

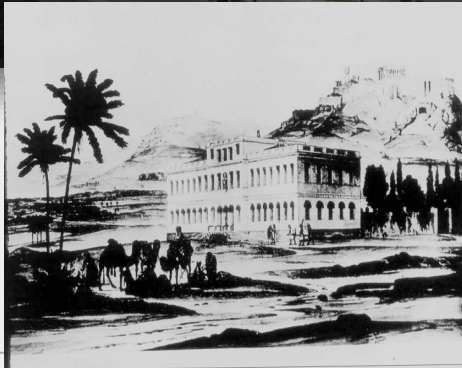
The winner of the GS1 Healthcare Provider Implementation Best Case Study Award



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

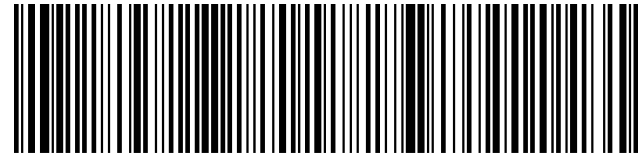
85% GS1 (**GS1-128, GS1 Datamatrix**)

5% HIBCC

2% other

Application Identifiers:

- (01) GTIN
- (17) EXP
- (10) LOT
- (21) SERIAL



(01) 0 9501101 53000 3 (17) 140704 (10) AB-123



(01)07350053850286(17)150508(10)5487265

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



Implementation

DECIDE & DESIGN CHANGES

- Systems
- Procedures
- KPIs

APPLY CHANGES

- Continuous monitoring
- Feedback
- Training
- Support

EVALUATE RESULTS

- Measure KPIs
- Operational efficiency
- Patient safety

Planning for the future

FORM A CULTURE

- Everyday job
- Clear benefits
- User friendliness

NEXT STEPS

- 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**

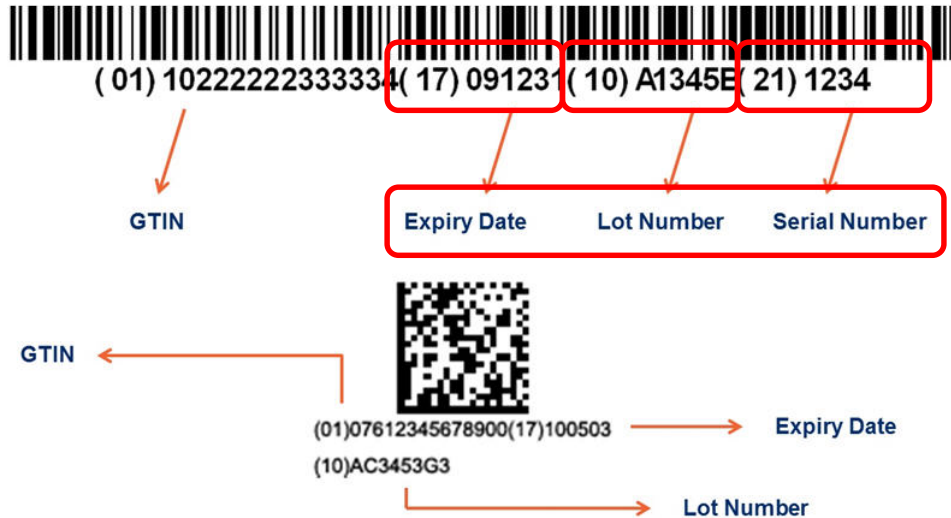
Scanning at the "Point Of Sale"

Implementation



Main types of barcodes used:

GS1-128 and GS1 DataMatrix®



ALWAYS SCAN

capturing crucial
item data:

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

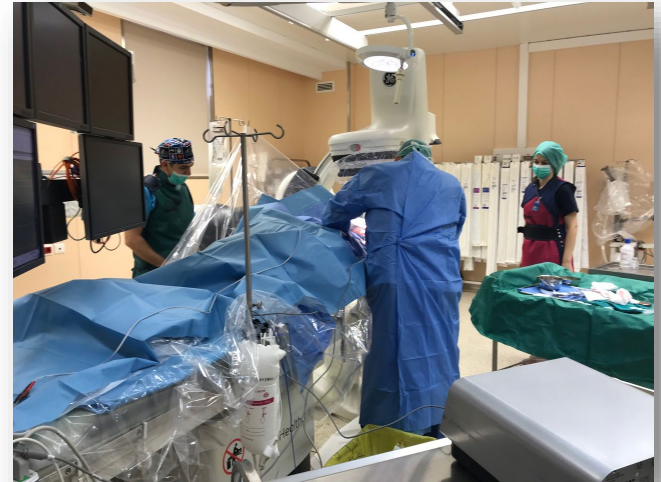
Implementation continues...



