Safer, more efficient care starts with a simple scan

Network: GS1
Password: Healthcare2019
A starter session about GS1 Standards

Introduction to global standards for Identify, Capture and Share

Hans Lunenborg, Industry Manager Healthcare, GS1 Netherlands
Tuesday, 26 March
GS1 Purpose

- GS1 believes in the power of standards to transform the way we work and live.
  - **We create** a common foundation for business by uniquely identifying, accurately capturing and automatically sharing vital information about products, locations and assets
  - **We enable** visibility through the exchange of authentic data
  - **We empower** business to grow and to improve efficiency, safety, security and sustainability

**We are:**

- Neutral and not-for-profit
- User-driven and governed
- Global and local
- Inclusive and collaborative
The Global Language of Business

**GS1 Standards**

**Identify**
GS1 Identification Numbers
Companies, Products, Locations, Logistics, Assets, and Services

**Capture**
GS1 Data Carriers
Barcodes and EPC-enabled RFID

**Share**
GS1 Data Exchange
Master Data, Transactional Data, and Physical Event Data
GS1: global system of standards to ensure visibility

Identify: GS1 Standards for Identification
- GLN Global Location Number
- GTIN Global Trade Item Number
- SSCC Serial Shipping Container Code
- GRAI Global Returnable Asset Identifier
- GIAI Global Individual Asset Identifier
- GSRN Global Service Relation Number

Capture: GS1 Standards for Barcodes & EPC/RIFID
- GS1 Barcodes
  - EAN/UPC
  - GS1-12B
  - ITF-14
  - GS1 DataBar
  - GS1 DataMatrix
  - GS1 QR Code
  - GS1 Composite Barcode
- GS1 EPC/RIFID
  - EPC HF Gen 2
  - EPC UHF Gen 2

Share: GS1 Standards for Data Exchange
- Master Data: Global Data Synchronisation Network (GDSN)
- Transactional Data: eCom (EDI)
- Event Data: EPC Information Services (EPCIS)

Interoperability:
- Item Master Data
- Location Data
- Item/Shipment Tracking
- Traceability
- Product Recall/Withdrawal
- Pedigree
- Purchase Order/Despatch Advice/Invoice
# GS1 identification in Healthcare

<table>
<thead>
<tr>
<th>Item</th>
<th>GTIN</th>
<th>Location</th>
<th>GLN</th>
<th>Relation</th>
<th>GSRN</th>
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<tr>
<td></td>
<td>Global Trade Item Number</td>
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<td>Global Service Relation Number</td>
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<td><strong>Unique numbers</strong></td>
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<td><strong>Worldwide accepted standard</strong></td>
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What is a GTIN?

Global Trade Item Number
- An identification number of the GS1 System, therefore unique and unambiguous

Globally Unique Number
- 8, 12, 13, or 14 Digits
- Identifies Products or Services

A Global Standard
- For Collaborative Commerce
What is a GTIN?

A number that uniquely identifies trade items. GTINs are encountered most frequently at retail point of sale and on inner packs, cases, and pallets of products in a distribution center/warehouse.

8, 12, 13 OR 14-DIGIT NUMERICAL NUMBER

GTIN-12

U.P.C. Company Prefix → Item Reference ← Check Digit
N₁ N₂ N₃ N₄ N₅ N₆ N₇ N₈ N₉ N₁₀ N₁₁ N₁₂

GTIN-14

Indicator Digit GTIN Company Prefix → Item Reference ← Check Digit
N₁ N₂ N₃ N₄ N₅ N₆ N₇ N₈ N₉ N₁₀ N₁₁ N₁₂ N₁₃ N₁₄
What is a Global Location Number (GLN)

- A GS1 System standard for collaborative commerce
- Always a unique 13-digit number that identifies:
  - Legal entities
  - Functional entities
  - Physical locations
- May also be encoded within a barcode for specific business applications and placed on shipping labels
  - “Ship to – Deliver to” locations
  - “Bill to – Invoice to” locations
  - “Purchased from” locations
  - Shelf locations
What is a Global Location Number (GLN)

Used to identify physical and functional locations as well as legal entities. GLNs are used to identify parties to business transactions; functional groups within a company; or real, physical “places” that might ship, receive, process, or hold inventories.

