IHE Spain

Integrating the Healthcare Enterprise

IHE Technical Framework
Vol. IV

Proposal
National Extensions for IHE Spain

Revision 0.4 – Draft Text

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Contents

1 National Extensions for IHE Spain

The national extensions documented in this section shall be used in conjunction with the definitions of integration profiles, actors and transactions provided in volumes I-III of the IHE Technical Framework. This section includes extensions and restrictions to effectively support the regional practice of healthcare in Spain. It also suggests the use of a translation tool available in IHE-E's web page (www.ihe-e.org) to ensure correct interpretation of requirements of the Technical Framework.

1.1 Comments

IHE-Spain (from now on IHE-E) welcomes comments on this document and the IHE Spain initiative. Comments should be directed to the IHE-E Technical Manager following the links of the IHE-E web site: www.ihe-e.org

1.2 IHE-E: Scope of 2005's National Extension

The extensions, restrictions and translations specified apply to the following IHE integration profiles:

- Scheduled Workflow

1.3 IHE-E: Translation of IHE terms into Spanish

A JAVA tool has been developed to support the translation of the main IHE terms. This tool provides a dictionary that contains integration profiles, actors and transactions, and for each one, the domain/TF document where they are referenced (if applicable), acronym, the translation of the term into Spanish, and a short description.

The last version of this JAVA tool can be downloaded from the web site of the Spanish IHE initiative (www.ihe-e.org).

1.4 Support for ISO Latin 1

1.4.1 HL7

All actors with HL7 based transactions shall support the value "8859/1" for the field "MSH-18 Character Set" in the MSH segment. This value specifies the printable characters from the ISO 8859 (Latin 1) character set.

Note: this character set supports all official languages.

1.4.2 DICOM

All actors with DICOM based transactions shall support the value “ISO_IR_100” for the attribute (0008, 0005) “Specific Character Set” if this attribute is defined in the DICOM SOP class used by the IHE transaction. This attribute specifies the ISO 8859-1 (Latin 1) character set.

Note: this character set supports all official languages.

1.5 Patient Identification Data

This section is intended to give an orientation in the use of the main attributes related to the patient entity and which can be subject to an ambiguous interpretation. Likewise, we will focus in the use or adoption or codifications that allow a higher interoperability between systems.

1.5.1 The Spanish second family name

In Spain, people usually have two family names, the first traditionally being the father’s first family name and the second being the mother’s first family name.

For instance, *Picasso* is, in reality, known for his second name. His complete name was *Pablo* ***Ruiz Picasso***, son of *José* ***Ruiz Blasco***, and *María* ***Picasso López***.

The patient’s second name is an essential attribute for his/her recognition in Spain.

1.5.2 HL7, PID Segment

The HL7 specification already provides many codification tables for the message fields (*HL7 Tables*). However, there are codifications defined for each implementation.

Most of the identification data of a patient are specified in the PID segment.

HL7 Attribute Table - PID - Patient Identification

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM#	ELEMENT NAME
1	4	SI	O			00104	Set ID - PID
2	20	CX	B			00105	Patient ID
3	250	CX	R	Y		00106	Patient Identifier List
4	20	CX	B	Y		00107	Alternate Patient ID - PID
5	250	XPN	R	Y		00108	Patient Name
6	250	XPN	O	Y		00109	Mother's Maiden Name
7	26	TS	O			00110	Date/Time of Birth
8	1	IS	O		0001	00111	Administrative Sex
9	250	XPN	B	Y		00112	Patient Alias
10	250	CE	O	Y	0005	00113	Race
11	250	XAD	O	Y		00114	Patient Address
12	4	IS	B		0289	00115	County Code
13	250	XTN	O	Y		00116	Phone Number - Home
14	250	XTN	O	Y		00117	Phone Number - Business
15	250	CE	O		0296	00118	Primary Language
16	250	CE	O		0002	00119	Marital Status
17	250	CE	O		0006	00120	Religion
18	250	CX	O			00121	Patient Account Number
19	16	ST	B			00122	SSN Number - Patient
20	25	DLN	B			00123	Driver's License Number - Patient
21	250	CX	O	Y		00124	Mother's Identifier
22	250	CE	O	Y	0189	00125	Ethnic Group
23	250	ST	O			00126	Birth Place
24	1	ID	O		0136	00127	Multiple Birth Indicator
25	2	NM	O			00128	Birth Order
26	250	CE	O	Y	0171	00129	Citizenship
27	250	CE	O		0172	00130	Veterans Military Status
28	250	CE	B		0212	00739	Nationality
29	26	TS	O			00740	Patient Death Date and Time
30	1	ID	O		0136	00741	Patient Death Indicator
31	1	ID	O		0136	01535	Identity Unknown Indicator
32	20	IS	O	Y	0445	01536	Identity Reliability Code
33	26	TS	O			01537	Last Update Date/Time
34	241	HD	O			01538	Last Update Facility
35	250	CE	C		0446	01539	Species Code
36	250	CE	C		0447	01540	Breed Code
37	80	ST	O			01541	Strain
38	250	CE	O	2	0429	01542	Production Class Code
39	250	CWE	O	Y	0171	01840	Tribal Citizenship

