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Health informatics — Requirements for electronic prescriptions

Informatique de santé — Exigences pour les exigences électroniques

ICS: 35.240.80

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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Foreword

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ISO 17523 was prepared by Technical Committee ISO/TC 215, *Health informatics*, and by Technical Committee CEN/TC 251, *Health informatics* in collaboration.

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Introduction

Modern healthcare is rapidly advancing and relying on electronic communications. Many countries already have or are in the process of developing electronic systems to contain and distribute personal data regarding healthcare, among which electronic prescription messages. Therefore it becomes increasingly important to set up international standards that in the end will facilitate safe and reliable dispensing of the prescribed product to the patient. Also, since international travelling becomes integrated in daily life it is of importance that electronic communications regarding prescriptions can somehow be synchronized between prescribers and dispensers in different jurisdictions.

The most important question regarding electronic prescriptions is which information is minimally required to accompany the prescription in order to have exactly the required medicine dispensed to the patient, including all relevant information with regard to its correct and safe use. This standard will provide the basic set of requirements that is needed to accomplish this goal.

While the organization of healthcare is national, the development and production of medicinal products on the other hand is truly international. The market authorization is strictly legislated in directives and laws. Part of this legislation regulates prescribing and dispensing of medicinal products. Information systems in healthcare must be designed so that end-users comply to this legislation (preferably without paying to much attention). An international standard on prescription messages translates (international) legislation on medicinal products to health informatics. (For instance, the definition of the term 'prescription' should comply with that of national legislations and multinational directives.)

The prescription written on paper has a deeply rooted cultural history for both healthcare practitioners and patients. Using an electronic prescription instead of paper is a change that must be guided to ensure trust of society in healthcare practitioners. Requirements for the processing of electronic prescriptions may fulfil this need.

The benefit of an international standard on the requirements of an electronic prescription is that it may serve as a starting point and reference for all kinds of messages related to prescriptions, facilitating the communication between stakeholders and information systems.

The intended audience for this standard is made up of the developers of standards and information systems, so that - in using their products - end-users (healthcare practitioners) comply with all legislation, regulations (and expectations of society?) relating to the prescribing of medicinal products. Specifically, this standard provides a basis for a common understanding of the data elements contained in an electronic prescription across legislations.

Examples of use in practice of this specification include the following: A general practitioner prescribes a medicinal product for a patient and sends the electronic prescription to the local pharmacy where the patient picks up the medication a short while thereafter.

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Health informatics — Requirements for electronic prescriptions

1 Scope

This standard describes the requirements that apply to electronic prescriptions. It specifies generic principles that are considered important for all electronic prescriptions effecting in a list of elements that are considered core elements for all electronic prescriptions. The scope is constrained to the content of the prescription itself. The prescribed product is to be dispensed directly or through an appointed person and administered.to a human patient. Other messages, roles and scenarios are out of scope of an international standard, because they are more or less country or region specific, due to differences in culture and in legislation of healthcare and reimbursement of care. The way in which electronic prescriptions are made available or exchanged fall outside the scope of this standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11615, *Health informatics — Identification of medicinal products — Data elements and structures for the unique identification and exchange of regulated medicinal product information*

ISO 11616, *Health informatics — Identification of medicinal products — Data elements and structures for the unique identification and exchange of regulated pharmaceutical product information*

ISO 11238, *Health informatics — Identification of medicinal products — Data elements and structures for the unique identification and exchange of regulated information on substances*

ISO 11239, *Health informatics — Identification of medicinal products — Data elements and structures for the unique identification and exchange of regulated information on pharmaceutical dose forms, units of presentation, routes of administration and packaging*

ISO 11240, *Health informatics — Identification of medicinal products — Data elements and structures for the unique identification and exchange of units of measurement*

ISO/TR 22790:2007, *Health informatics — Functional characteristics of prescriber support systems*

ISO 21549-7:2007, *Health informatics — Patient healthcard data — Part 7: Medication data*

ISO/TS 22220:2011, *Health informatics — Identification of subjects of health care*

ISO/TS 27527:2010, *Health informatics — Provider identification*

N1228 ISO/DTS 17251, *Health informatics – Business requirements exchange structured dose instructions for medicinal products*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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3.1
core element
essential data that should be included in the electronic prescription. Without the core elements, the electronic prescription is not complete and hence not valid

Note 1 to entry: The information from the core elements sometimes can be derived from other core elements, making them redundant.

