Patient Referral Document Standard

V 1.00

Health Level Seven, Japan

1. Introduction

Recently there is an increasing demand for the functional differentiation of medical/nursing care institutions and for the improvement of efficiency of medical/nursing care through collaboration between institutions. To describe diagnosis information electronically and to exchange it between collaborating institutions, this standard specifies the patient referral document based on HL7 CDARelease2 according to the following policies. The patient referral document on paper is used to exchange not only between medical institutions but also between medical care-related services including nursing care institutions.

(1) An emphasis shall be put on provision of patient care information.

(2) It shall enable a system to be realized at low cost.

(3) The described information shall have the possibility of reuse.

(4) It shall have compatibility with various document creation applications.

(5) It shall be independent of the transfer mode and the storage mechanism of the document.

(6) Design standards shall be provided promptly.

(7) An open standard shall be used.

Accordingly, this standard is specified based on HL7 CDA (Clinical Document Architecture) Release 2 Normative Edition 2005, which is ISO/DIS as of the end of the year 2006. Based on the HL7RIM model, various diagnosis information is described, and the HL7V3 methodology is used. Thus, an XML schema is automatically created, and alignment is easily verified. For V1.0, implementation is specified at the level 2, because some medical information systems are not fully standardized, and the standardization codes are not available yet.

Moreover, for V1.0, it is equivalent to the description of a letter of introduction using the patient referral document that has been already established.

2. Purpose, scope, and notes

2.1. Purpose

This standard is intended to electronically describe the patient referral document used to exchange diagnosis information between medical institutions. This standard is specified based on HL7 CDA Release2 Normative Edition 2005.

2.2. Scope

This standard specifies the patient referral document used to exchange diagnosis information between medical institutions. This standard includes the rules to attach the accompanying information, such as laboratory tests, physiology examinations, radiation and other image information. But, it does not include the rules about clinical records and various summaries. Moreover, V1.0 does not cover the standard code and standard system at present. So, this standard does not specify the description (level 3) in the clinical statement section. This specification excludes the means of providing, controlling and using the patient referral document, because they should be covered by other standards.

2.3. Precautions

The medical institution ID etc. for each purpose and the patient ID should be specified separately by implementation rules other than this standard.

3. Normative references and vocabulary

3.1. Normative references

HL7 Clinical Document Architecture, Release 2.0 and Japanese translation version
HL7 V3 Normative Edition 2005
Patient referral document standard, V1.0 HL7 J-CDA-001
CDA document electronic signature standard, V1.02 HL7 J-CDA-002
CDA document encryption standard, V1.02 HL7 J-CDA-003
Portable electronic patient referral document medium standard, V1.01 HL7 J-CDA-004
PS 3.10-2004 Digital Imaging and Communications in Medicine (DICOM) Part 10: Media Storage and File Format for Media Interchange
PS 3.11-2004 Digital Imaging and Communications in Medicine (DICOM) Part 11: Media Storage Application Profiles

PS 3.15-2004 Digital Imaging and Communications in Medicine (DICOM) Part 15: Security and System Management Profiles

ISO 3166 and ISO-639-1

ISO/TS11073-90201 Medical waveform format encoring rules and medical waveform description rule Part 1 V1.05

Medical waveform description rule ECG detailed rule Part 3-1 V0.98

Data item set for the exchange of electronically saved medical-record information (J-MIX)

MERIT-9 version 2

3.2. Vocabulary and definition

HL7 Reference Information Model (RIM)

The HL7 information model from which all other information models (for example, R-MIM etc.) and messages are derived.

3.2.1. Refined Message Information Model (R-MIM:)

The information structure that shows one set of requirements. It includes the class, attribute, relation and data type required to support one or more HMD(s).

3.2.2. Hierarchical Message Description (HMD)

Accurate description of field about the messages, their grouping, sequence, selectivity, and multiplicity. One HMD may include a message type for one or two or more interactions, or a message type that expresses one or more common message element types (CMET). HMD is the most important Normative structure of HL7 message.

