

Central Registry Traceability (CRT)

KMEHR Cookbook Version 2.1

Updated by



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eHealth platform

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1 Document management

1.1 Document history

Version*	Date	Author	Description of changes / remarks
1.3	19/03/2014	SMALS	draft document
2.0	29/09/2014	SMALS	Project deliverable published on eHealth doc platform - Initial version
2.1	13/10/2020	SMALS	Project deliverable published on eHealth doc platform – <ul style="list-style-type: none"> ▪ Add reference to UDI (EUDAMED) ▪ Layout review

2 Introduction

2.1 Goal of the service

The main purpose of the Central Registry for Traceability (CRT) is to trace all implantable medical devices that are distributed in Belgium. This goal is achieved by allowing the healthcare actors to notify implantations and explantations, along with a series of relevant data concerning these interventions. These data are fed into this registry by two means: a Web application and a Web service (the subject of this manual).

2.1.1 Web application

The Web application is designed for specialists who do not have a dedicated hospital system to register implants. It allows for a more comprehensive gathering of medical information than the Web service.

The information that is captured includes some details on the prescription, delivery and the procedure itself. Procedure details contain the list of implants that where implanted or explanted during the procedure. All these informations are mandatory. For more details, see the userguide of the Web application.

The Web application makes all of the registry's hospitalisations available to specialists by means of a search.

2.1.2 Web services

The Web services are designed for specialists who have a dedicated (hospital) information system. The details of the medical information remain in the patient's file at the hospital, and the registry represents a summary of this information.

The integration with the dedicated information system will make a submission transparent for the specialist.

The goal of the Central Registry Traceability SOAP service (CRT SOAP) is to provide a lightweight service for managing notifications of implantations and removals of medical devices implanted in Belgium. These notifications contain the identifications of the patient, the installer of the implant, the prescriber of the implant, the pharmacist who delivered the implant and the organization where the implantation/removal took place.

In practice, it allows health care providers and their systems to :

- notify implantations/removals
- consult implantations/removals

Concerning the consultations, it is possible to search the notification

- by its identification
- by patient
- by implant

- delete notifications
- retrieve implant cards

This is a PDF document which contains all the information about a notification and is stored by the application.

2.2 Goal of the document

This document describes the KMEHR message of the different Web services as offered to actors in the medical sector for the central registry for traceability.

This document is complementary with the cookbook explaining the different SOAP messages that can be used with the system.

Only the methods that need to transfer medical info will be converted to the KMEHR format and only the conversion to the KMEHR format is described in this document including:

- NotifyImplantation (Request)
- NotifyExplantation (Request)
- ConsultNotification (Response for Implantation)
- ConsultNotification (Response for Explantation)
- RetrievalImplantCard (Response)

In the SOAP messages the KMEHR message will be sent within 1 tag and encrypted with the public key (available in the ETK-depot) of the recipient.

At least 1 ETK key must be defined for the recipient so that the sender can encrypt the message to be sent. Messages sent to the system must be encrypted with the public key of the famph specific for the application "CRT". When a party has different keys, the requestor can specify which ETK should be used to encrypt the response message.

2.3 eHealth platform document references

On the portal of the eHealth platform, you can find all the referenced documents¹. These versions or any following versions can be used for the eHealth platform service.

ID	Title	Version	Location	Author
1	Glossary.pdf	1.0	click here	eHealth platform
2	IAM (Identity & Access Management)	General infos	click here	eHealth platform
3	eHealth Services - Web Access	General infos	click here	eHealth platform
4	Système de cryptage end-to-end	General infos	click here	eHealth platform
5	END-TO-END ENCRYPTION Known recipient (KeyDepot) - REST	1.1	click here	eHealth platform
6	RCT REST API 1.0 (acpt)	1.0	click here	eHealth platform

2.4 External document references

ID	Title	Version	Location	Author
1	Central Registry Traceability V1 Cookbook	1.3	eHealth docs	Ehealth/SMALS
2	Manuel destiné aux utilisateurs de RCT	1	eHealth docs	SMALS

¹ www.ehealth.fgov.be/ehealthplatform

3	Cookbook Central Registry for Traceability System to System (REST version)	1.0	eHealth docs	SMALS
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3 Support

3.1 For issues in production

eHealth platform contact center:

- Phone: 02/788 51 55
- Mail: support@ehealth.fgov.be
- *Contact Form* :
<https://www.ehealth.fgov.be/ehealthplatform/nl/contact> (Dutch)
<https://www.ehealth.fgov.be/ehealthplatform/fr/contact> (French)

3.2 For issues in acceptance

Integration-support@ehealth.fgov.be

3.3 For business issues

- regarding an existing project: the project manager in charge of the application or service
- regarding a new project and other business issues: info@ehealth.fgov.be

3.4 Certificates

- In order to access the secured eHealth platform environment you have to obtain an eHealth platform certificate, used to identify the initiator of the request. In case you do not have one please consult the chapter about the eHealth Certificates on the portal of the eHealth platform
<https://www.ehealth.fgov.be/ehealthplatform/nl/ehealth-certificaten>
<https://www.ehealth.fgov.be/ehealthplatform/fr/certificats-ehealth>
- For technical issues regarding eHealth platform certificates
Acceptance: acceptance-certificates@ehealth.fgov.be
Production: support@ehealth.fgov.be

4 Functional description of the Web services

4.1 General rules

In our case, a <kmehrmessage> always consists of:

- a single <header>;
- a single <folder> ;
- possible multiple <transaction> for the folder.

Therefore, a single KMEHR message always concerns:

- a single patient
- a single implantation or explantation

For every enumerated type (e.g. CD-HCPARTY values), values must be entered in lowercase and without spaces (e.g. orghospital).

Any element that is declared but not required in the registry will be disregarded.

Even if Kmehr allows the declaration of multiple elements of the same type, the message will be rejected if the cardinality defined by the registry is not respected.

Each transaction, item within a transaction and item within a heading must have an ID-KMEHR identifier in ascending order² starting from 1 for each.

² The position does not guarantee the content.

4.2 NotifyImplantation

The NotifyImplantation operation allows healthcare actors to notify the implantation of different implants to the registry.

This chapter only describes the body of the XML messages liable to be sent to the notifyImplantation Web service. The different parts of the KMEHR message will be explained one by one and verifications done by the system on every part of the message will be specified in the “Control” sections. At the end of the chapter, a full example of a valid KMEHR message is included.

4.2.1 HEADER

This paragraph describes the mandatory header of a kmehrmessage. For each message, this header reports the Kmehr specification version, a unique identifier, the date and time of creation, the sender and the recipient.

1. Kmehr specification version: CD-STANDARD

The version used is **20131001**

Representation:

```
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
```

2. Unique identifier: ID-KMEHR

This is a unique number resulting from the concatenation of the NIHII number of the sending hospital or the NIHII number of the specialist (= identification number of the sender of the current message), a dot, the identifier of the patient (INSS or other), a dot and the timestamp of the sending.

Example:

```
<id S="ID-KMEHR" SV="1.0">71000139.86111516507.20140219154623</id>
```

Control: Verification of the uniqueness of the identifier :

- Use of the NIHII number referenced in the sender.
- Use of the identifier of the patient (INSS).
- Use of the timestamp of the sending in the following format : `yyyymmddhhmms`
- Use of NIHII number of hospital or specialist should be the same as in the sender tags.

3. Date and time of creation: date & time

Example:

```
<date>2014-02-19</date>
<time>15:46:25</time>
```

Control:

- Date format: YYYY-MM-DD
- Time format: HH:MM:SS

Remark: The timestamp in the unique identifier can be different of the date and time of creation → no check will be done.

4. Sender: <hparty> of type CD-HCPARTY in the <sender> block

In the context of the implant registry, the sender of the message is always a hospital or a specialist working in a private practice. Thus, the <hparty> block can exist in 2 variants.

Scenario 1: Sender = Hospital

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
```

Control:

- Presence of a valid NIHI number. Both 8 and 11 digits NIHI numbers are accepted.
- orghospital as CD-HCPARTY values.

Scenario 2: Sender = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

ID-HCPARTY will hold the NIHI number of the specialist or INSS will hold the INSS of the specialist.

Example:

```
<sender>
  <hparty>
    <id S="INSS" SV="1.0">90042631547</id>
    <id S="ID-HCPARTY" SV="1.0">10294371001</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
```

Control:

- persphysician as CD-HCPARTY value.

- Presence of the INSS or NIHII number for the specialist. First the INSS will be checked; when this element is empty the NIHII number will be checked. Only the 11 digit NIHII number is accepted.
- The correlation between the INSS and the NIHII number of the specialist will not be checked since only 1 will be used to identify the specialist.

5. Recipient: <hparty> of type CD-APPLICATION in the <recipient> block

The recipient of the message is the registry. The name of the registry must be specified in the message.

Representation:

```
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
```

Control:

- application as CD-HCPARTY value.
- CRT as recipient name.

6. HEADER - Complete example for sender = Hospital

```

<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">71000139.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hparty>
      <id S="ID-HCPARTY" SV="1.0">71000139</id>
      <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
    </hparty>
  </sender>
  <recipient>
    <hparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hparty>
  </recipient>
</header>

```

7. HEADER - Complete example for sender = Specialist

```

<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">10294371001.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hparty>
      <id SV="1.0" S="INSS" />
      <id S="ID-HCPARTY" SV="1.0">10294371001</id>
      <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
    </hparty>
  </sender>
  <recipient>
    <hparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hparty>
  </recipient>
</header>

```

4.2.2 FOLDER

This paragraph describes the content of the folder of the kmehr message.

Only one folder is allowed to be reported for a single patient.

This folder can only have one notification (represented by at least 3 specific transactions)

Representation:

```
<folder>
  <id S="ID-KMEHR" SV="1.0">1</id>
  <patient>      ...      </patient>
  <transaction> ...      </transaction>
  <transaction> ...      </transaction>
  <transaction> ...      </transaction>
</folder>
```

Control:

- A single patient in the folder.
- At least 3 specific transactions in the folder:
 - 1 intervention: contains all data concerning the implantation itself
 - 1 (or more) productdelivery: contains all data concerning the delivery of the implanted devices
 - 1 prescription: contains all data concerning the prescription of the implanted devices

4.2.2.1 **PATIENT**

All patients must have:

1. Patient's identifier

A patient can be a Belgian patient or a foreign patient (provided he has an INSS).

The correlation between the identifier and the identifier mentioned in the header will be checked.

The Belgian patient identifier is ID-PATIENT that corresponds to his or her 11-digit National Register number (INSS). This number has the following structure:

- the first 6 digits correspond to the date of birth in the format YYMMDD, where YY= # year, MM= # month, DD= # day;
- the next 3 digits correspond to the daily counter of births; this is an even number for women and an odd number for men;
- the last 2 digits correspond to a control number.

Example :

```
<id S="ID-PATIENT" SV="1.0">86111516507</id>
```

Control:

- Presence of the National Register number – format and validity.
- Identifier corresponds to identifier in header

2. Last name and first name

The patient's first and last names tags are mandatory in the KMEHR message. However, in the checks done by the CRT, these tags will be ignored.

Only one last name and one first name are permitted. This form of declaration is permitted:

```
<firstname>John Mark</firstname>
```

Example:

