



The Global Language of Business

# Panel – Standards, Digitalisation and hospitals, what impact for the future of the Healthcare Community

October 30, 2018

Alan Foster, CEO, North Tees Hospital, UK

Dr. Kingsley Huang, Postdoctoral Research Fellow of Institute of Clinical Medicine, National Yang-Ming University, Chief Technology Officer, Xuzhen Medical Co., Ltd, Taiwan

Dr. Hajo Reissmann, Head of Medical Supplies Controlling, University Hospital of Schleswig Holstein, Germany

Patricia Van Dyke, past Chair HL7 International, US



The Global Language of Business

# Standards, Digitalisation and hospitals, what is impact for the future of the Healthcare Community

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Alan Foster , Accountable Officer  
North Tees & Hartlepool NHS Foundation Trust  
October 30, 2018



# NHS Overview



NHS employs **>1.6m people**

Top five of the world's largest workforces

NHS England employs **>1.3m people**

NHS England deals with **>1.4 million** patients every 24 hours

NHS Budget  
In 1948: **£437m**  
Now: **£120.5bn**

Most impressive healthcare system (Commonwealth Fund, 2017)

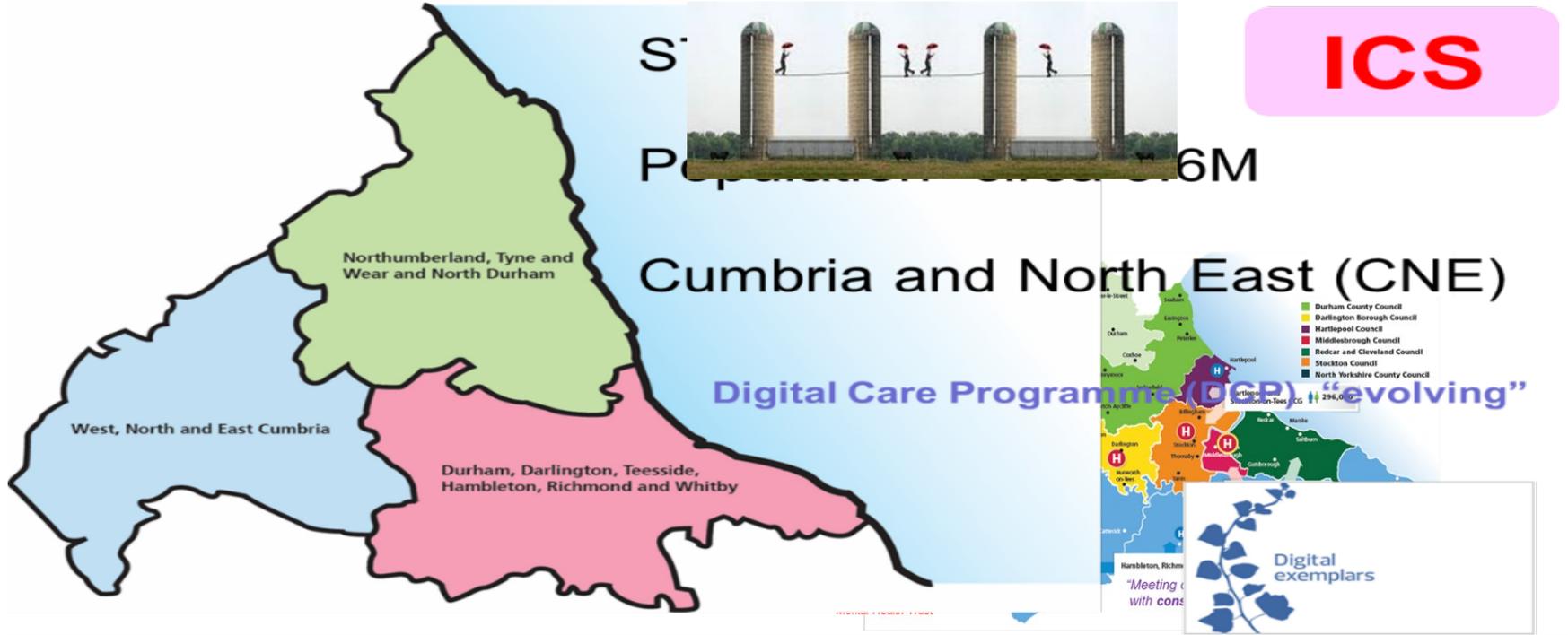
Free at point of treatment

Tax funded

Accountable to parliament



# Background – Background and location



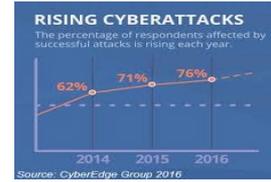


## Foundational Infrastructure

*"... the simple truth that if we don't make it compelling for clinicians to use IT systems for their day to day work and enable them to capture accurate, timely clinical information within those systems, then most of the other opportunities within the IT strategy will be unfulfilled."*

[NHS England](#)

# Roadmap - Where are we heading?



Increasing digital dependency (and increasing cyber risk to an extent)

