Value Based Healthcare – VBHC

35th Global GS1 Healthcare Conference, Noordwijk, the Netherlands
March 26th, 2019

Karen Conway, Vice President Healthcare Value, GHX, US. Session chair
Eric Hans Eddes, Gastrointestinal and Oncological Surgeon, General Director Dutch Institute for Clinical Auditing, the Netherlands
Leila McMahon, GS1 Program Manager Smith & Nephew, UK
Hennie Mulder, Registered Operating Room Nurse, Coordinator Quality & Safety, Maxima Medical Centre, the Netherlands
Panel: Value Based Healthcare

Chair: Karen Conway
Global Healthcare Exchange (GHX)

Dr. Eric Hans Eddes, DICA

Leila McMahon, Smith & Nephew

Hennie Mulder, Registered OR Nurse, MMC
Value Based Healthcare - VBHC

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Karen Conway, Chair
Vice President Healthcare Value, GHX, US
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What is Value-based Healthcare?

Definitions Matter

“If you don’t know where you’re going, then any road will take you there.”

-Lewis Carroll, Alice’s Adventures in Wonderland
What is Value-based Healthcare?

“The health outcomes achieved that matter to patients relative to the cost of achieving these outcomes.”

- Michael E. Porter, Harvard Business School

A healthcare system that explicitly prioritizes health outcomes that matter to patients relative to their costs.

-The Economist Advisory Board

Value is defined as the outcomes that patients experience relative to the cost of delivering those outcomes. Value-based Healthcare, or VBHC, is healthcare that delivers the best possible outcomes to patients for the lowest possible cost.

- International Consortium for Health Outcomes Measurement (ICHOM)
Important Questions

• What are the outcomes that matter to patients?
• What factors contribute to achieving/delivering those outcomes?
  - Clinical
  - Social/economic/environmental
• What are the costs associated with those “contributing factors”?
• How can we reduce variation in costs and outcomes and standardise on what works at the system level?
The Healthcare Value Chain Reimagined

Research (Manufacturing, Clinical, Social)
Production (Manufacturing, Technology, Service Industry, etc.)
Healthcare Delivery Organisations, Social Care Organisations
Distribution and Logistics

Contributing Factors

Standardised data, Evidence Generation, Quality Improvement

Create Product or service
Diagnose Need
Source and Acquire
Logistics
Provide and Redesign Care
Pay
Evaluate Outcomes

Primary Activities

Source: Karen Conway research in progress, based on Michael Porter Value Chain Framework
Multiple stakeholders contribute to value-based healthcare

System level change requires aligning incentives to deliver value along the value chain

Standardised and synchronised data is fundamental to:

- Collaboration across disparate functions and organisations
- Evidence generation on what delivers value and to whom
- Research replication and generalization to accelerate learning and adoption
Value to Multiple Stakeholders

- Less paperwork
- Less time looking for, counting supplies

- Visibility to which products improve quality AND cost and for which patients

- Confidence that she has the best product for her and they can find her if there is a recall.

- Real world evidence (RWE) to:
  - Better market and design products
  - Achieve faster regulatory approvals
  - Improved customer business relationships

- Understand costs of care
- Ensure accurate billing
- Optimize reimbursement
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Noordwijk, the Netherlands

Dr. Eric Hans Eddes, Gastrointestinal and Oncological Surgeon,
General Director Dutch Institute for Clinical Auditing, the Netherlands

March 26th, 2019
Dutch Institute for Clinical Auditing

Value Based Healthcare

Eric H Eddes, MD PhD
Director DICA
GastroIntestinal Surgeon Deventer Ziekenhuis
GS1 Clinical Advisory Committee
Value Based Healthcare
Alice in Wonderland’s paradigm

Where should I go – Alice
That depends on where you want to end up – the Cheshire Cat
Value Based Healthcare
Alice in Wonderland paradigm

\[
\text{Value} = \frac{\text{Benefit}}{\text{Cost}}
\]

Best possible outcomes to patients for the lowest possible costs
Value Based Healthcare

Why?
Value Based Healthcare

Why?