3.2.3. Patient Referral Document

The document created by medical institutions to ensure the continual and appropriate medical care and to provide information between institutions or from institutions to patients. This document is accompanied by diagnostic imaging, necessary examination results, ECG, brain waves, therapy plan after leaving hospital etc.

3.3. Symbol and abbreviation

HL7 Health Level Seven

RIM Reference Information Model

RMIM Refined Message Information Model

HMD Hierarchical Message Description

CDA Clinical Document Architecture

DICOM Digital Imaging and Communications in Medicine

MFER Medical waveform Format Encoding Rules

4. Outline

This standard is specified, based on CDA R2, to electronically describe a patient referral document (**Figure 1**) that is delivered by medical institutions to patients. For the contents of description, refer to Format 6. The contents are limited to the scope that is available as of the year 2006. We have modified some items, such CDA R2 (POCD RM000040JP00) and V3 vocabulary, data type, etc. to adapt them to Japan.

Figure 1 JAHIS report Format 6 (source: edited from the document issued by HOI of the Ministry of Health, Labour and Welfare on March 8, 2002)

Patient Referral Document (letter of introduction) 0

Name of medical institution as information recipient
Doctor in charge Department Mr. Date HEISEI 0 Year Month Day

5.2.3 Address and name of medical institution as author
Telephone number
Doctor name 5.2.4 Seal

Patient name						Gender	Male/female
Patient address Telephone number	5.2.2						
Date of birth	MEI, HEI	TAI,	SHOU,	Date	(age)	Occupation	

Disease-and-injury name	5.3.2 (2)
Introduction purpose	5.3.2 (1)
Previous disease and family history	5.3.2 (4) (7)
Symptom progress and examination result	5.3.2 (3) (19)

Medical treatment progress	5.3.2 (13)
Present prescription	5.3.2 (15)
Remarks	5.3.2 (20)

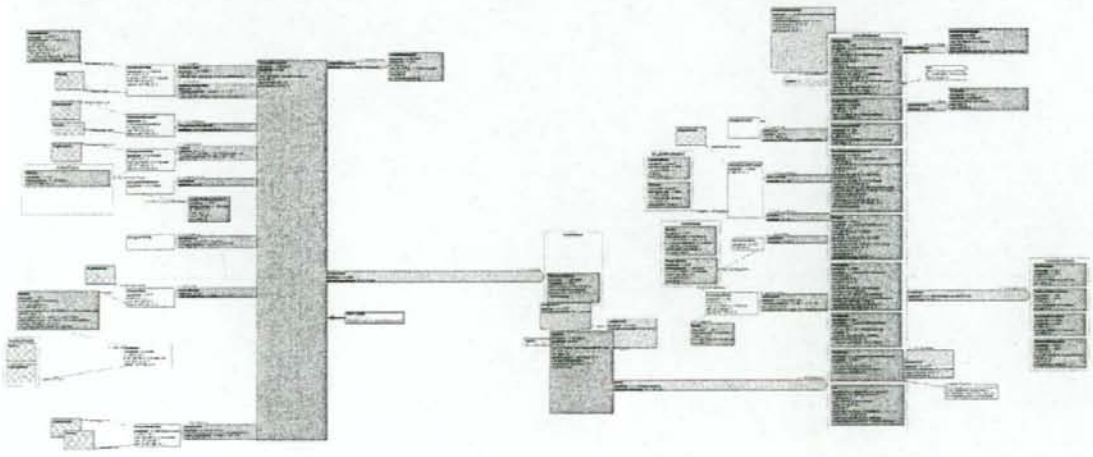
Remarks
1. If necessary, use a separate sheet(s) of paper for continuation.
2. If necessary, attach the film of diagnostic imaging, and record of examination.
3. If the information recipient is not a health insurance medical institution, then the column of "Name of medical institution as information recipient" shall be filled with the pharmacy as information recipient, SHI CHOU SON, name of health center etc. Be sure to write the address and telephone number of patient.

4.1. Patient referral document description CDA rule

To describe according to this standard, use RMIM RM000040JP00 where we revised the essential parts and options of the patient referral document based on CDA RMIM RM000040. However, this standard complies essentially with CDA, and does not eliminate application according to CDA or V3 standard, which is a high order standard, if any extension is needed by implementation.