```
<firstname>Patient</firstname>
<familyname>Noname</familyname>
```

Control:

- Message must be conform to the KMEHR-XSD

3. Gender

The sex tag is mandatory in KMEHR and has to be filled-in, but the filled-in value will not be evaluated or used. It can be filled in with the known value or “unknown”.

The sex must have one of the values enumerated in the CD-SEX reference table.

Representation:

```
<sex>
  <cd S="CD-SEX" SV="1.0">unknown</cd>
</sex>
```

Control:

- None, formatting rules are there to be conform to the KMEHR-XSD

4. PATIENT – Complete example:

```
<patient>
  <id SV="1.0" S="ID-PATIENT">86111516507</id>
  <firstname>Firstname</firstname>
  <familyname>Familyname</familyname>
  <sex>
    <cd SV="1.0" S="CD-SEX">unknown</cd>
  </sex>
</patient>
```

4.2.2.2 TRANSACTION

A transaction is a body of medical information validated by a healthcare professional at a given moment.

An implantation notification contains at least 3 transactions :

- exactly one transaction 'intervention'
- at least one transaction 'delivery'
- exactly one transaction 'prescription'

Each transaction and items within the transaction must have an ID-KMEHR identifier in ascending order³ (e.g. 1, 2, 3, 4, 5,...). The ID-KMEHR value should be unique for each transaction in a single KMEHR message. In other words, two different transactions should not have the same ID-KMEHR value.

Representation:

```
<id SV="1.0" S="ID-KMEHR">1</id>
```

Control:

- Presence of the ID-KMEHR in ascending order.

³ The position does not guarantee the content.

4.2.2.2.1 Transaction ‘intervention’

An intervention is represented by the ‘intervention’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTION values.

Representation:

```
<cd SV="1.4" S="CD-TRANSACTION">intervention</cd>
```

Control:

- intervention as CD-TRANSACTION value.

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-10</date>
<time>00:00:00</time>
```

Control:

- date present and correctly formatted
- time must be present and filled-in but will be ignored (00:00:00 can be passed as dummy value)

2. Healthcare professional

The author of the message can be either the hospital or the specialist. In both cases the specialist will be defined later.

Scenario 1: Author = Hospital

<hcparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<author>
  <hcparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hcparty>
</author>
```

Control:

- Valid NIHI number. Both 8 and 11 digits NIHI numbers are accepted.
- orghospital as CD-HCPARTY value.

Scenario 2: Author = Specialist

<hcparty>block is marked with the persphysician value of CD-HCPARTY.

ID-HCPARTY will hold the NIHII number of the specialist or INSS will hold the INSS of the specialist.

Example:

```
<author>
  <hcparty>
    <id S="ID-HCPARTY" SV="1.0">10294371001</id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hcparty>
</author>
```

Control:

- contacthcparty as CD-ITEM value.
- Hcparty defines a specialist that can perform an implantation or explanation
- persphysician as CD-HCPARTY value.
- Presence of the INSS or NIHII number for the specialist, first the INSS will be checked when it is empty the NIHII number will be checked.
- The correlation between the INSS and the NIHII number of the specialist will not be checked since only 1 will be used to identify the specialist.

3. Validity and completeness

The transaction admission must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

Control:

- iscomplete & isvalidated present and value set to true.

4. Type and date of procedure

The type of the procedure must be defined (must correspond to the ‘implantation’ type), this will be checked in the content element. The intervention (= implantation) date must be specified in the “beginmoment” element within the same item.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <cd SV="1.5" S="CD-ITEM">acts</cd>
  <content>
    <text L="EN">implantation</text>
  </content>
  <beginmoment>
    <date>2014-02-10</date>
    <time>00:00:00</time>
  </beginmoment>
</item>
```

Control:

- acts as CD-ITEM value.
- the <text> element must have a language attribute (L), but the value for the attribute is not evaluated.
- implantation present in the <text> tags of the content element.
- beginmoment element present.
- date and time present and correctly formatted.
- Time must be present and filled-in but will be ignored.

5. Specialist

The specialist who executed the procedure.

Example:

```

<item>
  <id SV="1.0" S="ID-KMEHR">2</id>
  <cd SV="1.5" S="CD-ITEM">contacthparty</cd>
  <content>
    hparty>
      <id S="ID-HCPARTY" SV="1.0">10294371001</id>
      <id S="INSS" SV="1.0">90042631547</id>
      <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
    </hparty>
  </content>
</item>

```

Control:

- contacthparty as CD-ITEM value.
- Hparty defines a specialist that can perform an implantation or explantation:
 - Presence of the INSS or NIHII number for the specialist, first the INSS will be checked when it is empty the NIHII number wil be checked.
 - The correlation between the INSS and the NIHII number of the specialist will not be checked since only 1 will be used to identify the specialist.

6. Item - Implants (multiple implants possible, at least 1 required)

The implants that are implanted during the procedure. There must be at least 1 interventiondevice with the following characteristics:

- SADMI-NOTIFICATIONCODE: Identifying the implant by its notificationcode (see project SADMI). The notification code is a unique identifier for an implant and is defined by the NIHDI⁴. The code should be sent without any special characters.
- EUDAMED-UDI-DI/PI: Consists in the EU identification system for medical devices where UDI stands for Unique Device Identifier. The UDI device identifier ('UDI-DI') is specific to a device and the UDI production identifier ('UDI-PI') identifies the unit of device production. Note that there are different designated entities that issue the format of UDI-DI and UDI-PI which might include some special characters as in the example below.

Note that the 2 upper elements are optional but 1 of the 2 has to be provide at least.

- `decimal`: Number of implants if more than one implant of the same type is implanted during 1 procedure
- `site`: location in the body of the implant. This is an optional free text field. When the location is not provided the site element can be omitted entirely.
- `Ink`: indicates the link to the delivery transaction (the usage of this element is further detailed in chapter 7.1)

Example 1:

```
<item>
  <id SV="1.0" S="ID-KMEHR">3</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="LOCAL" SL="SADMI-NOTIFICATIONCODE">000001694629</id>
  </content>
  <quantity>
    <decimal>1</decimal>
  </quantity>
  <site>
    <text L="EN">Femur sinister</text>
  </site>
  <Ink TYPE="isachildof" URL="../../transaction[id[@S='ID-KMEHR'; and .= 2]]"/>
</item>
```

Example 2:

⁴ <https://www.riziv.fgov.be/webprd/appl/pimplants/PublicationList.aspx>

```

<item>
  <id SV="1.0" S="ID-KMEHR">3</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="LOCAL" SL="EUDAMED-UDI-DI">(01)51022222233336</id>
    <id SV="1.0" S="LOCAL" SL="EUDAMED-UDI-PI">(11)141231(17)150707(10)A213B1(21)1234</id>
  </content>
  <quantity>
    <decimal>1</decimal>
  </quantity>
  <site>
    <text L="EN">Femur sinister</text>
  </site>
  <lnk TYPE="isachildof" URL="../../transaction[id["@S="ID-KMEHR" and .= 2]]"/>
</item>

```

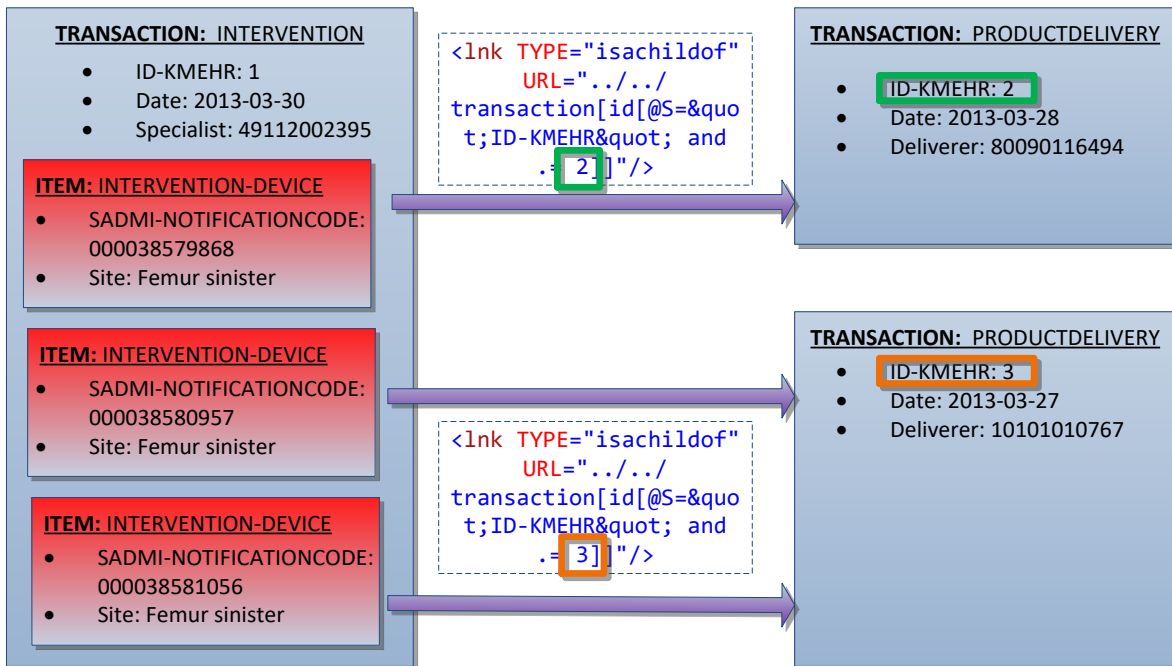
Control:

- intervention-device as CD-ITEM-REG
- Notification code as SADMI-NOTIFICATIONCODE (this must be an existing notification code)
- Device code as EUDAMED-UDI-DI/PI (this must be an existing device code issued by a EU recognized entity such as GS1,HIBCC,ICCBBA,IFA,..)
- Site = place in body. Optional field, can be omitted from the KMEHR message.
- Lnk: transaction to which is referred must be present in the message

7.1 Usage of the “lnk” element

An implantation notification always contains one or more implanted devices. For each of these devices, the deliverer and the delivery date should be passed on to the CRT. In theory, each implant could have a different deliverer and/or delivery date. However, in a KMEHR message, the implants are located in the “intervention” transaction, whereas the details on the delivery are located in the “productdelivery” transaction. In order to create a link between these two transactions, a “lnk” element exists for each intervention-device. This element will point to the correct “productdelivery” transaction for that specific implant, using the “ID-KMEHR” of the “productdelivery” transaction.

An example is provided in the schema below:



In this example, the KMEHR message contains an intervention transaction which consists of three different implanted devices. The first intervention-device was delivered on 28/03/2013 by a pharmacist with an INSS 09090999950. To indicate this, the intervention-device has a lnk element with a reference to the ID-KMEHR of the correct productdelivery transaction, which in this case is 2.

The other two intervention-devices were both delivered on 27/03/2013 by a pharmacist with an INSS 09090999851. Therefore, these two items will each have a lnk element that points to the productdelivery transaction with ID-KMEHR = 3.

Consequently, every notifyImplantation KMEHR message should have a minimum of one productdelivery transaction (if all implanted devices share the same deliverer and delivery date) and a maximum of productdelivery transactions equal to the number of intervention-devices (if each implanted device has a different deliverer and/or delivery date).

