committee for Clinical  
Research  
Patient Administration  
Patient Care  
Patient Safety  
Pharmacy  
Policy Committee

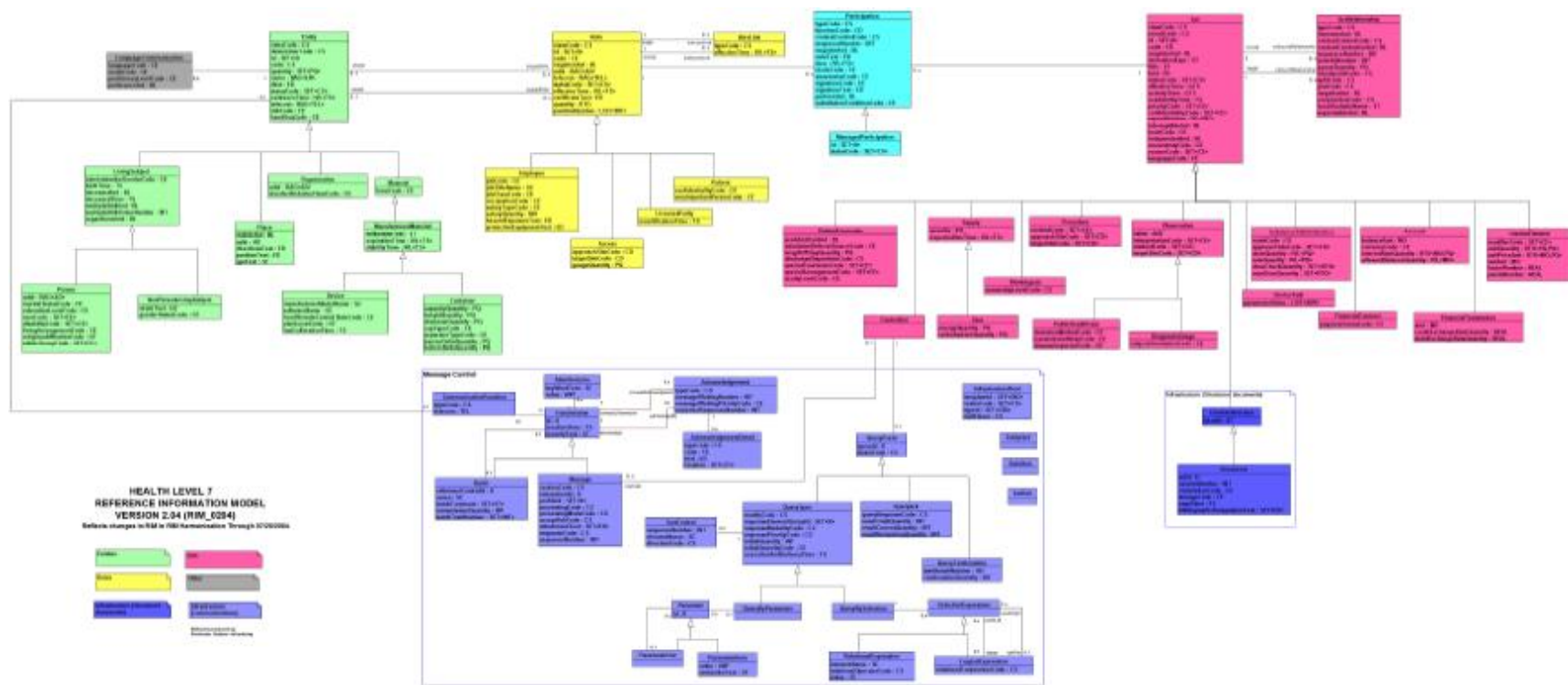
Process Improvement  
Project Services  
Public Health and Emergency  
Response  
Publishing  
Recognition and Awards  
Regulated Clinical Research  
Information Management  
RIMBAA  
Roadmap Committee  
Security  
Services Oriented Architecture  
Structure and Semantic Design  
Steering Division  
Structured Documents  
Technical and Support Services  
Steering Division  
Technical Steering Committee  
Templates  
Term info Project  
Tooling  
Vocabulary





# HL7 V3 メッセージの基本 Reference Information Model (RIM)

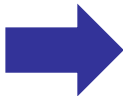
## 約60個のクラスを定義



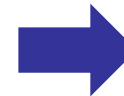
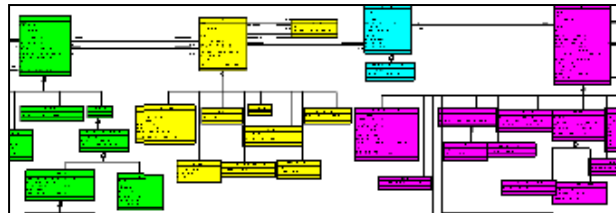