13-DIGIT NUMERICAL NUMBER

<table>
<thead>
<tr>
<th>GS1 Company Prefix</th>
<th>Item Reference</th>
<th>Check Digit</th>
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<td>N₁₃</td>
</tr>
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</table>

The Global Language of Business
What type of barcode?
Lack of standards
Internationally agreed:

EAN13 if you only need an article number:

GS1 128 if there is enough space available:

Preference for the GS1 DataMatrix:
Unique device Identification (UDI)

Barcode: **GS1-128**

Barcode: **GS1 DataMatrix**

| 1 | Product Identifier (GTIN) |
| 2 | Expiration Date            |
| 3 | Batch/Lot Number           |
| 4 | Serial Number              |
Healthcare challenges, changing landscape

- Aging population
- New high-cost advanced medical treatments
- Intense performance scrutiny
- Increasing patient empowerment
Why is it important to Identify, Capture and Share?

1. Right Product
2. Right route
3. Right dose
4. Right time
5. Right Patient
Why is it important to Identify, Capture and Share?
GDSN – Global Data Synchronisation Network

Exchanging product data

Amanda deLaroque, Project manager Healthcare, GS1 Netherlands

26-03-2019
GDSN: the standard for product data exchange

Global Data Synchronisation Network
Healthcare in The Nederlands: ADC en LIR

Agreed Document on Coding (ADC)

Under the supervision of the Ministry of Health, Welfare and Sport (VWS), the healthcare branch organizations (Nefemed, FHI, FME, NFU, NVZ and ZKN) signed the Agreed Document on Coding of Medical Devices (ADC) unambiguously.

Agreements have been made about barcodes and Data Source Healthcare (GDSN).

Deadline: July 1st, 2018

Dutch Implant Registry (LIR)

- Deadline January 1st, 2019
- Based on UDI and GDSN according to the ADC
- Inclusion list of implants according to the ADC
- Impacts hospitals as well as clinics.
The Netherlands Dutch Implant Registry (LIR)

Healthcare information building blocks

Scan UDI:
4. Unique article code
6. Batch / Lot number of the implant
7. Serial number of the implant

Surgery:
1. Indication of the Healthcare Provider
8. Date of implantation
9. Date explanation of the implant
10. Date of death of the client

GS1 Data Source Healthcare
2. Product classification of the implant
3. Manufacturer name
5. Product name of the implant

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Status Dutch Healthcare market

Focusing on Class III medical devices:

- 35 hospitals connected to GDSN (42%)
- 5 private clinics connected to GDSN
- 45 local suppliers connected to GDSN
- Every week talks with manufactures, wholesalers, distributors **world-wide** (where most of the data comes from for NL)
  - Ca. 70% already connected to GDSN
A glimpse at what product data is being exchanged...

- **GTIN**
- Unique **description**
- Use by-date on packaging
- **Version** or **model**
- Production date
- Expiry date
- Kit or combination
- **Amount** per box
- Contact data
- Dimensions and weight
- Packaging type
- **Order units** (by box/by product)
- Brand name
- Barcode type

- Packaged **sterile** (or sterilise before use with directions)
- Additional identification (UNSPC, RVG/RVH)
- **MRI safe?**
- For single use?
- Does it contain **latex**
- Does it contain **human substances**
- Indication direct identification marks
- Storage instructions (temperature, humidity, air pressure, etc.)
- User instructions
- **GMDN code**
- By prescription or OTC?
- Clinical dimensions
- Contents
The Dutch Healthcare data model (ECHO model) provides an overview of all attributes being used in healthcare, including for the Dutch Implant Registry.
What can you expect from GS1?

- We **support** healthcare providers in setting up GDSN implementation projects
  - This includes the use of our web interface as a starter tool.

- We **assist** manufacturers in the implementation of GDSN
  - Including entering article data via the web interface.