Reliable Information

• Quality
• Safety
• Finance
• Patient (customer) satisfaction
DICA; Improved Outcome

significant improvements

Laparoscopic resections

Irradical resections

Serious complications

Postoperative mortality

> 25% RR

> 50% RR

> 50% RR

> 50% RR
DICA; Improved outcome
National Breast Cancer Audity

* Excl. neoadjuvante therapie

Irradical resections

<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate</td>
<td>5.5%</td>
<td>5.0%</td>
<td>4.6%</td>
<td>4.4%</td>
<td>2.9%</td>
</tr>
</tbody>
</table>
DICA: Improved Outcome
Colorectal Cancer Surgery

Percentage bekende CRM rectumcarcinoom gedurende jaren

- **2009**: Mean 48%
- **2010**: Mean 61%
- **2011**: Mean 80%
- **2012**: Mean 90%
Dutch Colorectal Audit
improving potential

Adjusted average costs per patient

Adjusted severe complication rate

Best performing hospitals

Improve potential hospitals

$R^2 = 0.42$
Dutch Institute for Clinical Auditing
(inter)national cost savings

- 20 million euro colorectal cancer
- Equivalent potential in other patient groups
- National potential in savings 10 – 20 %
Value Based Healthcare

Patient’s journey

- Patient flow insights
- Implant registry
- Recalls
- Central sterile services department (CSSD)
- Adverse event reporting
- Post-marketing surveillance
- Vigilance
- Medicine reporting
- Patient flow insights
- Transfer of care
- Outcomes
- Redus
- Standardised mortality rates (SMR)

Outpatient clinic
Admission
Operating room (WHO surgical checklist)
Prescribing
Ward
Discharge
Discharge options
- Home
- Community,
  Ambulatory care,
  Care home, GP
- Mortuary

Inventory/Asset Management
- Medical/surgical consumables
- Medicines
- Medical devices

Manufacturer Item Case Pallet Transport Wholesale Pallet Transport Distributor Pallet Transport Distribution Centre Pallet Transport Case Item Healthcare Provider Patient

QUALITY, IT’S ABOUT YOU

DICA 
MAKE CARE COUNT
Borstimplantaat Silimed direct van de markt

Implantaten van de Braziliaanse fabrikant Silimed mogen per direct niet meer gebruikt worden in Europa. Bij een fabriekskontrole bleek dat er onder meer glynezuideffecten op de borstimplantaten zaten die daar niet thuis horen.
Dutch Melanoma Treatment Registry
clinical audit & new drugs

• Introduction new drugs
• Accelerated availability
• Professionals- Pharma – Health Authorities
• Expansion
Dutch Institute for Clinical Auditing

shared decision making
Dutch Institute for Clinical Auditing

shared decision making
“It is not the strongest of the species that survive, nor the most intelligent, but rather the one most adaptable to change.”

- Charles Darwin
1809 - 1882
Value Based Healthcare – VBHC
MEDICAL DEVICE MANUFACTURER PERSPECTIVE

35th Global GS1 Healthcare Conference, Noordwijk, the Netherlands

Leila McMahon, GS1 Program Manager Smith & Nephew, UK
March 26th, 2019
Smith & Nephew is a diversified advanced medical technology business that supports healthcare professionals in more than 100 countries to improve the quality of life for their patients.

- We have more than 15,000 employees around the world.
- In 2017, we had $4.8bn in revenues.
- We are a constituent of the UK’s FTSE100, with shares traded in London and New York.
What we do...
Company Overview

We support healthcare professionals in their daily efforts to improve the lives of their patients.

We do this by taking a **pioneering approach** to the design of our products and services.

Smith & Nephew has a long history of innovation, dating back to our foundations in the 19th century, and today we support customers to manage and prevent disease states, and enable swifter recovery for their patients.

We strive to **secure wider access** to our advanced technologies for more customers globally.

In emerging markets we have built an entrepreneurial business resourced to reach and support an ever greater number of customers in delivering affordable healthcare.

We seek to **enable better outcomes** for patients and healthcare systems.

We provide high quality products and appropriate training to improve clinical outcomes, enabling healthcare professionals to treat more patients and improving the economic outcome for payers.
Our values

Company Overview

Our values shape everything we do as a business and form the basis of our relationships with all our stakeholders.

**PERFORMANCE**

...means being responsive to the needs of our customers and their patients, setting ourselves clear goals and standards and achieving them.

**INNOVATION**

...means being energetic, creative and passionate about everything we do, anticipating customers' needs and overcoming barriers and developing opportunities.