4.2.2.2 Transaction ‘delivery’

The delivery of the implants for an intervention is represented by the ‘productdelivery’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTIONvalues.

Representation:

```
<cd SV="1.5" S="CD-TRANSACTION">productdelivery</cd>
```

Control:

- productdelivery as CD-TRANSACTION value.

1. Transaction date

This timestamp is the date and time of the creation of the transaction. Thus, date = delivery date.

Example:

```
<date>2014-02-09</date>
<time>00:00:00</time>
```

Control:

- date present and correctly formatted
- time must be present and filled-in but will be ignored (00:00:00 can be passed as dummy value)

2. Healthcare professional

The author of this transaction will be the pharmacist that delivered the implants.

<hcparty>block is marked with the perspharmacist value of CD-HCPARTY. The given pharmacist must be a ‘principal pharmacist’ (= *apotheker-titularis/pharmacien-titulaire*).

ID-HCPARTY will hold the NIHII number of the pharmacist or INSS will hold the INSS of the pharmacist.

Example:

```
<author>
  <hcparty>
    <id S="ID-HCPARTY" SV="1.0">30000021001</id>
    <id S="INSS" SV="1.0">82031139548</id>
    <cd S="CD-HCPARTY" SV="1.4">perspharmacist</cd>
  </hcparty>
</author>
```

Control:

- perspharmacist as CD-HCPARTY values.
- Presence of the INSS or NIHII number for the pharmacist, first the INSS will be checked, when it is empty the NIHII number will be checked.
- Pharmacist must be the head pharmacist of a pharmacy, the NIHII number of the pharmacy will be collected from eHealth-services and saved in the registry.

The correlation between the INSS and the NIHII number of the pharmacist will not be checked since only 1 will be used to identify the specialist.

3. Validity and completeness

The transaction delivery must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

Control:

- iscomplete & isvalidated present and at true.

4. Pharmacy

The final item within the productdelivery transaction will hold the pharmacy linked to the pharmacist that delivered the implants.

Representation:

```
<item>
  < id SV="1.0" S="ID-KMEHR">1</id>
  < cd SV="1.5" S="CD-ITEM">contacthparty</cd>
  <content>
    <hparty>
      <id S="ID-HCPARTY" SV="1.0">11171034001</id>
      <cd S="CD-HCPARTY" SV="1.4">orgharmacy</cd>
    </hparty>
  </content>
</item>
```

Control:

- Valid NIHL number. Both 8 and 11 digit versions of the number are accepted.
- orgpharmacy as CD-HCPARTY value.

4.2.2.2.3 Transaction ‘prescription’

The delivery of the implants for an intervention is represented by the ‘prescription’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTION values.

Representation:

```
<cd SV="1.5" S="CD-TRANSACTION">prescription</cd>
```

Control:

- prescription as CD-TRANSACTION value.

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-08</date>
<time>00:00:00</time>
```

Control:

- date present and correctly formatted
- time must be present and filled-in but will be ignored (00:00:00 can be passed as dummy value)

2. Healthcare professional

The author of the message will be the specialist that prescribed the procedure.
 <hparty>block is marked with the persphysician value of CD-HCPARTY.

ID-HCPARTY will hold the NIHII number of the prescriber or INSS will hold the INSS of the prescriber.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">10263885123</id>
    <id S="INSS" SV="1.0">82031611185</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</author>
```

Control:

- persphysician as CD-HCPARTY value.
 Presence of the INSS or NIHII number for the prescriber, first the INSS will be checked when it is empty the NIHII number will be checked.

3. Validity and completeness

The transaction delivery must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

Control:

- iscomplete & isvalidated present and true.

4.2.3 Complete example message (hospital)

```

<?xml version="1.0" encoding="UTF-8"?>
<kmehrmessage xmlns="http://www.ehealth.fgov.be/standards/kmehr/schema/v1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.ehealth.fgov.be/standards/kmehr/schema/v1 ../20131001-
kmehr/ehealth-kmehr/XSD/kmehr_elements-1_7.xsd">
<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">71000139.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hparty>
      <id S="ID-HCPARTY" SV="1.0">71000139</id>
      <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
    </hparty>
  </sender>
  <recipient>
    <hparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hparty>
  </recipient>
</header>
<folder>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <patient>
    <id SV="1.0" S="ID-PATIENT">86111516507</id>
    <firstname></firstname>
    <familyname></familyname>
    <sex>
      <cd SV="1.0" S="CD-SEX">unknown</cd>
    </sex>
  </patient>
  <transaction>
    <id SV="1.0" S="ID-KMEHR">1</id>
    <cd SV="1.5" S="CD-TRANSACTION">intervention</cd>
    <date>2014-02-10</date>
    <time>00:00:00</time>
    <author>
      <hparty>
        <id S="ID-HCPARTY" SV="1.0">71000139</id>
        <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
      </hparty>
    </author>
    <iscomplete>true</iscomplete>
    <isvalidated>true</isvalidated>
    <item>
      <id SV="1.0" S="ID-KMEHR">3</id>
      <cd SV="1.5" S="CD-ITEM">acts</cd>
      <content>
        <text L="EN">implantation</text>
      </content>
    </item>
  </transaction>
</folder>
</kmehrmessage>

```

```

        <date>2014-02-10</date>
        <time>00:00:00</time>
    </beginmoment>
</item>
<item>
    <id SV="1.0" S="ID-KMEHR">4</id>
    <cd SV="1.5" S="CD-ITEM">contacthparty</cd>
    <content>
        <hparty>
            <id SV="1.0" S="INSS"/>
            <id S="ID-HCPARTY" SV="1.0">10294371001</id>
            <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
        </hparty>
    </content>
</item>
<item>
    <id SV="1.0" S="ID-KMEHR">5</id>
    <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
    <content>
        <id SV="1.0" S="LOCAL" SL="SADMI-
NOTIFICATIONCODE">000001694629</id>
    </content>
    <quantity>
        <decimal>2</decimal>
    </quantity>
    <site>
        <text L="EN">Femur sinister</text>
    </site>
    <lnk TYPE="isachildof" URL="../../transaction[id[@S="ID-KMEHR";
and .= 2]]"/>
</item>
<item>
    <id SV="1.0" S="ID-KMEHR">6</id>
    <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
    <content>
        <id SV="1.0" S="LOCAL" SL="EUDAMED-UDI-DI">(01)51022222233336</id>
        <id SV="1.0" S="LOCAL" SL="EUDAMED_UDI-
PI">(11)141231(17)150707(10)A213B1(21)1234</id>
    </content>
    <quantity>
        <decimal>1</decimal>
    </quantity>
    <lnk TYPE="isachildof" URL="../../transaction[id[@S="ID-KMEHR";
and .= 2]]"/>
</item>
</transaction>
<transaction>
    <id SV="1.0" S="ID-KMEHR">2</id>
    <cd SV="1.5" S="CD-TRANSACTION">productdelivery</cd>
    <date>2014-02-09</date>
    <time>00:00:00</time>
    <author>
        <hparty>
            <id SV="1.0" S="INSS">82031139548</id>
            <id S="ID-HCPARTY" SV="1.0"/>
            <cd SV="1.4" S="CD-HCPARTY">perspharmacist</cd>
        </hparty>
    </author>
    <content>
        <id SV="1.0" S="LOCAL" SL="EUDAMED-UDI-DI">(01)51022222233336</id>
        <id SV="1.0" S="LOCAL" SL="EUDAMED_UDI-
PI">(11)141231(17)150707(10)A213B1(21)1234</id>
    </content>
    <quantity>
        <decimal>1</decimal>
    </quantity>
    <lnk TYPE="isachildof" URL="../../transaction[id[@S="ID-KMEHR";
and .= 2]]"/>
</item>
</transaction>
</transaction>

```

```

        </author>
        <iscomplete>true</iscomplete>
        <isvalidated>true</isvalidated>
    </transaction>
    <transaction>
        <id SV="1.0" S="ID-KMEHR">3</id>
        <cd SV="1.5" S="CD-TRANSACTION">prescription</cd>
        <date>2014-02-08</date>
        <time>00:00:00</time>
        <author>
            <hcparty>
                <id SV="1.0" S="INSS"/>
                <id S="ID-HCPARTY" SV="1.0">10263885123</id>
                <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
            </hcparty>
        </author>
        <iscomplete>true</iscomplete>
        <isvalidated>true</isvalidated>
    </transaction>
</folder>
</kmehrmessage>

```

4.3 NotifyExplantation

The NotifyExplantation operation allows healthcare actors to notify the explantation of different implants to the registry. Only the explantation of implants that have previously been notified as “implanted” will be accepted by the registry. Explantation of implants that are implanted but have never been notified can not be registered (this will occur mostly at the startup of the program).

This chapter only describes the body of the XML messages liable to be sent to the notifyExplantation Web service.

4.3.1 HEADER

This paragraph describes the mandatory header of a kmehrmessage. For each message, this header reports the Kmehr specification version, a unique identifier, the date and time of creation, the sender and the recipient.

1. Kmehr specification version: CD-STANDARD

The version used is **20131001**

Representation:

```
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
```

2. Unique identifier: ID-KMEHR

This is a unique number resulting from the concatenation of the NIHI number of the sending hospital or the NIHI number of the specialist (= identification number of the sender of the current message), a dot, the identifier of the patient (INSS or other), a dot and the timestamp of the sending.

Example:

```
<id S="ID-KMEHR" SV="1.0">71000139.86111516507.20140219154623</id>
```

Control: Verification of the uniqueness of the identifier :

- Use of the NIHI number referenced in the sender.
- Use of the identifier of the patient (INSS).
- Use of the timestamp of the sending in the following format : `yyyymmddhhmmss`
- Use of NIHI number of hospital or specialist should be the same as in the sender tags.

3. Date and time of creation: date & time

Example:

```
<date>2014-02-19</date>
<time>15:46:25</time>
```

Control:

- Date format: YYYY-MM-DD
- Time format: HH:MM:SS

4. Remark: The timestamp in the unique identifier can be different of the date and time of creation → no check will be done. **Sender:** <hparty> of type CD-HCPARTY in the <sender> block

In the context of the implant registry, the sender of the message is always a hospital or a specialist working in a private practice. Thus, the <hparty> block can exist in 2 variants.

