



Optimizing hospital pharmacy operations using GS1 standards

GS1 Healthcare Webinar

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Supply Chain Operations 401 General Army Hospital of Athens, Greece

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Presenting today



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Colonel Pharmacist

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Hospital Pharmacist, Supply Chain Operations

401 General Army Hospital of Athens, Greece

About Us



**The largest Military Hospital in Greece,
> 600 beds. One of the largest hospitals in the greater Athens area**

Pharmacy Dept:
- Pharmaceuticals procurement & warehousing,
- Cytotoxics compounding Lab,
- Toxicology and Analysis (Pharmacokinetics) Lab

> 13.000.000 € annual spend in pharmaceuticals & medical materials in 2022

Agenda for today's session



- ***Challenges** for a hospital pharmacy*
- ***Regulations** that affect the pharmaceuticals and medical devices supply chain*
- ***Impact** on operational **Efficiency** and **Benefits** of GS1 Standards in **Patient Safety***
- *Practical **Implementation** of Barcode Scanning in a hospital pharmacy*
- *GS1 standards in the 401 General Army Hospital*
- ***Challenges** and **Solutions***
- *Conclusion and **Next Steps***

Agenda for today's session

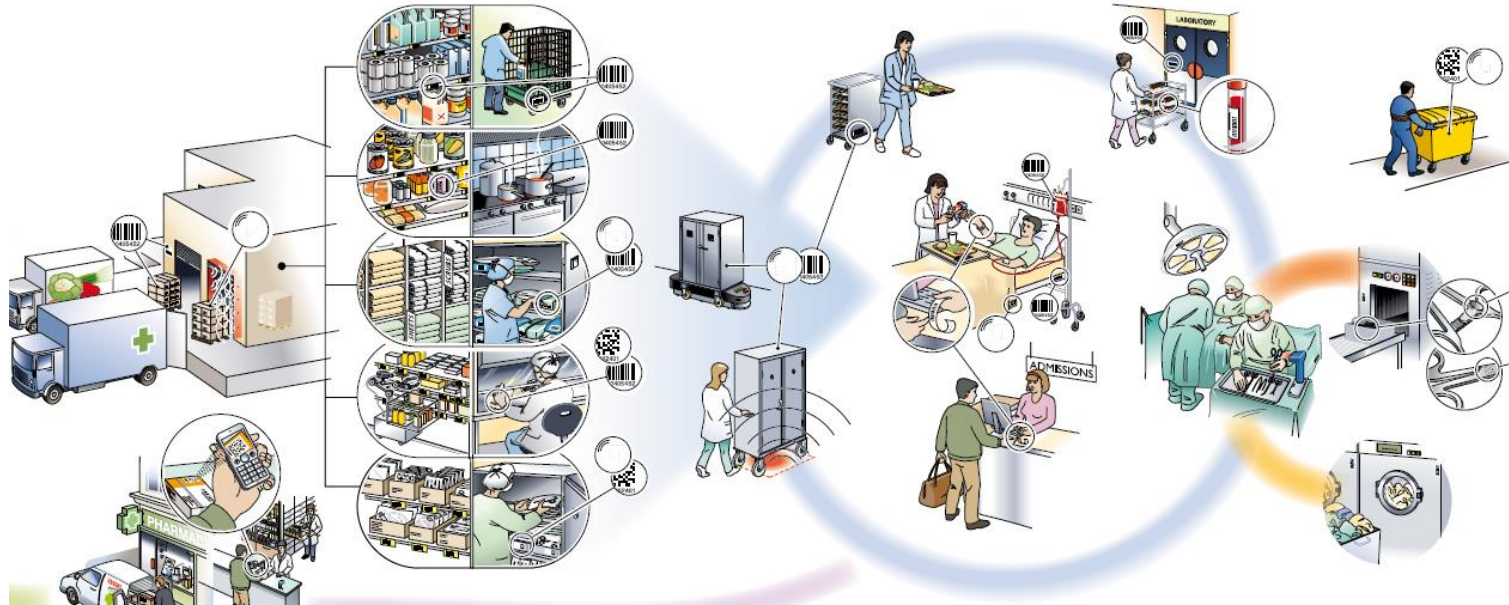


- **Challenges** for a hospital pharmacy
- *Regulations* that affect the pharmaceuticals and medical devices supply chain
- *Impact* on operational **Efficiency** and **Benefits** of GS1 Standards in Patient **Safety**
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Challenges for the Hospital Supply Chain(s)



