The Global Language of Business

Hospital of the future

36th Global GS1 Healthcare Conference, Delhi, India

November 5, 2019

Dr. Eric Hans Eddes, Gastrointestinal and Oncological Surgeon, General Director Dutch Institute for Clinical Auditing, the Netherlands
Alex van der Putten, Head of Procurement and Supply Chain at Radboudumc, Nijmegen, the Netherlands
Peter O'Halloran, CIO, ACT Health, Australia

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Hospital of the future - overview

36th Global GS1 Healthcare Conference, Delhi, India

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

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Presenters: Hospital of the future

Chair: Dr. Eric Hans Eddes

Alex van der Putten

Peter O'Halloran

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The Global Language of Business

Less bricks, more bites, different behaviour

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Alex van der Putten

Head of Procurement and Supply Chain at Radboudumc, Nijmegen, the Netherlands

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Radboudumc

university medical center

VISION RADBOUDUMC

We aim to be pioneers in shaping the health care of the future

GOAL RADBOUDUMC

Our ultimate goal is providing the best and most sustainable care for all patients

HOW

We do this in a person-centered and innovative way

OUT OF STOCK IS
NOT AN OPTION

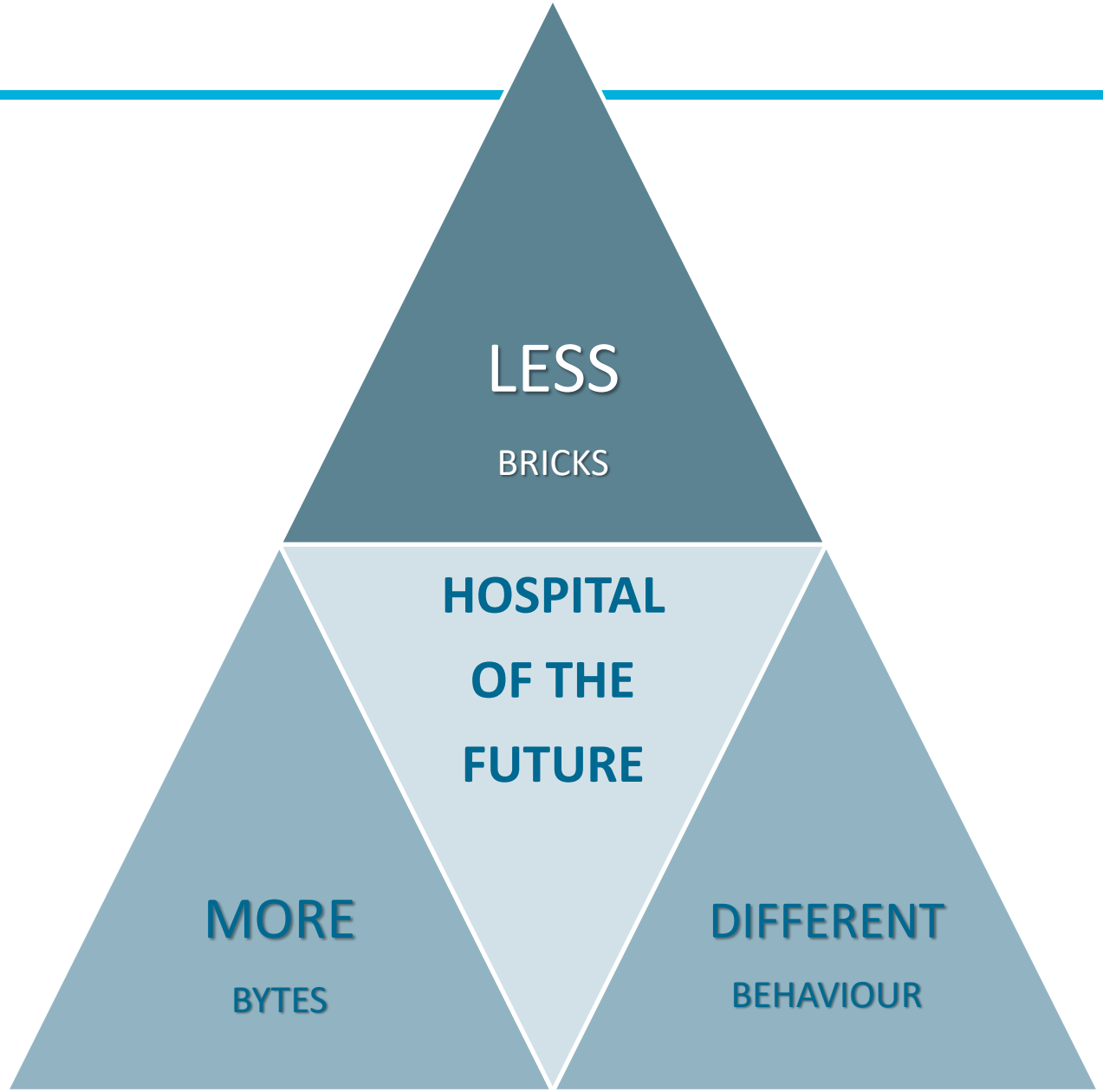
OUR PROBLEM

- Medical supplies were not in control
- Fragmented and manual data management
- Primary systems were not connected

PROJECT OVMA

Optimization through redesign process, Oracle adjustments, EPIC link and GS1 standards

Radboudumc


LESS
BRICKS
HOSPITAL
OF THE
FUTURE
MORE
BYTES
DIFFERENT
BEHAVIOUR

LESS BRICKS

- Hospitals are “shrinking”
- Care close to the patients
- Walls (System & Organisation)

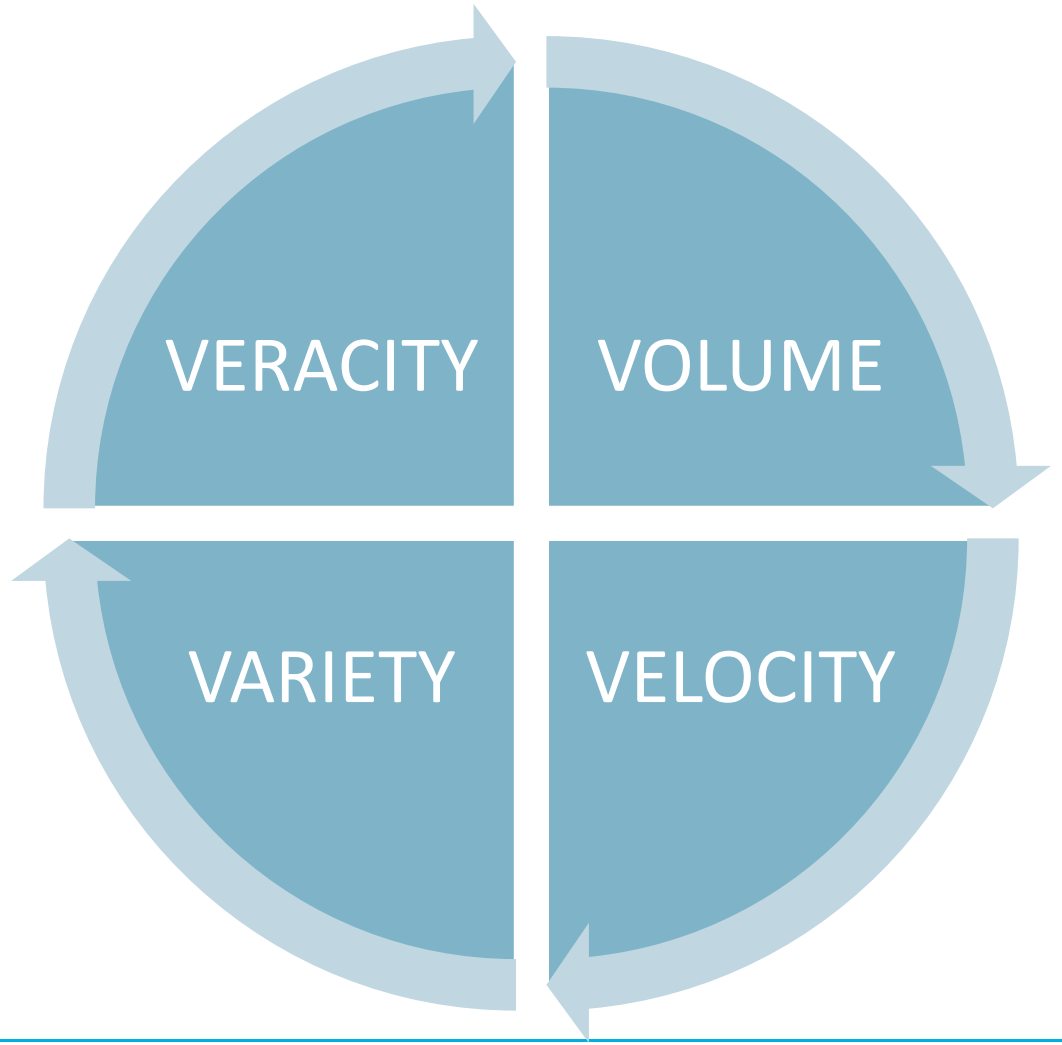
LESS BRICKS

Great urgency to demolish “walls”

