The winner of the GS1 Healthcare Provider Implementation Best Case Study Award

401 Athens General Military Hospital / Hellenic Army

Represented by: Mr. Sotiris Tsiafos-Tsiaras, Military Pharmacist, Pharm. BSc, Logistics MSc OR Traceability Project Manager
401 Athens General Military Hospital
Our Hospital: Facts & Data

- Largest Military Hospital in Greece
- NATO Role 4 Hospital
- 540 beds, up to 1075
- 11 Operating Rooms
- Cardiac Catheterization & Vascular Embolism Laboratory
- Cardiac surgery dept.
- In 2018:
  - ~ 16,000 inpatients, 230,000 outpatients
  - Nearly 6,000 surg. operations
  - ~ 7,500,000 € annual spend on medical devices
Why use GS1 Standards?

• In an extremely difficult economic environment, we needed to:
  ✓ Improve hospital supply chain operations
  ✓ Cut-down costs
  ✓ Enhance patient safety

Greek Army's Medical Supplies Centre is using GS1 standards in warehouse operations since 2015 with very good results!
Decision to use GS1 Standards

“How GS1 standards will improve hospital’s operations?”

Proof of Concept: A pilot

What? Expensive items – stock management
High-risk medical devices

How? Using AIDC technologies and manufacturer’s barcodes

Where? Operating Room
A Great Challenge!

- Our nurses/staff knew nothing about barcodes
- Suppliers' limited knowledge of GS1 standards
- Barcode scanning not implemented in hospital’s clinical software
- Resistance to change (?)
Initial Assessment - Issues

- **Proprietary hospital-only** item codes.
- **No GTINs** stored in the system
- **Manual** registering of items
  (Excel Item Catalogues)
- **No LOT/BATCH** or **Serial** tracking
- **Limited** stock visibility for OR items
Initial Assessment - Findings

**Error-prone, time-consuming processes!**

- Valuable time lost
- Inaccurate stock data
- Traceability ???
- Expired items - losses
Initial Assessment - Findings

Medical Devices used in the OR:

>90% barcoded

85% GS1 (GS1-128, GS1 Datamatrix)
5% HIBCC
2% other

Application Identifiers:
(01) GTIN
(17) EXP
(10) LOT
(21) SERIAL
Implementation Strategy

**Early Stages**

**DEFINE SCOPE - TARGET**
- Which items?
- How many ORs?
- Desired outcomes

**INFORM STAKEHOLDERS**
- Form a project workgroup
- Explain objectives
- Contact suppliers

**EDUCATE PEOPLE**
- GS1 Basics
- Barcode benefits
- Hands-on training

**BUILD A DEMO (optional)**
- “Quick & dirty”
- Show benefits
- Get feedback
- Gain support
# Implementation Strategy

<table>
<thead>
<tr>
<th>DECIDE &amp; DESIGN CHANGES</th>
<th>APPLY CHANGES</th>
<th>EVALUATE RESULTS</th>
<th>FORM A CULTURE</th>
<th>NEXT STEPS</th>
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<tbody>
<tr>
<td>• Systems</td>
<td>• Continuous monitoring</td>
<td>• Measure KPIs</td>
<td>• Everyday job</td>
<td>• More ORs</td>
</tr>
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<td>• Feedback</td>
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<td>• Other Depts</td>
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- Continuous monitoring
- Feedback
- Training
- Support

- Measure KPIs
- Operational efficiency
- Patient safety

- Everyday job
- Clear benefits
- User friendliness

- More ORs
- Other Depts
- OR Safe Labeling System

**Planning for the future**

- More ORs
- Other Depts
- OR Safe Labeling System
Implementation

SELECTED ITEMS

• **Cost & Volume**
  - High cost medical devices
  - High turnover items (e.g. surg. Sutures)

• **Risk & patient safety**
  - Implants
  - Intra-Ocular Lens

SELECTED BARCODES

• GS1 barcodes:
  - EAN, GS1-128, DataMatrix

*Scanning at the “Point Of Sale”*
Implementation

Main types of barcodes used:
GS1-128 and GS1 DataMatrix®

ALWAYS SCAN capturing crucial item data:
- GTIN
- LOT/BATCH
- (SERIAL)
- EXP DATE
Implementation continues...