Multiple supply chains, vigorous logistics operations



Challenges for the hospital supply chain(s)



Logistics Definition

- Right **product**,
- Right **place**,
- Right **time**,
- (at the right **cost**)

The 5 Rights of Medication Administration

- Right **drug**,
- Right **dose**,
- Right **patient**,
- Right **time**,
- Right **route**

Efficient healthcare is based on sound logistics processes !

Challenges for the hospital supply chain(s)



Product IDs

Patient IDs

Personnel IDs

Locations

**Supply Chain
Efficiency &
Patient Safety**

Drugs LOT/BATCH

Medical Devices LOT/BATCH

Medical Devices SERIAL No.

Timestamps

NEED FOR GOOD-QUALITY, RELIABLE, TRUSTED DATA

Challenges for the Hospital Supply Chain(s)



Use of
global/national
standards

Information
Systems data

Automated data
capture

Supply chain
& clinical

Standards

Standardization

Automation

**Trusted
Data**



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Recent developments and regulations



Standardization of product information for medicines, medical devices and in-vitro diagnostic devices

- Directive **(EU)2016/161** Falsified Medicines directive (FMD)
- European Medical Device Regulation **(EU)2017/745** (MDR)
- European In-vitro Diagnostics Regulation **(EU)2017/746** (IVDR)
- Drug Supply Chain Security Act (**DSCSA**)



Barcode Essentials



- ✓ **Scan once**
- ✓ **Explicitly identifies a product**
- ✓ **Collects all relevant information (LOT/BATCH, EXP date, SERIAL)**



GTIN

Expiry Date

Lot Number

Serial Number

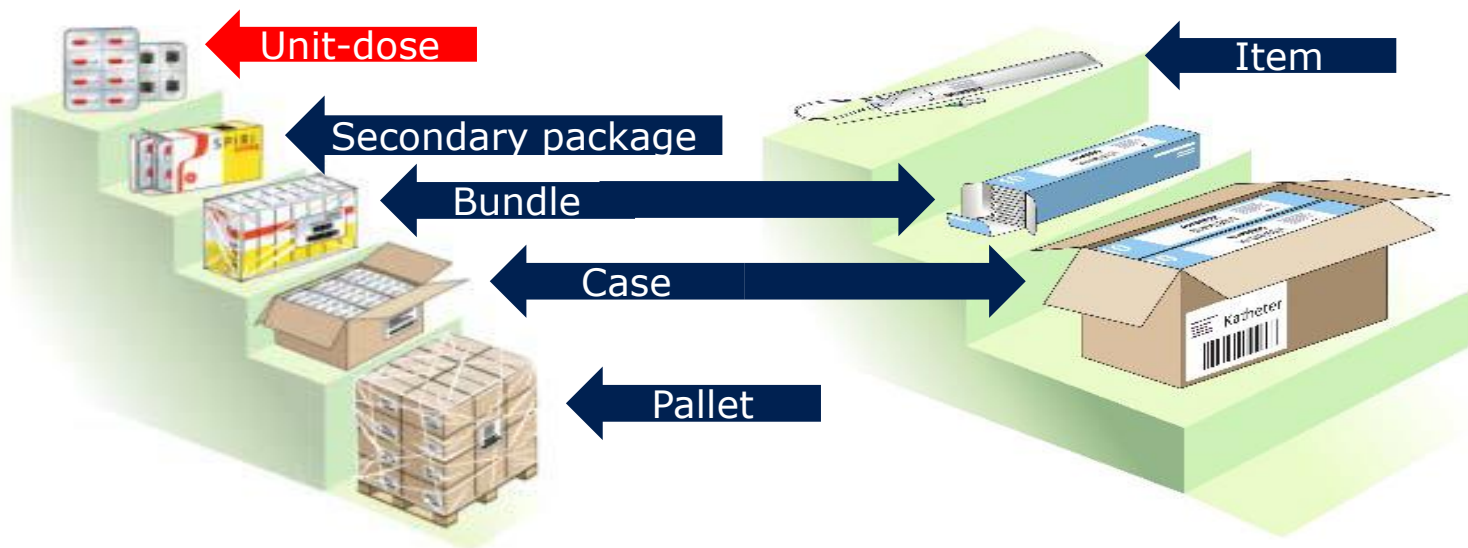
GTIN



Barcode Essentials



Different GTIN at each packaging level of the same product
No need to scan each item separately.