**Paper Heavy**



**Paper-Light**



**Paperless**



# Digital Strategy - Digital Maturity (improvement plan)

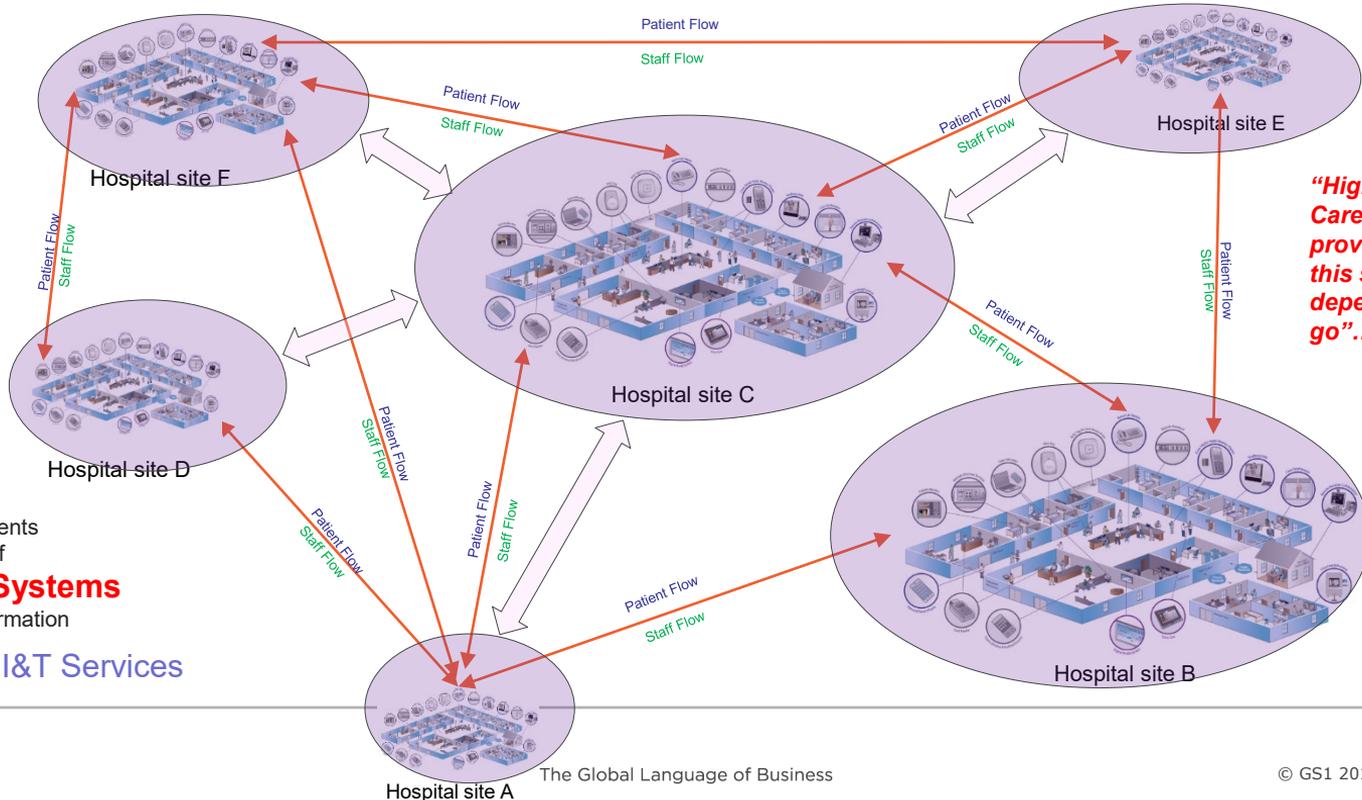


DMA Measure	Current % (measured against 16/17 baseline)	Target % (against 17/18 baseline)	Target % (against 18/19 baseline)	Target % (against 19/20 baseline)	Comments
Strategic Alignment	85	100	100	100	STP Digital Programme
Leadership	100	97	100	100	GDE Programme
Resourcing	85	100	100	100	n/a
Governance	95	100	100	100	Appointment of CITO / CCIO roles
Information Governance	88	97	100	100	Strategy for Cyber Security. Robust Information Governance processes and monitoring of staff training records through electronic system.
Records assessment and plans	40	68	80	100	Information will be available contextually from the main EPR where possible to provide information seamlessly at the point of care
Transfer of Care	77	80	96	100	Digital Innovation and EPR
Orders and results management	86	91	96	100	Enhanced alerts to EPR.  and from
Medicines management and optimisation	14	75	80	100	Introduction of medicines part of the EPR for adult inpatients will see a significant development in early 2018, with Paediatric inpatients planned for late 2019/early 2020.
Decision support	50	95	100	100	Will increase further with the deployment of Active Clinical Notes / E observations and EPMA
Remote and assistive care	92	100	100	100	The technical capability already exists and we want to establish links with surrounding healthcare providers to take this forward. We are also exploring HealthShare as our Patient Facing Portal for direct messaging to clinicians and linking this to their electronic record.
Assets and resource optimisation	75	100	100	100	Digital Innovation and EPR
Enabling infrastructure	89	91	100	100	Strong Wi-Fi, upgraded network and software. Developing live streaming, video conferencing and TECs capabilities.
Business and Clinical Intelligence	n/a	91	100	100	Clinical Transformation