1.5.2.1 How to inform the second name?

Amongst the patient's personal data, there is no specific location for the second name in the fields available in the PID segment. Therefore, the field selected for its location is PID-6 *Mother's Maiden Name* (XPN). This is a type consisting of various components. The second name should be positioned in the following XPN route:

PID-6 →Family Name →Surname

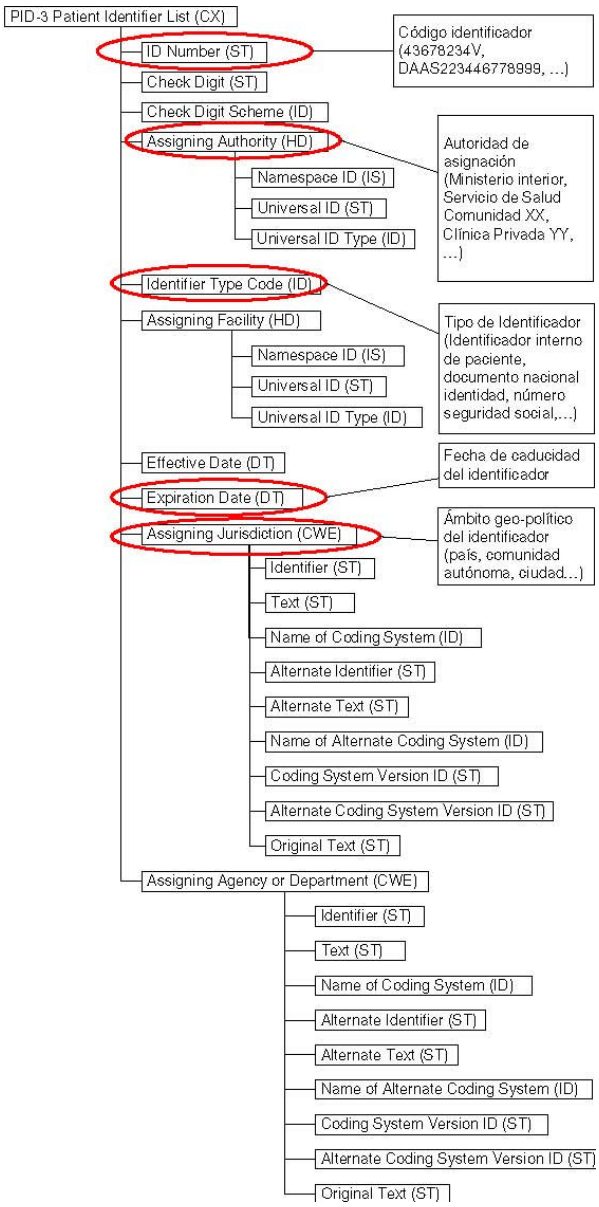
There are other situations in which it may be necessary to use the patient's second name. An example of this situation can be the case of the name of the physician assigned to the patient. In this particular situation, there is a complementary field such as PID-6 for the name of the physician.

