Global GS1Healthcare Conference – Noordwijk - Amsterdam

“Hospitals – Standards Changing The Way To Work”

Kevin Downs, Executive Director of Finance & Performance
Executive Sponsor – Scan4Safety
THE 7 FORCES THAT WILL CHANGE THE WAY YOU WORK

“Technological and social forces are transforming how work gets done, who does it, and even what work looks like. And while technology can make workers more productive, there will be significant turbulence as organisations grapple with the complexity and unpredictability of a changing workforce”
Seven Key Disruptors

Unprecedented Change and Opportunity

- Technology is everywhere
- Tsunami of data
- Diversity and generational change
- AI, Cognitive Computing, Robotics
- Jobs vulnerable to automation
- Explosion in contingent work
- Change in nature of a career

## The New Organisation Model

<table>
<thead>
<tr>
<th>Category</th>
<th>Today</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization Structure:</td>
<td>Hierarchical business functions</td>
<td>Projects, squads, teams, services</td>
</tr>
<tr>
<td>Teams and Projects:</td>
<td>Teams formed slowly over time</td>
<td>Teams assemble and disband quickly</td>
</tr>
<tr>
<td>Jobs and Roles:</td>
<td>Job descriptions, job levels, job titles</td>
<td>Assignments, tasks, expert roles</td>
</tr>
<tr>
<td>Managers:</td>
<td>Managers “own” teams and people’s careers</td>
<td>Managers manage projects and “sponsor” people</td>
</tr>
<tr>
<td>Careers:</td>
<td>Jobs are “owned” by the manager and not shared</td>
<td>Jobs open in transparent marketplace</td>
</tr>
<tr>
<td>Flexibility and Space:</td>
<td>People “assigned” jobs by management</td>
<td>People sought out based on skills, work on multiple projects</td>
</tr>
<tr>
<td>Rewards:</td>
<td>People rewarded by level, tenure, experience</td>
<td>People rewarded by outcomes, reputation, sponsorship</td>
</tr>
<tr>
<td>Culture:</td>
<td>Inclusion, sustainability, diversity</td>
<td>Citizenship, collective thinking, shared values</td>
</tr>
</tbody>
</table>

*Source: Bersin, Deloitte Consulting LLP, 2018.*
We will now hear presentations from:-

**Thomas Klein,**  
Head of Purchasing and Logistics,  
University Hospital Dusseldorf, Germany

**Keith Jones,**  
Head & Neck Surgeon, Clinical Director of Head & Neck Surgery  
University Hospitals of Derby and Burton NHS Foundation Trust

**Henrik Stilling,**  
IT Architect,  
Aarhus University Hospital, Denmark
Hospitals – Standards changing the way to work

Thomas Klein, Head of Purchasing and Logistics, University Hospital Düsseldorf, Germany
Agenda

1. University Hospital Düsseldorf
2. Interoperability ERP/Hospital Information System
3. UKD „Digital“ - Strategy material management department
4. Purchasing in the process of change
5. Use cases
   a. Electronic Catalog /OCI /GHX / Amazon
   b. Scanning in hospital
   c. eInvoice
6. Consequence and Decision
1. Company presentation of the UKD

The University Hospital Düsseldorf (UKD) stands for international excellence in health care, research and teaching. Nationally and internationally renowned experts guarantee modern medicine at the highest level. A particular strength lies in the interdisciplinary treatment of patients and the close integration of clinical operation and research.

Number of employees 6.000
Number of beds 1.161
Treatments stationary 50.000
Outpatients 270.000
Clinics 29
Institute 34
2. Interoperability ERP / HIS

Informations of product „Supply Chain Management“

- SAP / ERP World
- MM
- PM
- FI
- CO
- APM

Standards

Connect and overcome boundaries!