# Digitally connected services improves health and care



For Illustration only

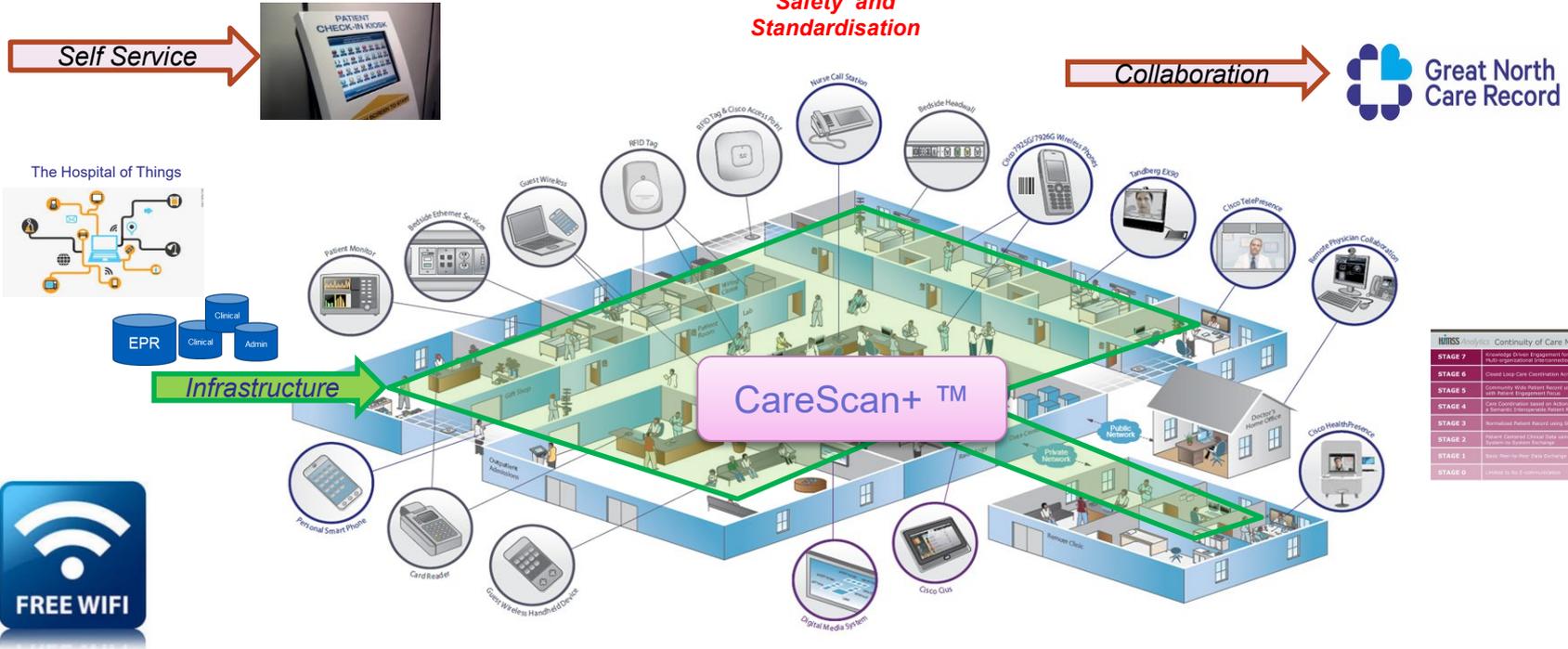


*“High quality safe Care is what we provide, this should not depend on where you go”....*

- Same Patients
- Same Staff
- **Same Systems**
- Same Information
- Shared I&T Services



# Digital Strategy - the "Digital Hospital of Things"



HIMSS Analytics - Continuity of Care Maturity Model	
STAGE 7	Advanced Care Coordination using Embedded, Automated, and Integrated Information Exchange
STAGE 6	Coordinated Care Coordination across Care Team Members
STAGE 5	Community Wide Patient Record using Appropriate Information with Patient Engagement Tools
STAGE 4	Care Coordination based on Available Data using a Network-Enabled Patient Record
STAGE 3	Normalized Patient Record using Structure Interoperability
STAGE 2	Shared General Clinical Data using Basic Interoperability Standards
STAGE 1	Basic Patient-Provider Data Exchange
STAGE 0	Unable to be Interoperable



# Thank You





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# Standards, Digitalisation and hospitals, what is impact for the future of the Healthcare Community

## An UDI Management System of IOT for Smart Medical Service Relying on GS1 Standards

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Dr. Kingsley Huang

National Yang-Ming University & Xuzhen Medical Co., Ltd, Postdoctoral Research Fellow of Institute of Clinical Medicine & Chief Technology Officer

October 30, 2018



# Dr. Kingsley Huang



- Postdoctoral Research Fellow of Institute of Clinical Medicine, National Yang-Ming University
- Chief Technology Officer of Xuzhen Medical Co., Ltd

## Journal Thesis

- (2017) *Cloud Integrated System Aiding in Headache Assessment*
- (2017) *Develop a Healthcare Platform for Dementia Disorder*
- (2014) *Using discovery prototyping method to develop customized operating room's medical resources and billing system of medical center in Taiwan*

## Specialties

**Database study, Big Data Research, Datamining,  
Clinical Informatics, Medical logistics Informatics,  
Medical Information System Integration and Applications**

# Outlines

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- The Development of UDI in Taiwan
- The Difficulties for the Application of UDI System
- The Innovation of the UDI Application
- The Adoption of UDI Application- The case of Kaohsiung Armed Forces General Hospital
- Conclusion

# The Development of UDI in Taiwan



- Since 2013, GS1 Taiwan with Taiwan FDA's support has been leading the charge of the Taiwan UDI research projects by proactively working with other important healthcare stakeholders.
- 2014-2015: the adoption of UDI application relatively slow due to the difficulty in integration of database and the UDI barcode of Same product item varies because of package levels.
- In October 30, 2015 Taiwan Food and Drug Administration (TFDA) released a UDI Administrative Guidance, including subsequent relevant regulations on Medicine Traceability System in 2016.



# The Development of UDI in Taiwan



- 2016 The new approach provided by our YM research team to build the UDI cloud system successfully applying to Taipei Veterans General Hospital (TVGH).
- 2017 UDI Pilot projects ran in Taiwan hospitals, still first using the traditional approach to build additional DataBase or try to integrate one.



# The Difficulties for the Application of UDI System



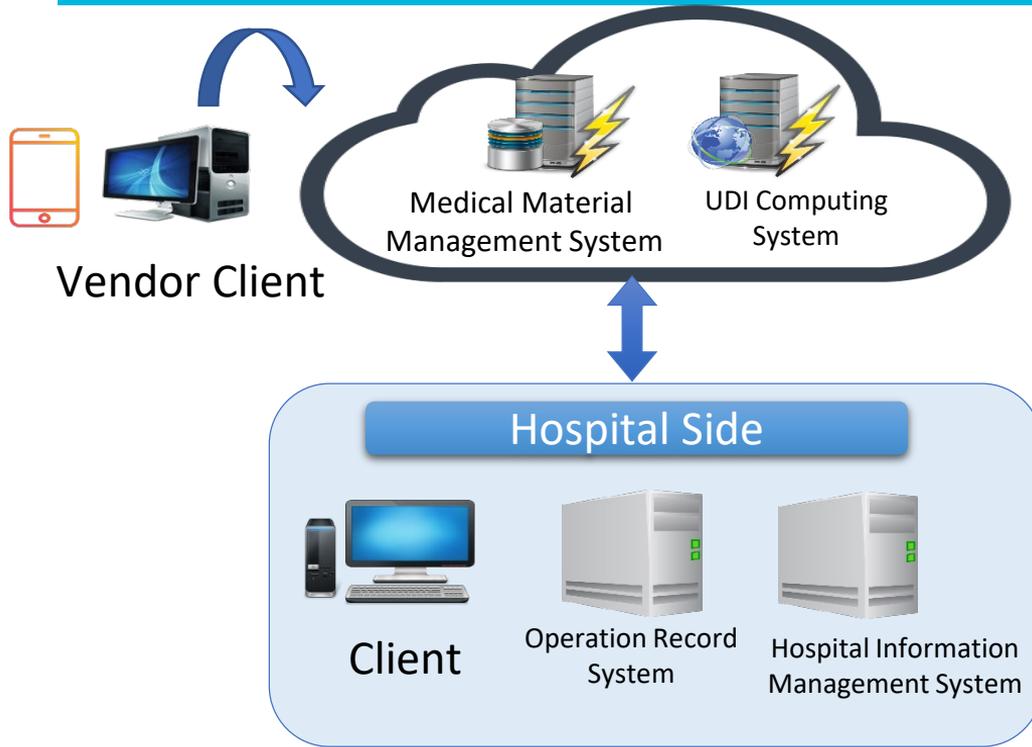
- The data sheet for suppliers of medical device, requested by hospitals adopting UDI system
- Staff of IT Dept. in Hospitals know little about the GS1 Standards.