XCN Fields, such as "Attending Doctor" or "Referring Doctor", contain the information of the assigned patient. In these cases, the second name shall be located in the following XCN route:

"Field x" →Second and Further Given Names or Initials Thereof

1.5.2.2 Patient Identifiers

We shall use the identifiers list located in the PID-3 *Patient Identifier List* field for any identifier associated to a patient This is a mixed type that allows great flexibility of use thanks to its different subcomponents. With the goal of simplifying the patient identifier's management, we suggest the use of the components shown in the following scheme:



There are many approaches for the management of these identifiers (see [1]). The technical subcommittee has decided to use a local codification for the assignment authorities of the different identifiers. In document [1] there is a detailed description of the various strategies. In the pages that follow, we include the management proposal of the main identifiers:

Identificador	Assigning Authority	Identifier Type Code	Assigning Jurisdiction
DNI	Namespace ID: MI	NNESP[1]	Identifier: ESP[2] Name of Coding System: ISO3166 (3 car)
Pasaporte	Namespace ID: MI	PPN	Identifier: ESP[3] Name of Coding System: ISO3166 (3 car)
Tarjeta residencia	Namespace ID: MI	PRC	Identifier: ESP[4] Name of Coding System: ISO3166 (3 car)
Número Seguridad Social	Namespace ID: SS	SS	Identifier: ESP Name of Coding System: ISO3166 (3 car)
CIP autonómico	Namespace ID: CAXX[5]	JHN	Identifier: AN, AR, … Name of Coding System: ISO3166-2[6]
CIP del SNS	Namespace ID: MS	HC	Identifier: ESP Name of Coding System: ISO3166 (3 car)
CIP europeo	Namespace ID: TSE	HC	Identifier: EU Name of Coding System: ISO3166
ID interno	Namespace ID: Pendiente Definir	PI	Pendiente Definir

1.5.2.3 Contact Data

For the contact data (mail, telephone, etc.) PID-13 *Phone Number – Home* field should be used. It is proposed to use the following fields:

- *Telephone Number*: this field contains the telephone number (without country code)
- *Telecommunication use code*: in this field the values suggested in the HL7 0201 table must be used.
- *Telecommunication Equipment type*: in this field, the values suggested in the HL7 0202 table must be used.
- *Email address*: this field must be used only the case that the previous two fields make reference to the e-mail address.
- *Country code*: the international code for Spain, +34, is optional. Foreign international codes must be filled in.

[1] The last 3 letters correspond to the ISO3166 code (3 characters) of the country that issues the document. See reference [6].

[2] This applies only for Spain. For other countries, their ISO codification should be taken into consideration.

[3] This applies only for Spain. For other countries, their ISO codification should be taken into consideration.

[4] This applies only for Spain. For other countries, their ISO codification should be taken into consideration.

[5] The ISO code should be replaced with the autonomous region ISO (see following note). See reference [5] for autonomous regions codification.

[6] ISO CCAA Codification. See reference [5].

1.5.2.4 Address Data

The field used in the PID segment to store the possible addresses of the patient is PID-11 *Patient Address*.

To identify the type of address, the codification indicated by HL7 in the 0190 table must be used. We suggest the following address type correspondence:

Tipo de dirección	Campo "*Address Type*"
Fiscal	L
Empadronamiento	H
Contacto	M
Empresa	B
Desplazado	C

In the event that the "*address type*" is not filled in, the address is considered as equal to the municipal register's postal address.

With regards to the use and interpretation of the fields of the entity address, the following correspondence is suggested:

Componente de la dirección	Campo en tipo XAD
País	"*Country*": codificación ISO3166 (3 letras)
Provincia	"*State or Province*": codificación INE[7]
Municipio	"*City*": codificación INE[8]
Población[9]	"*Other geographic designation*"
Código Postal	"*Zip or postal code*"
Tipo de vía	"*Street Address*", subcampo "*Street or mailing address*"[10]
Nombre de la vía	"*Street Address*", subcampo "*Street name*"
Número de la vía	"*Street Address*", subcampo "*Dwelling number*"

1.5.3 DICOM: Patient Identification Module

The DICOM Standard already provides definitions for the information objects [9].

Most of the identification data of a patient are specified in the Patient Identification Module of the Patient Modules:

[7] See reference [7].

[8] See reference [7].

[9] In case that the name of the city does not match the name of the INE codified district. This is literal, not codified.

[10] The possible route types should be codified.

PATIENT IDENTIFICATION MODULE ATTRIBUTES

Attribute Name	Tag	Attribute Description
Patient's Name	(0010,0010)	Patient's full name
Patient ID	(0010,0020)	Primary hospital identification number or code for the patient.
Issuer of Patient ID	(0010,0021)	Identifier of the Assigning Authority (system, organization, agency, or department) that issued the Patient ID. Note: Issuer of Patient ID (0010,0021) is equivalent to HL7 v2 PID-3 component 4.
Other Patient IDs	(0010,1000)	Other identification numbers or codes used to identify the patient.
Other Patient Names	(0010,1001)	Other names used to identify the patient.
Patient's Birth Name	(0010,1005)	Patient's birth name.
Patient's Mother's Birth Name	(0010,1060)	Birth name of patient's mother.
Medical Record Locator	(0010,1090)	An identifier used to find the patient's existing medical record (e.g. film jacket).