3.2
electronic prescription
ePrescription
any system which allows a prescriber to communicate with a dispenser regarding the dispensing of medications via an electronic medium

[SOURCE: Standards Knowledge Management Toolkit (SKMT): Canada Health Infoway Glossary]

3.3
electronic signature
electronic signature based upon cryptographic methods of originator authentication, computed by using a set of rules and a set of parameters such that the identity of the signer and the integrity of the data can be verified

Note 1 to entry: This term is usually reserved for digital values or checksums calculated using asymmetric techniques, where only the originator of the message can generate the digital signature but many people can verify it.

[SOURCE: HIPAA, through SKMT]

3.4
optional element
non-essential data which may be included in the electronic prescription. The validity of the electronic prescription is independent of optional elements

3.5
prescriber
healthcare person authorized to issue prescriptions

[SOURCE: ISO/TR 22790:2007]

3.6
prescribing
process of creating a prescription

[SOURCE: ISO/TR 22790:2007]

3.7
prescription
a direction created by an authorized health professional, to instruct a dispensing agent regarding the preparation and use of a medicinal product or medicinal appliance to be taken or used by a subject of care

[SOURCE: ISO/TR 22790:2007]

4 General Remarks

4.1 Structure of this Standard

This standard lists the requirements for electronic prescriptions. Section 5 describes the generic requirements considered important for any electronic prescription, regardless of the data elements presented in the electronic prescription. Annex A has two parts: A.1 lists a number of core data elements

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that are considered sufficient to satisfy these requirements, A.2 lists additional optional data elements that are not considered essential with respect to the requirements in Section 5, but are commonly considered useful or required under specific legislations. Annex B has three parts: B.1 lists examples and code snippets belonging to either the core or optional elements. B.2 lists examples of ePrescription implementations in other countries. B.3 provides an overview of data structures and standards.

4.2 Usage of this standard

This standard provides a basis for a common understanding of the data elements contained in an electronic prescription across legislations. The standard is therefore intended to be used in the process of development of standards and information systems handling prescription information.

4.3 Conformance

4.3.1 Generic Conformance

An ePrescription is conformant to this standard when it fulfils all requirements in Section 5.

4.3.2 Data Element Conformance

An ePrescription is conformant to Annex A (normative) of this standard when it contains all core data elements listed in Annex A.1.

NOTE Data Element conformance implies generic conformance.

5 Requirements for electronic prescriptions

5.1 Identification of the patient

A patient is a person in the role of a patient. Data content shall support reliable long-term identification, provide contact information (e.g. location or telecom). In cases were the identity of the patient may not be revealed to the dispenser (e.g. in special healthcare situations due to national legislation), the prescriber needs to document sufficient information for re-identification.

The prescriber needs to make sure that he knows the following information about the patient. The patient should be able to identify him/herself using an identification method that is legal in the country of the prescriber. The identification should state contact information to be able to track the patient in case of emergency, such as a misprescribed drug or dose.

NOTE In cases where identification information cannot be provided due to national legislation (in special healthcare situations) other reliable mechanisms for traceability and possibly obtaining patient-specific information shall be available.

5.2 Authentication of the prescription

Authentication includes testing the integrity of the prescription, testing the authorization of the prescribing professional, and testing the commitment of the prescriber to the content. This requires a signature on the prescription or an equivalent mechanism for electronic signatures.

5.3 Identification of the prescribing health professional

A prescriber must be a professional health care provider, i.e. a person who is involved in or associated with the delivery of health care to a subject of care, or caring for the well-being of a subject of care [ISO/TS 27527:2010]. A prescriber is a healthcare person authorized to issue prescriptions [ISO 21549-7:2007]. Data content shall support testing the legitimate use (identification, authentication, authorization), traceability/auditing, and non-repudiation.