Patient informations „Patient Chain Management“

- MEDICO / HIS World
- Metek
- PDMS
- Medat
- Endo reg.
- RIS

GS 1- News universe

HL7- News universe
3. UKD „digital“

- Material Master Data SAP
  - article: Global Trade Item Number (GTIN)
  - Classification: ecl@ss 10.01
4. Purchasing in the process of change

The constantly increasing demands on purchasing in the function of a cross-company and cross-thematic "service provider" has led to a significant change in the Supplier Relationship Management of the UKD

- Professionalization through qualification of the purchasing staff with strategic task portfolio

- The task of pure price negotiations - towards Development of holistic business processes and System partnerships, adapted to the structure of supervising clinics and business units of the UKD
5.a Electronic catalogs

- Paper requirement called: “Blockzettel”

Electronic requirement SRM

Electronic catalog
- Inhouse catalog MDM
- Supplier catalog B2B
- Multi supplier catalog, Content provider
Open Catalog Interface GHX allSource => order directly

- SAP Download of nearly 1 Mio. product information (e.g. GTIN)

Note: some examples of participating suppliers shown on this slide

67 Supplier catalogs
ca. 12394 Products
5.b Scanning in hospital

Barcode analysis medical products in the central warehouse

GS1 Symboligies 2018

- 86% of the 921 stock material have a GS1 Standard
- 39% have a GS1 128
- 42% have an EAN 13
- 5% have a GS1 DataMatrix

Symbololgy Type 2018

- 86% of the 921 stock material have a GS1 Standard
  - 39% have a GS1 128
  - 42% have an EAN 13
  - 5% have a GS1 DataMatrix

Packaging Level

<table>
<thead>
<tr>
<th>Packaging Level</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single unit package / Blister</td>
<td>42</td>
</tr>
<tr>
<td>Primary</td>
<td>267</td>
</tr>
<tr>
<td>Secondary</td>
<td>549</td>
</tr>
<tr>
<td>Tertiary – Case or Shipper</td>
<td>63</td>
</tr>
</tbody>
</table>
5.b consignment stores
5.c eInvoice ZUGFeRD 2.0

Pilot project: Kick off 31.01.2018  Go live 31.03.2019

+ electronic Information:  
(Order Acknowledgment/ Auftragsbestätigung)  
Orderresponse  
Advanced Shipping Note

ZUGFeRD 2.0  
Zentral User Guide Forum elektr. Rg Deutschland  
International Standard EN 16931  
Hybrid pdf/A3 + UN/CEFACT XML

Legal deadline for public institution:  18.04.2020
Invoice process description

- **Johnson & Johnson**
  - GHX eInvoicing Portal
  - ZUGFeRD
  - CPIS
  - UKD SAP BC

- **UKD SAP BC**
  - SAP IDOC from UBL 2.1
  - SAP IDOC
  - SAP PAPO
  - UKD OpenText Archive

- **UKD OpenText Archive**
  - Invoice Ledger - Management WF - Early stages (e.g. goods receipt)
  - Invoice Ledger - Management WF - Later stages (e.g. Payment)

- **Archive**

If IDOC is processable, the process continues.

If IDOC is NOT processable, the archiving process is triggered.
6. Consequence and Decision

To use cost advantages, efficiency gains connected with patient safety in our hospitals we need standards and change our way to work…

- Professionalization through qualification of the purchasing staff
- Communication with staff, colleagues and supplier
- Very good material master data using standards
- Develop process analysis and process understanding within hospital
- Development of holistic business processes and System partnerships
- Trustful cooperation

There is nothing permanent except change - Let’s start together!
Thank you for your attention

Thomas Klein
Dezernent Einkauf & Logistik, Verpflegungsmanagement
Mitglied im Steering Committee GS1 Healthcare Germany

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STANDARDS CHANGING THE WAY WE WORK
- SMARTER WORKING FOR A SMARTER FUTURE

Keith Jones
Head and Neck Surgeon
University Hospitals of Derby and Burton
Derby – the way we used to work

- Limited data
- Disjointed data
- Unable to robustly analyse the performance of surgical teams
- Traceability relied on a paper trail
- Many systems relied on insertion of free text (ORMIS theatre system)
- Compelled to manually trace batch/lot numbers
Derby – the way we used to work