# HL7 V3 メッセージ開発フレームワーク

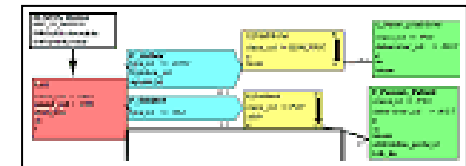
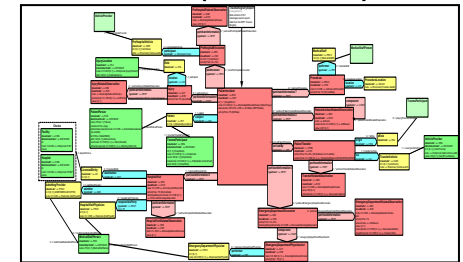
Use Case



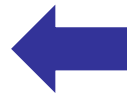
Reference Information Model (RIM)



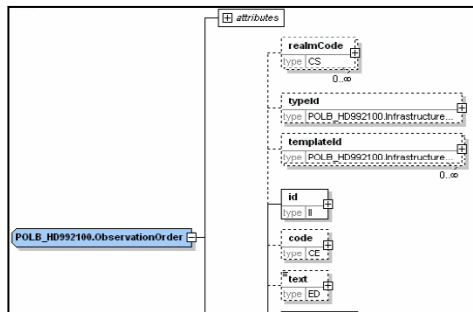
Domain Message Information Model (D-MIM)



Hierarchical Message Description (HMD)



XML Schema



# HL7 V3 コアクラス

1. 全ての出来事は **Act** である
  - ◆ procedures(処置), medications(薬物治療)など
2. Act間には **ActRelationship** で関連づけられる
  - ◆ precondition(前提), revisions(修正) など
3. **Participation** はActのコンテキストを定義する
  - ◆ author(作成者), performer(実施者), location(場所)など
4. 参加者は **Role** である
  - ◆ patient(患者), specimen(検体)など
5. Roleの役割を **Entity** が担う
  - ◆ persons(人), places(場所), devices(機器)など

# ISO/HL7 ICSRドキュメント

What's New | Ballots | Event

HL7 Home Page | Member Login | Non-Member Login |



Home | Vote | Tally

Ballot Desktop

## Choose a Ballot Cycle

Click the time period below to review a ballot cycle and your participation in it.

The Cycles are ordered descending so the topmost cycle is the most current.

- ▶ [January 2010 Ballot Cycle](#)
- ▶ [September 2009 Ballot Cycle](#)
- ▶ [May 2009 Ballot cycle](#)
- ▶ [January 2009 Ballot Cycle](#)
- ▶ [September 2008 Ballot Cycle](#)
- ▶ [May 2008 Ballot Cycle](#)
- ▶ [January 2008 Ballot Cycle](#)
- ▶ [November 2007 Ballot Cycle](#)
- ▶ [September 2007 Ballot Cycle](#)
- ▶ [May 2007 Ballot Cycle](#)
- ▶ [January 2007 Ballot Cycle](#)
- ▶ [September 2006 Ballot Cycle](#)
- ▶ [May 2006 Ballot Cycle](#)
- ▶ [January 2006 Ballot Cycle](#)
- ▶ [September 2005 Ballot Cycle](#)
- ▶ [May 2005 Ballot Cycle](#)
- ▶ [January 2005 Ballot Cycle](#)
- ▶ [August 2004 Ballot Cycle](#)

## Balloting Assistants

### Ballot Comment Amalgamation Macro Spreadsheet

To assist Committee Co-chairs in summarizing ballot comments, an amalgamation utility with macros to combine all submitted comment spreadsheets is provided for ballot reconciliation. The zip file below contains a spreadsheet and instructions for performing this task.