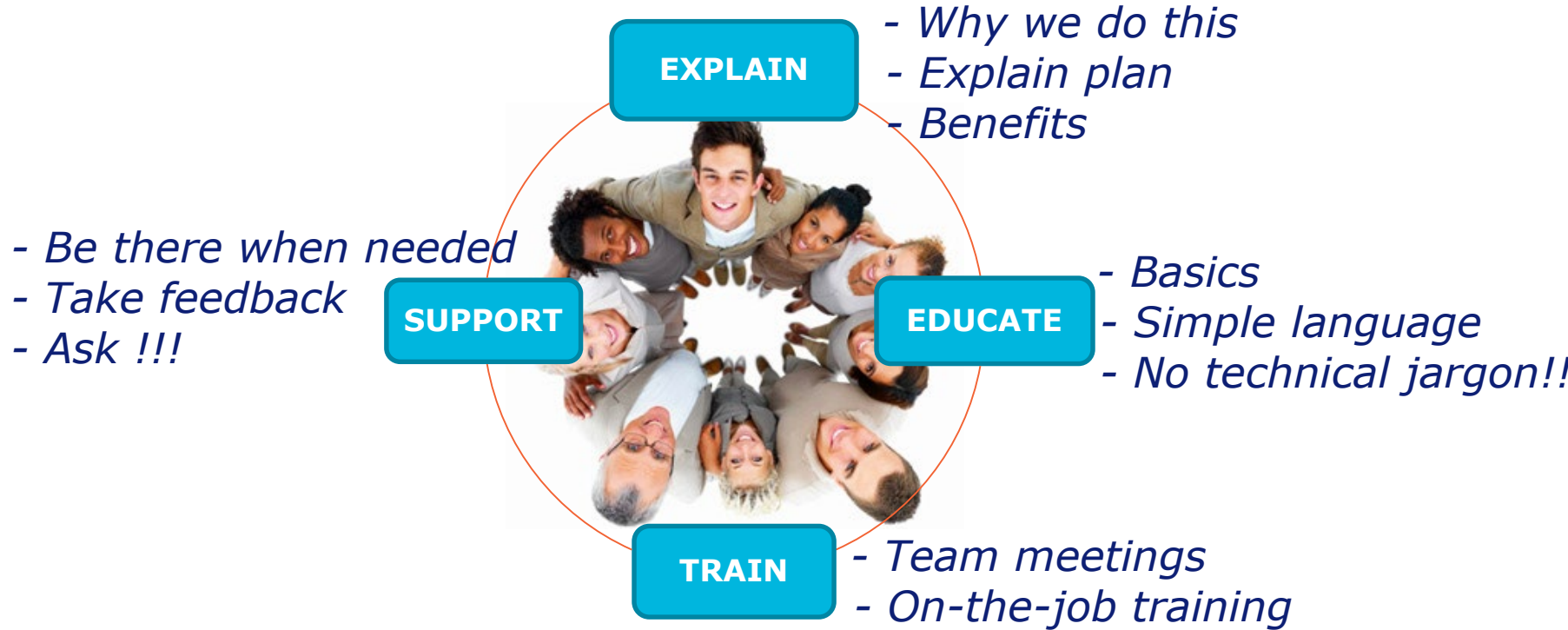
- ✓ 3 more ORs (General and neuro- surgery)
- ✓ Anesthesia & Recovery Dept.

And...

- ✓ Cardiac Catheterization Lab.
- ✓ Interventional Radiology Dept.