範例						
供應商	本院內料號	合約案號	健保代碼	許可證字號	最小包裝條碼	條碼圖片
路人有限公司	FD*****					

**【最小包裝條碼說明】**

- 1.國際條碼為主(總共要 16 碼)最優先  
 例如：(01)04038653917549(17)210816(10)36911261  
 填入 0104038653917549
- 2.無國際條碼，選擇與型號相似條碼  
 例如：假設衛材型號是 G121 相似的條碼 HCG121+，填入 HCG121+
- 3.無以上條碼，則商品條碼填入  
 例如：4714691820026、768455108268
- 4.以上條碼之外或本品項無條碼，以料號代替填入  
 例如：料號 FD044560 就填入 FD044560

# The Innovation of the UDI Application: the architecture of UDI System Platform



**Via AI in UDI Cloud service,  
Scan to get details of product info  
without additional Database**

**Only 3-6 months  
to complete the full adoption of UDI Cloud service  
according to different demands of Hospitals**

# The Innovation of the UDI Application(1)



編輯中手術帳目

日期: 牙科(ORTHO)

手術編號: 2392

病患姓名: 趙學義

病歷號: 0047003

醫師名稱: [ ] 醫師

醫師

Step 1: 術前資料  
Step 2: 基本資料  
Step 3: 參照大綱  
Step 4: 一般醫材  
Step 5: 組裝醫材  
Step 6: 科別附屬  
Step 7: 治療/刀口項目  
Step 8: 器械紀錄單  
Step 9: 手術器械清單  
Step 10: 工作空修單  
Step 11: 設備調整  
Final Step: 列印報表

醫材使用

取得方式:  單備  特單備(藥房)

採購方式:  預保給付  部分給付  自費給付  不計價  贈成品  治療/手術費用內含

醫材準碼(OD): [ ]

效期/批字號(P11): [ ]

效期/批字號(P12): [ ]

Success!

上一筆登入資料

效期(YMMDD): 220930

批號: CAZ003

序號

醫材品名: 安美博® 骨質和牙骨水泥

醫材規格: BONECEMENT40GM

RFF碼: 6191-0-001

收管碼: DS002

備用/自費費: 批發運送

採購廠商: 互邦股份有限公司

使用醫材

NO.	取得方式	品名規格 REF碼	UseBy/Lot/SN	供應商 收管碼	計價方式	數量	功能
1	單備	安美博® 骨質和牙骨水泥 BONECEMENT40GM 6191-0-001	UseBy:220930 Lot:CAZ003 SN:無資料	互邦股份有限公司 DS002	備保給付	1 箱 / 箱	
2	單備	安美博® 骨質和牙骨水泥 BONECEMENT40GM 6191-0-001	UseBy:220930 Lot:CAZ003 SN:無資料	互邦股份有限公司 DS002	備保給付	1 箱 / 箱	

特別醫材

NO.	醫材名稱	收管碼	計價方式	數量	功能

尚未登入資料

## Supplier-side system Screen (1)

登錄日期區間:  to 

手術日期區間:  to 

產品型號: 

其他條件  含效期

顯示 20 項結果

ID	狀態	紀錄日期	科別	類型	REF碼	規格	使用數量	效期	批號	序號
139622	取消	2018/09/23	NS	庫備(-)	ID-130	Size:2.5cm*7.5cm, 1in*3in, Quantity:Single unit.	1			
139621	有效	2018/09/23	NS	庫備(-)	821705		1	210228	185782	
139620	有效	2018/09/23	NS	庫備(-)	218-0074-SP		1			
139619	有效	2018/09/23	ORTH O	庫備(-)	CL-936	1 線長90 反角針	1			



## Hospital-side system Screen

# The Innovation of the UDI Application(2)



### 使用資訊

紀錄編號	139318
紀錄效用	false
經過變更	true
紀錄人員	Onor020
紀錄時間	2018/09/20 16:05:32
紀錄類型	庫備(-)
使用科別	CVS
手術編碼	2933
手術日期	2018/09/20 15:00:00
病患名稱	邱OO
病患編號	****1971
供應商	頤安實業有限公司
使用數量	1
請款方式	月結
為寄庫品	true
為瑕疵品	false
其他說明	庫存數量由 -4 更改為 -5
資料編碼(院內)	6900
原始條碼	(01)08935221211473 / (17)200400(10)171121VA / Null
效期	200400
批號	171121VA
序號	null

### 醫材相關資料

品名_中	"血管攝影引導套"
品名_英	"TERUMO" RADIFOCUS INTRODUCER II
產品型號	Terumo Sheath 6Fr. 0.035 10cm
REF碼	RS*B60K10MR
預設計價方式	健保
健保碼	CGS01BVK11TM
許可證號	衛署醫器輸字第023742號
存放醫院	國軍高雄總醫院
存放區域	軍陣大樓手術室
剩餘庫存量	-6
最低安全量	未設定
補庫方式	未設定