Note: This standard is completely the same as RM000040 except for the following. This standard eliminates the unused option parts. The Custodian multiplicity and Patient.desc are different from RM000040

Figure 2 Patient referral document RMIM RM000040JP00 (For an enlargement, refer to the Annex.)



Note: The V1.0 of this standard limits the description to level 2. So, the clinical statement section

is simplified further.

4.2. Patient referral document

The patient referral document is divided into the header part that describes the meta-data and the body part that describes the information about various medical examinations.

4.2.1. CDA header part

CDA header includes the meta-data such as document identification, type, author, patient, and other information for document identification, and provision/coverage (meta-data).

4.2.2. CDA body part

CDA body part records the diagnosis information. It consists of arbitrary sections, which in turn consists of arbitrary entries. The entry may include external link information and multimedia information.

4.2.3. Name space

The name space used by XML of this standard is urn:hl7-org:v3.

5. Description rule

The details of this standard are specified according to CDA R-MIM (Refined Message Information Model). Moreover, if necessary, it is accompanied by XML (eXtensible Markup Language) ITS (Implementation Technical Standard).

5.1. Description sequence of this standard

The sequence and essential conditions of each description element are as follows.

5.1.1. CDA header part

Each element must be described in the following sequence.

- typeId: Essential (1 .. 1)
- templateId: Option (0.. *)
- id: Essential (1 .. 1)
- code: Essential (1 .. 1)
- title: Option (0 .. 1)
- effectiveTime: Essential (1 .. 1)
- confidentialityCode: Essential (1 .. 1)
- languageCode: Option (0 .. 1)
- setId: Option (0 .. 1)
- versionNumber: Option (0 .. 1)

5.1.2. Diagnosis information description - element sequence and option

Each element must be described in the following sequence.

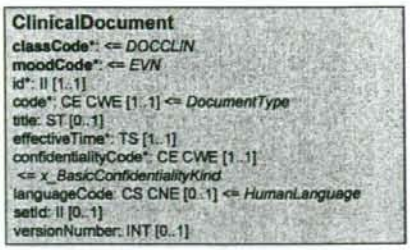
- recordTarget: Essential (1.. *)
- author: Essential (1.. *)
- dataEnterer: Option (0 .. 1)
- custodian: Option (0 .. 1)
- informationRecipient: Option (0 .. 1) Note: In CDA original standard, the multiplicity is (0.. *). In this standard, however, it is upper limit (information recipient) 1. Moreover, when there is no description of the information recipient, it is the same as the patient referral document.
- legalAuthenticator: Option (0.. 1) It describes the legal authenticator (organization) who issued the patient referral document.
- component: Option (0.. 1)

5.2. Header definition

5.2.1. XML definition and Clinical Document root definition

It shall be described at the head of the patient referral document XML document, and at the head of the CDA.

Figure 3 Clinical Document R-MIM



An example of XML instance according to this standard is as follows.

[Example]

< ?xml version="1.0"encoding="UTF-8"?>

<?xml-stylesheet type="text/xsl"href="CDA.XSL"?>

<ClinicalDocument xmlns="urn:hlseven-org:vthree"xmlns:xsi="http:// www.w3.org/2001/ XMLSchema-instance"xsi:schemaLocation="urn:hl7-org:v3 CDA.xsd">

This standard recommends UTF-8 in consideration of alignment with languages other than Japanese. The space before a default name shall use "urn:hl7-org:v3" on the implementation. Moreover, although it is outside the scope of this standard, a style sheet (referred to as CDA.XSL in this example) etc. shall be provided by the supplier, because the supplier of the patient referral document is responsible for the display of its contents.