- We facilitate the exchange of **contact information** nationally and internationally among parties

- We **manage** and **maintain** the Dutch (ECHO) data set

*Visits, webinars, calls, mails....we are there for the whole market!*
A MO approach
79 hospitals
400 private clinics
Regulation and agreements drive implementation

**Medical devices**
- National ‘Agreement on Coding Medical Devices’ (ADC) – July 1\(^{st}\), 2018
- National Implant Registry (LIR) – January 1\(^{st}\), 2019
- EU Medical Device Regulation (MDR) – May 26\(^{th}\), 2020

**Minister of Health Mr. Bruins:** we need the support of the largest SDO on barcodes in the implementation of these agreements and regulations

**Pharmaceuticals**
- Falsified Medicines Directive (FMD): From 9 Feb 2019 all prescribed drugs must have a DataMatrix with GTIN and serial number.
How does GS1 Netherlands help the healthcare professional?

- Share best practices and experience
Knowledge Group Traceability in Healthcare

- Share and discuss implementation issues
- Looking for solutions/agreements
- Updates on relevant developments
- For:
  - Hospital staff
  - Manufacturers and wholesalers
  - Consultancy
  - Software vendors

© GS1 Nederland
Tools
Online implementation plan

Stappenplan voor zorginstellingen

Met dit stappenplan implementeert u, als kliniek of ziekenhuis, GS1-standaarden in twee fases. Hierbij voldoet u aan wet- en regelgeving (LIR, ADC, MDR).

In de derde fase leest u over meer toevoegingen met bijzondere voordelen.
HP Implementation map

- Hospital name
- Implementation use case, fe:
  - traceability of medical devices in OR
  - Bedside scanning of pharmaceuticals
- IT systems
- Regularly updates
- To learn from each other
Non-scan feedback form

Barcode not scannable? Let us know!
Cooperation with professional organisations

- National Association of OR Nurses
- National Association of Purchasers
- National Association of Plastic Surgeons and the Dutch Breast Implant Registry
- National Organisation of Arthroplastic Surgeons and the Dutch Arthroplastic Registry
- Dutch Institute for Clinical Auditing DICA
- Hospital and clinics associations (NVZ, NFU, ZKN)
- Ministry of Health
An example

- Dutch Breast Implant Registry
- After PIP affaire
- Looking for flawless registration by GS1-standards
- Part of International Collaboration of Breast Registry Activities - ICOBRA
Implementation Status (79 hospitals – 144 locations)
For the future:

- Continue what we are doing in hospitals and clinics
- Ehealth
- Work with Ministry of Health on Sustainable Information Exchange and medication safety
- Intensify connection to other standards like HL7 and IHE, SNOMED etc
- Cure and Care
Cooperation among Standardisation Development Organisations (SDO’s)
IHE Pharmacy, HL7, GS1, NICTIZ

- IHE Profile for Uniform barcode Processing (UBP)
Registration of implants
Scanning at point of care of pharmaceuticals
GS1 and IHE are strengthening their cooperation efforts

03 December 2018

For a couple of years already several GS1 MO’s and GS1 Healthcare have been involved in projects that are related to another standardisation organisation operating in Healthcare: Integrating the Healthcare Enterprise ‘IHE’.

IHE promotes the coordinated use of established standards such as DICOM, HL7 and GS1 to address specific clinical needs in support of optimal patient care. Systems developed in accordance with IHE communicate with one another better, are easier to implement, and enable care providers to use information more effectively.

Please check the explanatory video what is IHE? https://www.youtube.com/watch?v=CzSB5KoOoUw&feature=youtu.be

Since this summer GS1 and IHE have consolidated their cooperation by becoming member of each other’s organisation on a global level. What does this mean for the member organisations, you might think? It means that each of you can now be involved in IHE teams in your own country and become an influential member in order to work together on better patient care.

More information on IHE: https://www.ihe.net/

Please contact Christian Hay or Esther Peelen for more information on how to become involved.