Scenario 1: Sender = Hospital

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
```

Control:

- Presence of a valid NIHI number. Both 8 and 11 digits NIHI numbers are accepted.
- orghospital as CD-HCPARTY value.

Scenario 2: Sender = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

ID-HCPARTY will hold the NIHI number of the specialist or INSS will hold the INSS of the specialist.

Example:

```
<sender>
  <hparty>
    <id S="INSS" SV="1.0">90042631547</id>
    <id S="ID-HCPARTY" SV="1.0">10294371001</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
```

Control:

- persphysician as CD-HCPARTY value.
- Presence of the INSS or NIHI number for the specialist, first the INSS will be checked when it is empty the NIHI number will be checked.

- The correlation between the INSS and the NIHI number of the specialist will not be checked since only 1 will be used to identify the specialist.

5. Recipient: <hparty> of type CD-APPLICATION in the <recipient> block

The recipient of the message is the registry. The name of the registry must be specified in the message.

Representation:

```
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
```

Control:

- application as CD-HCPARTY value.
- CRT as recipient name.

6. HEADER - Complete example for sender = Hospital

```

<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">71000139.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hparty>
      <id S="ID-HCPARTY" SV="1.0">71000139</id>
      <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
    </hparty>
  </sender>
  <recipient>
    <hparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hparty>
  </recipient>
</header>

```

7. HEADER - Complete example for sender = Specialist

```

<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">10294371001.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hparty>
      <id SV="1.0" S="INSS" />
      <id S="ID-HCPARTY" SV="1.0">10294371001</id>
      <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
    </hparty>
  </sender>
  <recipient>
    <hparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hparty>
  </recipient>
</header>

```


4.3.2 FOLDER

This paragraph describes the content of the folder of the kmehr message.

Only one folder is allowed to be reported for a single patient.

This folder can only have one notification (represented by 1 specific transaction)

Representation:

```
<folder>
  <id S="ID-KMEHR" SV="1.0">1</id>
  <patient>      ...      </patient>
  <transaction> ...      </transaction>
</folder>
```

Control:

- A single patient in the folder.
- Exactly 1 transaction in the folder
 - 1 intervention: contains all data concerning the explantation

(note: as opposed to the notifyImplantation KMEHR message, an explantation notification does not contain any data concerning a prescription and a delivery and therefore, only has an intervention transaction)

4.3.2.1 **PATIENT**

All patients must have:

1. Patient's identifier

A patient can be a Belgian patient or a foreign patient (provided an INSS).

The correlation between the identifier and the identifier mentioned in the header will be checked.

The Belgian patient identifier is ID-PATIENT that corresponds to his or her 11-digit National Register number (INSS). This number has the following structure:

- the first 6 digits correspond to the date of birth in the format YYMMDD, where YY= # year, MM= # month, DD= # day;
- the next 3 digits correspond to the daily counter of births; this is an even number for women and an odd number for men;
- the last 2 digits correspond to a control number.

Example :

```
<id S="ID-PATIENT" SV="1.0">86111516507</id>
```

Control:

- Presence of the National Register number – format and validity.
- Identifier corresponds to identifier in header

2. Last name and first name

The patient's first and last names tags are mandatory in the KMEHR message. However, in the checks done by the CRT, these tags will be ignored.

Only one last name and one first name are permitted. This form of declaration is permitted:

```
<firstname>John Mark</firstname>
```

Example:

```
<firstname>Patient</firstname>  
<familyname>Noname</familyname>
```

Control:

- Message must be conform to the KMEHR-XSD

3. Gender

The sex tag is mandatory in KMEHR and has to be filled-in, but the filled-in value will not be evaluated or used. It can be filled in with the known value or “unknown”.

The sex must have one of the values enumerated in the CD-SEX reference table.

Representation:

```
<sex>
  <cd S="CD-SEX" SV="1.0">unknown</cd>
</sex>
```

Control:

- None, formatting rules are there to be conform to the KMEHR-XSD

4. PATIENT – Complete example:

```
<patient>
  <id SV="1.0" S="ID-PATIENT">86111516507</id>
  <firstname></firstname>
  <familyname></familyname>
  <sex>
    <cd SV="1.0" S="CD-SEX">unknown</cd>
  </sex>
</patient>
```

4.3.2.2 TRANSACTION

A transaction is a body of medical information validated by a healthcare professional at a given moment.

An explanation notification contains exact 1 transaction :

- exactly one transaction 'intervention'

Representation:

```
<id SV="1.0" S="ID-KMEHR">1</id>
```

Control:

- Presence of the ID-KMEHR being 1 (there will be only one transaction in an explanation message)

4.3.2.2.1 Transaction ‘intervention’

An intervention is represented by the ‘intervention’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTION values.

Representation:

```
<cd SV="1.4" S="CD-TRANSACTION">intervention</cd>
```

Control:

- intervention as CD-TRANSACTION value.

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-14</date>
<time>00:00:00</time>
```

Control:

- date present and correctly formatted
- time must be present and filled-in but will be ignored (00:00:00 can be passed as dummy value)

2. Healthcare professional

The author of the message can be either the hospital or the specialist. In both cases the specialist will be defined later.

Scenario 1: Author = Hospital:

<hcparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<author>
  <hcparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hcparty>
</author>
```

Control:

- Presence of a valid NIHI number. Both 8 and 11 digits NIHI numbers are accepted.
- Orghospital as CD-HCPARTY value.

Scenario 2: Author = Specialist

<hcparty>block is marked with the persphysician value of CD-HCPARTY.

ID-HCPARTY will hold the NIHII number of the specialist or INSS will hold the INSS of the specialist.

Example:

```
<author>
  <hcparty>
    <id S="ID-HCPARTY" SV="1.0">10294371001</id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hcparty>
</author>
```

Control:

- persphysician as CD-HCPARTY value.
- Presence of the INSS or NIHII number for the specialist, first the INSS will be checked when it is empty the NIHII number will be checked.
- The correlation between the INSS and the NIHII number of the specialist will not be checked since only 1 will be used to identify the specialist.

3. Validity and completeness

The transaction admission must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

Control:

- iscomplete & isvalidated present and at true.

4. Type and date of procedure

The type of the procedure must be defined (must correspond to the 'explantation' type), this will be checked in the content element. The intervention (= explanation) date must be specified in the "beginmoment" element within the same item.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <cd SV="1.5" S="CD-ITEM">acts</cd>
  <content>
    <text L="EN">explantation</text>
  </content>
  <beginmoment>
    <date>2014-02-14</date>
    <time>00:00:00</time>
  </beginmoment>
</item>
```

Control:

- acts as CD-ITEM value.
- the <text> element must have a language attribute (L), but the value for the attribute is not evaluated.
- explanation present in the <text> tags of the content element.
- beginmoment element present.
- date and time present and correctly formatted.
- Time must be present and filled-in but will be ignored.

5. Specialist

The specialist who executed the procedure.

Example:

```

<item>
  <id SV="1.0" S="ID-KMEHR">2</id>
  <cd SV="1.5" S="CD-ITEM">contacthparty</cd>
  <content>
    hparty>
      <id S="ID-HCPARTY" SV="1.0">10294371001</id>
      <id S="INSS" SV="1.0">90042631547</id>
      <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
    </hparty>
  </content>
</item>

```

Control:

- contacthparty as CD-ITEM value.
- Hparty defines a specialist that can perform an implantation or explanation
- persphysician as CD-HCPARTY value.
- Presence of the INSS or NIHII number for the specialist, first the INSS will be checked when it is empty the NIHII number will be checked.

The correlation between the INSS and the NIHII number of the specialist will not be checked since only 1 will be used to identify the specialist.

6. Item - Explants (multiple implants possible, at least 1 required)

The implants that are explanted with the procedure.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="LOCAL" SL="RCT-TECHNICALID">169e462ca-bd87-8ezer-
6erze45577</id>
  </content>
</item>
```

Control:

- intervention-device as CD-ITEM-REG
- Notification code of the explanted implant as SADMI-NOTIFICATIONCODE
- RCT-TECHNICALID is a technical key and is the unique identifier for a single implant with a specific delivery date, pharmacist, pharmacy and location within an implantation. This ID can be retrieved for each implant using the ConsultNotification WS (see next chapter)
UDI wil not be used in the current version, when it becomes available it can be used. Current version only supports the technical ID.

4.3.3 Complete example message (hospital)

```

<?xml version="1.0" encoding="UTF-8"?>
<kmehrmessage xmlns="http://www.ehealth.fgov.be/standards/kmehr/schema/v1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.ehealth.fgov.be/standards/kmehr/schema/v1 ../20131001-
kmehr/ehealth-kmehr/XSD/kmehr_elements-1_7.xsd">
  <header>
    <standard>
      <cd SV="1.8" S="CD-STANDARD">20131001</cd>
    </standard>
    <id SV="1.0" S="ID-KMEHR">71000139.86111516507.20140220154625</id>
    <date>2014-02-20</date>
    <time>15:46:25</time>
    <sender>
      <hcparty>
        <id S="ID-HCPARTY" SV="1.0">71000139</id>
        <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
      </hcparty>
    </sender>
    <recipient>
      <hcparty>
        <cd SV="1.0" S="CD-HCPARTY">application</cd>
        <name>CRT</name>
      </hcparty>
    </recipient>
  </header>
  <folder>
    <id SV="1.0" S="ID-KMEHR">1</id>
    <patient>
      <id SV="1.0" S="ID-PATIENT">86111516507</id>
      <firstname></firstname>
      <familyname></familyname>
      <sex>
        <cd SV="1.0" S="CD-SEX">unknown</cd>
      </sex>
    </patient>
    <transaction>
      <id SV="1.0" S="ID-KMEHR">2</id>
      <cd SV="1.5" S="CD-TRANSACTION">intervention</cd>
      <date>2013-02-14</date>
      <time>00:00:00</time>
      <author>
        <hcparty>
          <id S="ID-HCPARTY" SV="1.0">71000139</id>
          <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
        </hcparty>
      </author>
      <iscomplete>true</iscomplete>
      <isvalidated>true</isvalidated>
      <item>
        <id SV="1.0" S="ID-KMEHR">3</id>
        <cd SV="1.5" S="CD-ITEM">acts</cd>
        <content>
          <text L="EN">explantation</text>
        </content>
      </item>
    </transaction>
  </folder>
</kmehrmessage>

```

```

        <beginmoment>
            <date>2014-02-14</date>
            <time>00:00:00</time>
        </beginmoment>
    </item>
    <item>
        <id SV="1.0" S="ID-KMEHR">4</id>
        <cd SV="1.5" S="CD-ITEM">contacthcparty</cd>
        <content>
            <hcparty>
                <id SV="1.0" S="INSS"/>
                <id S="ID-HCPARTY" SV="1.0">10294371001</id>
                <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
            </hcparty>
        </content>
    </item>
    <item>
        <id SV="1.0" S="ID-KMEHR">5</id>
        <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
        <content>
            <id SV="1.0" S="LOCAL" SL="RCT-TECHNICALID">169e462ca-bd87-8ezer-
6erze45577</id>
        </content>
        <content>
            <id S="LOCAL" SV="1.0" SL="ID-IMPLANTATIONNOTIFICATION">201402180000968</id>
        </content>
        <quantity>
            <decimal>1</decimal>
        </quantity>
    </item>
</transaction>
</folder>
</kmehrmessage>

```

4.4 ConsultNotification (Response for Implantation)

The ConsultNotification operation allows healthcare actors to consult a notification that is stored in the system.

This chapter only describes the body of the XML message in the response of the ConsultNotification Web service.

Remark: For the responses of the ConsultNotification the message will be returned as if it was received from the original sender. When one consults the registry one will see the contents of the notification that was originally sent to the registry (recipient = rct).

4.4.1 HEADER

This paragraph describes the mandatory header of a kmehrmesssage. For each message, this header reports the Kmehr specification version, a unique identifier, the date and time of creation, the sender and the recipient.

1. Kmehr specification version: CD-STANDARD

The version used is **20131001**

Representation:

```
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
```

2. Unique identifier: ID-NOTIFICATION

Whereas in the request, the KMEHR message is identified by an ID-KMEHR element, the response will contain an ID-NOTIFICATION element. This is the number of the implantation notification as known in the registry, which is used as a unique identifier within the application. The format of the notificationnumber = YYYYMMDDSSSSCC where:

- YYYYMMDD is the day of creation of the notification record (in case of an admin it will be the first final save (not the temporary save))
- SSSSS is the sequence for that day (max of 99999 entries/day)
- CC is a check digit = $97 - \text{mod}97(\text{YYYYMMDDSSSS})$ a valid example = 201308260012373 (being the 123rd notification saved on 26/08/2013)..

Example:

```
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
```

3. Date and time of creation: date & time

Example:

```
<date>2014-02-19</date>
<time>00:00:00</time>
```

Remark: The timestamp in the consult will be the timestamp when the response is created not the original timestamp.

4. **Sender:** <hparty> of type CD-HCPARTY in the <sender> block

In the context of the implant registry, the sender of the message is always a hospital or a specialist working in a private practice. Thus, the <hparty> block can exist in 2 variants.

Scenario 1: Sender = Hospital:

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
```

Scenario 2: Sender = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

INSS will hold the INSS of the specialist.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
```

5. **Recipient:** <hparty> of type CD-APPLICATION in the <recipient> block

The recipient of the message is the registry. The name of the registry must be specified in the message.

Representation:

```
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
```

6. HEADER - Complete example sender = Hospital

```

<header>
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
<date>2014-02-19</date>
<time>00:00:00</time>
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
</header>

```

7. HEADER - Complete example sender = Specialist

```

<header>
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
<date>2014-02-19</date>
<time>00:00:00</time>
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
</header>

```

4.4.2 FOLDER

This paragraph describes the content of the kmehr message.

Only one folder is allowed to be reported for a single patient.

This folder can only have one notification (represented at least by 3 specific transactions)

Representation:

```
<folder>
  <id S="ID-KMEHR" SV="1.0">1</id>
  <patient> ... </patient>
  <transaction> ... </transaction>
  <transaction> ... </transaction>
  <transaction> ... </transaction>
</folder>
```

Control:

- A single patient in the folder.
- At least 3 specific transactions in the folder:
 - 1 intervention: contains all data concerning the implantation itself
 - 1 (or more) productdelivery: contains all data concerning the delivery of the implanted devices
 - 1 prescription: contains all data concerning the prescription of the implanted devices

4.4.2.1 **PATIENT**

All patients must have:

1. Patient's identifier

A patient can be a Belgian patient or a foreign patient (provided an INSS).

The correlation between the identifier and the identifier mentioned in the header will be checked.

The Belgian patient identifier is ID-PATIENT that corresponds to his or her 11-digit National Register number (INSS). This number has the following structure:

- the first 6 digits correspond to the date of birth in the format YYMMDD, where YY= # year, MM= # month, DD= # day;
- the next 3 digits correspond to the daily counter of births; this is an even number for women and an odd number for men;
- the last 2 digits correspond to a control number.

Example :

```
<id S="ID-PATIENT" SV="1.0">86111516507</id>
```

2. Last name and first name

The patient's first and last names tags are mandatory in the KMEHR message. These tags will be left empty in this system to system message.

Example:

```
<firstname></firstname>
<familyname></familyname>
```

3. Deceased date

If the patient is deceased at the time of consultation, this date will be returned in the <deathdate> element. If there is no deceased date for the patient, the element will be omitted in the patient section.

Representation:

```
<deathdate>
  <date>2014-01-01</date>
</deathdate>
```

4. Gender

The sex tag is mandatory in KMEHR and has to be filled-in, but will be ignored. The value "unknown" will be returned in the response, independent of the actual sex of the patient.

Representation:

```
<sex>
  <cd S="CD-SEX" SV="1.0">unknown</cd>
```

```
</sex>
```

5. PATIENT – Complete example:

```
<patient>
  <id SV="1.0" S="ID-PATIENT">86111516507</id>
  <firstname></firstname>
  <familyname></familyname>
  <deathdate>
    <date>2014-01-01</date>
  </deathdate>
  <sex>
    <cd SV="1.0" S="CD-SEX">unknown</cd>
  </sex>
</patient>
```


4.4.2.2 TRANSACTION

A transaction is a body of medical information validated by a healthcare professional at a given moment.

An implantation notification contains at least 3 transactions :

- exactly one transaction 'intervention'
- at least one transaction 'delivery'
- exactly one transaction 'prescription'

Each transaction and items within the transaction must have an ID-KMEHR identifier in ascending order⁵ (e.g. 1, 2, 3, 4, 5,...).

Representation:

```
<id SV="1.0" S="ID-KMEHR">1</id>
```

Control:

- Presence of the ID-KMEHR in ascending order.

⁵ The position does not guarantee the content.

4.4.2.2.1 Transaction ‘intervention’

An intervention is represented by the ‘intervention’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTIONvalues.

Representation:

```
<cd SV="1.4" S="CD-TRANSACTION">intervention</cd>
```

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-10</date>
<time>00:00:00</time>
```

2. Healthcare professional

The original author of the message can be either the hospital or the specialist. In both cases the specialist will be defined later.

Scenario 1: Author = Hospital:

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHII number of the hospital. The id will be the nihii number of the hospital.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</author>
```

Scenario 2: Author = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

INSS will hold the INSS of the specialist.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</author>
```

3. Validity and completeness

The transaction admission must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

4. Type and date of procedure

The type of the procedure will be defined in the content element. The intervention (= implantation) date will be specified in the "beginmoment" element within the same item.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <cd SV="1.5" S="CD-ITEM">acts</cd>
  <content>
    <text L="EN">implantation</text>
  </content>
  <beginmoment>
    <date>2014-02-10</date>
    <time>00:00:00</time>
  </beginmoment>
</item>
```

5. Specialist

The specialist who executed the procedure.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">3</id>
  <cd SV="1.5" S="CD-ITEM">contacthcparty</cd>
  <content>
    <hcparty>
      <id S="ID-HCPARTY" SV="1.0"></id>
      <id S="INSS" SV="1.0">90042631547</id>
      <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
    </hcparty>
  </content>
</item>
```

6. Item - Implants (many possible, at least 1 required)

The implants that are placed with the procedure. Each of the implants will be enriched with additional data from SADMI. These are the characteristics for each implant:

- The implant notification code (SADMI-NOTIFICATIONCODE)
- EUDAMED-UDI-DI/PI: Consists in the EU identification system for medical devices where UDI stands for Unique Device Identifier. The UDI device identifier ('UDI-DI') is specific to a device and the UDI production identifier ('UDI-PI') identifies the unit of device production.

Note that there are different designated entities that issue the format of UDI-DI and UDI-PI which might include some special characters as in the example below.

Note that the 2 upper elements are optional but 1 of the 2 has to be provide at least.

- The product reference (SADMI-PRODUCTREFERENCE)
- The technical key in RCT for the implant which uniquely identifies a single, specific implant in an implantation (RCT-TECHNICALID)
- The name of the implant (content > text)
- The name of the manufacturer (hcparty of type "manufacturer" > name)
- The country of the address of the manufacturer in the form of an ISO-code
- The name of the distributor (hcparty of type "distributor" > name)
- The full address of the distributor
- The current state of the implant (lifecycle > text)
 - "active" = state "PUBLISHED"
 - "inactive" = state "DELETED" or "ARCHIVED"
- Number of implanted implants (quantity > decimal)
- Location in body (site > text)
- The classification code of the implant with description in three languages (EN, NL, FR)
- The publication date of the implant (= start date of the first "PUBLISHED" state)
- The URL for the site with additional info about the implant
- The reference to the productdelivery transaction

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="ID-KMEHR">5</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-NOTIFICATIONCODE">000001694629</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-PRODUCTREFERENCE">FJ748T</id>
  </content>
  <content>
    <text L="EN">ABC CERVICAL PLATE, 4 HOLE, 20 mm</text>
  </content>
  <author>
    <hcparty>
      <cd S="LOCAL" SV="1.0" DN="Actor role in SADMI system" SL="SADMI-ROLE">manufacturer</cd>
      <name>aesculap ag</name>
      <address>
        <cd S="CD-ADDRESS" SV="1.0">work</cd>
        <country>
          <cd S="CD-COUNTRY" SV="1.0">de</cd>
        </country>
        <zip></zip>
        <city></city>
        <street></street>
        <houenumber></houenumber>
      </address>
    </hcparty>
  </author>
</item>
```

```

</hparty>
<hparty>
  <id S="LOCAL" SV="1.0" SL="SADMI-DISTRIBUTORNOTIFICATIONNUMBER">BECA01105697</id>
  <cd S="LOCAL" SV="1.0" SL="SADMI-ROLE" DN="Actor role in SADMI system" L="en">distributor</cd>
  <name>AMD Medical Devices</name>
  <address>
    <cd S="CD-ADDRESS" SV="1.0">work</cd>
    <country>
      <cd S="CD-COUNTRY" SV="1.0">de</cd>
    </country>
    <zip>1234</zip>
    <city>Berlin</city>
    <street>Hauptstrasse</street>
    <houenumber>66</houenumber>
    <postboxnumber>02</postboxnumber>
  </address>
</hparty>
</author>
<lifecycle>
  <cd S="CD-LIFECYCLE" SV="1.0">active</cd>
</lifecycle>
<quantity>
  <decimal>2</decimal>
</quantity>
<site>
  <text L="EN">Femur sinister</text>
</site>
<local>
  <id SV="1.0" S="ID-KMEHR">6</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="EN">G.03.01.02</cd>
  <content>
    <text L="EN">Urogenital system/Stents for ureter/Synthetic/Without coating.</text>
  </content>
</local>
<local>
  <id SV="1.0" S="ID-KMEHR">7</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="NL">G.03.01.02</cd>
  <content>
    <text L="NL">Urogenitale systeem/Stents voor ureter/Synthetische/Zonder coating.</text>
  </content>
</local>
<local>
  <id SV="1.0" S="ID-KMEHR">8</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="FR">G.03.01.02</cd>
  <content>
    <text L="FR">Système uro-génital/Stents pour uretère/Synthétique/Sans coating.</text>
  </content>
</local>
<local>
  <id SV="1.0" S="ID-KMEHR">9</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI" DN="" L="EN">publicationdate</cd>
  <content>
    <date>2014-01-12</date>
  </content>
</local>
<lnk MEDIATYPE="text/html" TYPE="multimedia" URL="http://www.aesculap.de"/>
<lnk TYPE="isachildof" URL="../../transaction[id[&quot;S=&quot;ID-KMEHR&quot;; and .= 2]]"/>

```

```
</item>
```

4.4.2.2 Transaction ‘delivery’

The delivery of the implants for an intervention is represented by the ‘productdelivery’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTIONvalues.

Representation:

```
<cd SV="1.5" S="CD-TRANSACTION">productdelivery</cd>
```

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-09</date>
<time>00:00:00</time>
```

2. Healthcare professional

The author of the message will be the pharmacist that delivered the implants. <hparty>block is marked with the perspharmacist value of CD-HCPARTY.