Table 1 Header HMD

ClinicalDocument	0..1					
typeId	1..1	M	R	II		
id	1..1		R	II		
code	1..1		R	CE	DocumentType	CWE
title	0..1			ST		
effectiveTime	1..1		R	TS		
confidentialityCode	1..1		R	CE	x_BasicConfidentialityKind	CWE
languageCode	0..1			CS	HumanLanguage	CNE
setId	0..1			II		
versionNumber	0..1			INT		

typeId: Essential (1 .. 1)

It specifies the CDA model ID. In the patient referral document, POCD_HD000040JP00 and UID describe 2.16.840.1.113883.2.2.3.2.

```
<typeId extension="POCD_HD000040JP00" root="2.16.840.1.113883.2.2.3.2"/>
```

templateId: Option (0 .. *)

It describes the patient referral document template UID of implementation (templateId is not explicitly expressed in CDA R·MIM).

```
<templateId root= "patient referral document template UID"/>
```

Id: Essential item (1 .. 1)

It describes the patient referral document ID according to implementation.

```
<id root= "patient referral document ID" extension= "sub ID" displayable="true"/>
```

code: Essential item (1 .. 1)

It specifies the patient referral document code. This standard recommends description of J·MIX (1.2.392.200119.5.3.1) code (MD0020730).

```
<code code="patient referral document code (MD0020730) "codeSystem=" J-MIX UID
(1.2.392.200119.5.3.1)" codeSystemName="JMIX" displayName="ReferralNote"/>
```

title: Option (0 .. 1)

It describes the title of the patient referral document, "a patient referral document (letter of introduction)" etc.

```
<title> patient referral document </title>
```

effectiveTime: Essential item (1 .. 1)

It describes the date and time of issue of the patient referral document according to HL7 V3 rule (YYYYMMDD).

```
<effectiveTime value= "date and time of issue of patient referral document"/>
```

confidentialityCode

It describes the access criteria of the patient referral document. When usual access with due authority is permitted, describe N.

```
<confidentialityCode code="N" codeSystem=" HL7 access criteria code (2.16.840.1.113883.5. 25) "/>
```

languageCode: Option (0 .. 1)

It specifies Japanese language environment (ja·JP).

```
<languageCode code="ja-JP"/>
```

setId: Option (0 .. 1)

It describes the patient referral document UID.

<setId extension="sub ID" root=" patient referral document UID"/>

versionNumber: Option (0 .. 1)

It describes the version number of the patient referral document.

<versionNumber value= "version number"/>

5.2.2. Patient information (recordTarget): Essential (1 .. 1)

Patient information is described by recordTarget.

Note: In CDA rule, it is Essential (1 .. *). But, when it is described in the patient referral document, it is limited to one patient.