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5.4 Identification of the prescribed product

The information provided on the prescription should be able to result in reliable identification of the prescribed product for the dispenser. Preferably and in the case of a medicinal product, the information should be derived from a medicinal product dictionary (ISO 19256 under development). If this is not available or if a product other than a medicinal product is prescribed, enough information should be given on the prescription for the dispenser to dispense the correct product.

5.5 Prescription information

This section contains information on the therapeutic use of the prescribed product. The prescription shall contain all information that is needed to use the prescribed product as agreed between the patient and the prescriber. This contains data on the route of administration, strength, the dose regimen quantity, directions of use. This information is also needed by the dispenser in order to dispense the correct amount of the prescribed product e.g. number of tablets.

5.6 Additional requirements

An important requirement is to ensure semantic equivalence between the human readable contents and machine process able contents of electronic prescriptions. Some simple examples are presented here

There must be a deterministic way for a recipient of an arbitrary electronic prescription to render the attested content [HL7 CDA R2].

Human readability applies to the authenticated content. There may be additional information conveyed in the document that is there primarily for machine processing that is not authenticated and need not be rendered. [HL7 CDA R2]. However, such course of action might lead to patient safety risks. Therefore it is recommended to specify and test at implementation level which must be rendered to the human reader and which can remain machine process able only.

Using HL7 Pharmacy messages is possible, for instance via the Medication Order Topic. This is described as followed: “This topic deals with all content related to the ordering of medications, both for dispensing (supply) and for administration. It is intended to cover community prescribing, discharge prescriptions and institutional medication orders. The models are intended to support the requirements of all jurisdictions (HL7, 2014).” And thereafter several message types for specific use cases are specified, each leading to some variants in additional requirements. Further on, XML snippets from such a message will be used to illustrate how particular data elements can be included in electronic prescriptions.

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Annex A
(normative)

Data elements

A.1 Core Data Elements

A.1.1 Identification of the patient

A.1.1.1 Surname

Surname of the patient. The part of a name a person usually has in common with some other members of his/her family, as distinguished from his/her given names [ISO/TS 22220].

A.1.1.2 Given name

Given name of the patient (also known as first name). The subject's identifying name(s) within the family group or by which the subject is uniquely socially identified [ISO/TS 22220].

A.1.1.3 Date of birth

The date of birth of the patient [ISO/TS 22220]. Information regarding the age of the patient should be noted. This can either be the date of birth and/or the actual age of the patient. Since age is affecting drug ADMET (absorption, distribution, metabolism, excretion and toxicity) parameters this is important for the choice of the drug and drug dosing.

A.1.1.4 Personal Identifier

A machine-readable identifier of the patient that is unique within a defined scope.

A.1.2 Authentication of the prescription

A.1.2.1 Prescription ID

A unique string generated by an EPS (Electronic Prescribing System) to uniquely identify a prescription. The prescription should receive a unique identifying code for traceability. It might additionally be used to register whether a prescription, and/or the maximum number of repeats, was already dispensed or not to prevent that patients retrieve medicines several times using the same prescription.[5]

A.1.2.2 Issue date

The date and optionally the time the prescription was made by the prescriber. The date and time should be known to be able to conduct checks on medication safety, as well as reimbursement of the prescribed drug(s) and whether the prescription is still valid to trigger a dispense event.

A.1.3 Identification of the prescribing health professional

A.1.3.1 Surname

The prescription should state the family name/surname/last name of the prescriber. This enables the possibility to trace the prescriber in case of questions or emergencies.

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A.1.3.2 Given name

The prescription should state the given name/first name of the prescriber. This enables the traceability of the prescriber in case of questions or emergencies.

A.1.3.3 Professional qualification

The professional title of the prescribing health professional which may be used to prove the authority of the prescriber.

NOTE In some countries, a nurse or midwife might not possess a professional title, however might still be entitled to prescribe (certain) drugs.

A.1.3.4 Details for direct contact

Details for direct contact might be an address and/or phone/fax number of the prescriber in order for the dispenser and/or patient to contact the prescriber. This might be necessary in case problems arise with dosage, allergies, reimbursement etc.

A.1.3.5 Work address

This is the address of the hospital, the private practice where the health professional is normally working, meeting patients and prescribing medications.