INSS will hold the INSS of the pharmacist.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">82031139548</id>
    <cd S="CD-HCPARTY" SV="1.4">perspharmacist</cd>
  </hparty>
</author>
```

3. Pharmacy

The final item within the productdelivery transaction will hold the pharmacy linked to the pharmacist that delivered the implants.

Example:

```
<item>
  < id SV="1.0" S="ID-KMEHR">1</id>
  < cd SV="1.5" S="CD-ITEM">contacthparty</cd>
  <content>
    <hparty>
      <id S="ID-HCPARTY" SV="1.0">11171034</id>
      <cd S="CD-HCPARTY" SV="1.4">orgharmacy</cd>
    </hparty>
  </content>
</item>
```

4. Validity and completeness

The transaction delivery must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

4.4.2.2.3 Transaction ‘prescription’

The delivery of the implants for an intervention is represented by the ‘prescription’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTION values.

Representation:

```
<cd SV="1.5" S="CD-TRANSACTION">prescription</cd>
```

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-08</date>
<time>00:00:00</time>
```

2. Healthcare professional

The author of the message will be the specialist that prescribed the procedure. <hparty>block is marked with the persphysician value of CD-HCPARTY.

INSS will hold the INSS of the prescriber.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">82031611185</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</author>
```

3. Validity and completeness

The transaction delivery must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```


4.4.3 Example of the complete message (hospital)

```

<?xml version="1.0" encoding="UTF-8"?>
<kmehrmessage xmlns="http://www.ehealth.fgov.be/standards/kmehr/schema/v1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.ehealth.fgov.be/standards/kmehr/schema/v1 ../20131001-
kmehr/ehealth-kmehr/XSD/kmehr_elements-1_7.xsd">
<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">71000139.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hcparty>
      <id S="ID-HCPARTY" SV="1.0">71000139</id>
      <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
    </hcparty>
  </sender>
  <recipient>
    <hcparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hcparty>
  </recipient>
</header>
<folder>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <patient>
    <id SV="1.0" S="ID-PATIENT">86111516507</id>
    <firstname></firstname>
    <familyname></familyname>
    <sex>
      <cd SV="1.0" S="CD-SEX">unknown</cd>
    </sex>
  </patient>
  <transaction>
    <id SV="1.0" S="ID-KMEHR">1</id>
    <cd SV="1.5" S="CD-TRANSACTION">intervention</cd>
    <date>2014-02-10</date>
    <time>00:00:00</time>
    <author>
      <hcparty>
        <id S="ID-HCPARTY" SV="1.0">71000139</id>
        <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
      </hcparty>
    </author>
    <iscomplete>true</iscomplete>
    <isvalidated>true</isvalidated>
    <item>
      <id SV="1.0" S="ID-KMEHR">3</id>
      <cd SV="1.5" S="CD-ITEM">acts</cd>
      <content>
        <text L="EN">implantation</text>
      </content>
    </item>
  </transaction>
</folder>

```

```

<beginmoment>
  <date>2014-02-10</date>
  <time>00:00:00</time>
</beginmoment>
</item>
<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.5" S="CD-ITEM">contacthparty</cd>
  <content>
    <hparty>
      <id SV="1.0" S="ID-HCPARTY"/>
      <id S="INSS" SV="1.0">90042631547</id>
      <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
    </hparty>
  </content>
</item>
<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="ID-KMEHR">5</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-NOTIFICATIONCODE">000001694629</id>
    <id SV="1.0" S="LOCAL" SL="EUDAMED-UDI-DI"></id>
    <id SV="1.0" S="LOCAL" SL="EUDAMED-UDI-PI"></id>
    <id SV="1.0" S="LOCAL" SL="SADMI-PRODUCTREFERENCE">FJ748T</id>
    <id SV="1.0" S="LOCAL" SL="RCT-TECHNICALID">FJ748T4sd-fd44-4522-5d55-
5df54df1845d</id>
  </content>
  <content>
    <text L="EN">ABC CERVICAL PLATE, 4 HOLE, 20 mm</text>
  </content>
  <author>
    <hparty>
      <cd S="LOCAL" SV="1.0" DN="Actor role in SADMI system" SL="SADMI-
ROLE">manufacturer</cd>
      <name>aesculap ag</name>
      <address>
        <cd S="CD-ADDRESS" SV="1.0">work</cd>
        <country>
          <cd S="CD-COUNTRY" SV="1.0">de</cd>
        </country>
        <zip></zip>
        <city></city>
        <street></street>
        <houzenumber></houzenumber>
      </address>
    </hparty>
    <hparty>
      <id S="LOCAL" SV="1.0" SL="SADMI-DISTRIBUTORNOTIFICATIONNUMBER">
BECA01105697</id>
      <cd S="LOCAL" SV="1.0" SL="SADMI-ROLE" DN="Actor role in SADMI system"
L="en">distributor</cd>
      <name>AMD Medical Devices</name>
      <address>
        <cd S="CD-ADDRESS" SV="1.0">work</cd>
        <country>

```

```

                <cd S="CD-COUNTRY" SV="1.0">de</cd>
            </country>
            <zip>1234</zip>
            <city>Berlin</city>
            <street>Hauptstrasse</street>
            <housenumber>66</housenumber>
            <postboxnumber>02</postboxnumber>
        </address>
    </hcparty>
</author>
<lifecycle>
    <cd S="CD-LIFECYCLE" SV="1.0">active</cd>
</lifecycle>
<quantity>
    <decimal>2</decimal>
</quantity>
<site>
    <text L="EN">Femur sinister</text>
</site>
<local>
    <id SV="1.0" S="ID-KMEHR">6</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN=""
L="EN">G.03.01.02</cd>
    <content>
        <text L="EN">Urogenital system/Stents for ureter/Synthetic/Without
coating.</text>
    </content>
</local>
<local>
    <id SV="1.0" S="ID-KMEHR">7</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN=""
L="NL">G.03.01.02</cd>
    <content>
        <text L="NL">Urogenitale systeem/Stents voor ureter/Synthetische/Zonder
coating.</text>
    </content>
</local>
<local>
    <id SV="1.0" S="ID-KMEHR">8</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN=""
L="FR">G.03.01.02</cd>
    <content>
        <text L="FR">Système uro-génital/Stents pour uretère/Synthétique/Sans
coating.</text>
    </content>
</local>
<local>
    <id SV="1.0" S="ID-KMEHR">9</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI" DN="" L="EN">publicationdate</cd>
    <content>
        <date>2014-01-12</date>
    </content>
</local>
<lnk MEDIATYPE="text/html" TYPE="multimedia" URL="http://www.aesculap.de"/>
<lnk TYPE="isachildof" URL="../../transaction[id[@S=&quot;ID-KMEHR&quot;]; and . =
2]]"/>
</item>

```

```

</transaction>
<transaction>
  <id SV="1.0" S="ID-KMEHR">2</id>
  <cd SV="1.5" S="CD-TRANSACTION">productdelivery</cd>
  <date>2014-02-09</date>
  <time>00:00:00</time>
  <author>
    <hparty>
      <id SV="1.0" S="INSS">82031139548</id>
      <id S="ID-HCPARTY" SV="1.0"/>
      <cd SV="1.4" S="CD-HCPARTY">perspharmacist</cd>
    </hparty>
  </author>
  <iscomplete>true</iscomplete>
  <isvalidated>true</isvalidated>
</transaction>
<transaction>
  <id SV="1.0" S="ID-KMEHR">3</id>
  <cd SV="1.5" S="CD-TRANSACTION">prescription</cd>
  <date>2014-02-08</date>
  <time>00:00:00</time>
  <author>
    <hparty>
      <id SV="1.0" S="ID-HCPARTY"/>
      <id S="INSS" SV="1.0">82031611185</id>
      <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
    </hparty>
  </author>
  <iscomplete>true</iscomplete>
  <isvalidated>true</isvalidated>
</transaction>
</folder>
</kmehrmessage>

```

4.5 ConsultNotification (Response for Explantation)

The ConsultNotification allows to consult the notification for an explantation of different implants to the registry as long as they are notified to be explanted.

This chapter only describes the body of the XML message in the response of the ConsultNotification Web service.

Remark: For the responses of the ConsultNotification the message will be returned as if it was received from the original sender. When one consults the registry one will see the contents of the notification that was originally sent to the registry (recipient = rct).

4.5.1 HEADER

This paragraph describes the mandatory header of a kmehrmesssage. For each message, this header reports the Kmehr specification version, a unique identifier, the date and time of creation, the sender and the recipient.

1. Kmehr specification version: CD-STANDARD

The version used is **20131001**

Representation:

```
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
```

2. Unique identifier: ID-NOTIFICATION

Whereas in the request, the KMEHR message is identified by an ID-KMEHR element, the response will contain an ID-NOTIFICATION element. This is the number of the implantation notification as known in the registry, which is used as a unique identifier within the application. The format of the notificationnumber = YYYYMMDDSSSSCC where:

- YYYYMMDD is the day of creation of the notification record (in case of an admin it will be the first final save (not the temporary save))
- SSSSS is the sequence for that day (max of 99999 entries/day)
- CC is a check digit = 97 - mod97(YYYYMMDDSSSSS) a valid example = 201308260012373 (being the 123rd notification saved on 26/08/2013)..

Example:

```
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201402190130441</id>
```

3. Date and time of creation: date & time

Example:

```
<date>2014-02-19</date>
<time>00:00:00</time>
```

Remark: The timestamp in the consult will be the timestamp when the response is created not the original timestamp.

4. **Sender:** <hparty> of type CD-HCPARTY in the <sender> block

In the context of the implant registry, the sender of the message is always a hospital or a specialist working in a private practice. Thus, the <hparty> block can exist in 2 variants.

Scenario 1: Sender = Hospital:

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
```

Scenario 2: Sender = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

INSS will hold the INSS of the specialist.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
```

5. **Recipient:** <hparty> of type CD-APPLICATION in the <recipient> block

The recipient of the message is the registry. The name of the registry must be specified in the message.

Representation:

```
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
```

6. HEADER - Complete example sender = Hospital

```

<header>
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201402190130441</id>
<date>2014-02-19</date>
<time>00:00:00</time>
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
</header>

```

7. HEADER - Complete example sender = Specialist

```

<header>
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201402190130441</id>
<date>2014-02-19</date>
<time>00:00:00</time>
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
</header>

```

4.5.2 FOLDER

This paragraph describes the content of the kmehr message.

Only one folder is allowed to be reported for a single patient.

This folder can only have one notification (represented by 1 specific transaction)

Representation:

```
<folder>
  <id S="ID-KMEHR" SV="1.0">1</id>
  <patient>      ...      </patient>
  <transaction> ... </transaction>
</folder>
```

Control:

- A single patient in the folder.
- Exactly 1 transaction in the folder
 - 1 intervention: contains all data concerning the explantation

(note: as opposed to the notifyImplantation KMEHR message, an explantation notification does not contain any data concerning a prescription and a delivery and therefore, only has an intervention transaction)

4.5.2.1 **PATIENT**

All patients must have:

1. Patient’s identifier

A patient can be a Belgian patient or a foreign patient (provided an INSS).

The correlation between the identifier and the identifier mentioned in the header will be checked.

The Belgian patient identifier is ID-PATIENT that corresponds to his or her 11-digit National Register number (INSS). This number has the following structure:

- the first 6 digits correspond to the date of birth in the format YYMMDD, where YY= # year, MM= # month, DD= # day;
- the next 3 digits correspond to the daily counter of births; this is an even number for women and an odd number for men;
- the last 2 digits correspond to a control number.

Example :