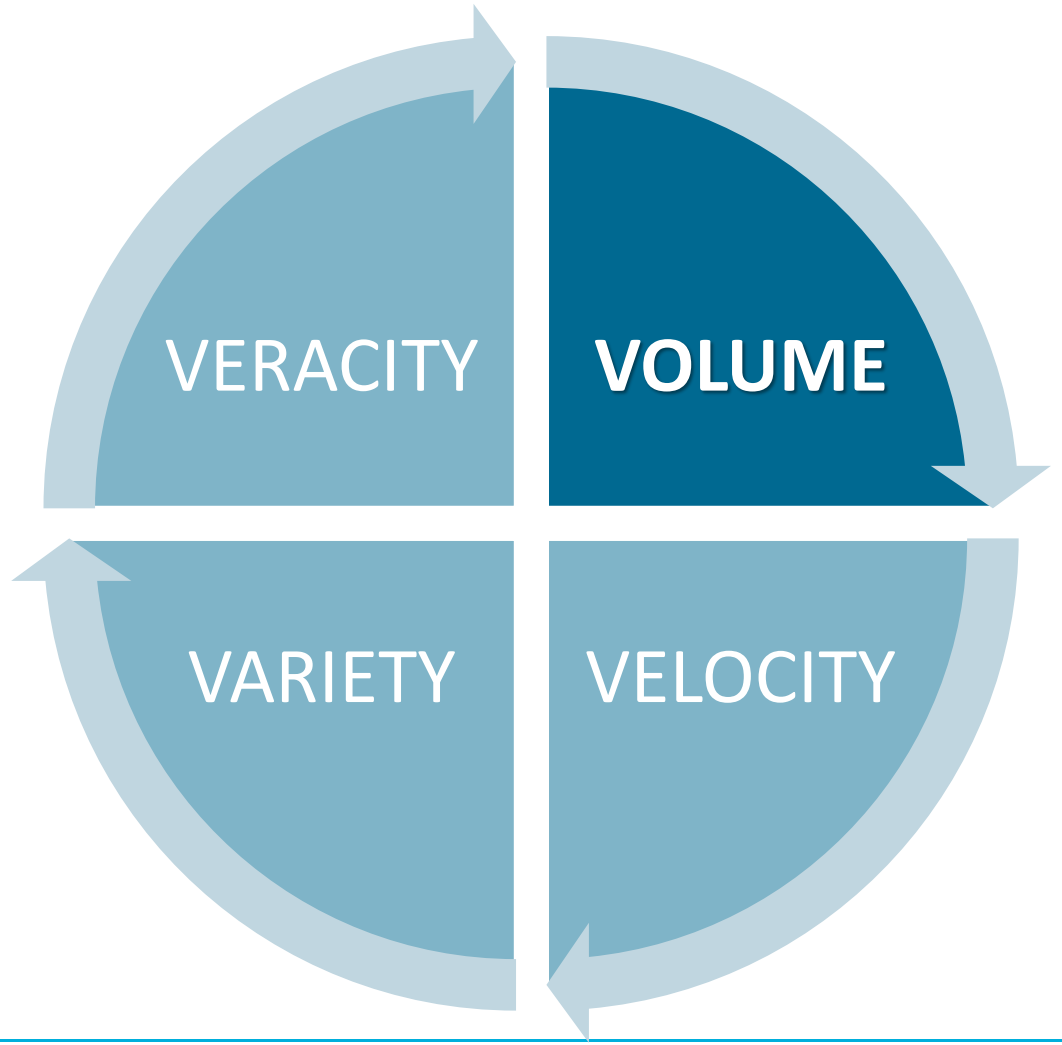
- Transparency in the chain
- One-time correct recording of article data
- Efficient use of stocks