## Balloting

### Ballot Desktop

#### September 2009 Ballot Cycle

2009SEP, Jul 12, 2009 - Sep 14, 2009

**Announcement Documents:** [Updated Announcement of HL7 JIC IDMP Ballots for July 2009 \( pdf, 75.8 kb \)](#) [Paid Participation in HL7 Ballots Instructions \( pdf, 88.7 kb \)](#) [Announcement of Ballot Openings for HL7 JIC IDMP Ballots for July 2009 \( pdf, 75.5 kb \)](#) [Formation of Ballot Pools for September 2009 Ballot Cycle.pdf \( pdf, 123.7 kb \)](#) [Formation of Ballot Groups for HL7 JIC Pharmacovigilance Ballot for September 2009.pdf \( pdf, 63.7 kb \)](#) [VERSION 3 BALLOT POOLS OPENING POSTPONED TO AUGUST 11 \( pdf, 19.6 kb \)](#) [Announcement of Ballot Openings for September 2009 Ballot Cycle \( pdf, 130.3 kb \)](#) [Update to Ballot Announcement for September 2009 Ballot Cycle \( pdf, 28.2 kb \)](#) [Seeking Interested Members to Help Us Fulfill Balance of Interest for Normative Ballots - September 2009 Ballot Cycle \( htm, 11.4 kb \)](#) [Announcement of HL7 JIC Pharmacovigilance Ballot Opening for September 2009 \( pdf, 63 kb \)](#)

#### Ballot Document Pools in which you ARE Participating

There are no documents in which you are a participant in this ballot cycle. If you are not logged into the website properly you will not show up as a pool participant in any cycle.

#### Ballot Document Pools in which you are NOT Participating

⚠ All ballots close on their specified close date at midnight, US Eastern Time Zone.

R.	Pkg Name	Lvl.	Ballot Document	Signup Close Date	Ballot Open	Ballot Close	Cmnt
	JIC Health Informatics - Pharmacovigilance - Individual Case Safety Report, Part 1: the framework for adverse event reporting	N1	<a href="#">( 11.54 MB )</a>	Sep 23, 2009	Aug 31, 2009	Sep 30, 2009	
	JIC Health Informatics - Pharmacovigilance - Individual Case Safety Report, Part 2: Human pharmaceutical reporting requirements for ICSR	N1	<a href="#">( 6.15 MB )</a>	Sep 23, 2009	Aug 31, 2009	Sep 30, 2009	
	JIC IDMP - Data elements and structures to uniquely identify and describe substances and	O1	<a href="#">( 1.39 MB )</a>	Aug 04, 2009	Jul 12, 2009	Aug 11, 2009	

## Paid Particip

If you are not an i you can still partic Ballots by creating yourself and payin administrative fee: pools in which you interest.

The ballot cycle yo currently viewing i accepting particpa not active. Please most current ballot available particpa

## Your Desktop

This is the Ballot D cannot view more information or inte ballot desktop unt logged in.

**R.Pkg**  
This is an icon the to download a ball pools reconciliation you see an icon (t reconciliation pack usually a zip or ex that is not a requir means the ballots reconciliation pack been uploaded an retrieved.

Note that the last data represents th link for the comm template (usually spreadsheet), corr zip file.

http://www.hl7.org/ctl.cfm?action=ballots.home&ballot\_cycle\_id=518&ballot\_voter\_id=0



# ISO/HL7 ICSR

<p>Part 2: ISO 27953-2 <a href="#">Cover</a> <a href="#">Contents</a> <a href="#">Foreword</a> <a href="#">0 Introduction</a> <a href="#">1 Scope</a> <a href="#">2 Normative references</a> <a href="#">3 Terms and definitions</a> <a href="#">4 Abbreviated terms</a> <b><a href="#">5 Human Pharmaceuticals</a></b> <a href="#">Message Specification</a> <a href="#">Annex A (informative) HL7</a> <a href="#">Reference Information Model</a> <a href="#">Annex B (informative) HL7</a> <a href="#">Data Type Specifications</a> <a href="#">Annex C (informative) HL7</a> <a href="#">Vocabulary Specifications</a> <a href="#">Annex D (informative): ICH</a> <a href="#">Guideline E2B(R3) version</a> <a href="#">3.96, November 2008</a> <a href="#">Annex E (informative):</a> <a href="#">ICSR/E2B(R3) Mappings,</a> <a href="#">November 2007</a> <a href="#">Bibliography</a></p>	<div data-bbox="1097 317 1219 422" data-label="Image"></div> <p data-bbox="788 425 1541 454"><b>DRAFT INTERNATIONAL STANDARD ISO 27953-2</b></p> <p data-bbox="977 476 1348 505">Second edition 2008-12-01</p> <p data-bbox="653 542 1673 665"><b>Health informatics – Pharmacovigilance – Individual case safety report – Part 2: Human pharmaceutical reporting requirements for ICSR</b></p> <p data-bbox="1085 711 1240 739"><i>Partie 0002:</i></p> <p data-bbox="1070 773 1255 802"><b><u>ISO 27953-2</u></b></p> <hr/> <p data-bbox="517 991 1804 1133">This ISO/HL7 document is a Draft International Standard and is copyright-protected by ISO and Health Level Seven. Except as permitted under the applicable laws of the user's country, neither this ISO/HL7 draft nor any extract from it may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission being secured.</p> <p data-bbox="517 1170 1758 1239">Requests for permission to reproduce should be addressed to either ISO at the address below or ISO's member body in the country of the requester. In the United States, such requests should be sent to HL7.</p>
--	---