1.5.3.1 How to inform the second name?

Attribute *Patient's Name* (0010, 0010) has a value representation ([10] 6.2. Value Representation, VR) of person name (PN), which does not allow distinguishing [11] between the first and the second family name, like in cases of complex family names (i.e., *Francisco Vega y Saenz de Pedraguer)*.

Moreover, amongst the patient's personal data, there is no specific location for the second name in the fields available in the Patient Identification Modules.

Therefore, it is recommended that the first and second family names are placed in the first component of PN, family name, and in the order mentioned above, and using character ">" (ANSI 003E hex) as delimiter them.

This option has been chosen over using other attributes (like *Other Patient's Name* (0010, 1001), with person name (PN) as value representation (VR), which is referenced in several DICOM 2004 Parts 2, 3, 4, 4, 6 and 15, and that would be suitable, i.e., for queries and confidentiality issues), since there are other situations in which it may be necessary to use the person's second name and which do not have an attribute in the same module that could be used to host it.

Examples of this situation can be the case of the physician's name, such as *Referring Physician's Name* (0008, 0090), *Performing Physician's Name* (0008, 1050), *Name of Physician's Reading Study* (0008, 1060), or others, *Operator's Name* (0008, 1070), *Names of Intended Recipients of Results* (0040,1010), *Order Entered By* (0040,2008), *Human Performer's Name* (0040,4037), *Verifying Observer Name* (0040,A075), *Content Creator's Name* (0070,0084), *Reviewer Name* (300E,0008), *Interpretation Recorder* (4008,0102), *Interpretation Transcriber* (4008,010A), etc.

1.6 Insurance Data

In addition to the patient identification data, there is extra associated data related to his insurance status.

This section collects the information related to the ways in which the main insurance data must be identified. The mechanism focuses in the Insurance Company identification and does not cover the specific conditions of the insurance. This last aspect depends mainly on each implantation and its study goes beyond the aim of this implementation guide.

The proposal for the identification of the patient's main insurance data can be found in document [8].

1.6.1 HL7: Data Mapping Proposal

	Description	Mandatory?
In1-1 Set id IN1	number that identifies the transaction. In the event that the patient has more than one insurance company, the message shall be repeated according to the number of companies, pointing out a different ID for each company.	Yes
In1-2 Insurance Plan ID	It contains the Coverage Plan identifier.	Yes
In1-3 Insurance Company ID	It contains the sole company identifier. We suggest the use of sole identifiers applied to the remaining patient data.	No
In1-4 Insurance Company Name	This field contains the name of the company. We suggest repeated use of this field to identify, secondarily, the name of the company's delegation.	No
In1-12 Plan effective date	This field is used to inform the date of coming into force of the Coverage Plan.	No
In1-13 Plan expiration date	This field is used to inform the date of finishing of the Coverage Plan.	No
In1-36 Policy Number	This field is used to inform the policy number.	No

1.7 HL7: Examples

1.7.1 Example 1

Below, there is an example with the main patient data and its location and codification in a HL7 message. Reference is made only to the data contained in the document.

Datos personales de paciente	
Nombre	Manuel
Primer Apellido	Fernández
Segundo Apellido	Ferrer
Identificadores	
DNI	37456765V
CIP autonómico (Extremadura)	CAEX123456789088
Número afiliación SS	061081880847
Identificador interno del HIS	9987765
Datos de contacto	
Teléfono de casa	924678564
Móvil	659877877
Correo electrónico	mfernandez@hl7spain.org
Datos de dirección	
Dirección de empadronamiento	
Tipo de vía	Avenida
Nombre de la vía	Alange
Número	8
Piso	4ª-3ª
Escalera	B
Código Postal	06800
Municipio	Mérida
Población	Mérida
Provincia	Badajoz
País	España
Dirección de contacto	
Tipo de vía	Calle
Nombre de la vía	Constitución
Número	34
Piso	1º-C
Escalera	
Código Postal	06800
Municipio	Mérida
Población	Mérida
Provincia	Badajoz
País	España