- Completion of paper forms for joint registries
- Unable to relate procedure to tariff (payment) received for that procedure
- Difficulty assessing team performance
- No-one (clinicians) believed the limited disjointed data at our disposal
- Expensive products were not tracked
- Re-order/resupply process was labour intensive
Derby – the way we used to work

- No patient level costing (PLICS) possible
- Clinical variation difficult to evaluate
- Inability to use the data for individual appraisal
- Apportionment was the norm
- No space (real estate) utilisation data
- Laborious processes involved for SUI investigation
- Data was collected at many points on the patient pathway and commonly involved duplication
Where did we start from at Derby?
Catalysts of Change

- The need for robust data which was lacking within the organisation
- The need to work in a seamless environment eliminating the silo approach
- Local priorities
  - Better inventory control
  - Trust audit committee report
  - Understanding our stock
- National priorities
  - e procurement strategy
  - Mandation of GS1 standards in healthcare in the UK
Challenges

- Patients
- Culture
- Systems
- Workforce

Clinical Engagement
How did we overcome?

- Patient at risk – proper training and ease of use – wall barcodes
- Identification of movers and shakers/opinion formers to become clinical champions
- Not enough resource – additional resource and support provided
- Not enough time and not our job – demonstrated that it saves time down the process
- Freeing up staff to do what they were trained to do – to care for patients
- Provided the best scanner on the market at the time
How did we manage Clinical Engagement?

Patient Safety
- Traceability – implants and instruments
- Automatic update of external records – implant registries
- Releasing time to care

Clinical Variation
- Unwarranted Clinical variation
- Ownership of the data by clinicians
- Understanding the complexity of the work that was being undertaken

Operational Efficiencies
- Coding – income improvement/reduction of costs
- Providing valuable reports to key stakeholders/costing
- Understanding our HSMR data
Barcode standards – the route to smarter working

<table>
<thead>
<tr>
<th>Patient Benefits</th>
<th>Trust Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improved patient safety</td>
<td>• Meaningful data accepted by clinicians</td>
</tr>
<tr>
<td>• Improved patient pathway / experience</td>
<td>• Reduction of unwarranted clinical variation</td>
</tr>
<tr>
<td>• Improved patient outcomes</td>
<td>• Greater understanding of the complexity of work undertaken within the organisation</td>
</tr>
<tr>
<td>• Auditable evidence</td>
<td>• Driver of operational efficiency</td>
</tr>
<tr>
<td></td>
<td>• Improved supply chain efficiency</td>
</tr>
</tbody>
</table>
Barcode standards – the route to smarter working

<table>
<thead>
<tr>
<th>System Benefits</th>
<th>Financial Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Direct data feed for registries</td>
<td>• Accurate patient level costing (PLICs)</td>
</tr>
<tr>
<td>• Comparative data on individual and team clinical performance</td>
<td>• Enhanced depth of coding and increased Trust income</td>
</tr>
<tr>
<td>• Comparative data on procedure codes</td>
<td>• Ability to relate costs to Tariff</td>
</tr>
<tr>
<td>• Data sharing within the organisation and the ability to share data and compare data across health economies</td>
<td>• More robust data to enable informed discussion with healthcare commissioners</td>
</tr>
<tr>
<td>• Reduction in duplication of data acquisition</td>
<td></td>
</tr>
</tbody>
</table>
The benefits of big data

- Patient safety
- Clinical outcomes
- Analysis (reduction) of clinical variation
- Implant tracking
- Performance data
- Consultant specific data

- Operational performance
- Theatre productivity
- Tariff/CCG negotiation/remuneration
- Complications
- Medicines management
- Pathway transformation
Data Recording at Point Of Care

- Electronic patient record
- Patient level costing
- Patient safety data/incident reporting/investigation systems
- Enhancement of Trust coding and hence remuneration
- Inventory management
- Electronic re-ordering
- Electronic payment
Surgical Pathway

Standards Key

- **GSRN**: Positive patient ID by scanning a wristband or staff ID by scanning staff badge.
- **GLN**: Scanning captures the location of the care delivered.
- **GTIN**: Accurate detailed product information captured without errors.
- **GIAI**: Identifies the instrument/tray that has been used on an individual patient.
- **GDTI**: Identifies the patient notes or diagnostic test.