Opportunity for future plans and developments
Questions
Opening Plenary Session – The challenge of providing the best care for every patient

35th Global GS1 Healthcare Conference
Noordwijk-Amsterdam, the Netherlands
Tuesday, 26 March
Welcome to the Conference

35th Global GS1 Healthcare Conference
Noordwijk - Amsterdam, The Netherlands

Ulrike Kreysa, Senior Vice President GS1 Healthcare
March 26, 2019
Welcome to the Conference

35th Global GS1 Healthcare Conference
Noordwijk - Amsterdam, The Netherlands

Ulrike Kreysa, Senior Vice President GS1 Healthcare
March 26, 2019
Anti-Trust Caution

• GS1 operates under the GS1 anti-trust caution. Strict compliance with anti-trust laws is and always has been the policy of GS1.

• The best way to avoid problems is to remember that the purpose of the group is to enhance the ability of all industry members to compete more efficiently.

• This means:
  - There shall be no discussion of prices, allocation of customers, or products, boycotts, refusals to deal, or market share
  - If any participant believes the group is drifting toward impermissible discussion, the topic shall be tabled until the opinion of counsel can be obtained.

• The full anti-trust caution is available via the link below, if you would like to read it in its entirety: http://www.gs1.org/gs1-anti-trust-caution
From a long history in Medicine...

Blood cells (1658)

Micro-organisms (1670)

Virus (1898)

... to one of the best healthcare systems

Global Access to Healthcare Index (Score out of 10)

1. Netherlands 9.1
2. France 9.0
3. Germany 9.0
4. Australia 8.8
5. United Kingdom 8.8
6. Canada 8.6
7. Cuba 8.5
8. Italy 8.4
9. Japan 8.4
10. Spain 8.3
11. United States 8.3

Source: The Economist

EHCI 2017 total scores

1. Netherlands 924
2. Switzerland 898
3. Denmark 864
4. Norway 850
5. Luxembourg 850
6. Finland 846
7. Germany 836
8. Belgium 832
9. Iceland 830
10. France 825
11. Austria 819
12. Sweden 807
13. Slovakia 749
14. Portugal 747
15. United Kingdom 735
16. Slovenia 726
17. Czech Republic 726
18. Spain 695
19. Estonia 691
20. Serbia 673
21. Italy 673
22. FYR Macedonia 649
23. Malta 642
24. Ireland 630
25. Montenegro 623
26. Croatia 620
27. Albania 596
28. Latvia 587
29. Poland 584
30. Hungary 584

The Global Language of Business
GS1 Healthcare: an expanding, committed community of globally engaged stakeholders...

...and there are many more companies working with GS1 at a local level
...working together with GS1 Member Organisation (MO) User Groups in 40 countries

...and with many more MOs engaged in healthcare
...as well as with leading hospitals and government agencies to implement GS1
GS1 Healthcare Leadership Team 2018/2019

**Tri-Chairs:**
Scott Mooney, McKesson  
Feargal Mc Groarty, St. James’s Hospital  
Mark Hoyle, Teleflex

**LT Members:**
- Charity Hovey, 3M
- Cyndi Poetker, Abbott
- Jeff Denton, Amerisourcebergen
- Volker Zeinar, B. Braun
- Stefan Artlich, Bayer
- Dennis Black, BD
- Patrick Main, Cook Medical
- Kevin Downs, University Hospitals of Derby and Burton NHS Foundation Trust
- Mike Meakin, DHL
- Sébastien Langlois-Berthelot, F. Hoffmann-La Roche
- Karen Conway, GHX
- Grant Courtney, GSK

- Jean-Michel Descoutures, IHF
- Gerry Collins, Johnson & Johnson
- Jackie Elkin, Medtronic
- Pascal Aulagnet, Pfizer
- Grant Hodgkins, Smith & Nephew
- Dr. Hajo Reissmann, University Medical Center Schleswig-Holstein
- Catherine Koetz, GS1 Australia
- Marcelo Oliviera, GS1 Brazil
- Arthur Smith, GS1 Canada
- Valérie Marchand, GS1 France
- Hans Lunenborg, GS1 Netherlands
- Rami Habbal, GS1 UAE
- Glen Hodgson, GS1 UK
- Siobhan O’Bara, GS1 US
Thank you to our sponsors & exhibitors
Your conference at a glance