```
<id S="ID-PATIENT" SV="1.0">86111516507</id>
```

Control:

- Presence of the National Register number – format and validity.

2. Last name and first name

The patient’s first and last names tags are mandatory in the KMEHR message. These tags will be left empty.

Example:

```
<firstname></firstname>
<familyname></familyname>
```

3. Deceased date

If the patient is deceased at the time of consultation, this date will be returned in the <deathdate> element. If there is no deceased date for the patient, the element will be omitted in the patient section.

Representation:

```
<deathdate>
  <date>2014-01-01</date>
</deathdate>
```

4. Gender

The sex tag is mandatory in KMEHR and has to be filled-in, but will be ignored. The value “unknown” will be returned in the response, independent of the actual sex of the patient.

Representation:

```
<sex>
  <cd S="CD-SEX" SV="1.0">unknown</cd>
</sex>
```

5. PATIENT – Complete example:

```
<patient>
  <id SV="1.0" S="ID-PATIENT">86111516507</id>
  <firstname></firstname>
  <familyname></familyname>
  <deathdate>
    <date>2014-01-01</date>
  </deathdate>
  <sex>
    <cd SV="1.0" S="CD-SEX">unknown</cd>
  </sex>
</patient>
```

4.5.2.2 TRANSACTION

A transaction is a body of medical information validated by a healthcare professional at a given moment.

An explanation notification contains exactly 1 transaction :

- exactly one transaction 'intervention'

Representation:

```
<id SV="1.0" S="ID-KMEHR">1</id>
```

4.5.2.2.1 Transaction ‘intervention’

An intervention is represented by the ‘intervention’ value of CD-TRANSACTION enumerated in the list CD-TRANSACTIONvalues.

Representation:

```
<cd SV="1.4" S="CD-TRANSACTION">intervention</cd>
```

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2014-02-14</date>
<time>00:00:00</time>
```

2. Healthcare professional

The original author of the message can be either the hospital or the specialist. In both cases the specialist will be defined later.

Scenario 1: Author = Hospital:

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHII number of the hospital. The id will be the nihii number of the hospital.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71000139</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</author>
```

Scenario 2: Author = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

INSS will hold the INSS of the specialist.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0"></id>
    <id S="INSS" SV="1.0">90042631547</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</author>
```

3. Validity and completeness

The transaction admission must be complete and its medical content must have been validated.

Representation:

```
<iscomplete>true</iscomplete>
<isvalidated>true</isvalidated>
```

4. Type and date of procedure

The type of the procedure will be defined in the content element. The intervention (= implantation) date will be specified in the "beginmoment" element within the same item.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <cd SV="1.5" S="CD-ITEM">acts</cd>
  <content>
    <text L="EN">implantation</text>
  </content>
  <beginmoment>
    <date>2014-02-14</date>
    <time>00:00:00</time>
  </beginmoment>
</item>
```

5. Specialist

The specialist who executed the procedure.

Example:

```
<item>
  <id SV="1.0" S="ID-KMEHR">3</id>
  <cd SV="1.5" S="CD-ITEM">contacthcparty</cd>
  <content>
    <hcparty>
      <id S="ID-HCPARTY" SV="1.0"></id>
      <id S="INSS" SV="1.0">90042631547</id>
      <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
    </hcparty>
  </content>
</item>
```

6. Item - Implants (many possible, at least 1 required)

The implants that are placed with the procedure. Each of the implants will be enriched with additional data from SADMI. These are the characteristics for each implant:

- The implant notification code (SADMI-NOTIFICATIONCODE)
- The Unique Device identifier in 2 parts (EU) (EUDAMED-UDI-DI and EUDAMED-UDI-PI)
- The product reference (SADMI-PRODUCTREFERENCE)
- The technical key in RCT for the implant which uniquely identifies a single, specific implant in an implantation (RCT-TECHNICALID)
- The name of the implant (content > text)
- The notification number of the implantation notification in which the implant was implanted
- The name of the manufacturer (hccparty of type "manufacturer" > name)
- The country of the address of the manufacturer in the form of an ISO-code
- The name of the distributor (hccparty of type "distributor" > name)
- The full address of the distributor
- The current state of the implant (lifecycle > text)
 - "active" = state "PUBLISHED"
 - "inactive" = state "DELETED" or "ARCHIVED"
- Number of explanted implants (quantity > decimal)
- Location in body (site > text)
- The classification code of the implant with description in three languages (EN, NL, FR)
- The publication date of the implant (= start date of the first "PUBLISHED" state)
- The URL for the site with additional info about the implant

Example:

```

<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="ID-KMEHR">5</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-NOTIFICATIONCODE">000001694629</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-PRODUCTREFERENCE">FJ748T</id>
  </content>
  <content>
    <text L="EN">ABC CERVICAL PLATE, 4 HOLE, 20 mm</text>
  </content>
  <content>
    <id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201402190130441</id>
  </content>
  <author>
    <hccparty>
      <cd S="LOCAL" SV="1.0" DN="Actor role in SADMI system" SL="SADMI-ROLE">manufacturer</cd>
      <name>aesculap ag</name>
      <address>
        <cd S="CD-ADDRESS" SV="1.0">work</cd>
        <country>
          <cd S="CD-COUNTRY" SV="1.0">de</cd>
        </country>
        <zip></zip>
        <city></city>
        <street></street>
        <houenumber></houenumber>
      </address>
    </hccparty>
  </author>
</item>

```

```

<id S="LOCAL" SV="1.0" SL="SADMI-DISTRIBUTORNOTIFICATIONNUMBER">BECA01105697</id>
<cd S="LOCAL" SV="1.0" SL="SADMI-ROLE" DN="Actor role in SADMI system" L="en">distributor</cd>
<name>AMD Medical Devices</name>
<address>
  <cd S="CD-ADDRESS" SV="1.0">work</cd>
  <country>
    <cd S="CD-COUNTRY" SV="1.0">de</cd>
  </country>
  <zip>1234</zip>
  <city>Berlin</city>
  <street>Hauptstrasse</street>
  <houenumber>66</houenumber>
  <postboxnumber>02</postboxnumber>
</address>
</hparty>
</author>
<lifecycle>
  <cd S="CD-LIFECYCLE" SV="1.0">active</cd>
</lifecycle>
<quantity>
  <decimal>1</decimal>
</quantity>
<site>
  <text L="EN">Femur sinister</text>
</site>
<local>
  <id SV="1.0" S="ID-KMEHR">6</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="EN">G.03.01.02</cd>
  <content>
    <text L="EN">Urogenital system/Stents for ureter/Synthetic/Without coating.</text>
  </content>
</local>
<local>
  <id SV="1.0" S="ID-KMEHR">7</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="NL">G.03.01.02</cd>
  <content>
    <text L="NL">Urogenitale systeem/Stents voor ureter/Synthetische/Zonder coating.</text>
  </content>
</local>
<local>
  <id SV="1.0" S="ID-KMEHR">8</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="FR">G.03.01.02</cd>
  <content>
    <text L="FR">Système uro-génital/Stents pour uretère/Synthétique/Sans coating.</text>
  </content>
</local>
<local>
  <id SV="1.0" S="ID-KMEHR">9</id>
  <cd SV="1.0" S="LOCAL" SL="SADMI " DN="" L="EN">publicationdate</cd>
  <content>
    <date>2014-01-12</date>
  </content>
</local>
<lnk MEDIATYPE="text/html" TYPE="multimedia" URL="http://www.aesculap.de"/>
</item>

```


4.5.3 Example of a complete message

```

<?xml version="1.0" encoding="UTF-8"?>
<kmehrmessage xmlns="http://www.ehealth.fgov.be/standards/kmehr/schema/v1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.ehealth.fgov.be/standards/kmehr/schema/v1 ../20131001-
kmehr/ehealth-kmehr/XSD/kmehr_elements-1_7.xsd">
<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id SV="1.0" S="ID-KMEHR">71000139.86111516507.20140219154625</id>
  <date>2014-02-19</date>
  <time>15:46:25</time>
  <sender>
    <hparty>
      <id S="ID-HCPARTY" SV="1.0">71000139</id>
      <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
    </hparty>
  </sender>
  <recipient>
    <hparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hparty>
  </recipient>
</header>
<folder>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <patient>
    <id SV="1.0" S="ID-PATIENT">86111516507</id>
    <firstname></firstname>
    <familyname></familyname>
    <sex>
      <cd SV="1.0" S="CD-SEX">unknown</cd>
    </sex>
  </patient>
  <transaction>
    <id SV="1.0" S="ID-KMEHR">1</id>
    <cd SV="1.5" S="CD-TRANSACTION">intervention</cd>
    <date>2014-02-10</date>
    <time>00:00:00</time>
    <author>
      <hparty>
        <id S="ID-HCPARTY" SV="1.0">71000139</id>
        <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
      </hparty>
    </author>
    <iscomplete>true</iscomplete>
    <isvalidated>true</isvalidated>
    <item>
      <id SV="1.0" S="ID-KMEHR">3</id>
      <cd SV="1.5" S="CD-ITEM">acts</cd>
      <content>
        <text L="EN">implantation</text>
      </content>
    </item>
  </transaction>
</folder>

```

```

<beginmoment>
  <date>2014-02-10</date>
  <time>00:00:00</time>
</beginmoment>
</item>
<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.5" S="CD-ITEM">contacthparty</cd>
  <content>
    <hparty>
      <id SV="1.0" S="ID-HCPARTY"/>
      <id S="INSS" SV="1.0">90042631547</id>
      <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
    </hparty>
  </content>
</item>
<item>
  <id SV="1.0" S="ID-KMEHR">4</id>
  <cd SV="1.1" S="CD-ITEM-REG">intervention-device</cd>
  <content>
    <id SV="1.0" S="ID-KMEHR">5</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-NOTIFICATIONCODE">000001694629</id>
    <id SV="1.0" S="LOCAL" SL="SADMI-PRODUCTREFERENCE">FJ748T</id>
    <id SV="1.0" S="LOCAL" SL="RCT-TECHNICALID">84sdfss-sd42-6516-e152-
2ze12re24z212e</id>
  </content>
  <content>
    <text L="EN">ABC CERVICAL PLATE, 4 HOLE, 20 mm</text>
  </content>
  <content>
    <id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201402190130441</id>
  </content>
  <author>
    <hparty>
      <cd S="LOCAL" SV="1.0" DN="Actor role in SADMI system" SL="SADMI-
ROLE">manufacturer</cd>
      <name>aesculap ag</name>
      <address>
        <cd S="CD-ADDRESS" SV="1.0">work</cd>
        <country>
          <cd S="CD-COUNTRY" SV="1.0">de</cd>
        </country>
        <zip></zip>
        <city></city>
        <street></street>
        <houzenumber></houzenumber>
      </address>
    </hparty>
  </hparty>
  <id S="LOCAL" SV="1.0" SL="SADMI-DISTRIBUTORNOTIFICATIONNUMBER">
BECA01105697</id>
  <cd S="LOCAL" SV="1.0" SL="SADMI-ROLE" DN="Actor role in SADMI system"
L="en">distributor</cd>
  <name>AMD Medical Devices</name>
  <address>
    <cd S="CD-ADDRESS" SV="1.0">work</cd>
  </address>

```