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Impact on Operational efficiency



Benefits for Logistics, Manufacture procedures and Clinical processes

INVENTORY MANAGEMENT AND PROCUREMENT

- Accurate stock visibility
- Less stock-outs
- Less waste and financial loss
- Faster warehouse procedures
- Working-time gains for pharmacy personnel
- Improved procurement strategy
- Supply chain traceability

MANUFACTURE PROCEDURES - REPACKAGING

- Use of the correct products
- Accurate LOT/BATCH and expiry data
- Fully traceable resulting units-products

CLINICAL PROCESSES

- No human errors in products identification
- Better documentation
- More use of robotics
- Reduced workload for caregivers

Impact on Operational efficiency



Robotic dispensing system at the pharmacy of the Chania General Hospital in Crete

- Automated dispensing of drug packages scanning the package barcodes
- Utilizes both linear and Datamatrix barcodes
- Fully integrated with the hospital's information system



Benefits in patient safety



Accuracy in dispensing procedures means safety for our patients

- **Elimination of identification errors at the dispensing point**
- **Automated expiry date check: In the pharmacy and at the wards**
- **Tracing of LOT/BATCH (or SERIAL No) down to patient level**
- **Accurate and more complete electronic patient record**
- **Pharmacy staff and nurses focus more on their duties**

Benefits in patient safety



**Detailed product data
recorded at patient
level**

A/A	ΚΩΔ. SAP	ΣΤΟΙΧΕΙΑ ΥΛΙΚΟΥ	ΤΕΜ
1	651500021876	590517 ΠΑΚΕΤΟ ΟΦΘΑΛΜΟΛΟΓΙΚΟ BVI CUSTOMEYES KIT (MAVROGENIS KIT) 401 ARMY HOSPITAL ΑΝΑΣΤΑΣΙΟΣ ΜΑΥΡΟΓΕΝΗΣ Α.Ε. (LOT/SERIAL: 3467378)	1
2		2775515 ΧΕΙΡ/ΚΟ ΠΕΔΙΟ ΜΕ ΑΥΤΟΚΟΜΛΗΤΟ 150 x 240 cm PAUL HARTMANN HELLAS AE (LOT/SERIAL: 203549283)	5
3	651500022401	BL5114A ΚΑΣΣΕΤΑ ΦΑΚΟΘΡΥΨΙΑΣ B&L STELLARIS 1.8mm PREMIUM VACUUM PHACO PACK ΑΝΑΣΤΑΣΙΟΣ ΜΑΥΡΟΓΕΝΗΣ Α.Ε. (LOT/SERIAL: X3894) (ΕΚΑΠΤΥ: 997803)	1
4	650500005573	0005450013 DISCOVISC 1,0 mL ALCON (LOT/SERIAL: VR581C)	1
5		376630 ΜΑΧΑΙΡΙΔΙΟ ΟΦΘΑΛΜΟΛΟΓΙΚΟ 20G Ε ΜVR ΕΥΘΥ ΑΝΑΣΤΑΣΙΟΣ ΜΑΥΡΟΓΕΝΗΣ Α.Ε. (LOT/SERIAL: 3476714)	1
6	651500019655	370822 ΜΑΧΑΙΡΙΔΙΟ ΟΦΘΑΛΜΟΛΟΓΙΚΟ BVI BEAVER	1

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Practical Implementation of Barcode Scanning in a hospital pharmacy



A short guide to implementing barcode scanning in hospital pharmacy workflows

- Understand GS1 Standards
- Identify the pharmacy's specific **pain points** and **inefficiencies**
- Write down (in detail) **all** the necessary **changes**
- Estimate the project's **budget** (consider a **pilot** first as a proof of concept)
- Ensure the **support** of the hospital's **higher management**