Figure 4 recordTarget class

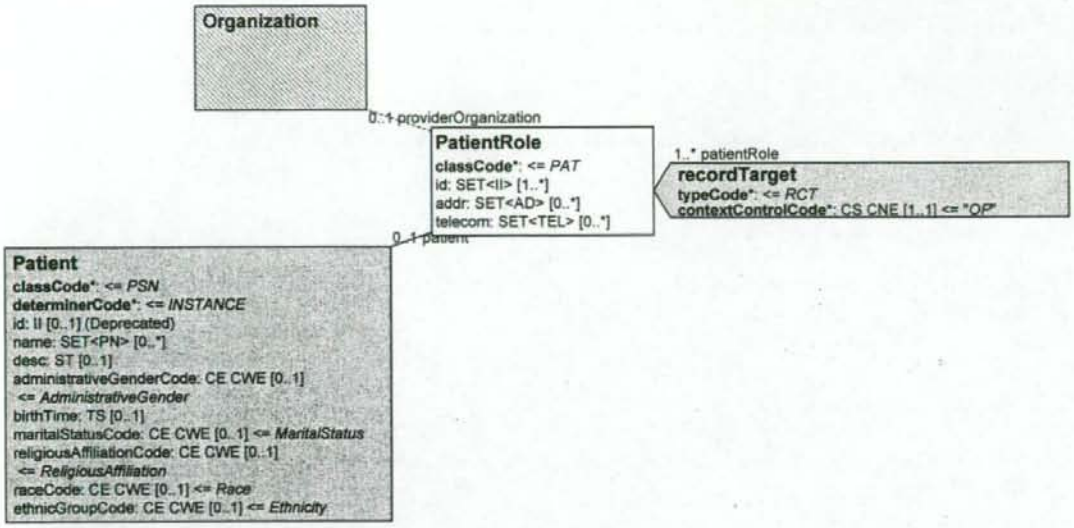


Table 2 Patient information HMD

recordTarget	1..*			SET<RecordTarget>		
patientRole	1..1			PatientRole		
id	1..*			SET<II>		
addr	0..*			SET<AD>		
telecom	0..*			SET<TEL>		
patient	0..1			Patient		
id	0..1			II		
name	0..*			SET<PN>		
desc	0..1			ST		
administrativeGenderCode	0..1			CE	AdministrativeGender	CWE
birthTime	0..1			TS		
maritalStatusCode	0..1			CE	MaritalStatus	CWE

(1). Patient ID

When it is necessary to describe two or more IDs, including author ID, information recipient ID, regional collaboration ID etc., each ID together with identification of each medical institution shall be described by PatientRole.id.

- medical institution ID

<id root="medical institution ID" extension=" patient ID"assigningAuthorityName=" author "/>

[Example] These two or more IDs can be described for each purpose.

- author ID

<id root=" author ID"extension=" patient ID "assigningAuthorityName=" author"/>

- information recipient ID

<id root="information recipient ID" extension=" patient ID"assigningAuthorityName=" information recipient"/>

- regional collaboration ID

<id root="regional collaboration ID" extension=" patient ID"assigningAuthorityName=" regional collaboration"/>

Moreover, usually when the information recipient has no meaning, ID shall be nullFlavor="NI"

<id nullFlavor="NI"/>

Name of patient

- Pronunciation to show how to read KANJI: It shall be written in ZENKAKU KATAKANA. This is a compulsory item.

<name use="SYL">
<family> pronunciation of patient's family name</family>
<given> <pronunciation of patient's given name</given>
</name>

- Full name: The family name and given name with the right spelling written in KANJI, HIRAGANA, KATAKANA and alphabetical characters

```
<name use="IDE">
  <family> patient's family name</family>
  <given> patient's given name</given>
</name>
```

- Romanized spelling: (option) It shall be used to support equipment whose Japanese language processing capability is not sufficient.

```
<name use="ABC">
  <family> Romanized spelling of patient's family name</family>
  <given> Romanized spelling of patient's given name</given>
</name>
```

Note: When a family name and a given name cannot be separated, both names shall be put in the family name field. A middle name shall be put in the given name field.

Address

It shall be described by PatientRole.addr.

- TO, DO, FU, KEN shall be described by <state>.
- SHI and 23 KU of TO, GUN shall be described be <city>.
- KU, MACHI, MURA, CHO, AZA, BANCHI, etc. shall be described by <streetName>.
- Postal code number shall be described with <postalCode>.
- Japan shall be described as <country>JP </country>.

```
<addr>
   <country>JP</country>
   <postalCode>postal code number</postalCode>
   <streetName> KU, MACHI, MURA, CHO, AZA, BANCHI</streetName>
   <city> SHI, KU, GUN</city>
   <state>TO, DO, FU, KEN </state>
</addr>
```

Telephone number

It shall be described by PatientRole.telecom. All telephones or FAX numbers shall be coded in form (RFC2806) such as tel: or fax:URLschema. An international phone call shall be described by the country code (for example, +81 for Japan), followed by the dial number. For legibility, it may include a separator.

- Audio telephone number shall be described by prefix tel:
- FAX number shall be described by prefix fax:
- E-mail shall be described by "mailto"

Telephone classification shall be described by the USE attribute.

- H: Home
- WP: Workplace

- EC: Emergency connection
- MC: Mobile connection

<telecom use=" telephone classification "value=" tel: telephone number "/>

Occupation, hobby, etc.

It shall describe information about the occupation and general information. The occupational career directly related to disease shall be described in the body.

The <desc> occupation, office worker </desc>

Gender (administrativeGenderCode)

It is HL7 gender code (2.16.840.1.113883.5. 1), which shall be described by Administrative Gender.