The detail info after UDI Scan, shown on the Supplier system

# The Innovation of the UDI Application(3)



出貨單號	建單時間	狀態	合約商	出貨商	院別	區域	科別
S1800040002D	2018/09/21	運送途中	台灣曲克股份有限公司	台灣曲克股份有限公司	802	軍陣大樓手術室	CVS
S1800040002C	2018/09/20	出貨完成	台灣曲克股份有限公司	台灣曲克股份有限公司	中壢天晟	中壢天晟手術室	CVS
S1802310001A	2018/09/20	運送途中	吉泰科技有限公司	吉泰科技有限公司	802	軍陣大樓手術室	GS
S18023100019	2018/09/20	運送途中	吉泰科技有限公司	吉泰科技有限公司	802	軍陣大樓手術室	NS
S18015400042	2018/09/20	運送途中	怡健股份有限公司	怡健股份有限公司	802	軍陣大樓手術室	ORTHO
S18011700005	2018/09/19	出貨完成	美麗康國際有限公司	美麗康國際有限公司	中壢天晟	中壢天晟手術室	NS
S1800040002B	2018/09/18	運送途中	台灣曲克股份有限公司	台灣曲克股份有限公司	三總	醫療大樓	CVS
S18014400061	2018/09/17	運送途中	互裕股份有限公司	互裕股份有限公司	802	軍陣大樓手術室	ORTHO
S18023100018	2018/09/17	運送途中	吉泰科技有限公司	吉泰科技有限公司	802	軍陣大樓手術室	GS
S18015400041	2018/09/17	運送途中	怡健股份有限公司	怡健股份有限公司	802	軍陣大樓手術室	ORTHO
S18014400060	2018/09/14	運送途中	互裕股份有限公司	互裕股份有限公司	802	軍陣大樓手術室	ORTHO
S18015400040	2018/09/13	運送途中	怡健股份有限公司	怡健股份有限公司	802	軍陣大樓手術室	ORTHO
S1800160000C	2018/09/13	運送途中	興東藥品器材有限公司	興東藥品器材有限公司	802	軍陣大樓手術室	CV
S18023100017	2018/09/12	運送途中	吉泰科技有限公司	吉泰科技有限公司	802	軍陣大樓手術室	NS
S1801540003F	2018/09/11	運送途中	怡健股份有限公司	怡健股份有限公司	802	軍陣大樓手術室	ORTHO
S1800040002A	2018/09/10	出貨完成	台灣曲克股份有限公司	台灣曲克股份有限公司	中壢天晟	中壢天晟手術室	CVS
S1801540003E	2018/09/10	運送途中	怡健股份有限公司	怡健股份有限公司	802	軍陣大樓手術室	ORTHO
S1801540003D	2018/09/07	運送途中	怡健股份有限公司	怡健股份有限公司	802	軍陣大樓手術室	ORTHO

The real-time info of Products Delivery from Suppliers

# The Innovation of the UDI Application(4)



Supplier get real-time info of current usage of Medical Devices in Hospitals

已設定項目 匯出CSV

NO.	品名	規格	型號	現存量(個)	週用量(個)	建議量(個)	安全量(個)
1	"曲克"多個孔注射導管組	MCIS-5.0-35-65-15.0	G06420	0 (個)	1 ↓ (個)	1 (個)	0 (個)
2	"曲克"微穿刺引導器組	MPIS-401-NT-SST	G47942	-2 (個)	1 ↓ (個)	2 (個)	5 (個)
3	"曲克"服來悉引導導管	KSAW-6.0-18/38-55-RB-AN L2-HC	G29997	4 (個)	1 ↓ (個)	1 (個)	4 (個)
4	"曲克"服來悉引導導管	KSAW-7.0-18/38-55-RB-AN L2-HC	G30000	4 (個)	1 ↓ (個)	1 (個)	4 (個)
5	"曲克"服來悉引導導管	KCFW-6.0-18/38-45-RB-AN L2-HC	G29983	0 (個)	1 ↓ (個)	1 (個)	0 (個)
6	"曲克"服來悉引導導管	KCFW-8.0-18/38-45-RB-AN L1-HC	G49100	-1 (個)	1 ↓ (個)	1 (個)	1 (個)
7	"曲克"西斯艾支持導管	CXI-4.0-35-150-P-NS-0	G52544	1 (個)	1 ↓ (個)	1 (個)	1 (個)
8	"曲克"西斯艾支持導管	CXI-2.6-18-150-P-NS-0	G50001	1 (個)	1 ↓ (個)	1 (個)	3 (個)
9	"曲克"親水性塗層微細導線	HMW-14-300-ST	G52939	2 (個)	1 ↓ (個)	1 (個)	3 (個)
10	"曲克"託經血管攝影導管	HNB5.0-38-100-P-NS-DAV	G08895	0 (個)	1 ↓ (個)	2 (個)	0 (個)
11	"曲克"託經血管攝影導管	HNB5.0-38-100-P-NS-DAV	G08895	-10 (個)	1 ↓ (個)	2 (個)	0 (個)
12	"曲克"託經血管攝影導管	HNB5.0-38-40-P-NS-KMP	G06749	-6 (個)	1 ↓ (個)	2 (個)	0 (個)
NO.	品名	規格	型號	現存量(個)	週用量(個)	建議量(個)	安全量(個)

# The Adoption of UDI Application- The case of Kaohsiung Armed Forces General Hospital UDI



**UDI application – Inventory Taking**

**UDI application – Reception of Products**



# Kaohsiung Armed Forces General Hospital Hospital-The application of UDI system in OR



醫療院所使用醫材  
即上傳雲端系統



Support International standards of UDI barcode  
No need for additional Barcode Data Base

# Kaohsiung Armed Forces General Hospital Hospital-The application of UDI system with AI enhancement(1)



• Case(1)

no result by scan,  
Use 「REF」 to find

**Step 1: 病患資料**  
**Step 2: 基本資料**  
**Step 3: 參與人員**  
**Step 4: 一蓋醫材**  
**Step 5: 組套醫材**  
**Step 6: 科別部門**  
**Step 7: 治療/口口項目**  
**Final Step: 列印報表**

**醫材登入**

取得方式:  庫備  非庫備(廠供)

供廠商:

計費方式:  健保給付  部份給付  自費給付  不計費  財品品  治療/手術費用內含

醫材條碼(DI):

效期/批手號:

效期/批手號 (PI2):

上一筆登入資料  
 效期(YMMDD):   
 批號:   
 序號:   
 醫材品名:   
 醫材規格:   
 REF碼:   
 收費碼:   
 健保/自費碼:   
 供應廠商:

**Success!**

上一筆登入資料  
 效期(YMMDD):   
 批號:   
 序號:   
 醫材品名: "史密輝"適合線釘  
 醫材規格: 2.9mm  
 REF碼: 72201995  
 收費碼: 無編碼  
 健保/自費碼: 尚未連結  
 供應廠商: 無合的廠商

**使用醫材**

NO.	取得方式	品名 規格 REF碼	UseBy/Lot/SN	供廠商 收貨碼	計費方式	數量	用途
1	庫備	"史密輝"適合線釘 2.9mm 72201995	UseBy:無資料 Lot:無資料 SN:無資料	無合的廠商	健保給付	1	縫/植

**Data N/A**

**使用 REF 功能建立醫材使用紀錄**

取得方式:  庫備  非庫備(廠供)

供廠商:

計費方式:  健保給付  部份給付  自費給付  不計費  財品品  治療/手術費用內含

醫材 REF 碼或條碼:

醫材規格:   
 批號:   
 序號:   
 收費碼:   
 供應廠商:   
 使用日期:

**Product found**

**Use REF function**



# Kaohsiung Armed Forces General Hospital Hospital-The application of UDI system with AI enhancement(2)



## Case(2)

Scan to get proper info of product item

  
 (01)10886704036746  
  
 (17)180531(10)CT005020

1	庫備	[ ] 人工腦膜 DURAFORM 4in x5in (10c mx12.5cm) 1units/Case	UseBy: 531 Lot: CT 20 SN: 無	廠商	健保 給付	1	編 / 刪
---	----	---	-----------------------------------	----	----------	---	-------



NO.	取得 方式	品名 規格 REF碼	UseBy/Lot/SN	供應商 收費碼	計價 方式	數量	功能
1	庫備	[ ] 人工腦膜 DURAFORM 4in x5in (10c mx12.5cm) 1units/Case	UseBy: [ ] Lot: CT [ ] SN: 無資料	無合約廠商 無編碼	健保 給付	1	編 / 刪

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# Kaohsiung Armed Forces General Hospital-the real data applying to the usage management of Medical Devices



KAFGH-MD Usage Record														
Suppliers	Item No.	Items	Pricing type	Pricing type	REF	SPEC	HI code	Pricing code	Contact	Surgery Time	PT No.	PT Name	use	
BARD	65150902 4151	速達血液 透析導管 HEMOSTA R	計價	健保給付	5833270	14.5Fr. *27CM	CKDD258 33NBA	M7627406	103185Y	2015/03/0 9	24XXX098	郭X糖	1	
													當日使用總 量	1
					5833690	14.5Fr. *19CM	CKDD258 33NBA	M7627406	103185Y	2015/03/0 2	23XXX39	李X從芝	1	
													當日使用總 量	1
					5833730	14.5Fr. *23CM	CKDD258 33NBA	M7627406	103185Y	2015/03/0 4	29XXX259	羅X豪	1	
													當日使用總 量	1
										2015/03/0 9	16XXX232	劉X作	1	
													當日使用總 量	1
					5834420	14.5Fr. *42CM	CKDD258 33NBA	M7627406	103185Y	2015/03/0 9	24XXX098	郭X糖	1	
													當日使用總 量	1
			Total Amount of Usage									5		

# Kaohsiung Armed Forces General Hospital-the real data applying to the usage management of Medical Devices



## KAFGH-Records on Sets of Premium subsidies

NO	Suppliers	Sets of Premium subsidies	Patient	Patient No.	Surgery Time	Item No.	Pricing code	Staff No.
1	COOK	Cook AAA Stent Graft	陳X聰	12XXX411	2015/3/16 上午 07:52:00	651523818138	M7620233	NUR3806
2	COOK	Cook TAA Stent Graft	曾X寶美	18XXX677	2015/1/8 上午 08:10:00	651523818137	M7620232	NUR8318
3	COOK	Cook TAA Stent Graft	朱X宗	42XXX858	2015/2/3 下午 03:55:00	651523818137	M7620232	NUR1923
4	COOK	Cook TAA Stent Graft	陳X謙	34XXX982	2015/3/17 上午 08:00:00	651523818137	M7620232	NUR0654
5	COOK	Cook TAA Stent Graft	黃X鐘	34XXX716	2015/3/19 上午 08:30:00	651523818137	M7620232	NUR3806
6	MEDTRONIC	Medtromic -Endurant AAA	沈X龍	41XXX955	2015/1/9 下午 09:30:00	651523818112	M7620161	NUR6327
7	MEDTRONIC	Medtromic -Valiant TAA	梅X強	17XXX176	2015/2/10 上午 07:45:00	651540447825	M7620200	NUR3806
8	巨鈺	Terumo-Anaconda AAA Stent Graft	周X芳	23XXX771	2015/1/14 上午 08:40:00	651523818110	M7620133	NUR0497
9	巨鈺	Terumo-Anaconda AAA Stent Graft	中X治	36XXX679	2015/1/20 上午 07:45:00	651523818110	M7620133	NUR0497

# Conclusion

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- Improvement in medical treatments and medical devices management and secure patient safety
- Cost reduction and profit increase for hospital operation
- Facilitator in hospital management efficiency
- Better integration Healthcare service

# **WELCOME TO TAIWAN & VISIT UDI APPLICATIONS IN HOSPITALS**

# THANK YOU!



# Contact Information

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The Global Language of Business

# Standards, Digitalisation and hospitals, what impact for the future of the Healthcare Community

Impact for the future of the Healthcare Community

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Dr. Hajo Reissmann, Head of Medical Supplies Controlling, University Hospital of Schleswig Holstein, Germany  
October 30, 2018



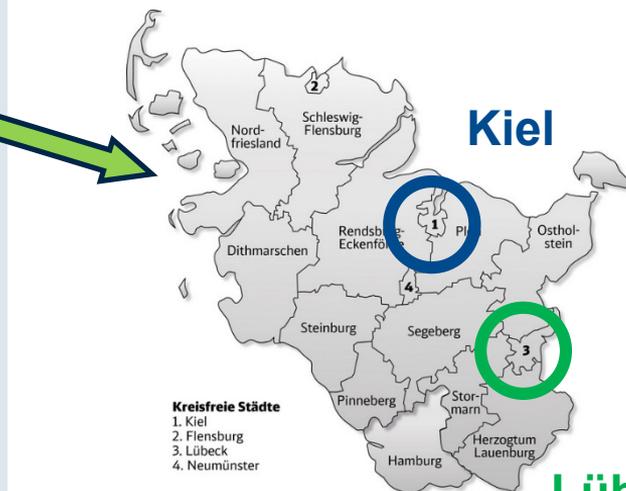
## Standards, Digitalisation and Hospitals