**TRUST**

...is something we understand that we have to earn and we strive to operate with integrity and take an ethical approach to business.
Healthcare proactive instead of reactive, preventing problems before they start.

Improved quality and outcomes for patients in more cost effective manner.

Improved quality and outcomes for patients in more cost effective manner.

Multiple stakeholders are sources for important accurate data specific to their roles in patients’ lives across the entire ecosystem.

Manufacturers more hands-on, establishing programs and partnerships that demonstrate joint outcome benefits.

What is VBHC?
<table>
<thead>
<tr>
<th>Foundational Pieces for VBHC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Our Customer Use Cases and Why our Master Data Quality and Completeness Matters</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Inventory Management</strong></th>
<th><strong>Purchase to Pay</strong></th>
<th><strong>Product Safety - Recall</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals are looking to modernize their Inventory Management Processes, utilizing UDI scanning and synchronized item master to increase traceability to discrete locations, reduce expiry, stock-out, or excess.</td>
<td>Hospitals and Buying Groups are pursuing the “perfect order”, where products are transacted electronically, based on a product/price catalog that is synchronized across trading partners.</td>
<td>Hospitals and Regulatory Bodies wish to increase Product traceability to aid in fast/efficient product recalls. This is facilitated by capturing the UDI throughout the supply chain and Electronic health record.</td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>Reimbursement/Claims</strong></th>
<th><strong>Tendering/Sourcing/Contracting</strong></th>
<th><strong>Comparative Effectiveness</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals &amp; governmental bodies expect to utilize the UDI as the predominant product identifier to improve traceability and increase cost controls.</td>
<td>Users desire a consistent set of master data which can aid in comparative purchasing decisions.</td>
<td>Clinicians desire a standard product attribute data useful to tracking and comparing patient outcomes.</td>
</tr>
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Foundational Pieces for VBHC
How we started our journey and GS1 benefits.

**Organization & Systems:**
- 3 Divisions → 1 Smith & Nephew
- Multiple ERP systems
- Multiple QMS systems
- Multiple Development & Operations sites

*Resulting in an un-unified approach to master data management and e-commerce*

**UDI – Unique Device Identification:**
- Adopted GS1 as UDI/barcoding standard
- Adopted one system of record for all GUDID data, with roles & workflow. Direct interface to FDA’s GUDID

*Foundation for growing customer demand for barcode scanning and product data synchronization.*
Mandated requirements for:

- GS1 standard product identification and barcodes.
- Product data synchronization through the GDSN network. 61 data attributes,
  - 23 mandatory
  - 27 optional
  - 11 conditional
- PEPPOL compliant EDI, transacting based on GS1 GTINs and GLNs.
  - Purchase Orders
  - Advanced Shipping Notices
  - Invoices
Foundational Pieces for VBHC
Where we are at Now

(1) Institutionalize
- Establishing master data management processes and systems.
- Proceduralizing approach to GS1 standards adoption and maintenance, build them into standard business processes.
- Assessing how solutions will scale.

(2) Engage
- Always seeking to understand the customers’ strategy and objectives.
- Engaging with standards bodies and user communities. i.e. GS1, MedTech. Encourage harmonization and focus.

(3) Deploy
- For a multi-national company, it's important building in-house, local market awareness and points of contact.
- Expect shared discovery & “learn-by-doing” experience.
- Establishing and tracking metrics, and feedback loops. All necessary for proper Analytics capability.
Final Thoughts – Standards & Data Accuracy

Sustainability

Manufacturer Perspective…

UDI Implementation with help of GS1 standards:
GS1 Barcoding Adoption, GTIN assignment and management, GLN assignment and management

Effective MDM processes implementation is critical:
Helps Supply chain management with accurate identification, leading to more effective procurement, tracking and stock surveillance. Wastage can be reduced

Why GDSN is important – More product information will be requested by providers to support analytics component of VBHC

Digitalization in Healthcare Industry is only going to progress faster.