A.1.3.6 (Digital or electronic) signature

Most countries require by law either a handwritten signature or a digital token as proof of the authenticity of the prescriber. A digital signature is an approved authentication token necessary to comply to these National laws for prescribing. A prescribing message or document without this signature can only be regarded as a notice of the actual (paper) prescription.

A.1.4 Identification of the prescribed product

A.1.4.1 Name of the medicinal product

An identification of the medicinal product [i.e. any substance or combination of substances, which may be administered to human beings for treating or preventing disease, with the view to making a medical diagnosis or to restore, correct or modify physiological functions] that is prescribed to the patient. Also information may be included regarding the possibility to replace the prescribed product with an alternative equivalent product.

NOTE Some medicinal products are prescribed as a combination of a medicinal product and a medical device.

Such combinations are regarded in this part of ISO 21549 as medicinal products.

A.1.5 Prescription information

A.1.5.1 Pharmaceutical formulation

The formula in which the prescribed medicinal product is/will be administered (e.g. tablet, solution, ointment).

A.1.5.2 Quantity

Total quantity or volume of the medicinal product that is prescribed.[16]

NOTE 1 In some cases quantity might be derived from element A.1.5.3 Dose regimen. In that case it is not necessary to state quantity separately.

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NOTE 2 Depending on national legislation, this quantity may or may not be dispensed in one dispensation.

A.1.5.3 Dose regimen

The regimen governing the dose quantity per single administration, the dose frequency the route of administration and/or speed of administration (in case of intravenous administration).

NOTE This information may be used by the dispenser to calculate the quantity to be dispensed.

A.1.5.4 Directions for use

Details about the directions for use of the prescribed medicinal product, such as 'with food' or 'before a meal') and any cautionary advice for correct use of the prescribed drug by the patient.

A.1.5.5 Magistral medicinal product

Medicinal product manufactured in a pharmacy or a pharmacy department, which is based on a recipe and is intended to be used for one and only one subject of care [ISO 21549-7:2007].

NOTE 1 A magistral/extemporaneous medicinal product is also a pharmaceutical product.

NOTE 2 The term extemporaneous medicinal product is not to be used, as it is more appropriate in describing a medicine processed during the administration of a medicinal product, especially when a mixture is made just before, e.g. intravenous administration.

Information about the constituent ingredients, if the prescription concerns an extemporaneous preparation or compound medicine.

A.1.5.6 Strength of the medicinal product

The content of the active substances expressed quantitatively per dosage unit, per unit of volume or weight according to the dosage form.

[Article 1 of Directive 2001/83/EC]

NOTE Strength of the medicinal product might also be derived from the element 'dose regimen'. If for example the prescription contains a statement such as 'use 3x daily 10mg for 9 days' the strength can be derived from this. In such circumstances, strength may not be provided separately.

A.2 Optional data elements

A.2.1 Identification of the patient

A.2.1.1 Address details

The address details of the patient. In some countries (e.g. Germany) it is sometimes required that the patients address details are included on the prescription.

A.2.1.2 Gender

Gender is the biological distinction between male and female [ISO/TS 22220]. The gender of the patient may be noted on the prescription since this can be important for gender specific effects of drugs, contra-indications etc.

A.2.1.3 Native language

The native language of the patient. This may be important for the information that is given to the patient regarding use of the prescribed product [N1228 ISO NP TS 17251].

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This could be taken from the ISO language table (ISO 639-2 or ISO 639-3 for three character list of languages), or other language specification code system.

A.2.2 Patient Characteristics

A.2.2.1 Body Weight

The weight of the patient. This can be important for calculating BMI used for dosage calculation, e.g. oncology medication,[5] or also body surface for other specific medications.

A.2.2.2 Body Height

The height of the patient. This can be important for calculating BMI used for dosage calculation e.g. oncology medication.[5]

A.2.2.3 Drug Allergies and Drug sensitivities

Information regarding allergies and sensitivities to medicinal products (e.g. certain antibiotics), drug groups and active as well as non-active ingredients may be noted.