EXPONENTIAL GROWTH

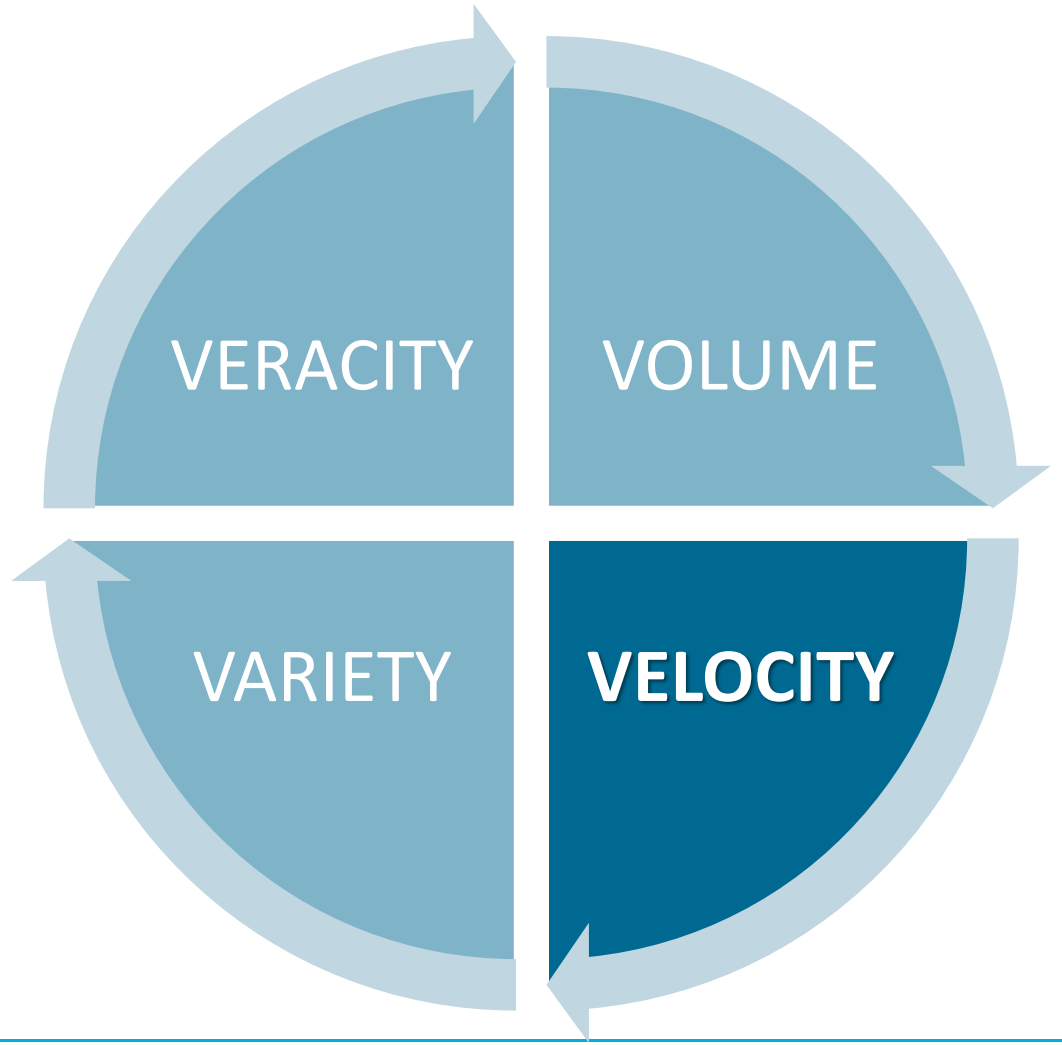
MORE BYTES



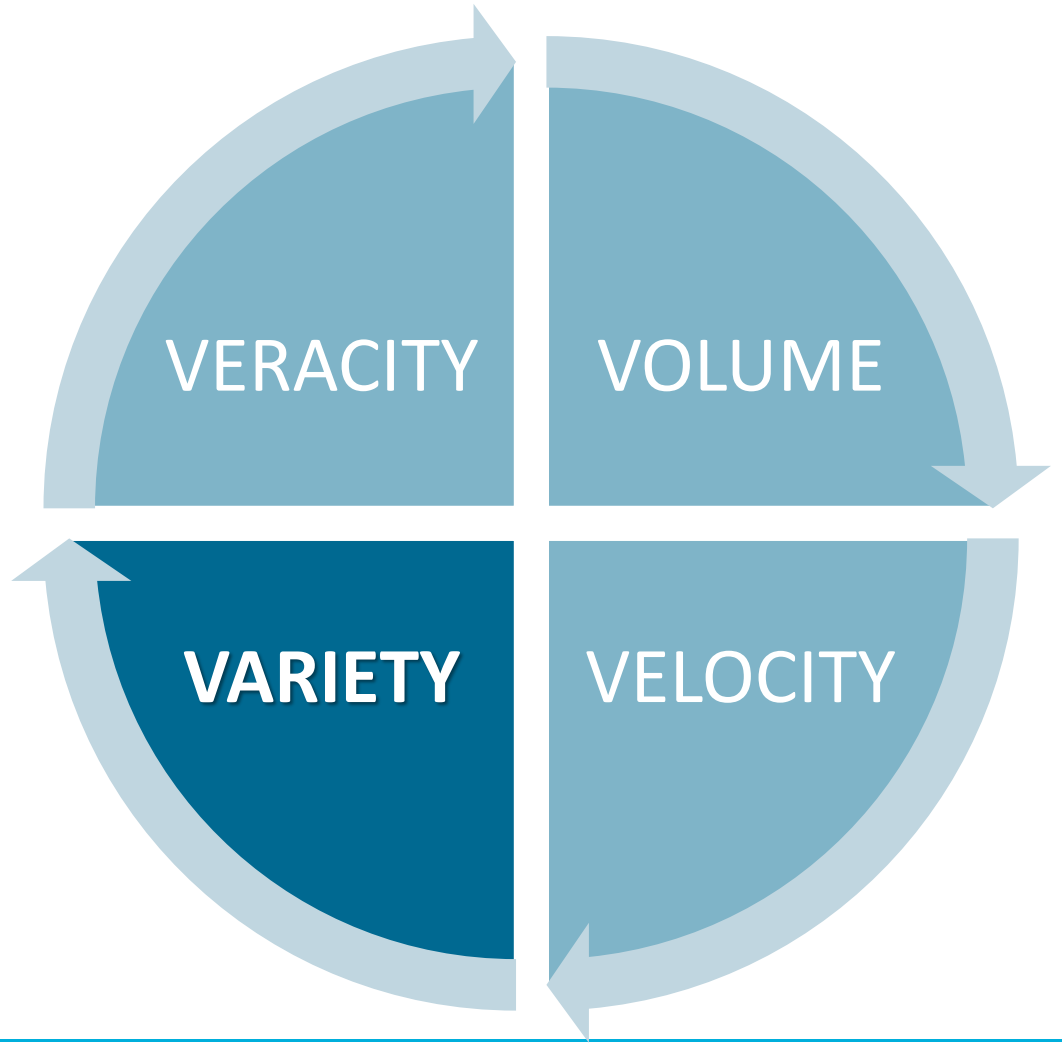
MORE BYTES



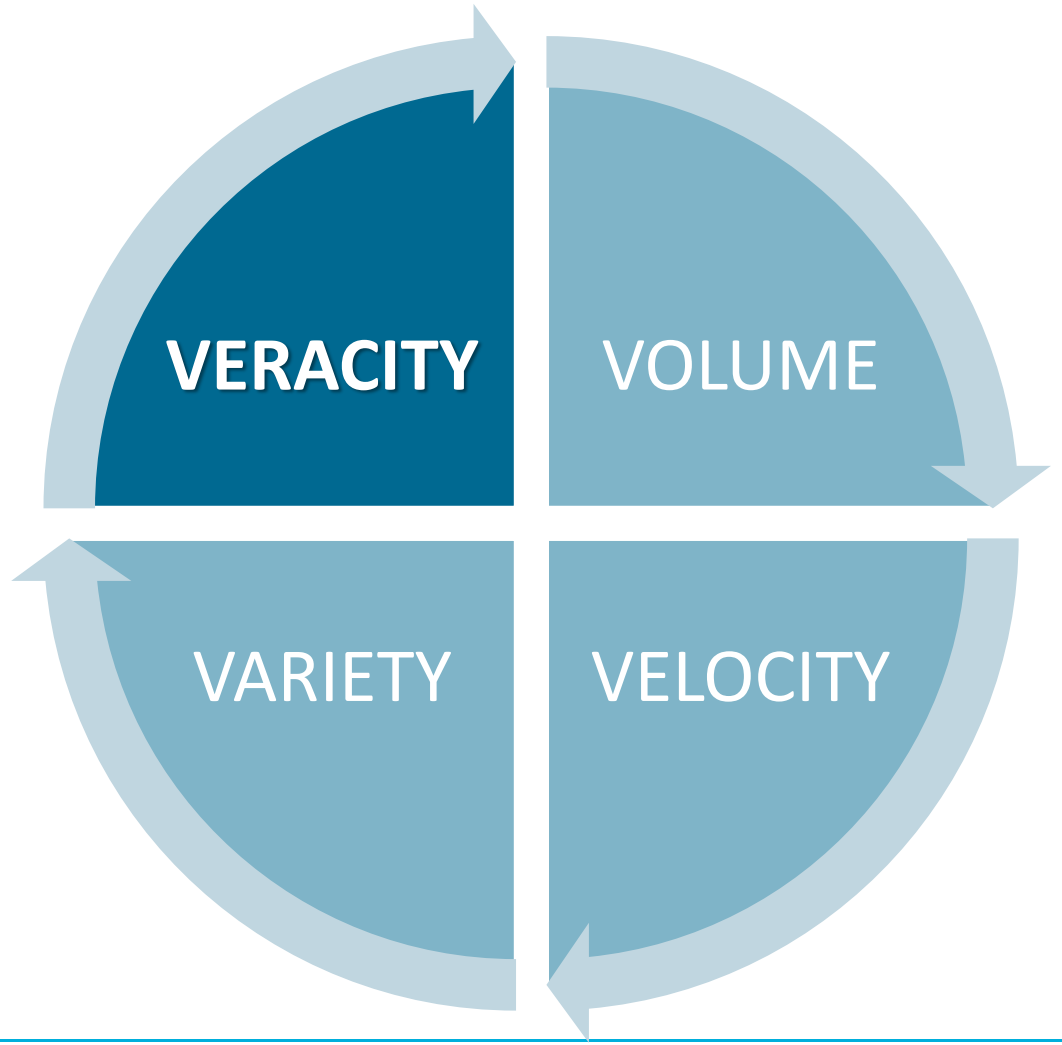
MORE BYTES



MORE BYTES



MORE BYTES



CONNECTIVITY

ROLE GS1

- Use GS1 standard
- Development barcode unraveler
- GDSN Datapool

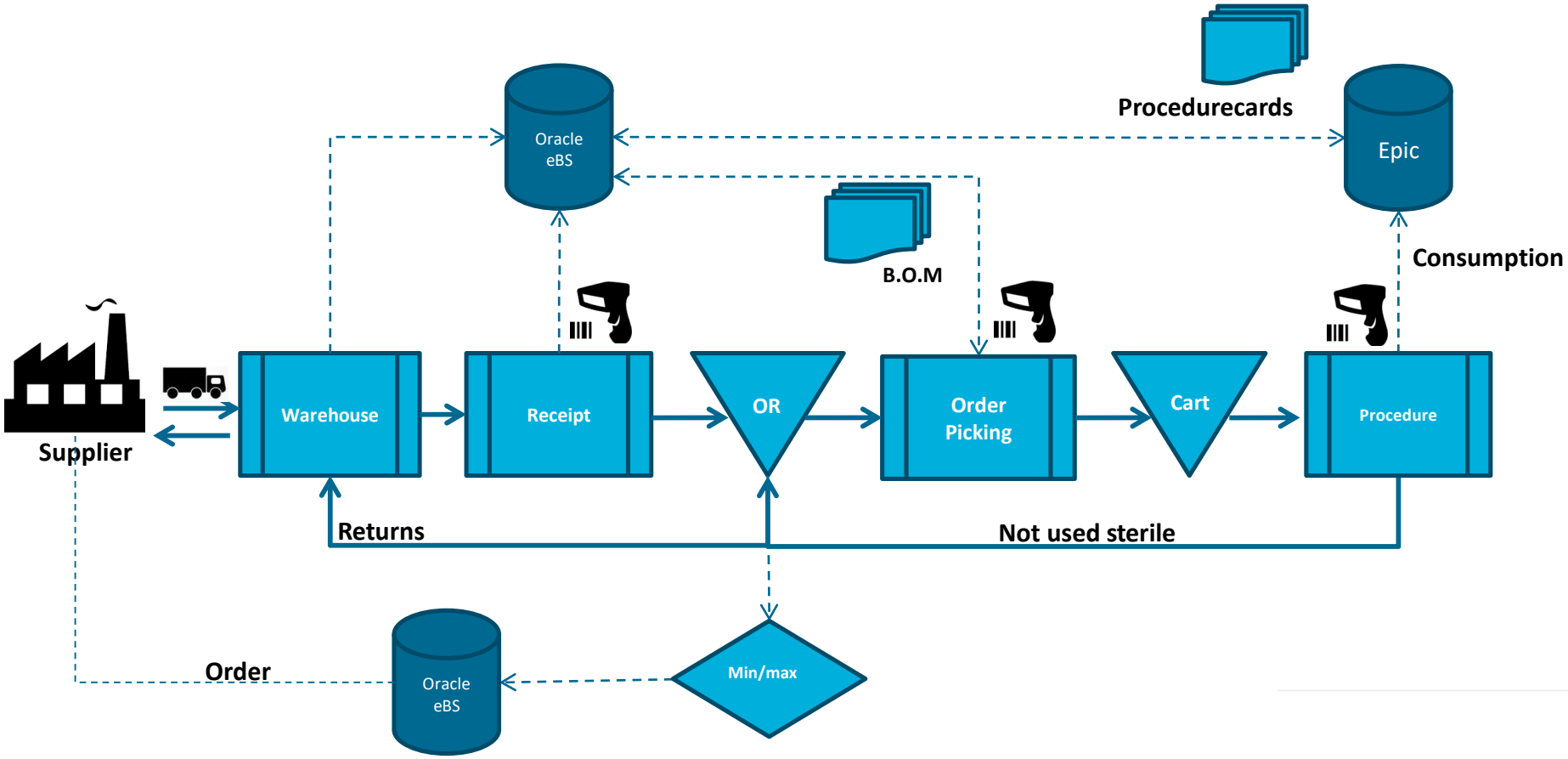
DIFFERENT BEHAVIOUR

- Logistical responsibility in one hand
- Recording of all logistics transactions
- Stock level based on facts instead of emotion

THE CHALLENGES

- 6σ SYNDROME
- NIH SYNDROME
- TBTI SYNDROME

NEW PROCESS


Procedurecards
Oracle eBS
Epic
B.O.M
Consumption
Supplier
Warehouse
Receipt
OR
Order Picking
Cart
Procedure
Returns
Not used sterile
Order
Oracle eBS
Min/max

THE RESULTS

- Greater medical safety
- Cost reduction (efficiency)
- Meet new EU regulations & JCI-criteria
- Solving the current bottleneck on financial inventory control

THE NUMBERS

- Departments : 16
- Stock keeping units: 4.816
- Items: 20.000
- Inventory balance: €5.400.000,-
- Inventory turns: 5
- Inventory accurancy: >99%