# ISO/HL7 ICSR

Part 2:

ISO 27953-2

[Cover](#)

[Contents](#)

[Foreword](#)

[0 Introduction](#)

[1 Scope](#)

[2 Normative references](#)

[3 Terms and definitions](#)

[4 Abbreviated terms](#)

[5 Human Pharmaceuticals](#)

[Message Specification](#)

[Annex A \(informative\) HL7](#)

[Reference Information Model](#)

[Annex B \(informative\) HL7](#)

[Data Type Specifications](#)

[Annex C \(informative\) HL7](#)

[Vocabulary Specifications](#)

[Annex D \(informative\): ICH](#)

[Guideline E2B\(R3\) version](#)

[3.96, November 2008](#)

[Annex E \(informative\):](#)

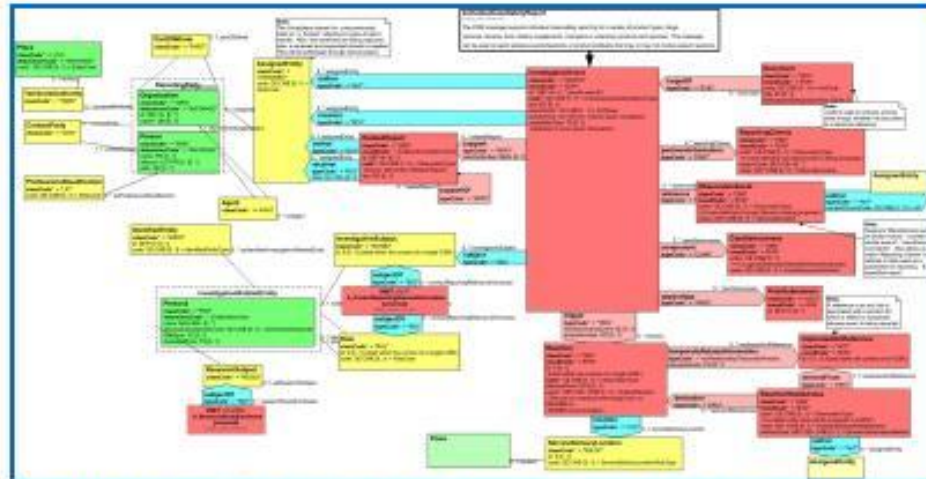
[ICSR/E2B\(R3\) Mappings,](#)

[November 2007](#)

[Bibliography](#)

ICSR Refined Message Information Model (PORR\_RM049006UV01)

Diagram



[Click thumbnail above to open larger graphic in a new window. A left mouse diagram.](#)

ICSR Product Reporting Relevant Information (PORR\_RM049013UV01)