A.2.2.4 Patient conditions

Conditions that affect the use of medicinal products, such as renal/hepatic failure, pregnancy, pharmacogenetic profile. This Some medicinal products may either alter fertility, harm the unborn child or affects the child via breastfeeding. This might result in the dispensation of another (type of) medicinal product and/or modification of the dosage regimen. This may also be important when the person has the intention to become pregnant.

NOTE 1 In some countries a change of the medicinal product or modification of the dosage regimen lies not within the competence of the dispenser.

NOTE 2 In some cases the effect on fertility or pregnancy is not yet scientifically established.

A.2.3 Identification of the prescribing health professional

A.2.3.1 Health care provider identifier (HCPI)

A unique number or code issued for the purpose of uniquely identifying a health care provider [ISO/TS 27527:2010]. A unique identification code that can be used to trace back the prescriber at all times. This can be a license or registration number e.g. which can be used to uniquely identify the prescriber. This can be used to check whether a drug was prescribed by the right person according to the law.

A.2.4 Prescription information

A.2.4.1 Starting date of therapy

The time and date the therapy is agreed to start.

A.2.4.2 Prescription expiry date

Date and optionally time when the prescription is considered to be expired. This might be dependent on local or national policy or legislation, in accordance with treatment plan or because the therapeutic need for the prescribed medicine is expired. In some countries (e.g. Germany) legislation is so clear that it is not necessary to put in on the prescription.

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A.2.4.3 Repeats

Whether an issued prescription allows for several repeating dispensations.[5] In some countries, when medicinal products are dispensed for the first time, the patient can only receive medication for a short period of time. In the case of starting chronic medication the prescriber can issue a prescription for a longer period that is now separated by repeats. Also the maximum quantity (A.1.5.3) of the prescribed product that may be dispensed in one dispensation may be stated here.

A.2.4.4 Minimum dispensing interval

If an issued prescription allows for several repeating dispensations (A.1.5.6), the minimum time interval between dispensations should be stated here (e.g. [5]). This can be important in the case of medicinal products that are prone to be overdosed e.g. opioids.

A.2.4.5 Reason of prescription

The reason for prescribing, including the possibility of mentioning that the prescribed medicinal product is being applied for 'off label' use. The reason for prescribing gives the opportunity for the dispenser to review the prescription for medication safety issues.

NOTE In some countries it is obligatory to state the reason for prescription on the prescription itself for some or all medicinal products. An example of this in the Netherlands is a prescription of methotrexate, since the indication for which it is used in the Netherlands (chemotherapy or rheumatoid arthritis) greatly impacts both strength and dose interval of the medication.

Schematic representation of prescription contents

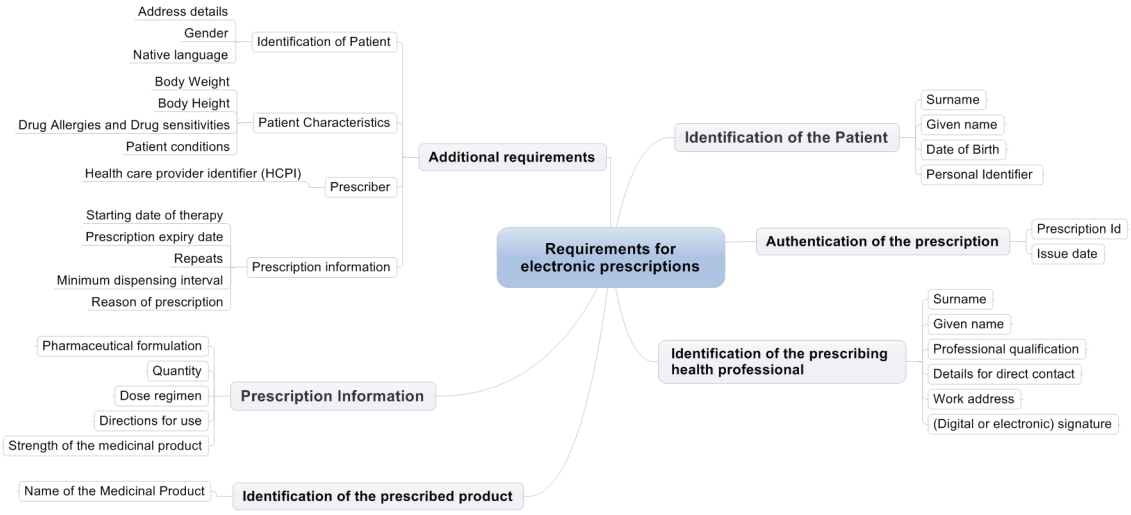

Figure 1 — Schematic representation based on ref. 16, article 9 in ref 17 and ISO 21549-7:2007