IMPACT

NO OUT OF STOCK

Proven trust in secured supplies at the right time

REDUCTION STOCK: >25%

and still counting

SAVING COSTS > €500.000,-

and still counting

DREAMS

OUR DREAMS

Automated access to article data suppliers

OUR DREAMS

Automatic detection instead of manual barcode scanning

OUR DREAMS

Optimization B.O.M. procedure based on analysis of return logistics

STAY FOCUSED

BE PERSISTENT

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Peter O'Halloran

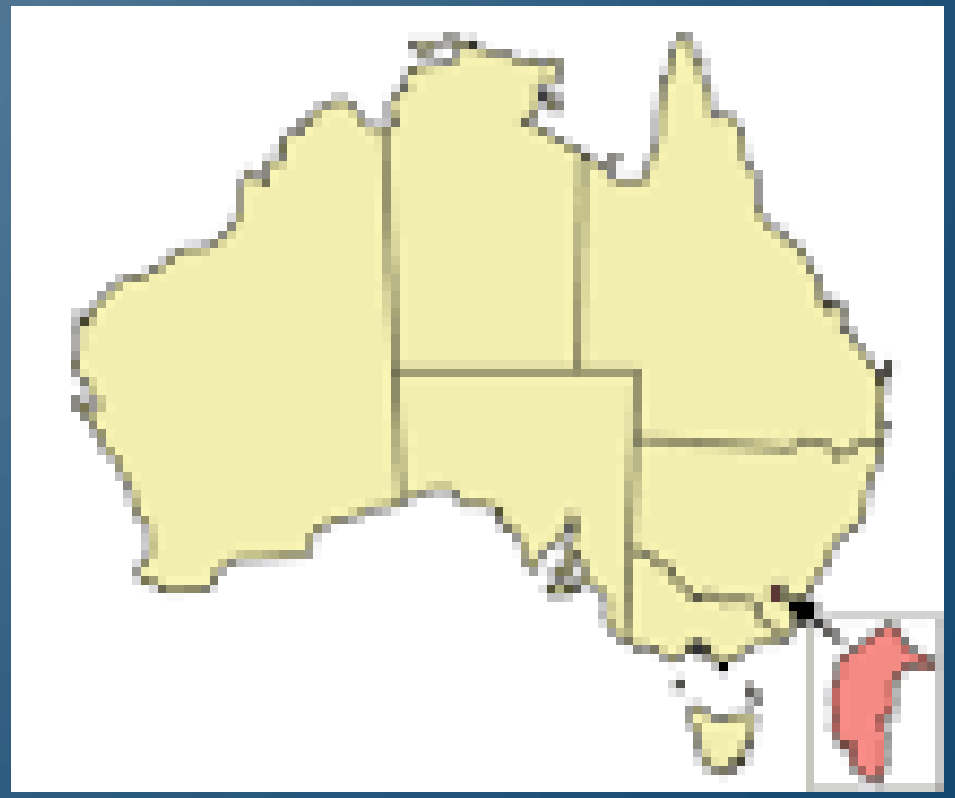
CIO, ACT Health, Australia

November 5, 2019

CASE STUDY ACT HEALTH – HOW GS1 STANDARDS SUPPORT INNOVATION

AUSTRALIA & THE AUSTRALIAN CAPITAL TERRITORY

- Australia is very large and remote 7.692 million km^2
  The ACT is 2,538 km^2
- Australia's population is 25.2 million
  The ACT's ~410,000
- Australia is an island surrounded by water, with coastlines exceeding 34,000km
  The ACT is an island surrounded by New South Wales



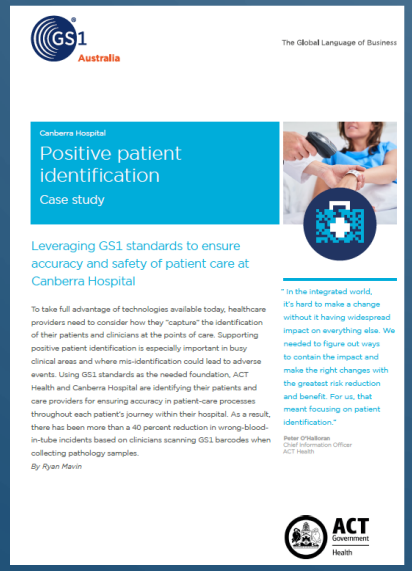
DHULWA

EMERGENCY

WE HAD A PLAN

Based around best of breed approach rather than patients

We achieved some great outcomes despite this approach


GS1 Australia

The Global Language of Business

Canberra Hospital

Positive patient identification

Case study

Leveraging GS1 standards to ensure accuracy and safety of patient care at Canberra Hospital

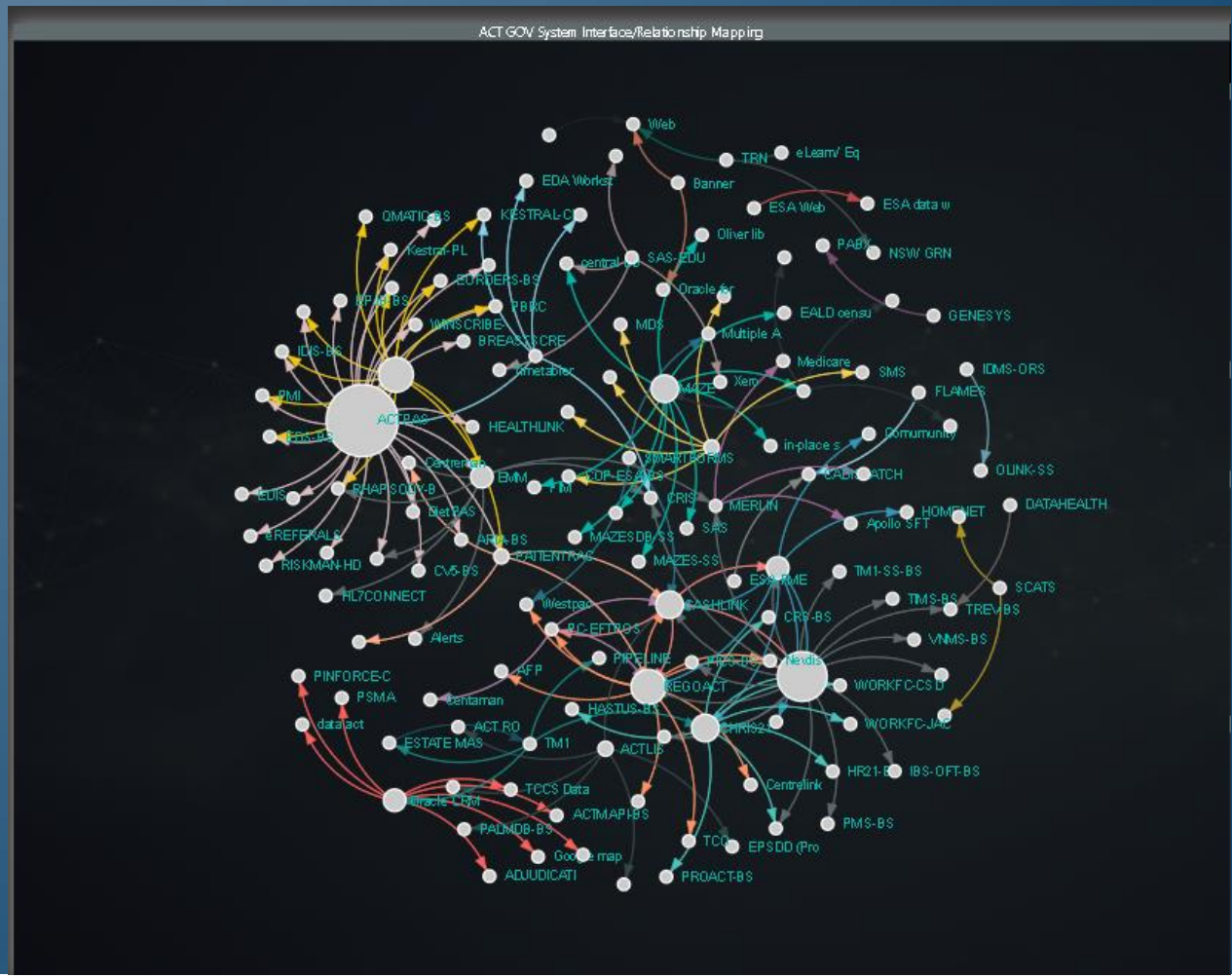
To take full advantage of technologies available today, healthcare providers need to consider how they "capture" the identification of their patients and clinicians at the points of care. Supporting positive patient identification is especially important in busy clinical areas and where mis-identification could lead to adverse events. Using GS1 standards as the needed foundation, ACT Health and Canberra Hospital are identifying their patients and care providers for ensuring accuracy in patient-care processes throughout each patient's journey within their hospital. As a result, there has been more than a 40 percent reduction in wrong-blood-in-tube incidents based on clinicians scanning GS1 barcodes when collecting pathology samples.

By Ryan Mavin

"In the integrated world, it's hard to make a change without it having widespread impact on everything else. We needed to figure out ways to contain the impact and make the right changes with the greatest risk reduction and benefit. For us, that meant focusing on patient identification."

Peter O'Halloran
Chief Information Officer
ACT Health

ACT Government Health



Inclusive – Progressive - Connected

ACT Government | CANBERRA

WE HAVE A **NEW** PLAN

Enabling exemplary person-centred care through digital innovation

Three key themes

- Patient-centred
- Research, discovery and collaboration
- Health services enabled by contemporary technology

THERE WERE FOUR CONSTANTS

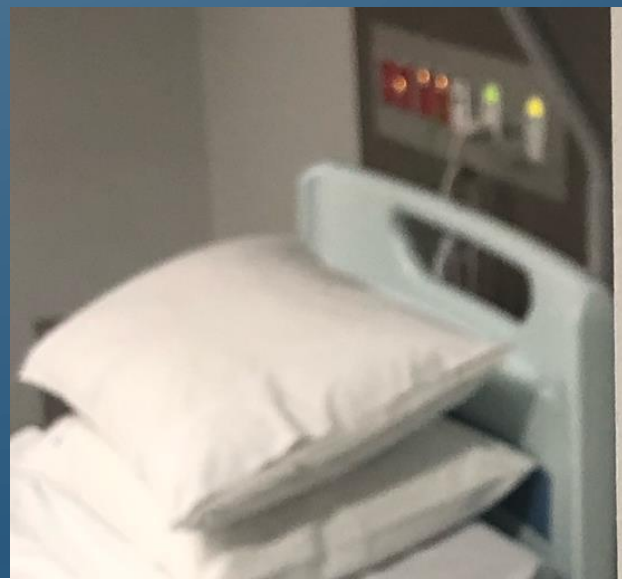
- Improving patient outcomes
- Increasing patient demand
- Never enough money
- GS1 standards and support

WHERE ARE WE ?