F	Female
M	Male
UN	Unknown

<administrativeGenderCode code="gender" codeSystem=" HL7 gender code (2.16.840.1.113883.5. 1) "/>

Age

This standard does not directly describe the age, but it shall be calculated by the difference between the date of birth and the date of description (Author.time).

Date of birth (birthTime)

It shall be described by YYYYMMDD.

CDA describes the date of birth by A.D. display (YYYYMMDD). When the implementation system describes it by the Japanese calendar, the style sheet etc. shall convert the internal display (A.D.) into the Japanese calendar display.

MEIJI	1868−09−08	to	1912−07−29
TAISHO	1912−07−30	to	1926−12−24
SHOWA	1926−12−25	to	1989−01−07
HEISEI	1989−01−08	to	

<birthTime value= "birth date"/>

5.2.3. Information recipient (informationRecipient)

The diagnosis information recipient shall be described by informationRecipient.

Figure 5 Information recipient (informationRecipient)

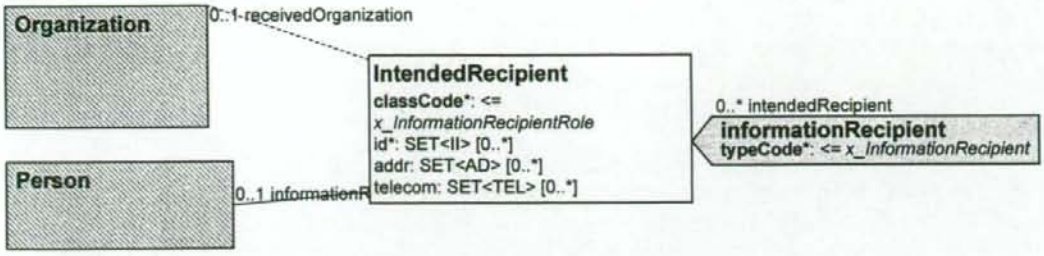


Table 3 Information recipient HMD

informationRecipient	0..*			SET<InformationRecipient>		
typeCode	1..1	M	R	CS	x_InformationRecipient	CNE
intendedRecipient	1..1			IntendedRecipient		
classCode	1..1	M	R	CS	x_InformationRecipientRole	CNE
id	0..*		R	SET<II>		
addr	0..*			SET<AD>		
telecom	0..*			SET<TEL>		
informationRecipient	*0..1*			*Person*		
name	0..1			SET<PN>		
receivedOrganization	*0..1*			*Organization*		
id	0..1			SET<II>		
name	0..1			SET<ON>		

(1). The information recipient shall be described by (informationRecipient).

```
<informationRecipient typeCode="PRCP">
 <intendedRecipient classCode="ASSIGNED">
  <id extension="information recipient ID" root=" information recipient organization UID"/>
```

Information recipient address

```
    <addr>
      <country>JP </country>
      <postalCode> postal code number </postalCode>
      <streetName> KU, MACHI, MURA, CHO, AZA, BANCHI </streetName>
      <city> SHI, KU, GUN </city>
      <state> TO, DO, FU, KEN </state>
    </addr>
```


Information recipient organization telephone number

```
<telecom use="WP"value=" tel: telephone number "/>
```

Information recipient doctor name

```
<informationRecipient>
   <name use="IDE">
      <family> family name </family>
         <given> name </given>
   </name>
</informationRecipient>
```

Information recipient medical institution name

```
<receivedOrganization>
   <id extension="medical institution ID" root=" medical organization UID"/>
   <name> information recipient medical institution/organization name </name>
</receivedOrganization>
```


5.2.4. Author, patient referral document creator (author)

Information about the doctor and medical institution that creates the patient referral document shall be described.