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Annex B
(informative)

Examples of elements and implementations of ePrescription

B.1 Compliance to MPD's

ePrescriptions created, exchanged, and filled according to this standard must comply with the ISO IDMP terminology to promote the unique and unambiguous identification of medicinal products in ePrescriptions. During the transitional period between implementation of the ePrescription standard and availability of ISO IDMP terminology for production use, current medicinal product dictionaries and related identifiers should be used in ePrescriptions. Example of current medicinal products are:

— National medicinal product dictionaries

— European Medicinal Product Dictionary, known as Art57-XEVMPD dictionary implemented by the European Medicines Agency (www.ema.europa.eu)

— FDA Medicinal product dictionaries

B.2 Examples of core and optional elements

B.2.1 Machine readable codes (A.1.1.4)

Implementation of this element would look as followed through the Person and Patient Common Message Element Types "Universal" in Health Level 7 v3 (where family qualifier is for surname, given is for given name and birth time is for date of birth in ISO format yyyymmddhhmm):

```
<subject typeCode="SBJ">
 <patient classCode="PAT">
  <!- Item: Personal Identifier →
  <id root="2.16.840.1.113883.2.4.99.23444.1.2.3.1.1.1.4.1" extension="1234567"/>
  <!- Item - Adress→
  <addr>
   <postalCode>1200 AA</postalCode>
  </addr>
  <statusCode code="active"/>
  <patientPerson classCode="PSN" determinerCode="INSTANCE">
   <!- Item: - Name Patient →
   <name use="L">
   <given>Francis</given>
   <given qualifier="IN">F.C.M.</given>
   <prefix qualifier="VV SP">van den </prefix>
   <family qualifier="SP">Hurk</family>
   <delimiter>-</delimiter>
   <prefix qualifier="VV BR">van </prefix>
   <family qualifier="BR">Bramen</family>
  </name>
  <name use="OR">
   <given>Francis Clara Maria</given>
   <prefix qualifier="VV BR">van </prefix>
   <family qualifier="BR">Bramen</family>
  </name>
  <!- Item: - Date of Birth →
  <birthTime value="19830721"/>
 </patientPerson>
 </patient>
</subject>
```


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B.2.2 Digital electronic signature (A.1.3.6)

The implementation of an electronic signature in the Dutch national health system: A token consists of relevant selected parts of the prescription, such as ID, prescriber, patient, medication and quantity. These are hashed with a private key according to a certain algorithm into a digital signature. The receiver compares the digital signature with the outcome of the reproduced formula using a public key with (the same parts of) the received prescription to prove that the prescription has not been tampered and that the prescriber is authentic. The authentication token usually resides on the outer layer of the prescription document or message.

```
<overseer typeCode="RESP">
 <AssignedPerson>
  <id extension="012345678" root="2.16.528.1.1007.3.1"/>
  <id extension="03004256" root="2.16.840.1.113883.2.4.6.1"/>
  <code code="01.015" codeSystem="2.16.840.1.113883.2.4.15.111" displayName="General Practitioner"/>
  <assignedPrincipalChoiceList>
   <assignedPerson>
    <name>
     <prefix qualifier="AC">Dr. </prefix>
     <given>Thomas</given>
     <family>Young</family>
    </name>
    <telecom value="tel:+49125463726"/>
   </assignedPerson>
  </assignedPrincipalChoiceList>
  <Organization>
   <id extension="01234567" root="2.16.528.1.1007.3.3"/>
   <id extension="06005465" root="2.16.840.1.113883.2.4.6.1"/>
   <code code="V4" codeSystem="2.16.840.1.113883.2.4.15.1060" displayName="Hospital "/>
   <name> Medical Centre East</name>
   ≤addr≥
    <city>East London</city>
   </addr>
  </Organization>
 </AssignedPerson>
</overseer>
```