The location of this data in the segments of the HL7 message would be as follows:

PID				
	PID-3 Patient identifier List	ID Number Assigning Authoriy Identifier Type Code Assigning Jurisdiction	 Namespace ID Identifier Name of Coding System	**37456765V** **MI** **NNESP** **ESP** **ISO3166**
		ID Number Assigning Authoriy Identifier Type Code Assigning Jurisdiction	 Namespace ID Identifier Name of Coding System	**CAEX123456789088** **CCEX** **JHN** **ER** **ISO3166-2**
		ID Number Assigning Authoriy Identifier Type Code Assigning Jurisdiction	 Namespace ID Identifier Name of Coding System	**61081880847** **SS** **SS** **ESP** **ISO3166**
		ID Number Assigning Authoriy Identifier Type Code Assigning Jurisdiction	 Namespace ID Identifier Name of Coding System	**9987765** **HC** **PI** **(pendiente)** **(pendiente)**
	PID-5 Patient Name	Family Name Given Name	 Surname	 **Fernández** **Manuel**
	PID-6 Mother's Maiden Name	Family Name	 Surname	 **Ferrer**
	PID-11 Patient Address			
		Street Address Other Designation City State or Province Zip or Postal Code Country Adress Type Other Geographic Designation	 Street or Mailing Address Street name Dwelling number 	 **Avenida** **Alange** **8** **4º-3ª Escalera B** **06083** **06** **06800** **ESP** **H**
		Street Address Other Designation City State or Province Zip or Postal Code Country Adress Type Other Geographic Designation	 Street or Mailing Address Street name Dwelling number 	 **Calle** **Constitución** **34** **1ª - C** **06083** **06** **06800** **ESP** **M**
	PID-13 Phone Number - Home			
		Telecommunication Use Code Telecommunication Equipment Type Country code Phone Number		**PRN** **PH** **+34** **924678564**
		Telecommunication Use Code Telecommunication Equipment Type Country code Phone Number		**WPN** **CP** **+34** **659877877**
		Telecommunication Use Code Telecommunication Equipment Type Email Address		**NET** **Internet** **mfernandez@hl7spain.org**

1.7.2 Example 2:

Below, the example of a patient admitted in the Hospital Virgen de la Salud de Toledo (Emergency Room), is quoted. The following is the associated data:

- Name: Ana Hoa Pin. Born: Madrid – June 1st, 1970.

- CIP: HOPN700641916019. DNI: 00000001R. Patient Record (in this hospital): 40004. Social Security Number: 2803800541502.

- Address: 2, Plaza de Alfares, Apt. 2º "A", Toledo.

- Main contact telephone: 925 123 456. Secondary contact telephone: 925 654 321. Mobile (for appointment reminders): 660 445 566.

The structure of the patient identification segment (PID) would be as follows:

HL7 Attribute Table - PID - Patient Identification								
SEQ	**LEN**	**DT**	**OPT**	**RP/#**	**TBL#**	**ITEM#**	**ELEMENT NAME**	**Ejemplo**
1	4	SI	O			00104	Set ID - PID	1,2,3,4....
2	20	CX	B			00105	Patient ID	Sin contenido, se deja para compatibilidad con otras versiones
3	250	CX	R	Y		00106	Patient Identifier List	HOPN700641916019 SNS HC 01012007 ESP → CIP 00000001R MI NNESP 01012007 ESP → DNI 40004 XX PI 01013000 ESP →NUMERO DE HISTORIA CLINICA 2803800541502 SS SS ESP → NÚMERO DE LA SEGURIDAD SOCIAL
4	20	CX	B	Y		00107	Alternate Patient ID - PID	Sin contenido, se deja para compatibilidad con otras versiones
5	250	XPN	R	Y		00108	Patient Name	HOA ANA
6	250	XPN	O	Y		00109	Mother's Maiden Name	PIN
7	26	TS	O			00110	Date/Time of Birth	01061970
8	1	IS	O		0001	00111	Administrative Sex	F ver tabla 0001
9	250	XPN	B	Y		00112	Patient Alias	Sin contenido, se deja para compatibilidad con otras versiones
10	250	CE	O	Y	0005	00113	Race	Sin datos
11	250	XAD	O	Y		00114	Patient Address	PL ALFARES 2 2º A TOLEDO(45) TOLEDO(1685) 45002 ESP M
12	4	IS	B		0289	00115	County Code	Sin contenido, se deja para compatibilidad con otras versiones
13	250	XTN	O	Y		00116	Phone Number - Home	Teléfono 1: 925-12-34-56, Teléfono 2: 925-65-43-21. Movil: 660-44-55-66
14	250	XTN	O	Y		00117	Phone Number - Business	Sin datos
15	250	CE	O		0296	00118	Primary Language	Sin datos
16	250	CE	O		0002	00119	Marital Status	Sin datos
17	250	CE	O		0006	00120	Religion	Sin datos
18	250	CX	O			00121	Patient Account Number	Sin contenido, se deja para compatibilidad con otras versiones
19	16	ST	B			00122	SSN Number - Patient	Sin contenido, se deja para compatibilidad