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<th>Wednesday, 27 March</th>
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<td>Healthcare providers</td>
<td>Unique Device</td>
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<td>Conference closing</td>
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<td><strong>Parallel work streams</strong></td>
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<td><strong>Site visits</strong></td>
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<td><strong>Poster reception</strong></td>
<td><strong>Networking event</strong></td>
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<td><strong>Think Tank</strong></td>
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Opening of the Plenary

35th Global GS1 Healthcare Conference
Noordwijk - Amsterdam, The Netherlands

Kathy Wengel, Chair of the Board of GS1 Global
Executive Vice President, Chief Global Supply Chain Officer, Johnson & Johnson
March 26, 2019
GS1 – The Global Language of Business

GS1 is a global standards organisation

- Neutral and not-for-profit
- User-driven and governed
- Global and local
- Inclusive and collaborative
Safer, more efficient care starts with a simple scan

- 112 local GS1 Organisations
- 1.5 million companies use GS1 standards
- > 100 million products carry GS1 barcodes
- 6 billion GS1 barcodes are scanned every day
Our conferences and community – to learn, share best practices, ask questions, network...

- More than **415 participants** from **49 countries** from all over the world
- **4 plenaries & 12 parallel streams**
- **76 expert speakers**
- **5 hospital and 1 manufacturer site visits**
Safer, more efficient care starts with a simple scan

GS1 is key to improving patient safety, fighting falsified medicines, and increasing visibility and efficiency in the supply chain.

The world is heading towards a **globally standardised approach in healthcare** which will be less complex and costly.
Regulatory Roadmap on traceability of medicinal products

1. Analysis of the local healthcare market and definition of the regulatory objectives:
   - patient safety and/or
   - payment monitoring and/or
   - supply chain efficiency

2. Choice of the relevant traceability model
   Eg. Track and Trace; Point of Dispense verification system

3. Definition of the product scope

4. Definition of the timeframe

5. Definition of the implementation approach & collaboration between regulators and industry

6. Define data carriers (barcodes), identification and data exchange using GS1 Global standards
A new standard for investigational products
New GS1 Healthcare barcode survey app

- New version available by end of March
- Enhanced function to help support UDI implementation
- Download from your favorite store:
- Questions? => ask Tania Snioch (tania.snioch@gs1.org)
Listen, Discuss, Enjoy!
Welcome to the conference!

Safer, more efficient care starts with a simple scan
Opening remarks and welcome to the conference

35th Global GS1 Healthcare Conference
Noordwijk-Amsterdam, the Netherlands

Pieter Maarleveld, CEO, GS1 Netherlands
Tuesday, 26 March
Welcome to Noordwijk!
Programme
Activities

Site visits

Special thanks to:
- Amsterdam UMC – (VU and AMC)
- TEVA
- EmdaMed

Partner programme

- Rijksmuseum
- Keukenhof

Networking dinner

Strandplaats Nederzandt
Networking dinner

- From 7:30 PM – 0:00 AM
- Buses leave every 5 minutes from 6:30 PM at the square in front of the hotel
- First bus goes back at 10 PM, the last bus leaves around 0:15 AM.
Opening remarks and welcome to the conference
35th Global GS1 Healthcare Conference
Noordwijk-Amsterdam, the Netherlands

Dr. Lies van Gennip, CEO, NICTIZ, the Netherlands
Tuesday, 26 March
Connecting healthcare in the Netherlands

Dr. Lies van Gennip
CEO/Chair Nictiz

Global GS1 Healthcare Conference,
March 26th 2019

Nictiz
Better health through better information
Dutch health system
Transformation towards Health in networks
The changing role of the patient
2.

De patiënt zit steeds meer zelf aan de knoppen.