```

        <country>
          <cd S="CD-COUNTRY" SV="1.0">de</cd>
        </country>
        <zip>1234</zip>
        <city>Berlin</city>
        <street>Hauptstrasse</street>
        <housenumber>66</housenumber>
        <postboxnumber>02</postboxnumber>
      </address>
    </hcparty>
  </author>
  <lifecycle>
    <cd S="CD-LIFECYCLE" SV="1.0">active</cd>
  </lifecycle>
  <quantity>
    <decimal>1</decimal>
  </quantity>
  <site>
    <text L="EN">Femur sinister</text>
  </site>
  <local>
    <id SV="1.0" S="ID-KMEHR">6</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="EN">G.03.01.02</cd>
    <content>
      <text L="EN">Urogenital system/Stents for ureter/Synthetic/Without
coating.</text>
    </content>
  </local>
  <local>
    <id SV="1.0" S="ID-KMEHR">7</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="NL">G.03.01.02</cd>
    <content>
      <text L="NL">Urogenitale systeem/Stents voor ureter/Synthetische/Zonder
coating.</text>
    </content>
  </local>
  <local>
    <id SV="1.0" S="ID-KMEHR">8</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI-CLASSIFICATION" DN="" L="FR">G.03.01.02</cd>
    <content>
      <text L="FR">Système uro-génital/Stents pour uretère/Synthétique/Sans
coating.</text>
    </content>
  </local>
  <local>
    <id SV="1.0" S="ID-KMEHR">9</id>
    <cd SV="1.0" S="LOCAL" SL="SADMI" DN="" L="EN">publicationdate</cd>
    <content>
      <date>2014-01-12</date>
    </content>
  </local>
  <lnk MEDIATYPE="text/html" TYPE="multimedia" URL="http://www.aesculap.de"/>
</item>
</transaction>
</folder>
</kmehrmessage>

```

4.6 RetrieveImplantCard

The RetrieveImplantCard operation allows healthcare actors to retrieve an implant card for a specific notification that is stored in the system.

This chapter only describes the body of the XML messages in the response of a call to the RetrieveImplantCard Web Service.

Remark: For the responses of the RetrieveImplantCard, the message will be returned as if it was received from the original sender. When one consults the register one will see the contents of the notification that was originally sent to the register (recipient = rct).

4.6.1 HEADER

This paragraph describes the mandatory header of a kmehrmesssage. For each message, this header reports the Kmehr specification version, a unique identifier, the date and time of creation, the sender and the recipient.

1. Kmehr specification version: CD-STANDARD

The version used is **20131001**

Representation:

```
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
```

2. Unique identifier: ID-KMEHR

The retrieveImplantCard KMEHR message in the response will contain an ID-NOTIFICATION element. This is the number of the notification as known in the registry, which is used as a unique identifier within the application. The format of the notificationnumber = YYYYMMDDSSSSCC where:

- YYYYMMDD is the day of creation of the notification record (in case of an admin it will be the first final save (not the temporary save))
- SSSSS is the sequence for that day (max of 99999 entries/day)
- CC is a check digit = $97 - \text{mod}97(\text{YYYYMMDDSSSS})$ a valid example = 201308260012373 (being the 123rd notification saved on 26/08/2013).

Example:

```
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
```

3. Date and time of creation: date & time

Example:

```
<date>2011-07-30</date>
<time>00:00:00</time>
```

Remark: The timestamp in the consult will be the timestamp when the response is created not the original timestamp.

4. **Sender:** <hparty> of type CD-HCPARTY in the <sender> block

In the context of the implant registry, the sender of the message is always a hospital or a specialist working in a private practice. Thus, the <hparty> block can exist in 2 variants.

Scenario 1: Sender = Hospital:

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHI number of the hospital.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71071801</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
```

Scenario 2: Sender = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

ID-HCPARTY will hold the NIHI number of the specialist or INSS will hold the INSS of the specialist.

Example:

```
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">10034055730</id>
    <id S="INSS" SV="1.0">11111199946</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
```

5. **Recipient:** <hparty> of type CD-APPLICATION in the <recipient> block

The recipient of the message is the registry. The name of the registry must be specified in the message.

Representation:

```
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
```

6. HEADER - Complete example sender = Hospital

```

<header>
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
<date>2011-07-30</date>
<time>00:00:00</time>
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71071801</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</sender>
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
</header>

```

7. HEADER - Complete example sender = Specialist

```

<header>
<standard>
  <cd S="CD-STANDARD" SV="1.8">20131001</cd>
</standard>
<id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
<date>2011-07-30</date>
<time>00:00:00</time>
<sender>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">10034055730</id>
    <id S="INSS" SV="1.0">11111199946</id>
    <cd S="CD-HCPARTY" SV="1.4">persphysician</cd>
  </hparty>
</sender>
<recipient>
  <hparty>
    <cd S="CD-HCPARTY" SV="1.0">application</cd>
    <name>CRT</name>
  </hparty>
</recipient>
</header>

```

4.6.2 FOLDER

This paragraph describes the content of the kmehr message.

Only one folder is allowed to be reported for a single patient.

This folder can only have one notification (represented by 1 report transaction)

Representation:

```
<folder>
  <id S="ID-KMEHR" SV="1.0">1</id>
  <patient>      ...      </patient>
  <transaction> ...      </transaction>
</folder>
```

Control:

- A single patient in the folder.
- Exactly 1 transaction in the folder
 - o 1 report: contains all data concerning the explantation

4.6.2.1 **PATIENT**

All patients must have:

1. Patient's identifier

A patient can be a Belgian patient or a foreign patient (provided an INSS).

The correlation between the identifier and the identifier mentioned in the header will be checked.

The Belgian patient identifier is ID-PATIENT that corresponds to his or her 11-digit National Register number (INSS). This number has the following structure:

- the first 6 digits correspond to the date of birth in the format YYMMDD, where YY= # year, MM= # month, DD= # day;
- the next 3 digits correspond to the daily counter of births; this is an even number for women and an odd number for men;
- the last 2 digits correspond to a control number.

Example :

```
<id S="ID-PATIENT" SV="1.0">86111516507</id>
```

2. Last name and first name

The patient's first and last names tags are mandatory in the KMEHR message. These tags will be left empty in this system to system message.

Example:

```
<firstname></firstname>
<familyname></familyname>
```

3. Gender

The sex tag is mandatory in KMEHR and has to be filled-in, but will be ignored. The value "unknown" will be returned in the response, independent of the actual sex of the patient.

Representation:

```
<sex>
  <cd S="CD-SEX" SV="1.0">unknown</cd>
</sex>
```


4. PATIENT – Complete example:

```
<patient>
  <id SV="1.0" S="ID-PATIENT">86111516507</id>
  <firstname></firstname>
  <familyname></familyname>
  <deathdate>
    <date>2014-01-01</date>
  </deathdate>
  <sex>
    <cd SV="1.0" S="CD-SEX">unknown</cd>
  </sex>
</patient>
```

4.6.2.2 TRANSACTION

A transaction is a body of medical information validated by a healthcare professional at a given moment.

The retrievalImplantCard KMEHR message contains 1 transaction :

- exactly one transaction 'report'

Each transaction and items within the transaction must have an ID-KMEHR identifier in ascending order5 (e.g. 1, 2, 3, 4, 5,...).

Representation:

```
<id SV="1.0" S="ID-KMEHR">1</id>
```

4.6.2.2.1 Transaction 'report'

An intervention is represented by the 'report' value of CD-TRANSACTION enumerated in the list CD-TRANSACTIONvalues.

Representation:

```
<cd SV="1.4" S="CD-TRANSACTION">report</cd>
```

1. Transaction date

This timestamp is the date and time of the creation of the transaction.

Example:

```
<date>2011-07-30</date>
<time>00:00:00</time>
```

2. Healthcare professional

The original author of the message can be either the hospital or the specialist. In both cases the specialist will be defined later.

Scenario 1: Author = Hospital:

<hparty>block is marked with the orghospital value of CD-HCPARTY. ID-HCPARTY will hold the NIHII number of the hospital. The id will be the nihii number of the hospital.

Example:

```
<author>
  <hparty>
    <id S="ID-HCPARTY" SV="1.0">71071801</id>
    <cd S="CD-HCPARTY" SV="1.1">orghospital</cd>
  </hparty>
</author>
```

Scenario 2: Author = Specialist

<hparty>block is marked with the persphysician value of CD-HCPARTY.

INSS will hold the INSS of the specialist.

Example:

4.6.3 Example of the complete response

```

<?xml version="1.0" encoding="UTF-8"?>
<kmehrmessage
xmlns="http://www.ehealth.fgov.be/standards/kmehr/schema/v1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.ehealth.fgov.be/standards/kmehr/schema/v1
../20131001-kmehr/ehealth-kmehr/XSD/kmehr_elements-1_7.xsd">
<header>
  <standard>
    <cd SV="1.8" S="CD-STANDARD">20131001</cd>
  </standard>
  <id S="LOCAL" SV="1.0" SL="ID-NOTIFICATION">201308260012373</id>
  <date>2013-09-30</date>
  <time>15:46:25</time>
  <sender>
    <hcparty>
      <id S="ID-HCPARTY" SV="1.0">71099812</id>
      <cd S="CD-HCPARTY" SV="1.0">orghospital</cd>
    </hcparty>
  </sender>
  <recipient>
    <hcparty>
      <cd SV="1.0" S="CD-HCPARTY">application</cd>
      <name>CRT</name>
    </hcparty>
  </recipient>
</header>
<folder>
  <id SV="1.0" S="ID-KMEHR">1</id>
  <patient>
    <id SV="1.0" S="ID-PATIENT">86111516507</id>
    <firstname></firstname>
    <familyname></familyname>
    <sex>
      <cd SV="1.0" S="CD-SEX">unknown</cd>
    </sex>
  </patient>
  <transaction>
    <id SV="1.0" S="ID-KMEHR">2</id>
    <cd SV="1.5" S="CD-TRANSACTION">report</cd>
    <date>2013-09-30</date>
    <time>00:00:00</time>
    <author>
      <hcparty>
        <id SV="1.0" S="INSS">90042631547</id>
        <id S="ID-HCPARTY" SV="1.0"></id>
        <cd SV="1.4" S="CD-HCPARTY">persphysician</cd>
      </hcparty>
    </author>
    <iscomplete>true</iscomplete>
    <isvalidated>true</isvalidated>
    <lnk TYPE="multimedia" MEDIATYPE="application/pdf">
JVBERi0xLjQKJcfsj6IKNSAwIG9iago8PC9MZW5ndGggNiAwIFVrmlsdGVyIC9GbGF0ZURlY29k
ZT4+CnN0cmVhbQp4nHVSTU/DMAy951fkRoKoiFPhJncJhIS4MOU2cZgGG5MoMBhI/Hvc1jaVgEaN
7CTv+eXFB2kArTTdGINNK4y84n8nDiKB675+Yx5vWrko4nwZJSJQzEmWrTCQc/Yu9CdQpggkow08
1las1IW24E0IWT1ohEz0BrWeojftwXgboPLagU0WrVrqBgFzsJEhDddHMhMmJXWvGwcRA6WRkch
  </lnk>
</folder>
</kmehrmessage>

```