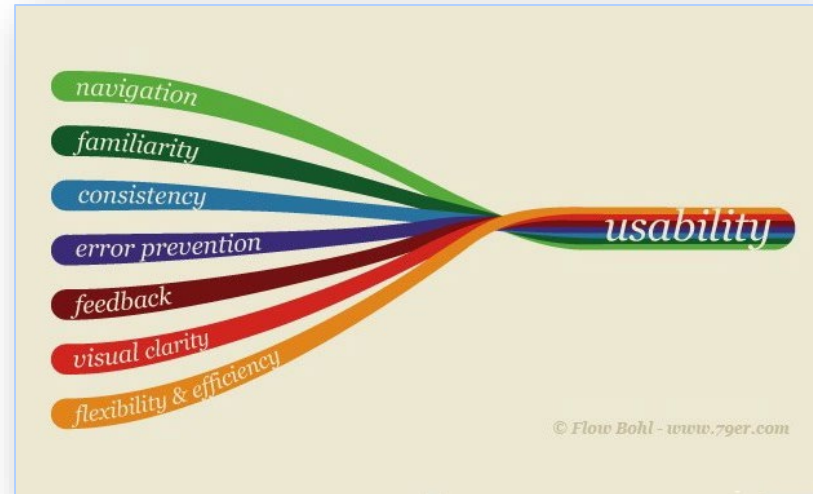
Personnel Engagement





&

Design Principles



Outcomes - Benefits



- **Accurate data**

- What was used on which patient
- Expiry dates
- Implants tracking

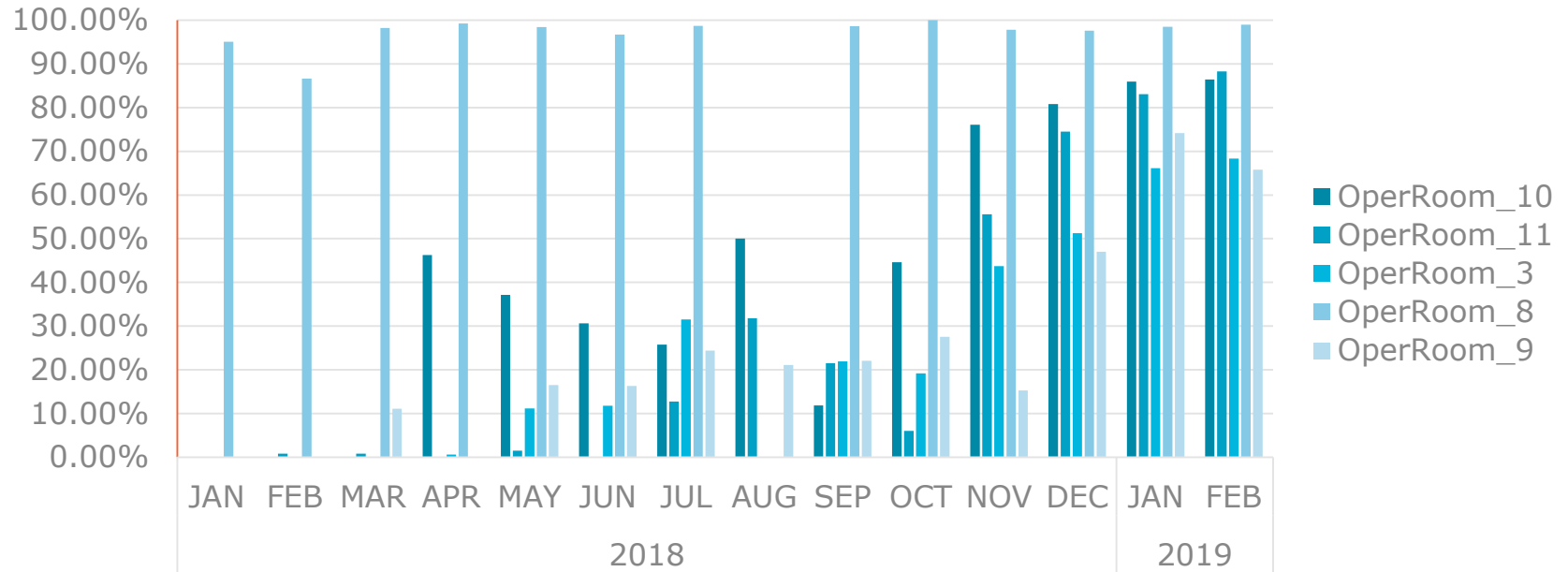
- Stock accuracy – visibility
- Better forecasting
- Fewer losses