### Impact for the future of the Healthcare Community

H. Reissmann

University Medical Center Schleswig-Holstein, Lübeck & Kiel

## Schleswig-Holstein & its University Medical Center - key figures 2017 / 2018



### Beds

Kiel	~1.100
Lübeck	~1.100

### Inpatients / year

Kiel	~54.000
Lübeck	~55.000

### Outpatients / year

Kiel	~162.000
Lübeck	~140.000

**Lübeck**

**Framework:**  
German hospitals have two sources of income

Federal states

Patients / Insurers

Investment

- buildings
- medical equipment
- assets including IT

Operating costs

- labour
- consumables
- maintenance

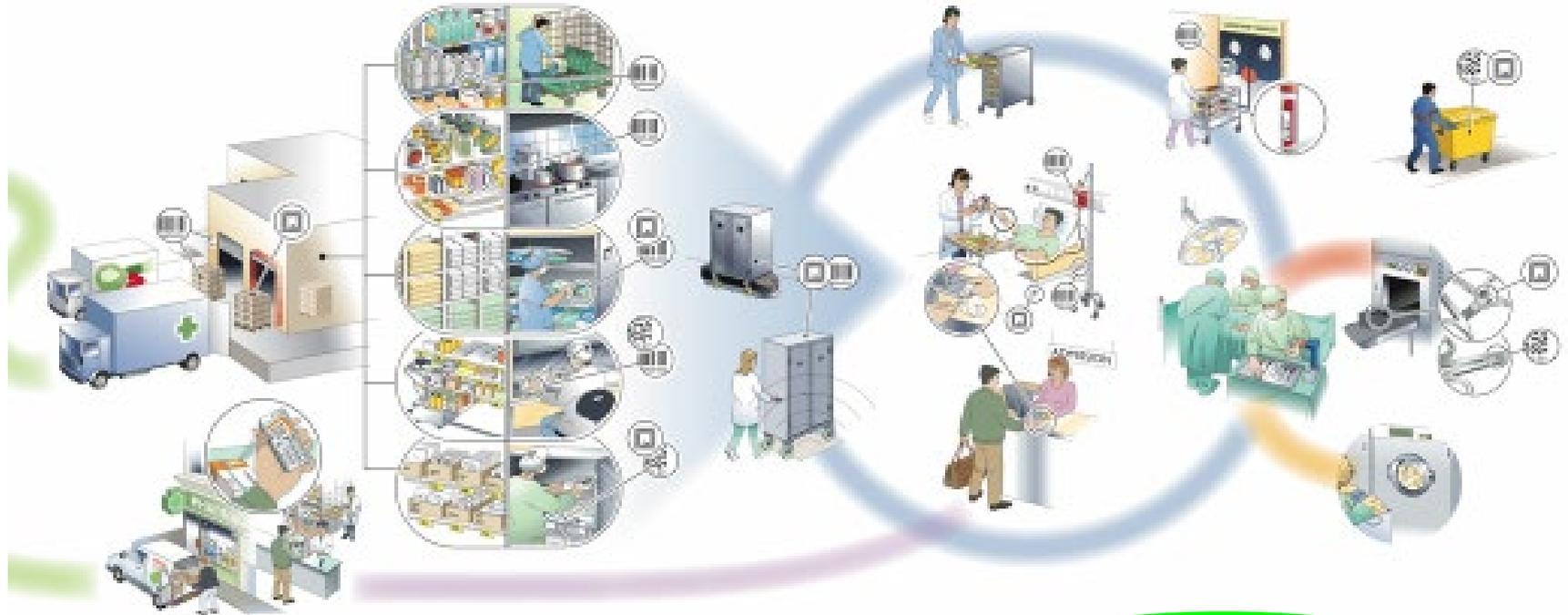
## Framework: Healthcare providers are in a squeeze

- Rising demands
  - demographics
  - medical progress and patients' expectations associated with it
  - everybody's rising expectations concerning "the power of IT"
- Limited resources
  - Money meant for operating costs is redirected towards investment
- → Services have to be provided with increasing efficiency
  - without jeopardizing patient safety – it should be steadily enhanced



## Streamlining medical processes

- Have in the right place at the right time
  - Patient
  - Providers
  - Appliances
  - Devices & Consumables
  - **Information / knowledge about**
    - Patient
    - Providers
    - Appliances
    - Devices & Consumables



Goal: Smooth flow of people, things & information

## Essential demand of master data: Identification

- **Secure** and **easy** identification is a **MUST**
  - data carriers
    - ideal: Single data carrier containing both device identification (DI) and production identification (PI = lot number, serial number, expiration date, ...)
  - identifiers
    - Availability, i.e. Master Data communication is a major road block
  - adherence to standards is **essential**

## Master Data: Beyond identification

- Information conveyed by master data:
  - “What is it?”
    - *identification*
  - “What does it do?”
    - *function*
  - “What does that mean for me?”
    - *interaction*



<https://commons.wikimedia.org/w/index.php?curid=31573621>

## Hospital IT is inhomogeneous – The silos need to communicate

- Frequently ERP systems and clinical workplace systems (electronic patient files) are provided by different vendors
- Additional specialized systems for specific functions (lab, radiology, function tests, ...)
- **Standards for communication** are essential
  - syntactic interoperability is not enough
  - semantic interoperability is necessary (“what do you mean by that?”)
- Applicable not only to internal communication, but also concerning external sources and recipients

## The power of IT increases fast – posing chances and challenges

- Analytics
  - Powerful new IT can unveil the treasures hidden in data
  - Essential prerequisites:
    - good data quality
    - semantic standards
- Communication with external devices & partners, e.g. patient records, wearables, exchange hubs, ...
  - huge potential for valuable additional information
  - huge potential for problems with interoperability

## Building the Healthcare IT landscape

- Let's avoid the mistakes made in Babylon
- Let's make sure we understand each other's language



# Thank you for your attention





The Global Language of Business

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Patricia Van Dyke, past Chair HL7 International, US  
October 30, 2018





# Paving the Road to Interoperability with Standards

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***Pat Van Dyke***

HL7 International, Vice Chair

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Home of  **HL7<sup>®</sup> FHIR<sup>®</sup>**

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# What This Nurse Cares About...

- Effective, efficient, safe
- Highest standard of care
- Best available technology
  
- To provide the best experience

# Healthcare Information Needs to be Exchanged

## The HL7 Vision

A world in which everyone can securely access and use the right health data when and where they need it.

## The HL7 Mission

To provide standards that empower global health data interoperability.