Diagram





# ICSR R-MIMの説明

## (Act, Act Relationship, Participation)

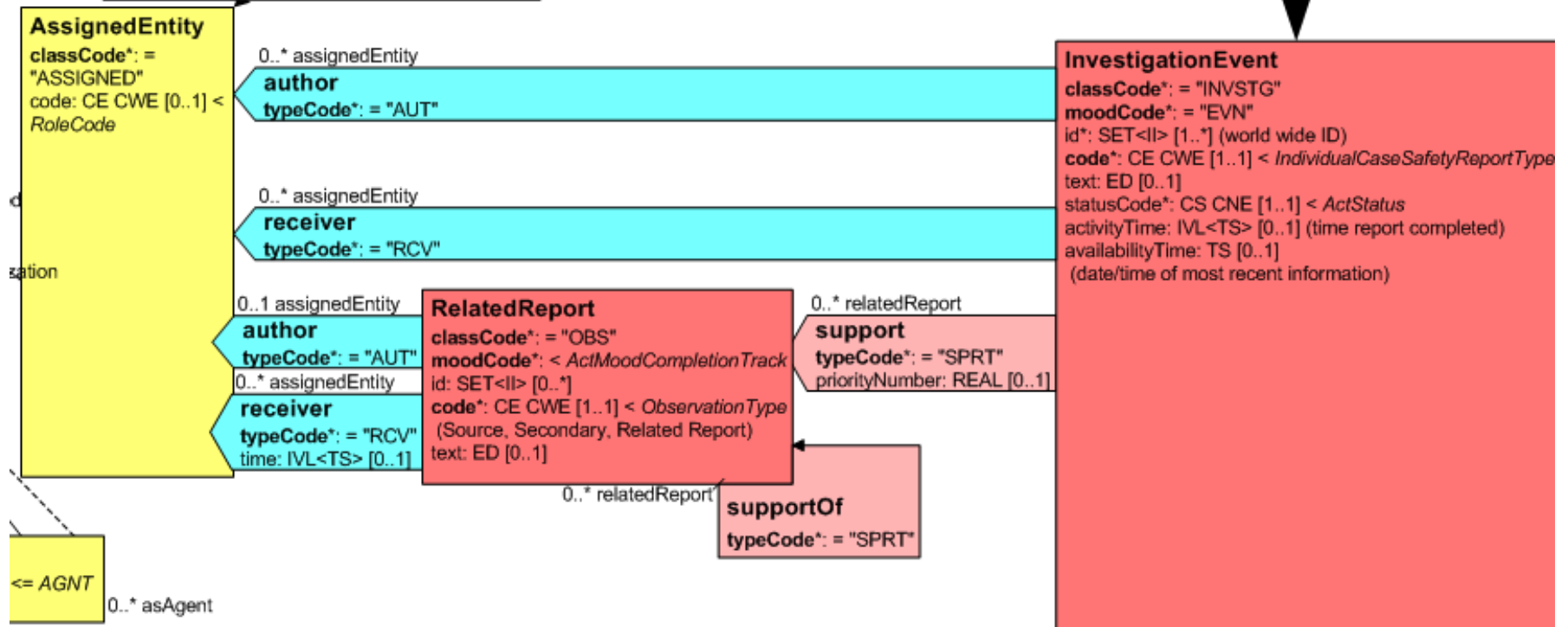
**Note:**

The Vocabulary domain for .code previously cited an "x\_domain" referring to types of report sender. Now that receivers are being captured also, a renamed and expanded domain is needed. This will be addressed through harmonization.

**IndividualCaseSafetyReport**

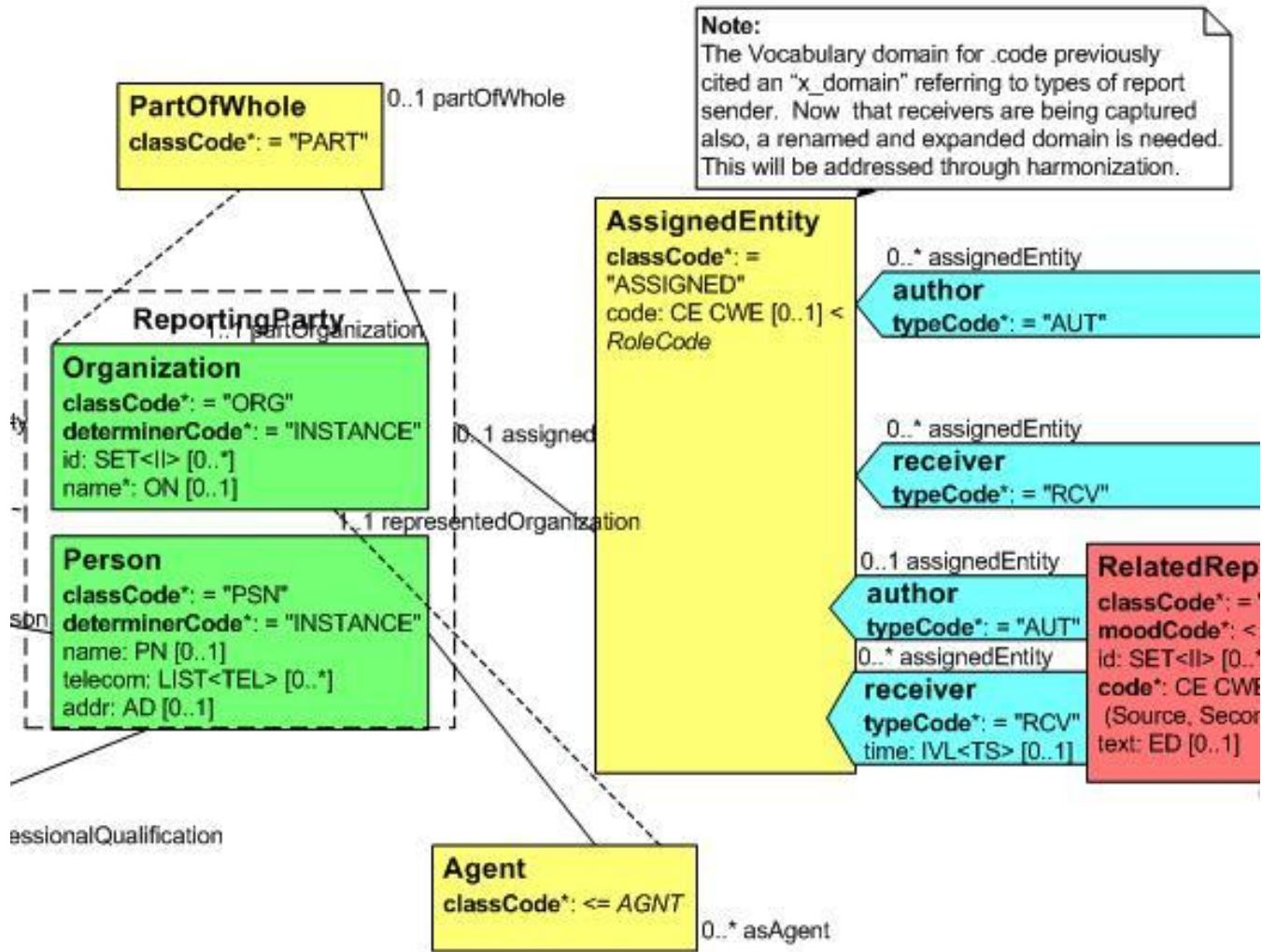
(PORR\_RM049006UV)