The Global Language of Business
Data From Surgical Pathway

- Electronic Patient Record
- Patient-Level Information and Costings Tool
- Incident Reporting System
- Trust Coding
- Inventory Management System

Registries
Interoperability is key
The Future

- Pharmacy/medicines management
- Pathology services
- Patient outcomes/complications
- Electronic capture of key events (WHO and STOP moment)
- Asset management tracking
- RFID staff and patient tracking
- Central store management
- National benchmarking as part of the National Health Service
Standards changing the way to work
Not a technology – a methodology

Henrik Stilling, IT-Architect, Aarhus University Hospital, Central Denmark Region
GS1 Healthcare Conference, Netherlands, March 2019
Henrik Stilling

Who am I?

- Central Denmark Region
- Lead architect for item identification and tracking
- Engineer by trade
  - Process management
  - Technology adaption
- Worked within health care industry since 2008
- Part of Danish national initiative on identification and traceability in healthcare
Merging for modern care
Core elements

- Traceability
- Electronic Product Code
- Supply Chain
- GTIN
- Events
- Scalability
- Physical Infrastructure
- Medicine
- Reusability
- GRAI
- Global Returnable Asset Identifiers
- Methods
- EPC
- Hospital Layout
- Global Trade Item Number
- Standards
- Single use
- Staff
- Sterile Goods
- Interoperability
- Processes
- Transparency
- ISO
- Quality
- Gradual change
- Business Model
- Safety
- EPCIS
- Long Term Effect
- Global Location Number
Applications

Technologies
Applications

Integration System for Tracking and Identification

Technologies

- Barcodes
- RFID
- Wi-Fi
- Ultrasound
- GPS
- Infrared
- Zgbee
- Containment
- Geofencing
- Search
Architecture

Layer 1: Mobile objects
Physical objects carrying id-tags or sensors

Layer 2: Readers
Physical recording of movement and events

Layer 3: Tracking Systems
Filtering and exposing tracking data

Layer 4: Integration System for Tracking and Identification
Collecting, enriching, and exposing relevant tracking data

Layer 5: User Systems
Using tracking data
Use

Integration System for Tracking and Identification

- Trolley Management
- Task Management
- Duress call & response
- Patient Self Service
- Wayfinding
- Procurement
- Signs
- Nurse finder
- Booking

Technologies:
- RFID
- WiFi
- Locations
- Objects
- Infrared
- Ultra Sound
- Bluetooth
Built on standards

Item identification
▪ GTIN - Global Trade Item Number
▪ GRAI - Global Returnable Asset Identifier
▪ GIAI - Global Individual Asset Identifier
▪ GSIN - Global Shipment Identification Number
▪ UDI approved enumeration models approved by EU

Traceability (Location)
▪ GLN - Global Location Number

Time
▪ UTC

Interoperability
▪ EPCIS (Electronic Product Code Information Services)
  ▪ Capture
  ▪ Query
  ▪ EPC

▪ CBV (Core Business Vocabulary)

Get into the details later at the ‘Poster reception’
Vision

From

“Who did what”

To

“Who can do that”
From activity to decisions
Questions to the panel

Thomas Klein,
Head of Purchasing and Logistics,
University Hospital Dusseldorf, Germany

Keith Jones,
Head & Neck Surgeon, Clinical Director of Head & Neck Surgery
University Hospitals of Derby and Burton NHS Foundation Trust

Henrik Stilling,
IT Architect,
Aarhus University Hospital, Denmark
Thank you for your interest and participation

Enjoy the remainder of the conference!