Figure 6 Author

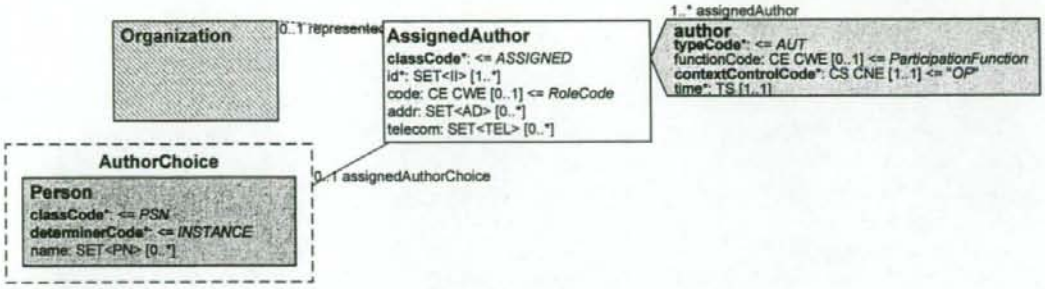


Table 4 Author HMD

author	**1..***			**SET<Author>**		
typeCode	1..1	M	R	CS	AUT	CNE
functionCode	0..1			CE	ParticipationFunction	CWE
contextControlCode	1..1	M	R	CS	OP	CNE
time	1..1		R	TS		
assignedAuthor	**1..1**			**AssignedAuthor**		
classCode	1..1	M	R	CS	ASSIGNED	CNE
id	1..*		R	SET<II>		
code	0..1			CE	RoleCode	CWE
addr	0..*			SET<AD>		
telecom	0..*			SET<TEL>		
assignedAuthorChoice	**0..1**			**Person | AuthoringDevice**		
assignedPerson	***1..1***			***Person***		
name	1..1			SET<PN>		

(1). The information that creates the patient referral document shall be described by (author).

```
<author>
    <time value= "patient referral document creation date and time"/>
    <assignedAuthor>
    < id extension="creator ID" root=" UID to which creator belongs"/>
```


The creation time (time) is usually the same as the time of issue of the patient referral document.

The patient referral document creator and the author address shall be described.

```
<addr>
    <country>JP </country>
    <postalCode> postal code number </postalCode>
    <streetName> KU, MACHI, MURA, CHO, AZA, BANCHI </streetName>
    <city> SHI, KU, GUN </city>
    <state> TO, DO, FU, KEN </state>
</addr>
```

The patient referral document creator, the author telephone number

```
<telecom use="WP"value=" tel: telephone number "/>
```

The patient referral document creator, the referral doctor

```
<assignedPerson>
    <name use="IDE">
        <family> referral doctor's family name </family>
        <given> referral doctor's given name </given>
    </name>
</assignedPerson>
```

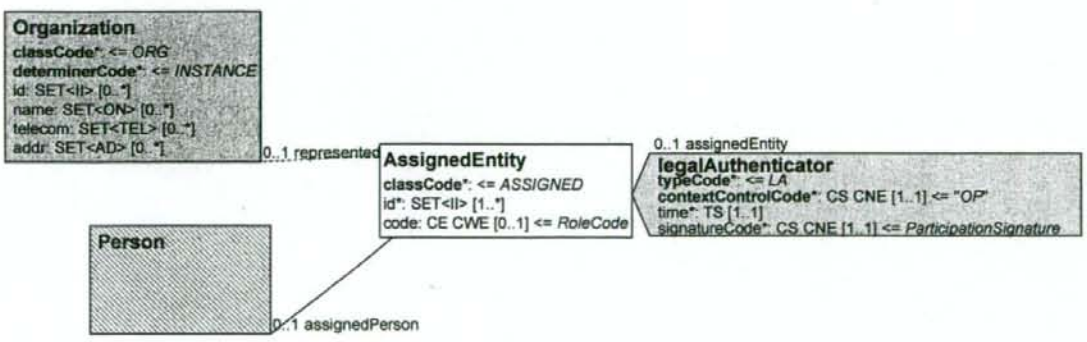
The patient referral document creator, the author medical institution

```
<representedOrganization>
    <name> medical institution name </name>
</representedOrganization>
```

Legal authenticator

The person and organization responsible for the patient referral document shall be described by legalAuthenticator.

Table 5 Legal authenticator



legalAuthenticator	0..1	LegalAuthenticator