Practical Implementation of Barcode Scanning in a hospital pharmacy



A short guide to implementing barcode scanning in hospital pharmacy workflows

- **Engage** other departments or specialists **early** in the project
- **Integrate** your software with a **GS1 Data Hub** or a similar platform
- **Leverage** GS1 standards for master data **synchronization**
- Invest in high-quality **2D** barcode scanners
- Pharmacy staff **training**

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GS1 Standards in the 401 General Army Hospital – The Idea



Supply Chain Issues

- **Proprietary hospital-only codes, difficulty in identifying items.**
- **Manual registration of products**
- **No LOT/BATCH or Serial tracking**
- **Limited and inaccurate stock visibility**
- **Valuable hours lost**
- **Risk of errors!**

Business Case

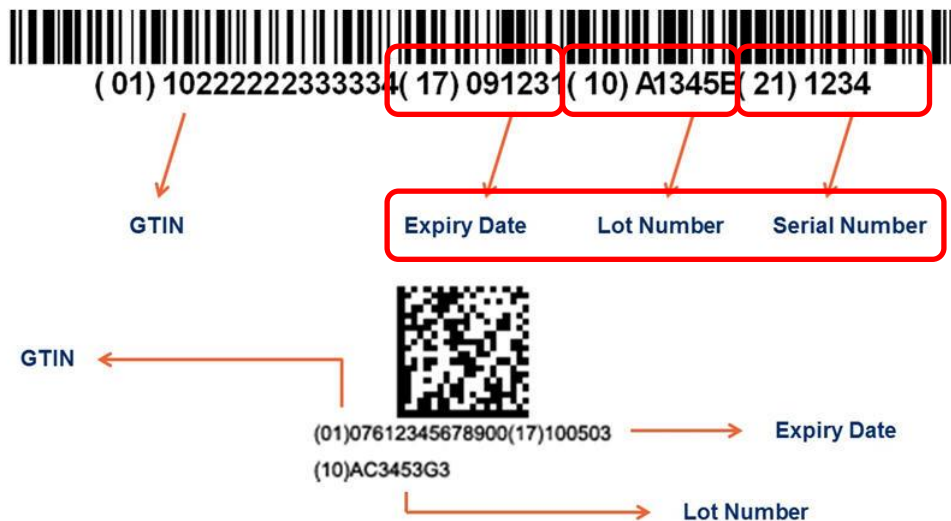
- **Proof of Concept in the O.R.**
- **Selected pharmaceuticals and medical devices**
- **Use of supplier's GS1 barcodes**
- **Scan at the point-of-care**

GS1 Standards in the 401 General Army Hospital - Implementation



Main types of barcodes used:

GS1-128 and GS1 Datamatrix®

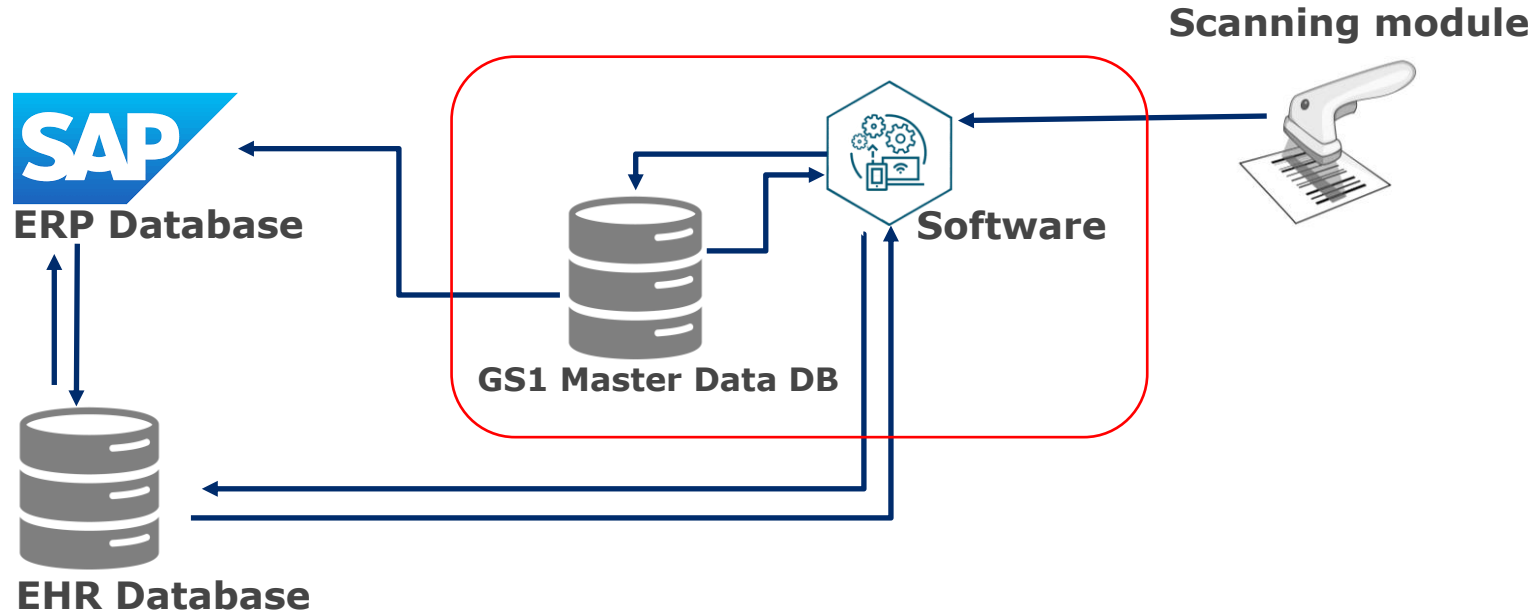


SCAN AT THE POINT-OF-CARE

capturing crucial product data:

- **GTIN**
- **LOT/BATCH**
- **(SERIAL)**
- **EXP DATE**

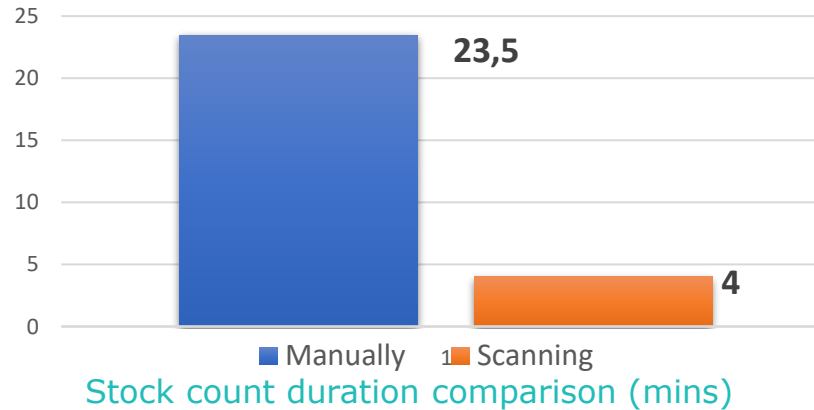
GS1 Standards in the 401 General Army Hospital - Implementation



GS1 Standards in the 401 General Army Hospital - Outcomes



83% less time needed to accurately perform a stock count (record of 60 products on the shelf).



GS1 Standards in the 401 General Army Hospital - Outcomes



ΚΙΝΗΣΕΙΣ ΕΙΔΟΥΣ									
GTIN ΕΙΔΟΥΣ	ΠΕΡΙΓΡΑΦΗ ΥΛΙΚΟΥ	MM	ΠΟΣΟΤ	ΕΙΔΟΣ ΚΙΝΗΣΗΣ	ΗΜΕΡ/ΝΙΑ	ΣΥΝΑΛΛΑΣΣΟΜΕΝΟΣ	ΚΙΝΗΣΗ	MEDICO	
02802659901015	TACHOSIL SEAL MATRIX 9,5cm x 4,8cm LOT: 12375006A SERIAL No:	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΣΘΕΝΗ	19/9/2023		27495	3049240	
02802659901015	TACHOSIL SEAL MATRIX 9,5cm x 4,8cm LOT: 12375006A SERIAL No:	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΣΘΕΝΗ	18/9/2023		27481	3044779	
02802659901015	TACHOSIL SEAL MATRIX 9,5cm x 4,8cm LOT: 12375006A SERIAL No:	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΣΘΕΝΗ	31/8/2023		27316	3041146	
02802659901015	TACHOSIL SEAL MATRIX 9,5cm x 4,8cm LOT: 12375006A SERIAL No:	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΣΘΕΝΗ	30/8/2023		27304	2969046	