Outcomes – Benefits, OR



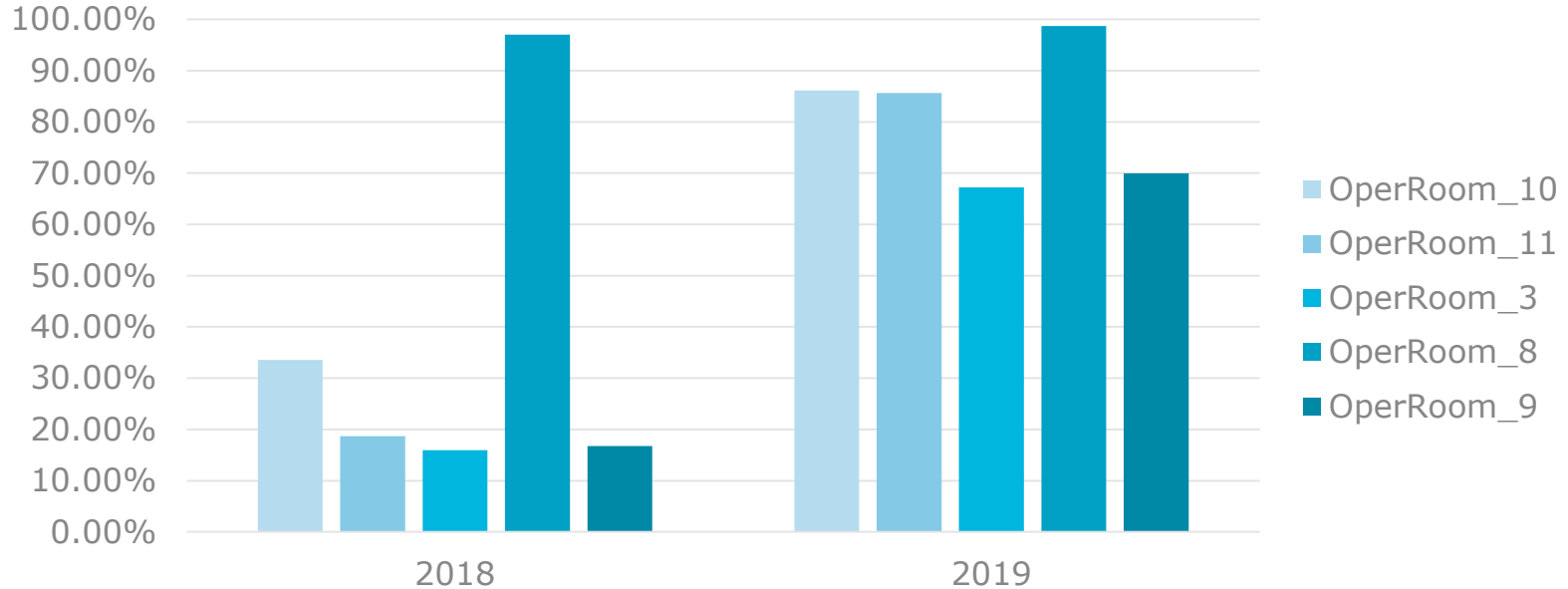
% Scan Rate per OR, 14 months period



Outcomes – Benefits, OR



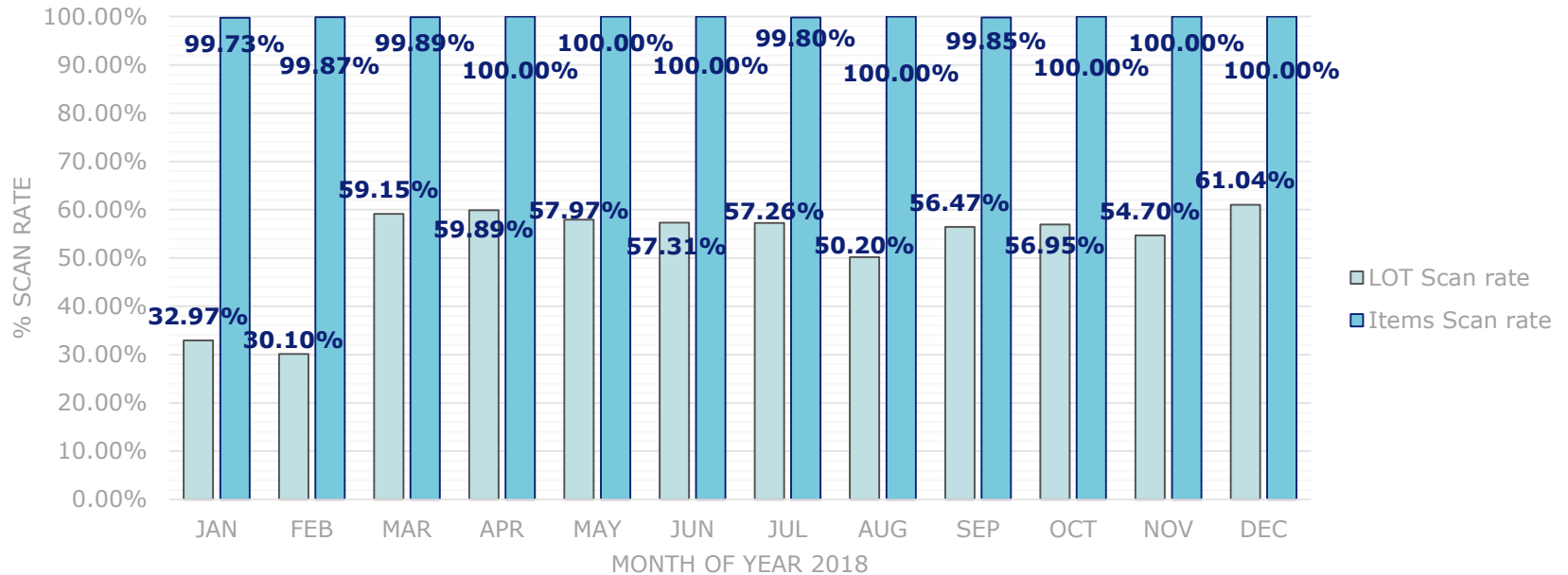
% Scan Rate per OR, 14 months period



Outcomes – Benefits, Cath. Lab



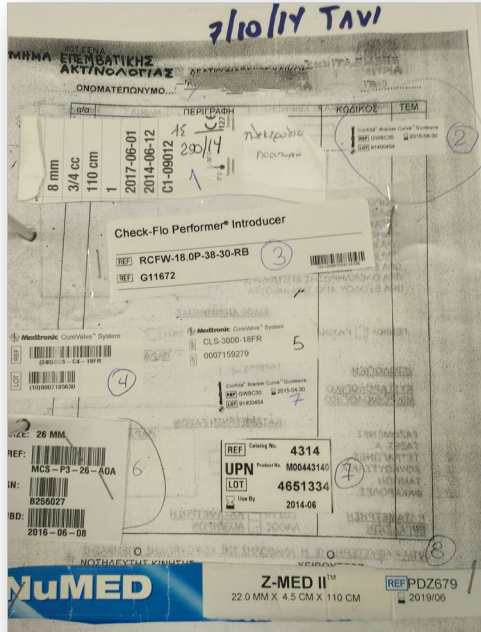
% LOT/BATCH or SERIAL registration in EHR system, Cath. Lab



Outcomes - Benefits



From this...



To this...