*Improving Patient Care and Lowering Healthcare Cost*





# HL7 Standards Span the Healthcare Continuum



**Pharmacy  
Medication Lists**



**Home Health  
Monitoring Devices**



**Payers/Financial  
Systems**



**Government Agencies,  
Public Health, Research**



**Clinician Decision  
Support**



**Hospitalization  
Summaries**



**Doctors Orders and  
Clinician Notes**



**Product Labeling**



**Lab Test Results**



**Genomics**



**Mobile Health**



**Emergency Care**



**Medical Records**

# Volunteers Work Together on Standards

In-person and virtually



# DaVinci Project



**Multi-Stakeholder**

**Best Talent**

**High Impact**

**Implementable**

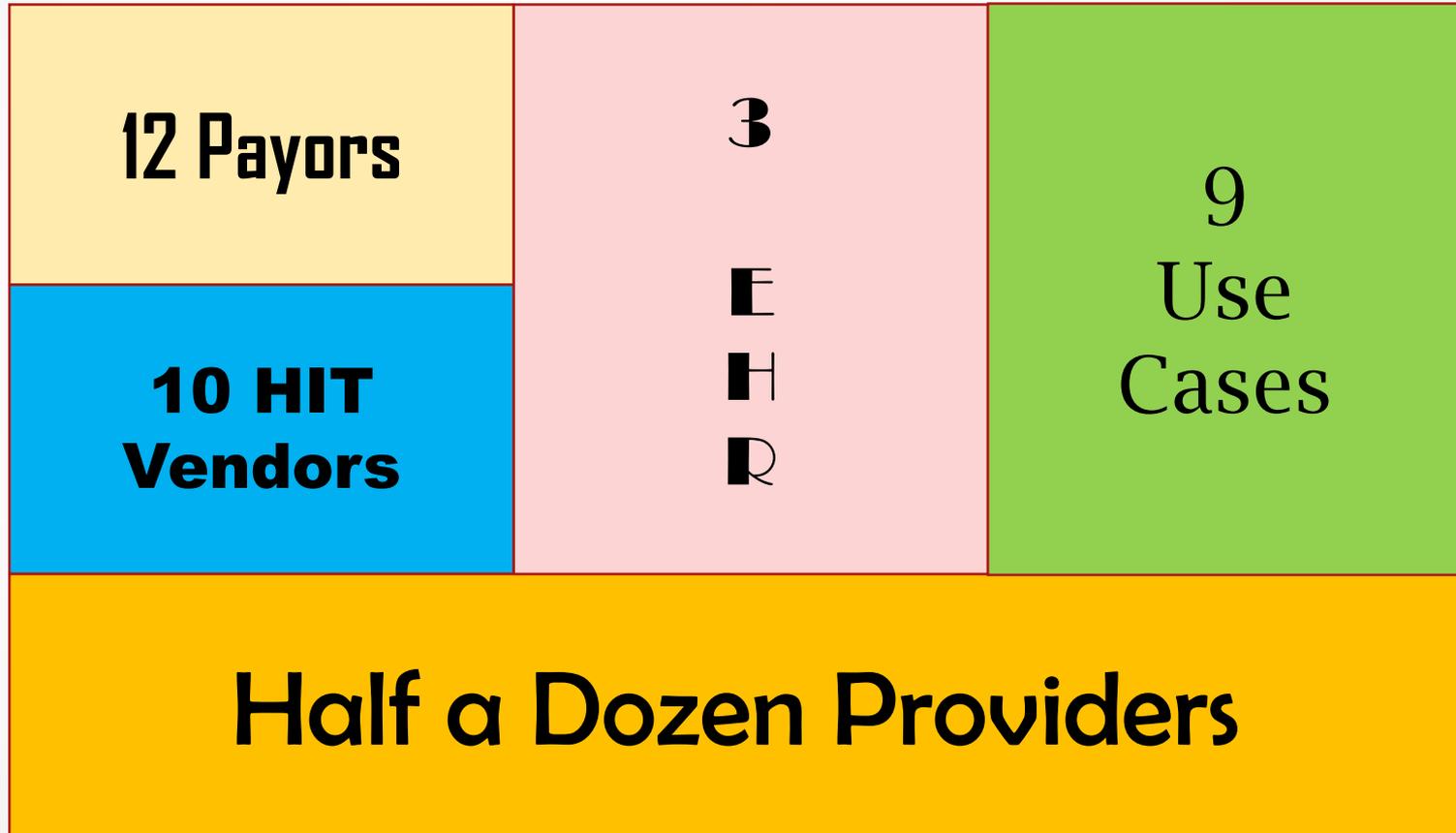
**Agile**

# DaVinci Purpose and Objective

a private sector initiative

- Purpose: to ensure the success of the industry's shift to Value Based Care ---there is a need for a process to allow multistakeholder participation to identify, exercise and implement initial use cases between payor and provider organization
- Objective: to minimize the development and deployment of unique solutions with a focus on reference architectures that will promote industrywide standards and adoption

# Diverse Players Coming Together



# 2018 Use Case Inventory and Project Deliverables

30 Day  
Medication  
Reconciliation\*

Coverage  
Requirements  
Discovery\*

Documentation  
Templates and  
Coverage  
Rules\*\*

eHealth Record  
Exchange:  
HEDIS/Stars &  
Clinician  
Exchange\*\*

Notification  
(ADT):  
Transitions in  
Care, ER  
admit/discharge

Risk Based  
Contract  
Member  
Identification

Authorization  
Support

Quality  
Measure  
Reporting

Laboratory  
Results

## Project Deliverables

- Define requirements (technical, business and testing)
- Create Implementation Guide
- Create and test Reference Implementation ( prove the guide works)
- Pilot the solution
- Deploy the solution

# Principals of HL7 FHIR



- Data resides at the **source of truth**
- **APIs** access data: pull what you need, instead of taking what's pushed
- Focus on **implementers**
- Include rigorous **semantics**
- Design for the common **80%**; extensions for the rest
- Off-the-shelf *security and authorization* (OAuth2, OIDC, https)
- **Speed, scalability**
- Human **readable**, ease of understanding
- Open source (Creative Commons), **freely available** for all.

# International Patient Summary



“Advance an International Patient Summary (IPS) standard to enable people to **access and share their health information** for emergency or unplanned care anywhere and as needed. At minimum the IPS should include **immunizations, allergies, medications, clinical problems, past operations and implants.**”

# Help Nurses do a better job...

- Patient Identification
- Interaction with the Electronic Health Record
- Supply Chain:
  - Patient use and re-use
  - Outdating
- Products that are known to be coming to end of use
- What the device is in the first place

# HL7 Resources



**Membership** [why.HL7.org](https://www.why.hl7.org)

**HL7 Standards** [HL7.org/standards](https://www.hl7.org/standards)

**Work Groups** [HL7.org/WorkGroups](https://www.hl7.org/WorkGroups)

**Education** [HL7.org/LearnNow](https://www.hl7.org/LearnNow)

**Events** [HL7.org/Events](https://www.hl7.org/Events)

**HL7 Affiliates** [HL7.org/Affiliates](https://www.hl7.org/Affiliates)

# Thank you!