Shortage of manpower
Connecting information between professionals and patients

Nictiz
Better health through better information
Centre of expertise for eHealth

- Information standards and terminology
- Monitoring (a.o. annual eHealth monitor)
- Support in implementation (how to)

Since 2002
The Hague
50 employees
Patient data in digital format (self-assessment)

- Italy
- Nordic countries
- Netherlands
- Spain
- UK
- Switzerland
- Germany

Annual European eHealth Survey, HIMSS Analytics, Q3 2018
Challenges

Top challenges worldwide

1. Funding
2. Interoperability
3. Security
4. Personnel
5. EMR implementatie
9. Resistance medical staff
10. Patient empowerment and self management

Top challenges NL

1. Resistance medical staff
2. Interoperability
3. Patient empowerment and self management
4. Mobile health implementation
5. Funding
6. Security
7. Personnel

Source: Annual European eHealth Survey 2018, Q3, HIMSS Analytics
Connecting two worlds

Healthcare Provider

- ORGANIZATION POLICY
  - Decision makers

- CARE PROCESS
  - Caregivers, Patients

- INFORMATION
  - Caregivers, Informatics

- APPLICATION
  - Informatics, IT-staff

- IT-INFRASTRUCTURE
  - IT-Staff

Health Standards

ICT world
... to agree on how to at various levels

Healthcare Provider A

ORGANIZATION POLICY
CARE PROCESS
INFORMATION
APPLICATION
IT-INFRASTRUCTURE

Healthcare Provider B

ORGANIZATION POLICY
CARE PROCESS
INFORMATION
APPLICATION
IT-INFRASTRUCTURE

Policy Adaption
Collaboration
Structure & Semantics
Interfacing
Infrastructure
So many standards to choose from

Healthcare Provider A

Healthstandard Diabetes
ZIB
SNOMED CT
HL7v3
Aorta
Zorgmail

Healthcare Provider B

Healthstandard Diabetes
E-OVERDRACHT
ICD-10
EDIFACT
GS1

IT-INFRASTRUCTURE
APPLICATION
INFORMATION
CARE PROCESS
ORGANIZATION POLICY
# Standards for medication safety

## Prescribe

- **Organisatie**: veilige principes in de medicatieketen
- **Proces**: richtlijnen medicatie op een rij
- **Informatie**: medische informatie
- **Applicatie**: HL7
- **Infrastructuur**: AORTA

## Deliver at farmacy

- **Organisatie**: veilige principes in de medicatieketen
- **Proces**: sectoren bepaalde middelen
- **Informatie**: informatie standardisatie proces
- **Applicatie**: OIM
- **Infrastructuur**: AORTA

## Administer to patient

- **Organisatie**: veilige principes in de medicatieketen
- **Proces**: sectoren bepaalde middelen en richtlijnen
- **Informatie**: informatie standardisatie proces
- **Applicatie**: HL7
- **Infrastructuur**: AORTA

## Use by patient

- **Organisatie**: Med(M)
- **Proces**: medische overname
- **Informatie**: medicatie overname
- **Applicatie**: ECD
- **Infrastructuur**: AORTA

## Wet & Regeling

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<td>wet gebruik EGN in de zorg</td>
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SDO-NL

Cooperation of 7 health standards organisations in the Netherlands

Why: to cooperate and prevent gaps and overlaps

When: started in 2013, extended in 2017
National Health Information Council: Whole system in a room
A personal health environment is a **lifelong** tool to **collect, manage and share** health data, so a person can be in charge of his own health information.
Suppliers of Personal Health Records

Providers of health care or social support

Many-to-many connections limit innovation and availability, give higher costs

MedMij-framework
Minister of Health a Bruno Bruins: More direction is needed

20th December 2018:

We will develop more direction through:

• Legally enforcing standards both leading to technical and semantical interoperability
• Through a step by step approach
The Dutch approach:  
... together
... taking responsibility

- In a highly privatized health care environment
  - Medmij personal health environment
  - National agreements of health care stakeholders
  - Health information Council
  - Legal enforcement of standards
Check out SDO session op today 16.00 tot 17.30

Care to deliberate?:  info@ehealth-monitor.nl
                         info@Nictiz.nl

Download the infographic or the report on
www.ehealth-monitor.nl

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