ΑΝΑΦΟΡΑ ΚΙΝΗΣΗΣ (ΑΝΑ LOT/SERIAL) Παράσκεψη, 8 Μαρτίου 2019

ΕΙΔΟΣ ΚΙΝΗΣΗΣ: **ΑΝΑΦΟΡΑ ΣΕ ΑΣΘΕΝΗ**

ΕΠΙΘΥΜΙΑ: **ΕΙΔΟΣ ΠΑΡΑΣΤΑΤΙΚΟΥ: ΔΕΥΤΟ ΔΙΑΦΕΡΕΣ ΣΕ ΑΣΘΕΝΗ**
ΑΡΙΘΜΟΣ ΠΡΟ-ΠΑΡΑΤΕΛΙΑΣ: ΑΡΙΘΜΟΣ ΠΑΡΑΣΤΑΤΙΚΟΥ: 124

ΠΡΟΕΛΕΥΣΗ: **ΗΜΕΡ/ΜΙΑ ΠΑΡΑΣΤΑΤΙΚΟΥ: 26/2/2019**
ΣΥΜΒΑΗ: ΠΑΡΑΚΑΤΑΘΗΚΗ

GTIN	ΠΕΡΙΓΡΑΦΗ ΕΙΔΟΥΣ	ΜΗ	ΠΑΡΤΙΔΑ	SERIAL No	ΛΗΞΗ	ΤΕΜ
0080190206855	ΘΗΚΑΡΙΑ 6R/11CM ΜΕ ΒΕΛΟΝΑ R.R.C.W Ref No: GR-08603	TBM				-1
00814548015071	Smart Coil Soft 4mm x 6cm Ref No: 4005M5FT0406	TBM	F78909		27/8/2022	-1
00814548015096	Smart Coil Soft 4mm x 10cm Ref No: 4005M5FT0410	TBM	CL2504		9/7/2021	-1
00814548015101	Smart Coil Soft 5mm x 10cm Ref No: 4005M5FT0510	TBM	F81328		7/1/2023	-1
00814548015149	Smart Coil Soft 5mm x 6cm Ref No: 4005M5FT0306	TBM	F73575		8/1/2022	-1
00814548015259	Smart Coil Extra Soft 2mm x 5cm Ref No: 4005M5SFT0205	TBM	F80202		26/10/2022	-1
00814548015347	Smart Coil Extra Soft 3mm x 4cm Ref No: 4005M5SFT0304	TBM	F83139		30/4/2023	-1
00814548015408	Smart Coil Extra Soft 4mm x 1.0cm Ref No: 4005M5SFT0410	TBM	F78893		27/8/2022	-1
00814548016030	Smart Coil Extra Soft 2mm x 6cm Ref No: 4005M5SFT0206	TBM	F84418		1/7/2023	-1
00814548016139	Μηχανισμό Αποκόλλησης Μικροσπειρωμάτων Smart Coil Ref No: SCH1	TBM	F85331		16/8/2023	-1
00821694058053	ΑΙΜΟΚΑΤΑΚΤΗ ΒΑΛΒΙΔΕΣ 2- & 3- ΔΡΟΜΩΝ 2-WAY ROTATING HEMOSTASIS VALVE Ref No: MVAL00	TBM	A610501		8/3/2021	-1
00836462010345	ΜΙΚΡΟΣΠΕΡΜΑΤΑ ΗΛΕΚΤΡ. ΒΥΒΟΛ ΑΥΧΛΜ 3-D, ΑΥΧΛΜ, 4MM*30CM, 3D Ref No: QC-4-3-3D	TBM	A738033		8/11/2021	-1
00836462010406	ΜΙΚΡΟΣΠΕΡΜΑΤΑ ΗΛΕΚΤΡ. ΒΥΒΟΛ ΑΥΧΛΜ 3-D, ΑΥΧΛΜ, 7MM*20CM, 3D Ref No: QC-7-20-3D	TBM	A697619		23/8/2021	-1
00836462010444	ΜΙΚΡΟΣΠΕΡΜΑΤΑ ΗΛΕΚΤΡ. ΒΥΒΟΛ ΑΥΧΛΜ 3-D, ΑΥΧΛΜ, 9MM*20CM, 3D Ref No: QC-9-20-3D	TBM	A959729		9/2/2021	-1
00836462010468	ΜΙΚΡΟΣΠΕΡΜΑΤΑ ΗΛΕΚΤΡ. ΒΥΒΟΛ ΑΥΧΛΜ 3-D, ΑΥΧΛΜ, 10MM*20CM, 3D Ref No: QC-10-20-3D	TBM	A619682		26/3/2021	-1