PRODUCT GTIN

TYPE OF MOVEMENT

PRODUCT NAME AND BATCH/LOT

PATIENT INFORMATION

Traceability of pharmacy products at the LOT/BATCH level !

GS1 Standards in the 401 General Army Hospital - Outcomes



2014



2021

ΑΝΑΦΟΡΑ ΚΙΝΗΣΗΣ (ΑΝΑ LOT/SERIAL)

Τετάρτη, 29 Σεπτεμβρίου 2021

ΕΙΔΟΣ ΚΙΝΗΣΗΣ: ΑΝΑΘΩΣΗ ΣΕ ΑΣΘΕΝΗ

ΕΠΙΘΥΝΗΙΑ:

ΑΡΙΘΜΟΣ ΠΡΟ-ΠΑΡΑΤΕΛΙΑΣ:

ΠΡΟΕΛΕΥΣΗ:

ΑΡΙΘ. ΣΥΝΒΑΣΗΣ/ΠΑΡΑΤΕΛΙΑΣ:

ΕΙΔΟΣ ΠΑΡΑΣΤΑΤΙΚΟΥ: ΔΕΛΤΙΟ ΔΙΑΘΕΣΗΣ ΣΕ ΑΣΘΕΝΗ
ΑΡΙΘΜΟΣ ΠΑΡΑΣΤΑΤΙΚΟΥ: 20027

ΗΜΕΡ/ΝΙΑ ΠΑΡΑΣΤΑΤΙΚΟΥ: 22/07/2021

☐ ΠΑΡΑΚΑΤΑΘΗΚΗ

GTIN	REF No - ΠΕΡΙΓΡΑΦΗ ΕΙΔΟΥΣ	LOT/BATCH	ΗΜΕΡΙΑ ΑΝΗΣΣ	MM	TEM
00643169108363	ATLS24 - ATLS24 ΣΕΤ ΑΥΤΟΜΑΤΗΤΑΤΗΣ ΜΕΤΡΩΝΙΚΗΣ ΑΥΤΟΛΟΓ MEDTRONIC	0219306543		ΣΕΤ	-1
00801902101501	RA-04220-W - ΚΑΘΕΤΗΡΑΣ ΚΕΡΚΙΔΙΚΗΣ ΑΡΘΡΙΑΣ 20G (TEM)			TEM	-1
00884389136761	9010CEA - 9010CEA ΜΠΑΟΥΣΑ ΧΕΙΡΟΥΡΓΙΚΗ ΕΝΔΥΣΜΕΝΗ L ΑΠΟΣΤΕΙΡΩΜΕΝΗ 1ος ΧΡΗΣΗΣ	20HAS007		TEM	-2
00884389137089	9513CEA - 9513CEA ΜΠΑΟΥΣΑ ΧΕΙΡΟΥΡΓΙΚΗ ΕΝΔΥΣΜΕΝΗ ΧLL ΑΠΟΣΤΕΙΡΩΜΕΝΗ 1ος ΧΡΗΣΗΣ	20HAS010		TEM	-4
02200040100638	- ΣΕΤ ΓΕΝΙΚΗΣ ΑΝΑΙΣΘΗΣΙΑΣ 401 ΓΙΝΑ (ΣΕΤ)			ΣΕΤ	-1
02200040100113	FD 100L - FD100L ΣΥΓΛΥΟ ΔΙΑΘΕΡΜΙΑΣ 1ος ΧΡΗΣΗΣ ΜΕ ΚΑΛΩΔΙΟ ΚΑΙ ΜΠΟΥΤΟΝ INSIDE MEDICAL	20120301		ΣΕΤ	-2
02200040104654	07061 - 07061 ΒΕΛΟΝΑ ΚΙΡΧΟΦΕΡ ΜΟΝΗΣ ΛΟΓΩΧΕ 1.8 x 310mm	18T673		TEM	-1
02200040104807	TR03 - TR03 ΜΑΡΚΔΟΡΟΣ ΔΕΡΜΑΤΟΣ ΜΕ ΧΑΡΑΚΑ ΑΠΟΣΤΕΙΡΩΜΕΝΟΣ 1ος ΧΡΗΣΗΣ INSIDE MEDICAL	20122001		TEM	-2