- **Implemented**
  - Radiology system
  - Computers on Wheels (COWs)
- **Implementing**
  - Supply Chain System
  - Clinical Work Devices
  - Asset Maintenance System
- **Procuring**
  - Pathology Laboratory Information System (LIS)
  - Digital Health Record (DHR)

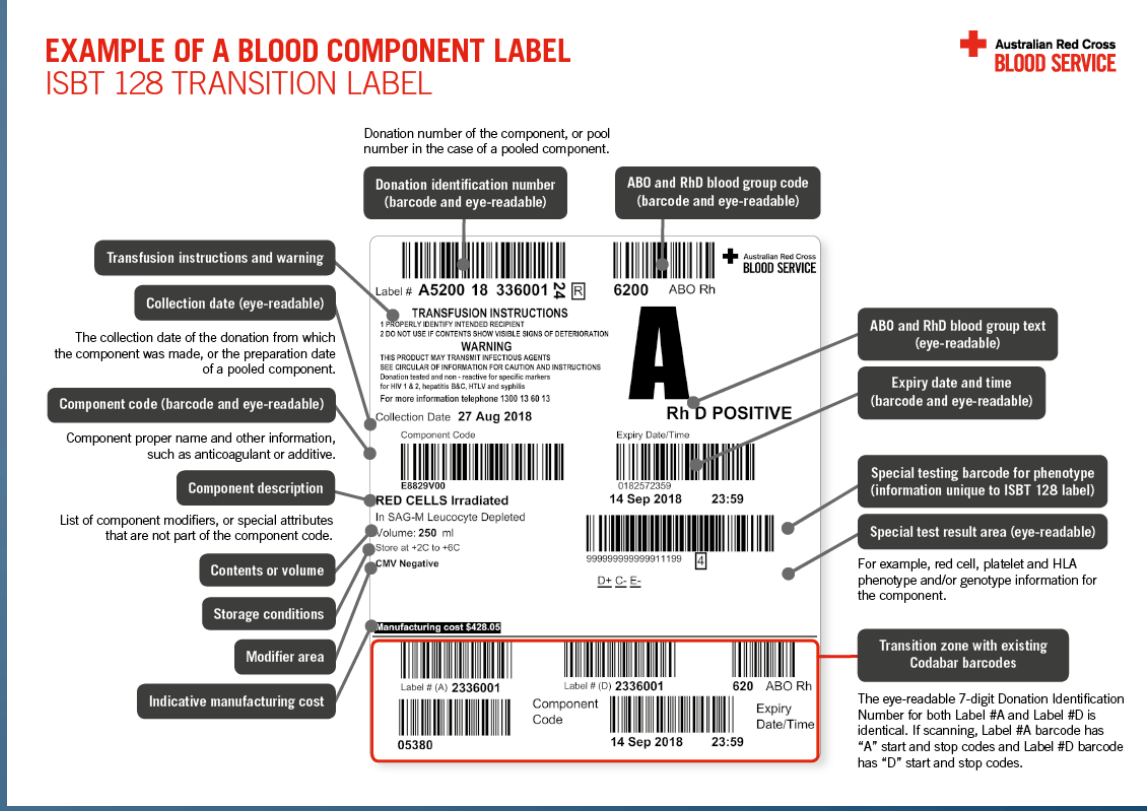
WHO AND WHERE ?

- **Patient ID (GSRN + SRIN)**
  - Wristbands, specimen labels and clinical notes labels
- **Staff ID Cards (GSRN)**
- **Location ID (GLN)**



WHAT?

- **Product ID (Serialised GTIN + ISBT-128)**
- **Asset ID Cards (GSRN)**
- **Document Type ID (GDTI)**



STANDARD ISSUES

- Looooooooooong lead times
- Legacy systems cannot produce barcodes with the correct symbology or contain all data elements
- Products that do not contain GS1 barcodes or non-compliant barcodes
- Exorbitant pricing and/or lead times

STANDARD **NON** ISSUES

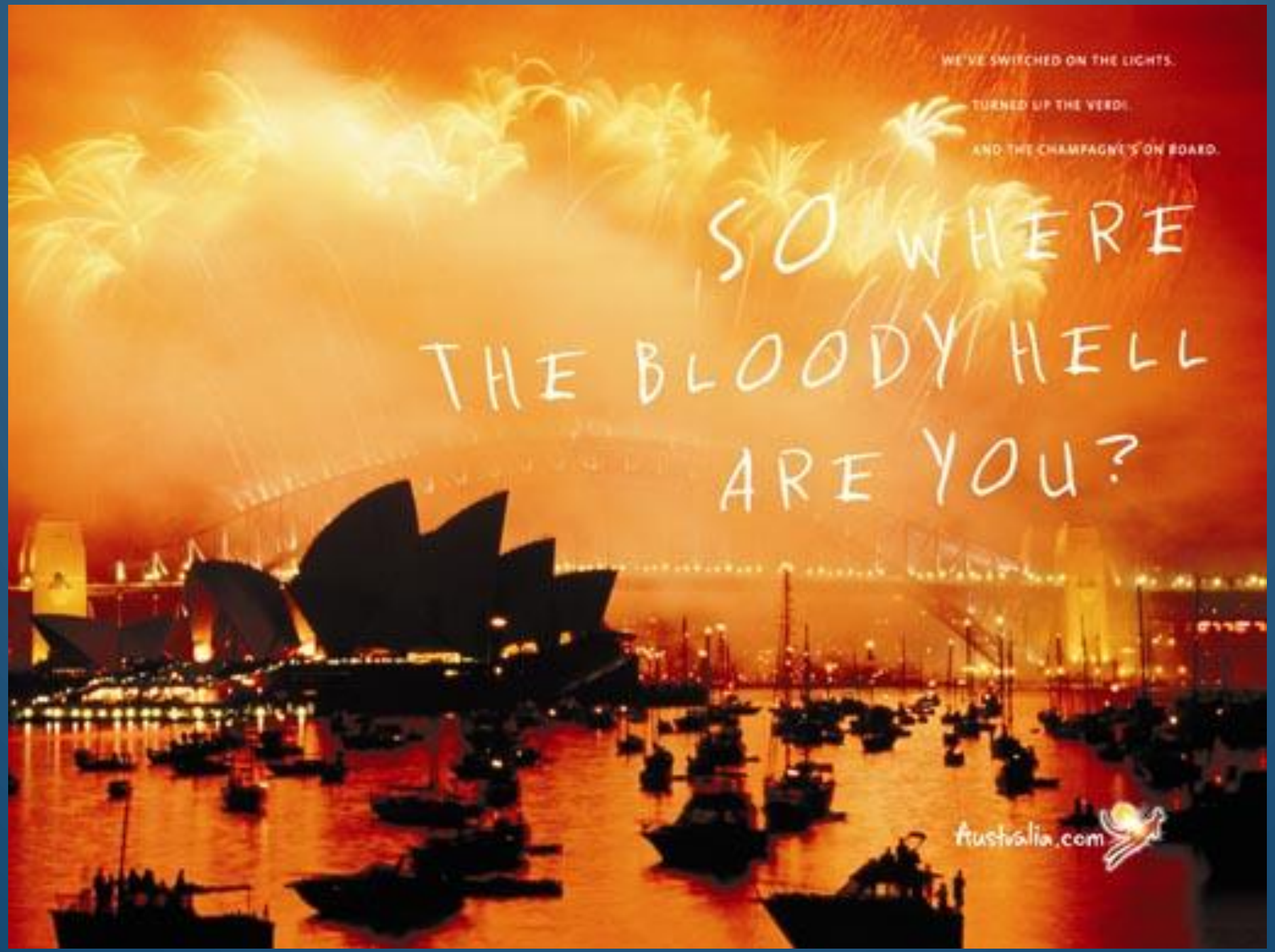
- Barcode scanners
- Staff compliance
- Keeping the benefits
- Patient/carer support
- Costs to maintain
- Changing standards
- Support from GS1

WHERE WILL BE IN 2025?

- Improved patient outcomes
- More human-centred support
- More efficient health services

SUPPORTED BY:

- Full traceability – who, where, what, how, why and when
- Scanning at the point of care (and at other points throughout the supply chain) with automated safety checks before any care activity
- Full episode costing


WE'VE SWITCHED ON THE LIGHTS.
TURNED UP THE VERDI.
AND THE CHAMPAGNE'S ON BOARD.
SO WHERE
THE BLOODY HELL
ARE YOU?
trustralia.com

Peter O'Halloran
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ACT Health

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Hospital of the Future

Dutch Institute for Clinical Auditing

Eric H Eddes, MD PhD
Director DICA
GastroIntestinal Surgeon Deventer
Ziekenhuis

Those were the days

Healthcare system is facing challenges

Rising costs

HC spend outgrows GDP growth in most developed countries

HC spend is about 9-12% of GDP

High or unknown variation in quality

If available, 2-36x[1] variation in health outcomes is observed at all levels (within hospitals, nationally and internationally)

Still lack of transparency & agreement on health outcome measurement for many patient groups

Misaligned incentives

Focus on volume instead of value in most payments systems

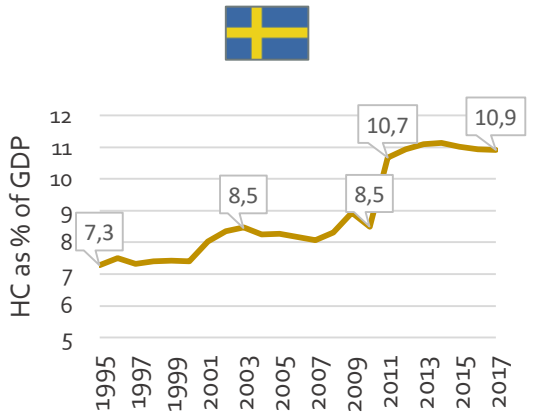
Care traditionally organized by specialties instead of around patient groups

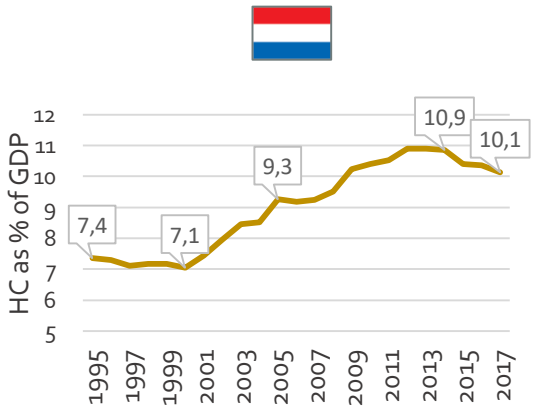
Info overload to patients online

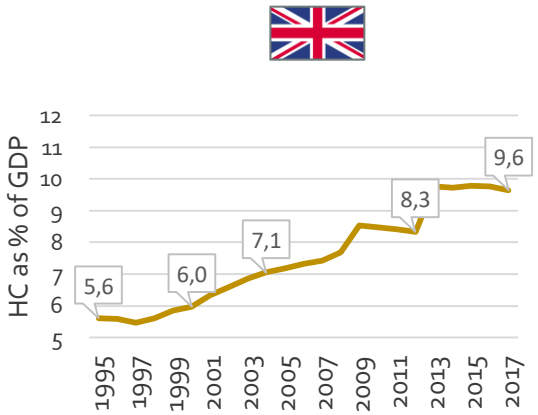
"More and more patients are going to the Internet for medical advice. To keep my practice going, I changed my name to Dr. Google."

