

The Global Language of Business

GS1 Healthcare Provider Advisory Council Webinar

Building modern hospitals on global traceability standard How standards helped Aarhus University Hospital establish technology agnostic traceablity

Henrik Stilling, IT-Architect, Central Denmark Region December 2016



Welcome and thank you for attending!



- Welcome to our December 2016 webinar. Thank you to our guest speaker – Henrik Stilling, IT-architect Healthcare Central Region in Denmark
- Some housekeeping for today:
 - All attendees will be on mute
 - If you have questions during the presentation, please type them into the questions area and these will be monitored then answered at the end of the call
- After the webinar:
 - Within a week, the recording will be posted to: <u>http://www.gs1.org/healthcare/hpac_webinars</u>
 - All previous webinars are also posted to this location, so please feel free to use this resource and share the link



The GS1 Healthcare Provider Advisory Council (HPAC)



Thought leaders and early adopters of GS1 Healthcare Standards from the global clinical provider environment. Their final goal is to improve patient safety, cost efficiency and staff productivity through implementation of GS1 standards.

A forum for sharing and discussion

Identification of projects and case studies

A source of expertise and advice

- About the practical realities of implementation of GS1 Standards in the care giving environment in regards to the impact on clinical care and patient interaction
- That support the adoption of GS1 Standards in healthcare providers and retail pharmacies
- For publication, presentation and sharing
- To those involved in GS1 standards development, the wider Healthcare stakeholder community and senior executives/decision-makers to gain their buy-in and support for implementation of GS1 Standards



HPAC Activities



Webinars

- Monthly webinars open to all stakeholders interested in learning about GS1 standards implementation in the care giving environment.
- <u>http://www.gs1.org/healthcare/h</u>
 <u>pac_webinars</u>

Awards

- Twice per annum
- Provider Best Case Study Award
- Provider Recognition Award
- The prize is travel / accommodation to attend the next GS1 Healthcare conference
- <u>http://www.gs1.org/healthcare/h</u>
 <u>pac</u>

GS1 Healthcare also holds two global conferences per year. Our next conference is in Berlin from April 4-6, 2017. There will be significant Healthcare Provider participation on the agenda.



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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
 - Reference architecture



Agenda



- Background
 - Why we are introducing new methods
 - The Hospital
- Design and methods
 - Architecture
 - Implementation
- Cases



Denmark and its hospitals



- Danish Parliament/Government
 - Ministry of Health, National Board of Health etc.
- 5 Regions 5 Boards with 41 elected politicians
- 98 Municipalities 98 Boards with between 9 and 31 elected politicians



Denmark and its regions







Expenses – only with age-change









- Reduction in number of hospitals and beds
- Centralization and specialization
- Fewer hospitals with ED's
- Focus on pre-hospital emergency care
- Focus on intermediate care
- GP's collaborating in larger clinics
- Number of discharges over the last 8-10 years slight increase
- Outpatient visits huge increase
- Average length of stay is now 4 days huge decrease
- Hospitals to be renovated + new hospitals built (6 billion Euro to be spent)



New hospitals and upgrades







Future emergency structure Central Denmark Region







Aarhus University Hospital







The New University Hospital











- Aarhus University Hospital in Skejby today: approx 160.000 sqm
- New buildings: app. 320.000 sqm
- Plant investment (gross) 1.4 bn Euro Operating budget (gross) app.
 1.3 bn Euro
- App. 10.000 employees
- App. 1.000 students
- Annual activity:
 - 100,000 admissions (inpatients)
 - 850,000 outpatient visits
- Up to 35,000 daily transportations



Cutting edge technology







Cutting edge technology - 2008







Planning for an unknown future



• Tech status 2008

- 2 years pre iPad
- HD resolution TV not mainstream
- The first android phone was released in october

Automation?

- Autonomous guided vehicles
- Autonomos robots

Patient empowerment

- PC based not mobile
- Internet coverage about to reach 100% in Denmark







Basic drivers for running the hospital and achieving efficiency

- Turning (even more) into digitalization
- Focussing on logistics
- Automatization (where possible)

Strategy incepted in the period from 2005-2008!



How to plan for stuff you don't know



?



Build on the things you know



Physical infrastructure

- The Hospital layout is given
- Supply strategy is designed along with the hospital infrastructure

Objects

Events

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• Single use items

Sterile goods

Medicine

- Reusable items
- Major changes in business model
- Gradual changes in individual business
 processes







- Systems that automatically register location and identity of a mobile object at a known time
- Systems able to consume the above mentioned informations
- What, Where and When



Logistics







Context Contam Applications • Search Patientflow Goods Wayfinding Beds Integration System for Tracking and Identification ZigBee Infrared GPS Ultrasound Wi-Fi Barcodes **RFID**

Technologies



A layered architecture







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

http://www.gs1.org/id-keys



Interoperability



- EPCIS (Electronic Product Code Information Services)
 - Capture
 - Query
 - EPC
- CBV (Core Business Vocabulary)
- Requirements
 - Event based communication
 - Filtering
 - Logging
 - Access control
 - Error Correctioning



An example







Let's dig in







Service Logistics







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RFID Tracking













• Question: Where do I find the mobile Xray ?

dedicated search

• Where are free beds that I can use at a ward ?

overview on floor plan



How does it work – Find Equipment



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How does it work – Find equipment







How does it work - Bed Overview







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How does it work – Analysis







How does it work – Analysis







How does it work – Analysis



- Transit time
- Congestion
- Capacity



Innovation



- Building on the standards
 - Personal alarm app
 - Item traceability
 - Nurse calling
- Internet of Things
 - Bedside service requests
 - Capacity management
 - Automatic ordering



Using information across systems



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National Reference Architecture



- National Danish reference architecture for traceability and item identificating ratified in Q3 2016
- Will be translated into English within a few months
- Is implemented on the level "recommended" by the Danish Minister of Health



Future plans



- Open access to selected data
 - GLN + attributes
 - Organisational data
- Adopting healthcare specific CBV items
- Extending methods to all hospitals in the region







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