The ICSR message supports individual case safety reporting for a variety of product types: vaccines, devices, food, dietary supplements, cosmetics or veterinary products and services. It can be used to report adverse events/reactions or product problems that may or may not be related to the product.





# ICSR R-MIMの説明 (Role, Entity)



# ICSRのスキーマ

Part 2:  
ISO 27953-2

[Cover](#)

[Contents](#)

[Foreword](#)

[0 Introduction](#)

[1 Scope](#)

[2 Normative references](#)

[3 Terms and definitions](#)

[4 Abbreviated terms](#)

**[5 Human Pharmaceuticals](#)**

**[Message Specification](#)**

[Annex A \(informative\) HL /  
Reference Information Model](#)

[Annex B \(informative\) HL 7](#)

[Data Type Specifications](#)

[Annex C \(informative\) HL 7](#)

[Vocabulary Specifications](#)

[Annex D \(informative\): ICH  
Guideline E2B\(R3\) version](#)

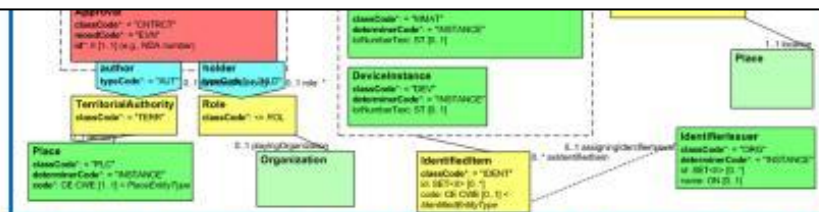
[3.96, November 2008](#)

[Annex E \(informative\):](#)

[ICSR/E2B\(R3\) Mappings,](#)

[November 2007](#)

[Bibliography](#)



[Click thumbnail above to open larger graphic in a new window. A left mouse click will provide a sharper diagram.](#)

## Model Schemas

For purposes of ISO 27953-2 conformance, new ICSR schemas have been created to correspond to the truncated Refined Message Information Models (RMIMs). These are provided below. Implementers should note that similar truncation can be performed on the Transmission and Control Act wrappers, and on the Research Subject Enrollment CMET since only portions of these models are needed. One way to do that is to start with the schemas provided by HL 7, and to edit those schemas to remove unwanted material.