☑ 3 more ORs (General and neuro-surgery)
☑ Anesthesia & Recovery Dept.

And...

☑ Cardiac Catheterization Lab.
☑ Interventional Radiology Dept.
Personnel Engagement

- Why we do this
- Explain plan
- Benefits

- Basics
- Simple language
- No technical jargon!!

- Team meetings
- On-the-job training

EXPLAIN

SUPPORT

EDUCATE

TRAIN

- Be there when needed
- Take feedback
- Ask !!!

- Be there when needed
- Take feedback
- Ask !!!
IT Systems & Software

Design Principles

KEEP IT SIMPLE
Outcomes - Benefits

- **Accurate data**
  - What was used on which patient
  - Expiry dates
  - Implants tracking
  - Stock accuracy – visibility
  - Better forecasting
  - Fewer losses

*Patient safety!*

*Efficiency!*
Outcomes – Benefits, OR

% Scan Rate per OR, 14 months period

OperRoom_10
OperRoom_11
OperRoom_3
OperRoom_8
OperRoom_9
Outcomes – Benefits, OR

% Scan Rate per OR, 14 months period

OperRoom_10
OperRoom_11
OperRoom_3
OperRoom_8
OperRoom_9
Outcomes – Benefits, Cath. Lab

% LOT/BATCH or SERIAL registration in EHR system, Cath. Lab

MONTH OF YEAR 2018

LOT Scan rate
Items Scan rate
Outcomes - Benefits

From this... To this...
# Outcomes - Benefits

## Traceability!

<table>
<thead>
<tr>
<th>Item Serial No</th>
<th>Patient &amp; operation data</th>
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<tr>
<td>03080652358308</td>
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Outcomes - Benefits

• **Immediate savings**
  
  • **21.000 €** in the OR and
  • more than **13.000 €** in the Cath. Lab

Cost of items replaced by suppliers before reaching their expiration date (contract term)
Outcomes - Benefits

Detailed cost per operation
Outcomes - Benefits

<table>
<thead>
<tr>
<th></th>
<th>AA</th>
<th>AB</th>
<th>AC</th>
<th>AXIA</th>
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<tbody>
<tr>
<td>SUM</td>
<td>412.438</td>
<td>543.723</td>
<td>143.400</td>
<td>SUM</td>
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<td>Total</td>
<td>41.825</td>
<td>54.421</td>
<td>109.927</td>
<td>1.373.097</td>
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Double ABC analysis!

More effective purchasing strategy
Outcomes - Benefits

• **Speed**

  Significant gains for our Nurses:
  - Fast & correct registration of items in the OR →
    • More time with the patient
    • Less paperwork
  - Fast & correct stock counting →
    • Less time spend in administrative tasks
  - Significant time gains at the invoicing procedure!
Outcomes - Benefits

• **Speed**

  >80% **less time** needed for stock counting

  >85% **less time** needed for registering anesthesia sets to patient records

  *(almost 19 hours/month !)*

Procurements Officer:

  "*Is like having one more person in the office!"*
Outcomes - Benefits

• **Safety**
  - For our *patients*
  - For our *nurses*

Cardiac Catheterization Lab Head Nurse:

“I feel safe knowing I have full control over my stock”
Outcomes - Benefits

Change of Culture!
Outcomes - Benefits

Happier people!

- Barcodes are great, but our **people are the key**
- GS1 standards made their life easier
- Happier staff means **better care** for our patients!
Next Steps?

Cytostatic Drugs Traceability platform
Next Steps?

Safety Labeling System for high-risk medication in the OR

Drug Name
Diluent
Message/Alert
Concentration
Expiration Date/Time
Preparer
1D Barcode

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One last word
Thank you!

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