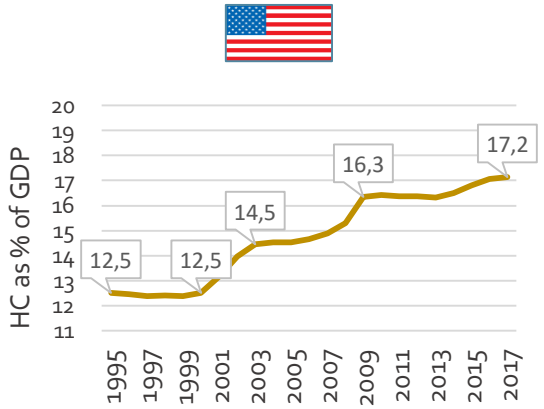
1. Source: ICHOM, Lee PHU, Gawande AA. The number of surgical procedures in an American lifetime in 3 states. J Am Coll Surg 2008;207 Suppl 1:S75-S75

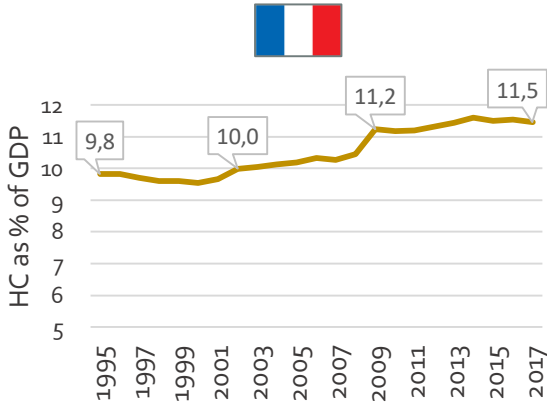
Healthcare costs are rising at unsustainable rates

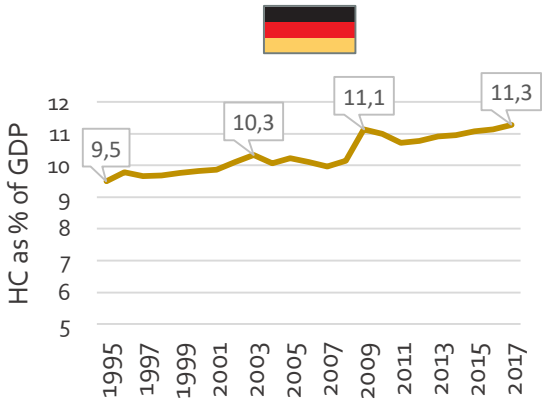












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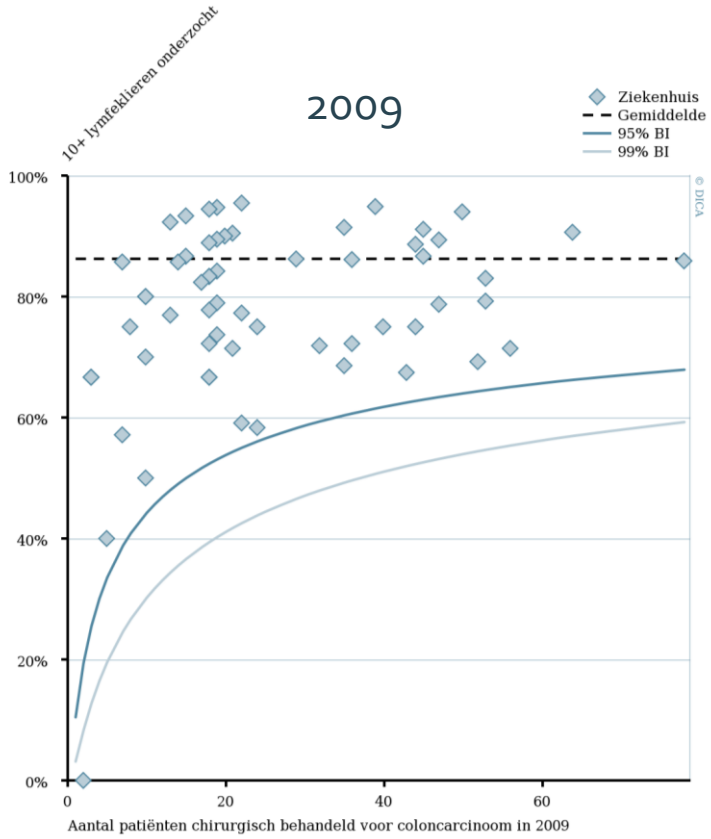
Variation in quality



Percentage of patients with a colorectal resection with more than 10 lymph nodes found and examined by the pathologist

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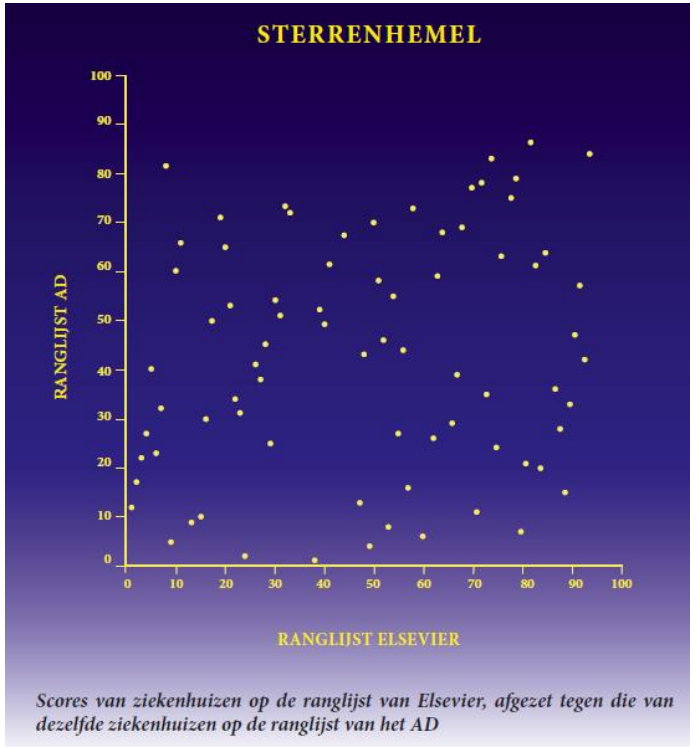
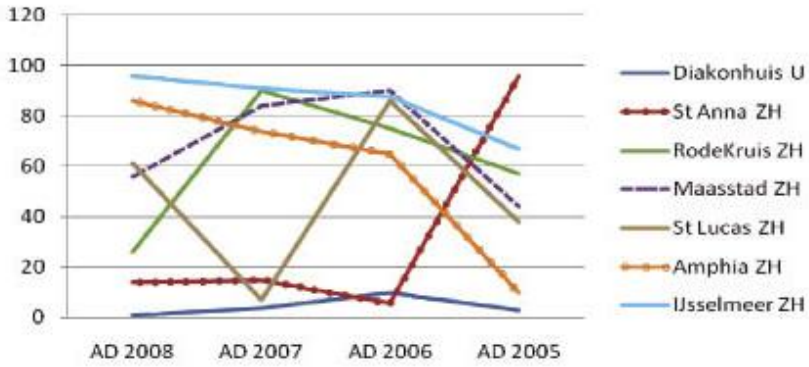
Patients info overload, reliable, useful



Scores van ziekenhuizen op de ranglijst van Elsevier, afgezet tegen die van dezelfde ziekenhuizen op de ranglijst van het AD

AD www.AD.nl Ziekenhuis top100



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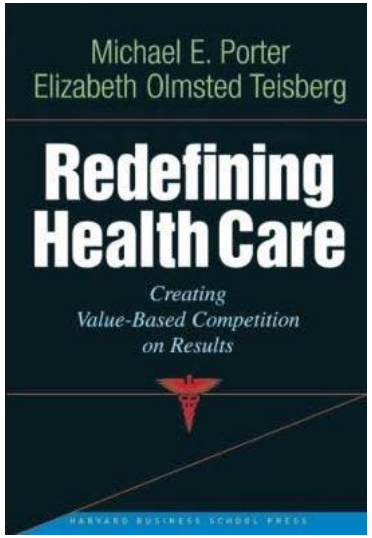
VBHC;
Improving outcomes and costs around a patient group

$$\frac{\textbf{Outcomes} \text{ that matter to patients}}{\textbf{Cost} \text{ around a patient group}} = \textbf{Value} \text{ around patient group}$$



International communities forming to accelerate VBHC

Global standardization of outcomes

Standard Sets for 26 medical conditions (>50% of GBD) have been developed to date

Broad global interest in measuring and comparing outcomes

Pilot program (GLOBE) for global benchmarking initiated for hip and knee osteoarthritis and cataract

ICHOM

OECD gearing up to benchmark outcomes

Launched Patient Reported Indicators Survey (PaRIS) to benchmark outcomes within OECD

Started with 3 international working groups: hip and knee replacements, breast cancer care, and mental health care

OECD
BETTER POLICIES FOR BETTER LIVES

World Economic Forum driving the VBHC topic

Just completed 3-year project "Value in Health" in the World Economic Forum

SteerCo included e.g., CEO of NHS, CEO of Kaiser Permanente, Dutch Minister of Health, CEO Novartis