Aligning definition of Value among all stakeholders
How GS1 standards can contribute to safety stops in the OR

35th Global GS1 Healthcare Conference, Noordwijk, the Netherlands

Hennie Mulder, Registered OR Nurse, Maxima Medical Centre, Veldhoven, the Netherlands
March 26th, 2019
Maxima Medical Center and Ministry of Defense: No conflict with any commercial interest
Surgical safety Checklist

The Dutch Inspectorate for Healthcare (IGJ) uses the checklist as instrument for monitoring the safety of surgical processes
Surgical Safety Checklist

Before induction of anaesthesia
(with at least nurse and anaesthetist)

- Has the patient confirmed his/her identity, site, procedure, and consent?
  - Yes
  - No
  - Not applicable

- Is the site marked?
  - Yes
  - No
  - Not applicable

- Is the anaesthesia machine and medication check complete?
  - Yes
  - No
  - Not applicable

- Is the pulse oximeter on the patient and functioning?
  - Yes
  - No
  - Not applicable

- Does the patient have a:
  - Known allergy?
    - No
    - Yes
  - Difficult airway or aspiration risk?
    - No
    - Yes, and equipment/assistance available
  - Risk of >500ml blood loss (7ml/kg in children)?
    - No
    - Yes, and two IVs/central access and fluids planned

Before skin incision
(with nurse, anaesthetist and surgeon)

- Confirm all team members have introduced themselves by name and role.
- Confirm the patient’s name, procedure, and where the incision will be made.

- Has antibiotic prophylaxis been given within the last 60 minutes?
  - Yes
  - No
  - Not applicable

- Anticipated Critical Events

- To Surgeon:
  - What are the critical or non-routine steps?
  - How long will the case take?
  - What is the anticipated blood loss?

- To Anaesthetist:
  - Are there any patient-specific concerns?

- To Nursing Team:
  - Has sterility (including indicator results) been confirmed?
  - Are there equipment issues or any concerns?

- Is essential imaging displayed?
  - Yes
  - No
  - Not applicable

Before patient leaves operating room
(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
- The name of the procedure
- Completion of instrument, sponge and needle counts
- Specimen labelling (read specimen labels aloud, including patient name)
- Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
- What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1/2009 © WHO, 2009
What is a safety stop?

Permission from patient to take and share the picture
Safety stops: seven crucial moments

1. Pre-operative risk management
2. Planning: the patient may be scheduled for surgery
3. Control current situation
4. Pre time out: ready for take off (just before the surgery)?
5. Sign out for leaving operating room
6. Dismissal recovery
7. Dismissal ward
How can GS1 barcodes help in this process?

Scanning the patiënt, safety stop 3B sign in holding
Patient identification: right person?

Permission from patient to take and share the picture
Safety stop 4: Pre time out

Just before surgery questions to the patient:

• Control of patient data
• File available and complete?
• Is known what operation is going to take place: right side and place marked?
• Allergies and comorbidity checked?
Safety stop 5: Sign out

Organisation of patient safety:

• Is the procedure carried out and mentioned in the Electronic Health Record?
• Is the right label placed on the tissue for examination?
• Count gauzes, instruments, needles and disposables used before closing of wound
• Medication instructions and other instructions such as wound care, diet etc registered in EHR by anaesthesiologist

And I would like to add:

• **Are the medical implants used connected to the patient in the EHR?**
Safety stop 6: Dismissal recovery

Identification of patient
&
identification of infusion bag
Conclusion

• When we started with safety stops, we noticed that the number of mistakes was greatly reduced.

• There are a lot of developments and ideas surrounding safety stops, for example: creation of information transfer cards to make the transfer absolutely safe.

• By reducing mistakes, costs also reduce and all the benefits are for the patiënt!
Scanning is easy, BUT...

- GS1
- HIBC
- SEC (ICCBBA)
Examples of issues in practice

Order of data in barcode is not what EHR software expects

→ this implant cannot be registered in the EHR
No barcode at all...
Solution:

**Dutch agreements on unique coding of medical devices.**

Supported by industry, healthcare providers and the ministry of health

In line with EU MDR
National implant registry

Barcode scanning of medical devices
facilitates the work of the OR nurse

&

• Traceability within the hospitals
• Direct uploading in implant registry
• (Global) product traceability
So...
Questions?

Very impressive, dear colleague.

But does it also work in theory?
Q & A : SLIDO

1. Go to slido.com
2. Enter #GS1HCNoordwijk
3. Select the panel VBHC
4. Go to “Questions”
5. Make sure you enter your full name so that if the questions you’ve raised are not selected, the GS1 team can revert to you
6. Post your questions
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Wrap up & Questions & Answers

March 26, 2019
Thank you very much for your attention

March 26th, 2019