Outcomes - Benefits



ΕΘΝΙΚΗ ΕΠΙΛΟΓΗ \ ΔΙΑΧΕΙΡΙΣΗ ΥΛΙΚΩΝ - ΚΙΝΗΣΕΩΝ \ ΚΙΝΗΣΕΙΣ ΕΙΔΟΥΣ

ΕΚΤΥΠΩΣΗ ΚΙΝΗΣΕΩΝ ΑΚΥΡΩΣΗ ΦΙΑΤΡΟΥ ΚΛΕΙΣΙΜΟ

GTIN ΕΙΔΟΥΣ	ΠΕΡΙΓΡΑΦΗ ΥΛΙΚΟΥ	ΜΜ	ΠΟΣΟΤ	ΕΙΔΟΣ ΚΙΝΗΣΗΣ	ΗΜΕΡ/ΝΙΑ	ΣΥΝΑΛΛΑΣΣΟΜΕΝΟΣ	ΚΙΝΗΣΗ	MEDICO
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12464552048301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161019301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161020301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161024301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161031301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161164301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512170139301	TEM	1	ΑΡΧΙΚΗ ΑΠΟΓΡΑΦΗ	16/10/2017			9
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161030301	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΙΘΕΝΗ	10/1/2018	ΠΑΡΛΑΒΑΤΖΑΣ ΓΕΩΡΓΙ	6606	2218634
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512170139301	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΙΘΕΝΗ	10/1/2018	ΚΑΡΔΟΣ ΑΝΗΤΕΡΟΣ	6613	2212840
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161031301	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΙΘΕΝΗ	19/1/2018	ΜΕΓΡΕΜΗ ΚΑΛΛΙΟΠΗ	6721	2218290
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS LOT: SERIAL No: 12512161164301	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΙΘΕΝΗ	19/1/2018	ΚΑΡΑΓΙΩΡΓΟΣ ΒΑΣΙΛΕΙ	6737	2219122
00380652358309	ΕΝΔΟΦΑΚΟΣ ACRYSOΦ .JQ 21.5D W/ULTRASEΤ DEL SYS	TEM	-1	ΑΝΑΛΩΣΗ ΣΕ ΑΙΘΕΝΗ	23/1/2018	ΓΛΥΜΗ ΒΑΣΙΛΙΚΗ	6750	2220178

ΑΣΚΛΗΠΙΟΣ® 2017

Traceability !

Item

Serial No

Patient & operation data





- **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



ΟΘΟΝΗ ΕΠΙΛΟΓΩΝ ΔΙΑΧΕΙΡΙΣΗ ΥΛΙΚΩΝ - ΚΙΝΗΣΩΝ ΠΙΝΑΚΑΣ ΑΞΙΑΣ ΕΠΕΜΒΑΣΕΩΝ

ΑΞΙΑ ΥΛΙΚΩΝ ΕΠΕΜΒΑΣΕΩΝ ΚΛΕΙΣΙΜΟ

ΑΑ	MEDICO	ΒΑΘΜΟΣ/ΙΔΙΟΤΗΤΑ	ΟΝΟΜΑΤΕΠΩΝΥΜΟ	ΕΙΔΟΣ ΕΓΧΕΙΡΙΣΗΣ	ΤΕΜ	ΑΞΙΑ ΥΛΙΚΩΝ
44	2381562	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ	24	14.366,87 €
6	2374461	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ	21	13.599,55 €
27	2378364	ΙΔΙΩΤΗΣ	ΥΠΟΛΟΓΙΣΤΗΡΙΑ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ	21	13.581,87 €
71	2386323	ΜΕΛΟΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - FLOW DIVERTER	18	10.797,55 €
49	2382884	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ	17	9.538,19 €
45	2382491	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ	19	8.352,87 €
51	2383985	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ	16	7.107,87 €
62	2385041	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ - ΕΜΒΟΛΙΣΜΟΣ ΑΝΕΥΡΥΣΜΑΤΟΣ	16	7.103,55 €
37	2379717	ΜΕΛΟΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ	6	63,05 €
63	2385046	ΙΔΙΩΤΗΣ	ΕΡΓΑΣΤΗΡΙΟ	ΑΓΓΕΙΟΓΡΑΦΙΑ ΕΓΚΕΦΑΛΟΥ	6	63,05 €