								con otras versiones
20	25	DLN	B			00123	Driver's License Number - Patient	Sin datos
21	250	CX	O	Y		00124	Mother's Identifier	Sin datos
22	250	CE	O	Y	0189	00125	Ethnic Group	Sin datos
23	250	ST	O			00126	Birth Place	Sin datos
24	1	ID	O		0136	00127	Multiple Birth Indicator	Sin datos
25	2	NM	O			00128	Birth Order	Sin datos
26	250	CE	O	Y	0171	00129	Citizenship	Sin datos
27	250	CE	O		0172	00130	Veterans Military Status	Sin datos
28	250	CE	B		0212	00739	Nationality	Sin datos
29	26	TS	O			00740	Patient Death Date and Time	Sin datos
30	1	ID	O		0136	00741	Patient Death Indicator	Sin datos
31	1	ID	O		0136	01535	Identity Unknown Indicator	Sin datos
32	20	IS	O	Y	0445	01536	Identity Reliability Code	Sin datos
33	26	TS	O			01537	Last Update Date/Time	Sin datos
34	241	HD	O			01538	Last Update Facility	Sin datos
35	250	CE	C		0446	01539	Species Code	Sin datos
36	250	CE	C		0447	01540	Breed Code	Sin datos
37	80	ST	O			01541	Strain	Sin datos
38	250	CE	O	2	0429	01542	Production Class Code	Sin datos
39	250	CWE	O	Y	0171	01840	Tribal Citizenship	Sin datos

The generated HL7 message would have the following appearance:

```
PID|1||HOPN700641916019^^^SNS^HC^^^20070101^ESP&&ISO3166~
00000001R^^^MI^NNESP^^^20070101^ESP&&ISO3166~
40004^^^HC^PI^^^^ESP&&ISO3166~
2803800541502^^^SS^SS^^^^ESP&&ISO3166||
HOA^ANA|
PIN|
19700601|
F|||
PL&ALFARES&2^2ºA^451685^45^45002^ESP^M||
^PRN^PH^^^925123456~
^ORN^PH^^^925654321~
^ORN^CP^^^660445566<cr>
```

1.8 REFERENCES

[1] Proposal for Identifiers Management
(Technical Subcommittee HL7 Spain, http://www.hl7spain.org/)

[2] Minutes of Meeting – Technical Subcommittee ADT 03-02-2005
(Technical Subcommittee HL7 Spain, http://www.hl7spain.org/)

[3] Minutes of Conference Call Technical Subcommittee ADT 14-02-2005
(Technical Subcommittee HL7 Spain, http://www.hl7spain.org/)

[4] Minutes of Meeting Technical Subcommittee ADT 10-03-2005
(Technical Subcommittee HL7 Spain, http://www.hl7spain.org/)

[5] ISO Codification for Autonomous Regions in Spain
(ISO, http://www.iso.org/iso/en/prods-services/iso3166ma/03updates-on-iso-3166/nli-4.pdf)

[6] ISO Codification for Countries
(ISO, http://www.iso.org/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/iso_3166-1_decoding_table.html#EU)

[7] INE Codification for Districts and Provinces
(http://www.ine.es/inebase/cgi/um?M=%2Ft20%2Fe245%2Fcodmun&O=inebase&N=&L=0)

[8] Proposal for Insurance data associated with the patient
(Technical Subcommittee HL7 Spain, http://www.hl7spain.org/)

[9] DICOM 2004 Part 3: IOD, information Object Definitions

[10] DICOM 2004 Part 5, Data Structures and Encoding

[11] ANSI HISPP MSDS: COMMON DATA TYPES for Harmonization of Communications Standards in Medical Informatics