[ICSR Base Model subset](#)

[ICSR Product Reporting Relevant Information Model subset](#)

[ICSR Product Model subset](#)

## Acknowledgement Message Specifications

For more information on acknowledgement messaging, please refer to HL 7's Transmission wrapper domain: [ISO 27953-1 ICSR Framework Reference Model Annex A \(normative\) Transmission Infrastructure.](#)

# ICSRのスキーマ

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<xs:schema xmlns="urn:hl7-org:v3" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:ex="urn:hl7-org/v3-example"
  targetNamespace="urn:hl7-org:v3" elementFormDefault="qualified">
  <!--
*****
* XML schema for message type PORR_MT049006UV.
* Source information:
*   Rendered by: Visio to MIF transform
  Rendered on:
*
* Generated by XMLITS version 3.2.0
* MIF to XSD Transform $Id: StaticMifToXsd.xsl 8 2009-01-26 19:10:36Z Woody $
Package Id Conversion: $Id: TransformPackageIds.xsl 8 2009-01-26 19:10:36Z Woody $
• Copyright (c) 2002, 2003, 2004, 2005, 2006, 2007 Health Level Seven. All rights reserved.
*****
  -->
  <xs:annotation>
    <xs:documentation>Generated using schema builder version 3.2.0. Stylesheets:
StaticMifToXsd.xsl version 2.0</xs:documentation>
  </xs:annotation>
  <xs:include schemaLocation="../coreschemas/infrastructureRoot.xsd"/>
  <xs:include schemaLocation="COCT_MT970000UV.xsd"/>
  <xs:include schemaLocation="PORR_MT049013UV.xsd"/>
  <xs:complexType name="PORR_MT049006UV.Agent">
    <xs:sequence>
      <xs:group ref="InfrastructureRootElements"/>
      <xs:element name="representedOrganization" type="PORR_MT049006UV.Organization"
nillable="true"/>
    </xs:sequence>
    <xs:attributeGroup ref="InfrastructureRootAttributes"/>
    <xs:attribute name="nullFlavor" type="NullFlavor" use="optional"/>
    <xs:attribute name="classCode" type="RoleClassAgent" use="required"/>
  </xs:complexType>
```

# HL7 ICSRの画面例

Open Save As Save