ΜΕΣΗ ΑΞΙΑ ΑΝΑ ΕΠΕΜΒΑΣΗ: **8.457,44 €** ΣΥΝΟΛΟ: **84.574,42 €**

Record: 10 of 10 | Filtered | Search

Form View Num Lock

Detailed cost per operation

Outcomes - Benefits



AXIA			
SUM			
.0 %			
AA	AB	AC	AXIA
412.438	543.723	143.400	SUM
BA	BB	BC	Total
41.825	54.421	109.927	1.373.097
CA	CB	CC	
12.353	28.321	26.690	

***More effective
purchasing strategy***

Double ABC analysis !



- **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 !



- **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"



Change of Culture!



Outcomes - Benefits



Our Vascular Embolism Lab Team

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

ΕΛΕΓΧΟΣ ΧΟΡΗΓΗΣΗΣ ΣΚΕΥΑΣΜΑΤΟΣ

ΗΜΕΡΟΜΗΝΙΑ: 20/2/2019

ΝΟΣΗΛΕΥΤΗΣ

ΑΜΚΑ:

ΟΝΟΜΑΤΕΠΩΝΥΜΟ:

ΑΣΘΕΝΗΣ

ΑΜΚΑ:

ΟΝΟΜΑΤΕΠΩΝΥΜΟ:

ΣΚΕΥΑΣΜΑ

GTIN:

ΣΚΕΥΑΣΜΑ:

LOT:

ΚΑΘΑΡΙΣΜΟΣ


BarCode	ΕΜΠΟΡΙΚΟ ΣΚΕΥΑΣΜΑ	ΠΑΡΤΙΔΑ	ΠΟΣΟΤΗΤΑ	BARCODE	LOT	ΠΟΣΟΤ.
2802978401012	ABRAXANE SMG/ML PD.SUS.INF 1V	ΔΗΜΙΟΥΡΓΙΑ ΣΚΕΥΑΣΜΑΤΟΣ				
2802863001013	GEMNIL PD. SOL. INF. 200 MG	ΔΡΑΣΤΙΚΗ	ΠΟΣΟΤΗΤΑ (mg)	ΟΓΚΟΣ ΔΙΑΛΥΣΗΣ (mL)	ΔΙΑΛΥΤΗΣ	LOT
2802863002010	GEMNIL PD. SOL. INF. 1GR	Gemcitabine	1400 mg	250 mL	N/S 0,9%	A200219
		Paclitaxel	150 mg	100 mL	N/S 0,9%	A200219


frmProductLabel


ΚΛΙΝΙΚΗ: ΟΓΚΟΛΟΓΙΚΗ

ΑΣΘΕΝΗΣ:

Gemcitabine, 1400mg 250mL N/S 0,9%


(01)02200040100335

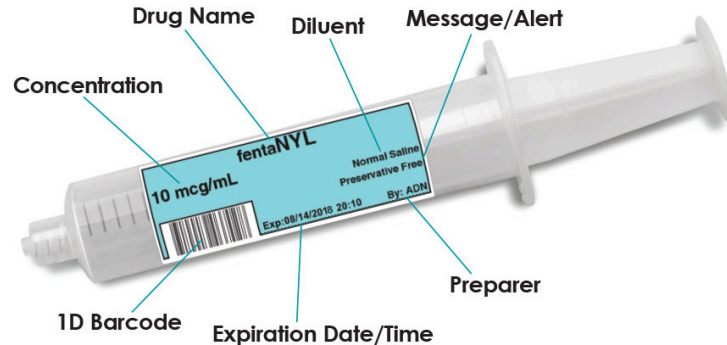
LOT: A271118 
(10)A271118

EXP: 1811281209 
(7003)1811281209

Next Steps ?



Safety Labeling System for high-risk medication in the OR



One last word





Thank you !

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