02200040105026	HC-PFB-35W - HC-PFB-35W ΣΥΡΡΑΠΤΙΚΟ ΔΕΡΜΑΤΟΣ 1ος ΧΡΗΣΗΣ TOPOMED	20200403		TEM	-1
02200040105194	50-150102 - ΜΑΣΤΑΡΗ ΚΕΦΑΛΗΣ ΤΕΤΡΑΓΩΝΟ (TEM)	20200803		TEM	-1
02200040105323	Ble-150mm - Ble-150mm ΤΙΠ ΔΙΑΘΕΡΜΙΑΣ ΜΑΚΡΥ 150mm, ΑΠΟΣΤΕΙΡΩΜΕΝΟ 1ος ΧΡ.			TEM	-1
0045928002121	87000365P - ΣΥΣΤΗΜΗ ΕΓΧΥΣΗΣ INFUSOMAT SPACE LINE (TEM)			TEM	-2
04052199551685	2583238 - 2583238 ΣΑΚΟΣ ΑΥΤΟΚΟΛΩΝ/ΗΤΟΣ ΜΕ ΔΙΠΛΗ ΘΗΚΗ ΕΡΓΑΛΕΙΩΝ 43x38cm ΑΠΟΣΤΕΙΡΩΜΕΝΟΣ 1ος ΧΡ. PAUL HARTMANN HELIAS AE	000351287		TEM	-2
06941813664765	NL22030F4 - NL22030F4 ΡΑΜΜΑ 2-0 ΜΟΝΟΚΛΑΣΙΟ ΝΥΛΟΝ ΒΕΛ. 30mm 3/8 ΚΥΚΛΟΥ ΑΝΤΙΣΤΡ. ΚΟΤΥ. ΜΗΚΟΣ ΡΑΜΜΑΤΟΣ 75cm ΕΥΡΟΚΑΡΤ	181221		TEM	-2
07395502081224	6065501040 - 6065501040 ΜΕΤΑΛΛΙΚΟ ΡΥΧΟΣ ΑΝΑΡΧΩΣΗΣ 4,0 x 150mm 8G ΓΕΤΡΙΜΕΝΤ ΕΠΕ	201004		TEM	-1
07460691950191	RK260 - ΣΥΣΤΗΜΑ ΑΡΘΡΙΑΚΗΣ ΓΡΑΜΜΗΣ ΜΑΡΚΑ JENVALANCE (TEM)			TEM	-1

GS1 Standards in the 401 General Army Hospital - Outcomes



Trusted data !

Patient
safety !

- What was used on which patient
- EXP dates !

- Implants tracking

Efficiency

- Stock accuracy – visibility
- Better forecasting
- Fewer losses

ΑΝΑΦΟΡΑ ΚΙΝΗΣΗΣ (ΑΝΑ ΛΟΤ/SERIAL)

Παρασκευή, 12 Οκτωβρίου 2018

ΕΙΔΟΣ ΚΙΝΗΣΗΣ: ΑΝΑΛΩΣΗ ΣΕ ΑΣΘΕΝΗ

ΕΠΩΝΥΜΙΑ:

ΑΡΙΘΜΟΣ ΠΡΟ-ΠΑΡΑΓΓΕΛΙΑΣ:

ΕΙΔΟΣ ΠΑΡΑΣΤΑΤΙΚΟΥ: ΔΕΛΤΙΟ ΔΙΑΘΕΣΗΣ ΣΕ ΑΣΘΕΝΗ

ΑΡΙΘΜΟΣ ΠΑΡΑΣΤΑΤΙΚΟΥ: 569

ΠΡΟΕΛΕΥΣΗ:

ΣΥΜΒΑΣΗ:

ΗΜΕΡ/ΝΙΑ ΠΑΡΑΣΤΑΤΙΚΟΥ: 3/10/2018

☐ ΠΑΡΑΚΑΤΑΘΗΚΗ

GTIN	ΠΕΡΙΓΡΑΦΗ ΕΙΔΟΥΣ	MM	ΠΑΡΤΙΔΑ	SERIAL No	ΛΗΞΗ	TEM
00613994945631	ΗΛΕΚΤΡΟΔΙΟ ΕΝΕΡΓ/ΚΗΣ ΠΡΟΣ ΧΑΜ. ΟΔΟΥ ΒΙΔΩΤΟ Ref No: 407652	TEM		BBL110081G	12/10/2018	-1
00643169708327	ΗΛΕΚΤΡΟΔΙΟ ΕΝΕΡΓΗΤΙΚΗΣ ΠΡΟΣΦΥΣΗΣ Ref No: 407658	TEM		BBL125675G	7/3/2019	-1
00643169723986	ENSURA DR. MRI SURESCAN EN1DR01 Ref No: EN1DR01	TEM	PZW057542G			-1
00681490143011	ΥΠΟΚΛΕΙΔΙΟΣ ΕΙΣΑΓΩΓΕΑΣ Ref No: 6207-S1	TEM	W4084730		20/12/2019	-1
00681490143349	ΥΠΟΚΛΕΙΔΙΟΣ ΕΙΣΑΓΩΓΕΑΣ Ref No: 6209-S1	TEM	W3983733		23/10/2019	-1
05414734028295	ΟΔΗΓΟ ΣΥΡΜΑ ΣΤΕΦΑΝΙΟΓΡΑΦΙΑΣ, ΥΔΡΟΦΙΛΟ, 150/035 ' Ref No: 408005	TEM	9915797		31/3/2021	-1
8680081311817	ΠΕΔΙΟ ΒΗΜΑΤΟΔΟΤΗ 200 X 360CM 3PLY Ref No: FST82003T	TEM				-1
8680081316676	ΔΙΑΦΑΝΕΣ ΚΑΛΥΜΜΑ ΟΡΓΑΝΩΝ 80CM ΚΥΛΙΝΔΡΙΚΟ Ref No: FST9511	TEM				-2

ΣΥΝΟΛΟ ΤΕΜΑΧΙΩΝ: -9



GS1 Standards in the 401 General Army Hospital - Outcomes



GS1 Standards in the 401 General Army Hospital - Lessons Learned



- ❖ **Start small.** Don't try to change everything at once.
- ❖ **Seek advice-guidance** from your local GS1 office. **Engage your IT & procurement** from the very beginning of the project
- ❖ Choose the function/department that is **easier to start / engage.**
- ❖ **End users** need to see the immediate **benefits in their every-day tasks.** **Listen carefully** to their remarks/requests and **stay close to them.**

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- *Conclusion and **Next Steps***

Challenges and Solutions



Addressing challenges and providing practical solutions

- **Integration** with **Existing** Systems
- Interface **Usability** and **user-friendliness**
- Staff **Training** and **Adoption**
- Workflow **Disruption**
- Infrastructure and Equipment **Costs**
- **Regulatory Compliance**

Challenges and Solutions



Addressing challenges and providing practical solutions

- **Scanning medications at the point-of-care**
 - Industry lack of support for unit-dose barcode labeling
 - Repackaging at the pharmacy is costly and labor-intensive
 - Nurses need a user-friendly interface (simplicity and usability)
- ✓ *How can these challenges be addressed ?*
 - ✓ Advocacy for Industry Standards
 - ✓ Optimizing Repackaging Processes
 - ✓ Human-Centered Design for User Interfaces

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- **Conclusion**

Conclusion and next steps



GS1 standards play a pivotal role on transforming hospital pharmacies



- **Enhanced Patient Safety**
- **Efficiency in medication management**
- **Supply chain visibility**
- **Cost reduction**
- **Patient-Centric Medication Administration**

One last word



ST. JAMES'S
HOSPITAL



Thank you !

(01)09312345678904

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401 General Military Hospital of Athens, Greece