Safety Report Primary source(s) Information on sender Patient characteristics Parent characteristics Reaction(s)/event(s) Results  
Drug(s) Case summary

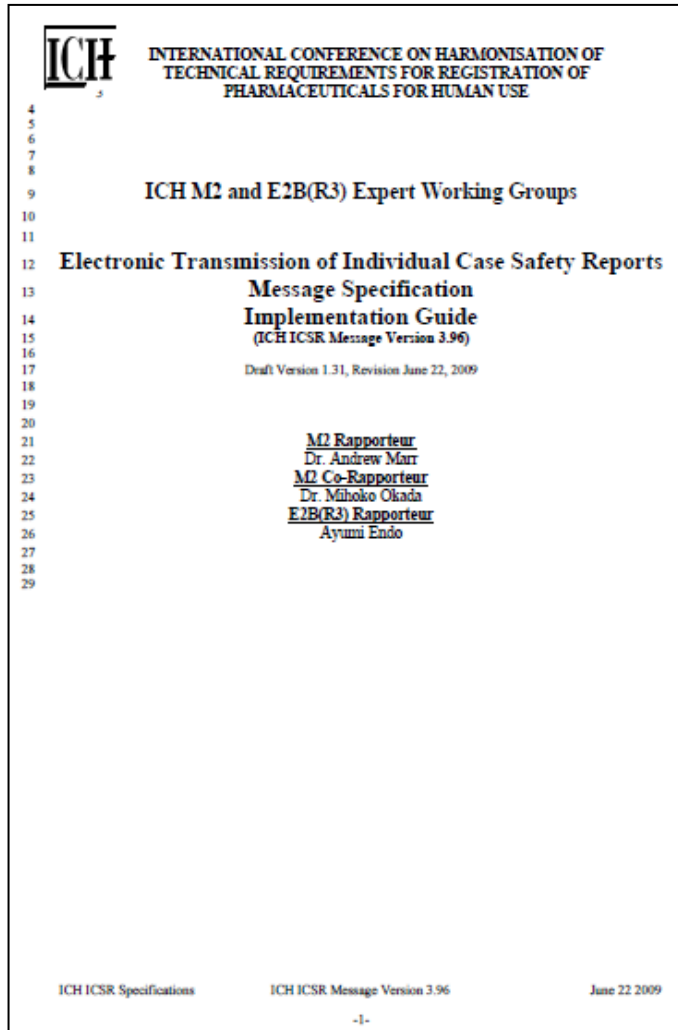
## IDENTIFICATION OF THE CASE SAFETY REPORT

Sender's case Identifier	<input type="text"/>
Date of Transmission	<input type="text"/> example(YYYYMMDDHHmmSS)
Type of Report	<input type="text"/>
Date report was first received from source	<input type="text"/> example(YYYYMMDD)
Date of the most recent information for this case	<input type="text"/> example(YYYYMMDD)

Are additional documents available?  ▼

Add document Delete document

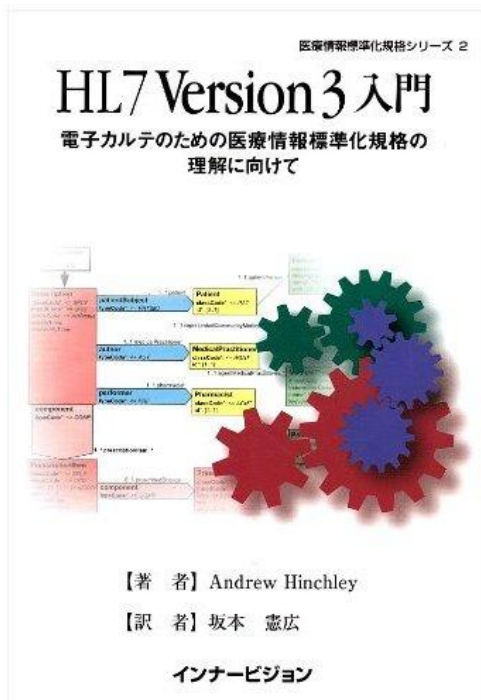
# ICH ICSR IGとメッセージ例



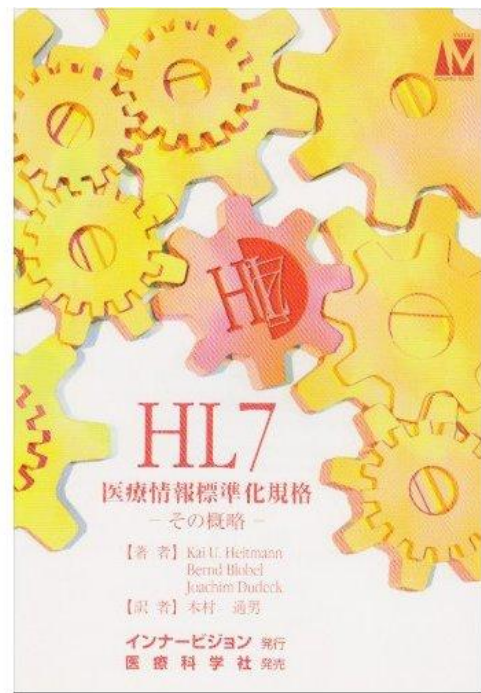
```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2005 rel. 3 U
(http://www.altova.com)-->
< PORR_IN049006UV xmlns="urn:hl7-org:v3"
xmlns:mif="urn:hl7-org:v3/mif"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="urn:hl7- org:v3
MCCI_IN200101UV.xsd" ITSVersion="XML_1.0">
<id extension="M.1.4messageNumber" root="1.1.1"/>
<creationTime value="20081229"/>
<!-- M.1.7.1 Message Date. Note that date format is not
needed. -->
<responseModeCode code="D"/>
<interactionId extension="MCCI_IN200101UV" root="1.1.1"/>
<!-- Maps to M.1.1 Message Type. Note, a single dummy OID
has been arbitrarily assigned to make the schema
validate. -->
<message xsi:nil="false">
<id extension="M.1.4messageNumber" root="1.1.1"/>
```



# 参考図書



監修 木村通男(浜松医科大学教授)  
著者 Andrew Hinchley(HL7 UK)  
訳者 坂本 憲広(神戸大学医学部教授)  
体裁 ■ A5判(並製) ■ 108頁  
発行 2003年11月20日  
本体価格 2,100円(本体価格 2,000円)  
発行元 株式会社 インナービジョン  
〒113-0033 東京都文京区本郷3-15-1  
TEL 03-3818-3502 FAX 03-3818-3522  
<http://www.innervision.co.jp/>



著者 Kai U. Heitmann, Bernd Blobel, Joachim Dudeck  
訳者 木村 通男(浜松医科大学教授)  
体裁 ■ A5判(並製) ■ 52頁  
発行 2002年3月1日  
本体価格 1,260円(本体価格 1,200円)  
発行元 株式会社 インナービジョン  
〒113-0033 東京都文京区本郷3-15-1  
TEL 03-3818-3502 FAX 03-3818-3522  
<http://www.innervision.co.jp/>