B.2.3 Address details (A.2.1.1)

HL7 v3 based message as presented below to illustrate how this can be implemented.

```
<addr>
  <streetName>Purmersteenweg</streetName>
  <houseNumber>42</houseNumber>
  <postalCode>1441 DM</postalCode>
  <city>Purmerend</city>
</addr>
```

B.2.4 Gender (A.2.1.2)

Content for gender in an electronic prescription message could be presented as below:

```
<!- Item: gender →
<administrativeGenderCode code="M" codeSystem="2.16.840.1.113883.5.1"/>
```

where M = male and *F* = Female. Other codes might apply.

B.2.5 Body Weight (A.2.2.1)

Content for weight in an electronic prescription message could be presented as below:

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```
<observation classCode=”OBS” moodCode=”EVN”>
   <code code=”3141-9” displaytext=”Body weight Measured” “codeSys-
tem=”2.16.840.1.113883.6.1”/>
   <value xsi:type=”PQ” value=”81” unit=”kg”/>
</observation>
```

B.2.6 Body Height (A.2.2.2)

Content for height in an electronic prescription message could be presented as below:

```
<observation classCode=”OBS” moodCode=”EVN”>
   <code code=”248334005 ” displayName=”length of body” “codeSys-
tem=”2.16.840.1.113883.6.96”/>
   <value xsi:type=”PQ” value=”171” unit=”cm”/>
</observation>
```

B.3 References to implementations of ePrescription

B.3.1 Canada

[TBD]

B.3.2 Europe

European x-border, based on epSOS

B.3.3 Netherlands

NEN 7503:2011 nl, Medische informatica - Berichtenverkeer - Elektronische uitwisseling van recept- en verstrekkingsberichten.

B.3.4 Denmark

The Danish prescription format is described at:

http://svn.medcom.dk/svn/releases/Standarder/Den%20gode%20recept/XML/XPRE01.pdf(inDanish) Lægemiddelstyrelsen/MedCom, (2009). Den gode xml recept, Prescription, VersionCode XLMS016.

B.3.5 Implementation status

For an overview of the ePrescription Implementation Status see Annex 1 (eHGI/eHN subgroup data) April 2014.

B.4 Data Structures and Standards

B.4.1 http://www.medcom.dk/wm109991 (in English)

B.4.2 HL7

HL7 published CDA specifications, also HL7 V3 messages, in particular the HL7 v3 Medication Order Topic from Pharmacy Domain in the May 2014 ballot.

B.4.3 IHE Pharmacy

IHE published profiles for Medication Workflow in Hospitals and Community Settings.

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B.4.4 ISO 13606

Example:

The Spanish Ministry of Health, Social Services, and Equality has published an official set of ISO 13606 archetypes and derived artefacts for the communication of EHR among the regions of Spain. These archetypes have been developed by the UPV based on the official “Clinical Report Minimum Data Set” (CMDIC - Conjunto Minimo de Datos de Informes Clinicos). One is about prescription of medication.

https://www.msssi.gob.es/profesionales/hcdsns/areaRecursosSem/Rec_mod_clinico_arquetipos.htm

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[5] NEHTA ePrescription Structured Document Template v. 3.1; 17 dec 2010

[6] HL7v3 HL7 Version 3 Standard: Pharmacy; Medication Order, Release 2Normative Ballot 2 - January 2013

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[12] IHE Pharmacy Technical Framework Document – Hospital Medication Workflow (HMW)

[13] Technical Framework Document – Community Medication Prescription and Dispense (CMPD)

[14] Various national/state-specific standards (http://www.bon.texas.gov/practice/rxneedsinfo.html)

[15] ISO/NP 17251 'Health informatics – Business requirements for a syntax to exchange structured dose information for medicinal products'

[16] Commission implementing directive 2012/52/EU and Annex (non-exhaustive list of elements to be included in medical prescriptions)

[17] Guidelines supporting the member states in developing the interoperability of ePrescriptions (30 April 2014)

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