Several pilots across the globe emerging as a result of the work done

WORLD ECONOMIC FORUM
COMMITTED TO IMPROVING THE STATE OF THE WORLD

Dutch Institute for Clinical Auditing

Providing insight in quality of care with trustworthy comparisons and analytics

Value Based Healthcare

Lead by med. professionals
- Medical specialists
- Professional Boards

Data driven
- Quality & fin. data
- PROMs / PREMs

DUTCH INSTITUTE FOR CLINICAL AUDITING

Robust methodology
- Correction
- Site checks

Nationwide ICT Platform
- Agreements
- Exchange, eg EMR

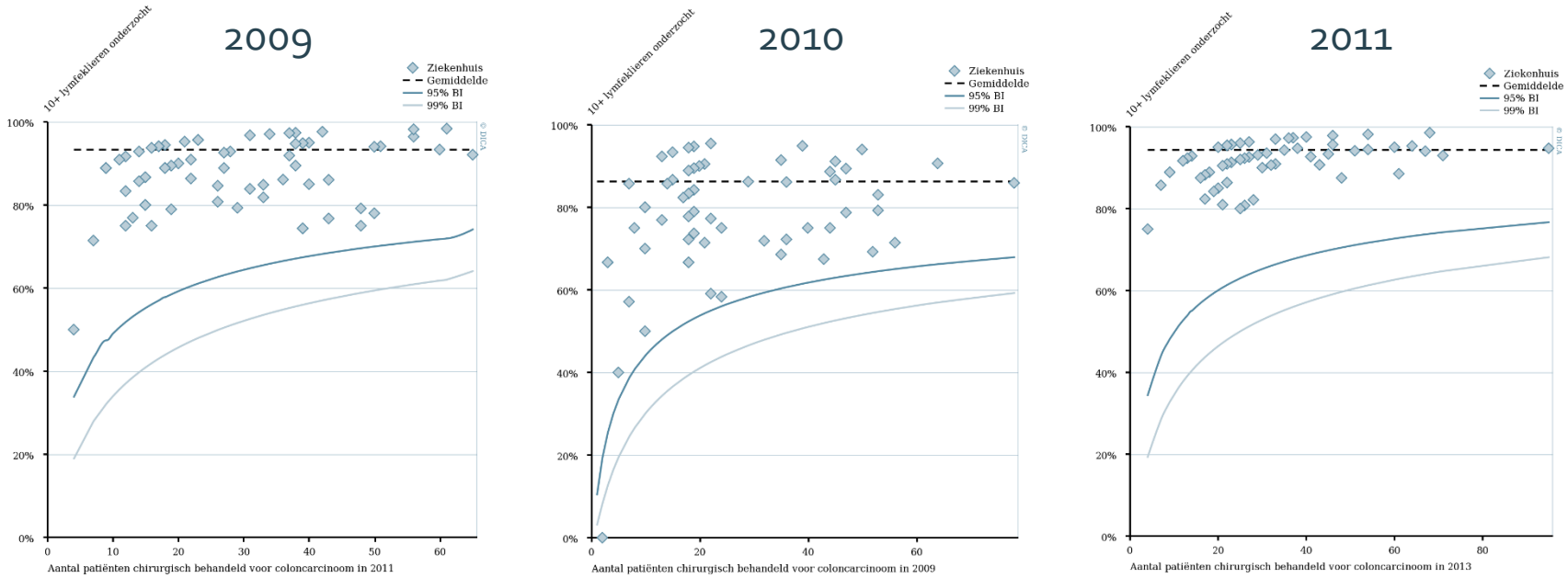
Setting nationwide standards

Key figures on DICA's growth from 2011 - today

2011	2019	
3	22	Clinical registries
35[1]	10	€ on avg per patient / registry
35k	1M	Patients in DICA registry
80	150	Hospitals and private clinics
300	5k	Health care professionals using tool
-	10	Registries also include PROM collection

1. 2014 instead of 2011

Not only outcomes improve, but also variation reduces over time



Percentage of patients with a colorectal resection with more than 10 lymph nodes found and examined by the pathologist

Dutch Colorectal Audit led to changes in treatment plans, resulting in improved outcomes and reduced costs

Less invasive treatments

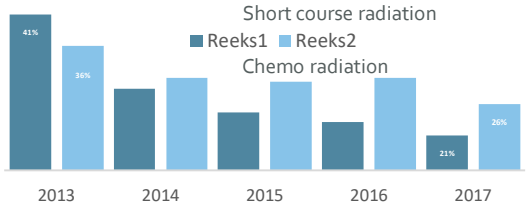
Improved outcomes

Reduced costs

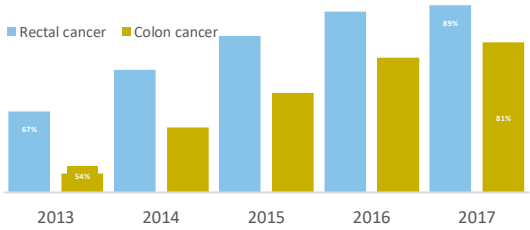
Dutch Colorectal Audit led to changes in treatment plans, resulting in improved outcomes and reduced costs

Less invasive treatments

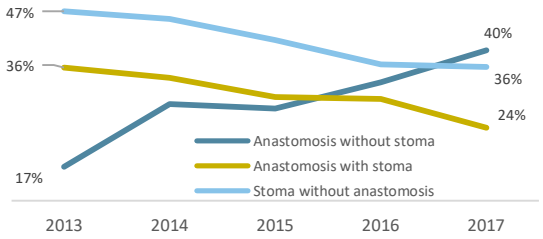
Less **radiation** (neo-adjuvant) in rectal cancer



More **laparoscopic** vs open surgeries



Less **stoma's** in rectal cancer



Improved outcomes

Reduced costs

Source: DICA & Deloitte, LOGEX analyses
75.000 pat. with colorectal cancer on Jan 1st 2016, 9793 pat. registered in DCRA in 2017, 6832 (70%) pat. with colon cancer and 2961 patients (30%) with rectal cancer.

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Less invasive treatments

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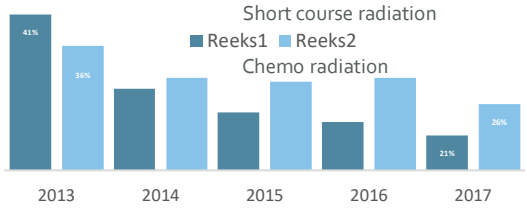

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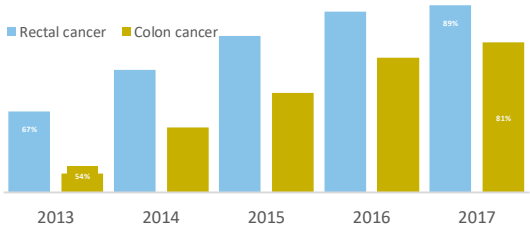
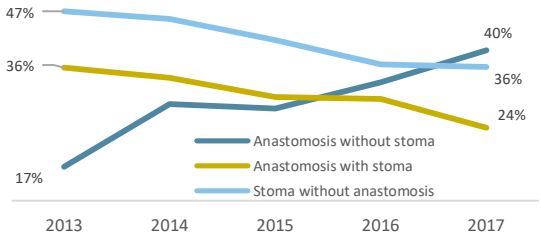
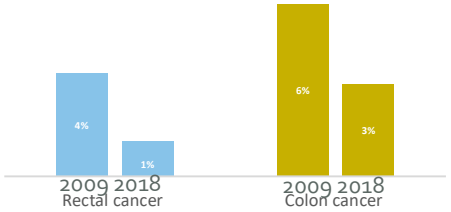


Less **stoma's** in rectal cancer

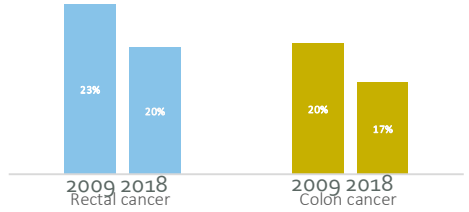


Improved outcomes

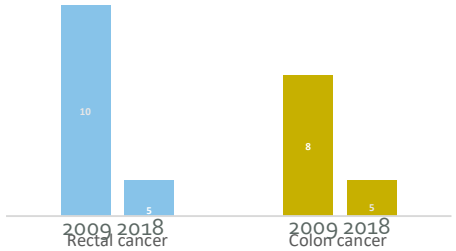
Lower **mortality**



Fewer **complicated trajectories**



Decreased **length of stay** *(days)*



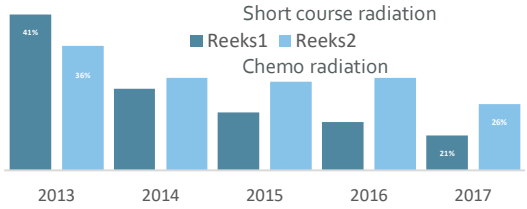
Reduced costs

Source: DICA & Deloitte, LOGEX analyses
75.000 pat. with colorectal cancer on Jan 1st 2016, 9793 pat. registered in DCRA in 2017, 6832 (70%) pat. with colon cancer and 2961 patients (30%) with rectal cancer.

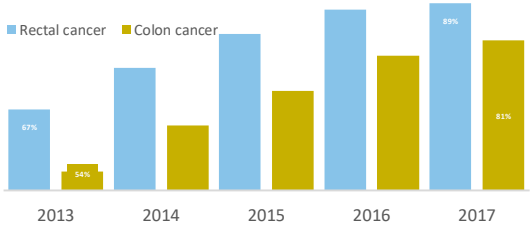
Dutch Colorectal Audit led to changes in treatment plans, resulting in improved outcomes and reduced costs

Less invasive treatments

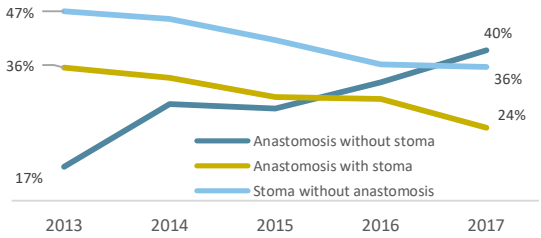
Less **radiation** (neo-adjuvant) in rectal cancer



More **laparoscopic** vs open surgeries



Less **stoma's** in rectal cancer



Improved outcomes

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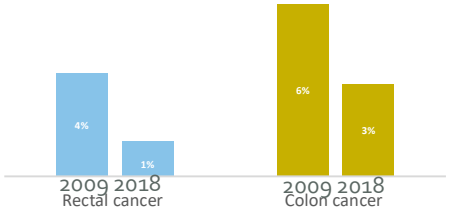

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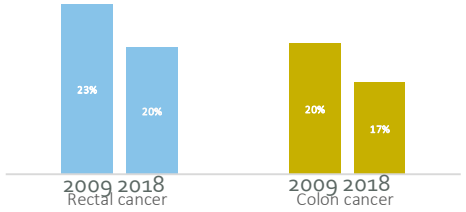

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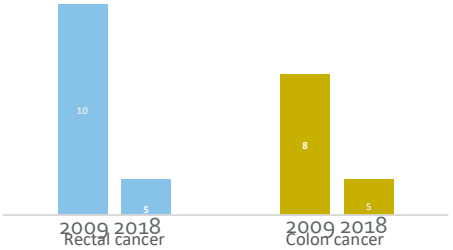

Reduced costs

Δ costs compl. vs. noncompl. pt
~ €18k per patient

Weighted reduction in complicated patients
3.1%

patients w colon or rectal ca (2018)
~10k

Cost savings (annually)
~5.5M

Source: DICA & Deloitte, LOGEX analyses
75.000 pat. with colorectal cancer on Jan 1st 2016, 9793 pat. registered in DCRA in 2017, 6832 (70%) pat. with colon cancer and 2961 patients (30%) with rectal cancer.

Dutch Institute for Clinical Auditing

(inter)national cost savings

Δ costs compl. vs. noncompl. pt **~ €18k per patient**
Weighted reduction in complicated patients **3.1%**
patients w colon or rectal ca (2018) **~10k**
Cost savings (annually) **~5.5M**

Equivalent potential in other patient groups

National potential in savings 10 – 20 %

Dutch Breast Implant Registry

clinical audit & tracebility

Vrijdag 02 oktober 2015 | Het laatste nieuws het eerst op NU.nl

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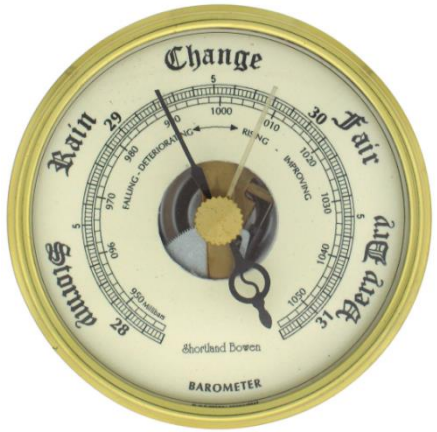
Foto: ThinkStock

Borstimplantaat Silimed direct van de markt

Gepubliceerd: 24 september 2015 09:28
Laatste update: 24 september 2015 09:27

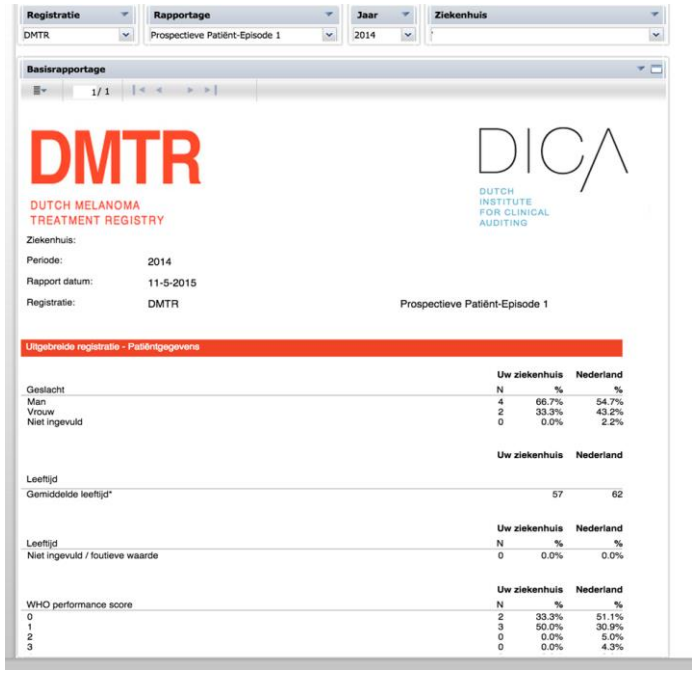
Implantaten van de Braziliaanse fabrikant Silimed mogen per direct niet meer gebruikt worden in Europa. Bij een fabriekscontrole bleek dat er onder meer glasvezeldeeltjes op de borstimplantaten zaten die daar niet thuis horen.



Dutch Melanoma Treatment Registry

clinical audit & new drugs

- Introduction new drugs
- Accelerated availability
- Professionals- Pharma – Health Authorities
- Expansion



Registratie: DMTR | Rapportage: Prospectieve Patiënt-Episode 1 | Jaar: 2014 | Ziekenhuis:

Basisrapportage 1/ 1

DMTR

DUTCH MELANOMA TREATMENT REGISTRY

DICA DUTCH INSTITUTE FOR CLINICAL AUDITING

Ziekenhuis:
Periode: 2014
Rapport datum: 11-5-2015
Registratie: DMTR

Prospectieve Patiënt-Episode 1

Uitgebreide registratie - Patiëntgegevens

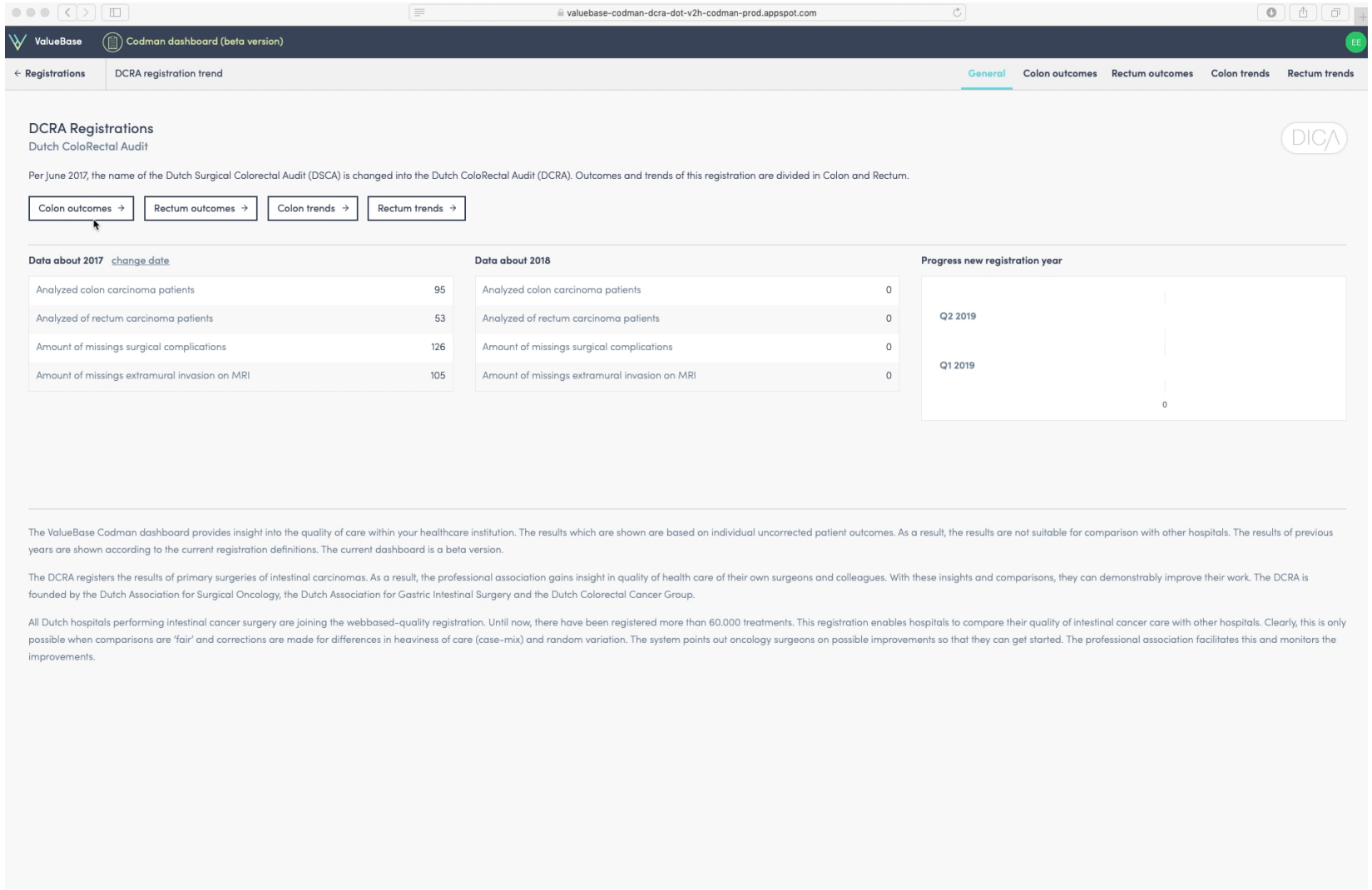
Geslacht	Uw ziekenhuis N	Uw ziekenhuis %	Nederland %
Man	4	66.7%	54.7%
Vrouw	2	33.3%	43.2%
Niet ingevuld	0	0.0%	2.2%

Leeftijd	Uw ziekenhuis	Nederland
Gemiddelde leeftijd*	57	62

Leeftijd	Uw ziekenhuis N	Uw ziekenhuis %	Nederland %
Niet ingevuld / foutieve waarde	0	0.0%	0.0%

WHO performance score	Uw ziekenhuis N	Uw ziekenhuis %	Nederland %
0	2	33.3%	51.1%
1	3	50.0%	30.9%
2	0	0.0%	5.0%
3	0	0.0%	4.3%

DICA's explorative dashboard, Codman's



Hospital of the future

- Data driven
- Cost efficiency
- Quality improvement
- Safety
- Personalized medicine eg Shared Decision making

Hospital of the Future

Hospital of the future

36th Global GS1 Healthcare Conference, Delhi, India

Wrap up

November 5, 2019

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Remaining questions to the panel

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The Global Language of Business

Thank you very much for your attention