

# Case Study: Using GS1 Standards for Tracking Blood Products



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Disorders, St James Hospital, Ireland**

# Agenda

- Background to the Service
- Background to Haemophilia
- Issues
- Solutions
- Outcomes/ROI
- Conclusion

# Ireland



- **Population:** 4,156,119
- Haemophilia (A) Affects 1 in 5,000 to 1 in 10,000 male live births



# St. James's Hospital



## National Centre for Hereditary Coagulation Disorders (NCHCD)

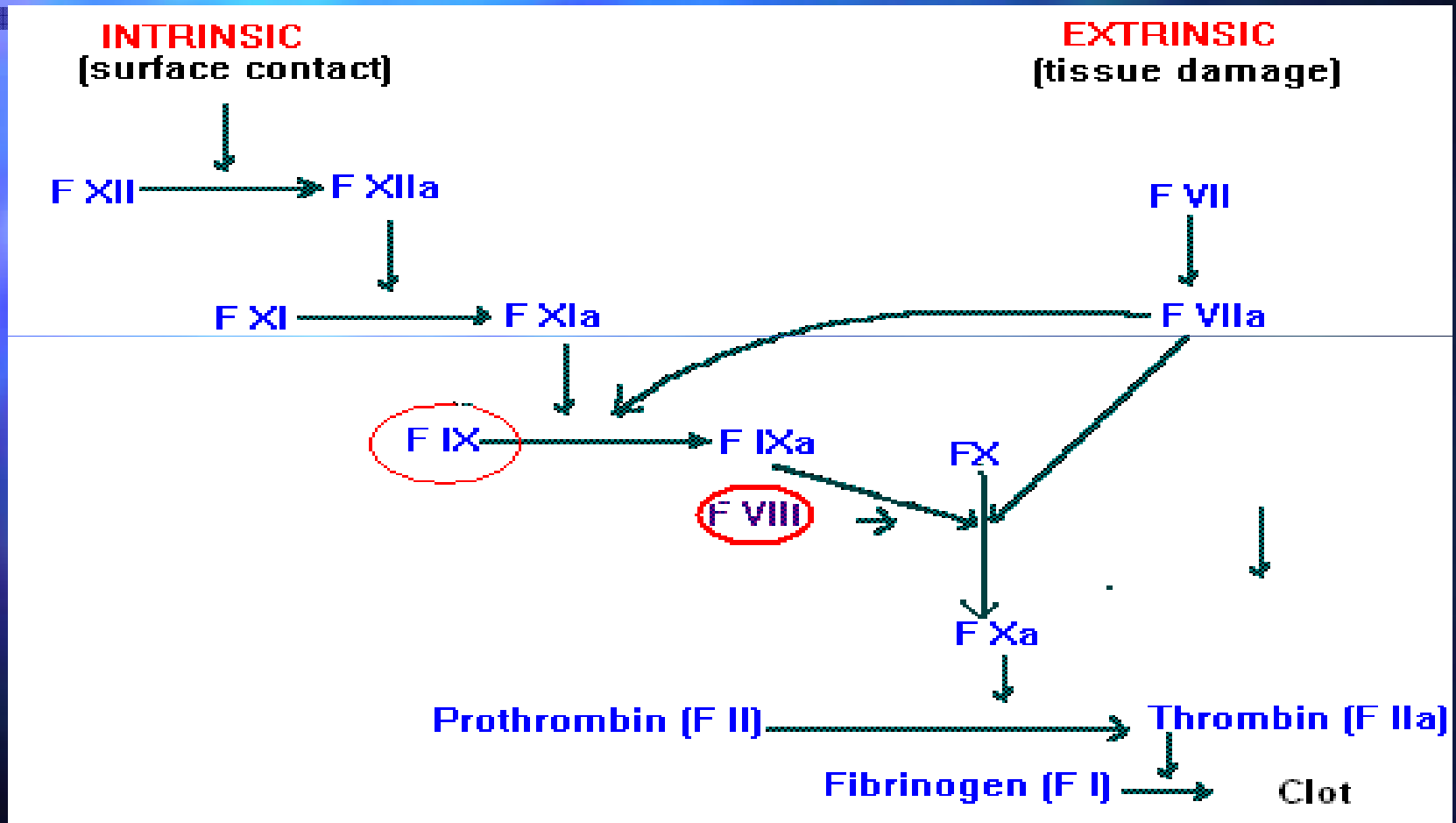
- Located at St James's Hospital, Dublin
- Manages patients with inherited and acquired bleeding disorders
- Approximately 2000 patients with Haemophilia
- Approximately 200 patients with severe haemophilia (require intensive care/treatment)
- Over 75% Patients with severe Factor deficiency self medicate at home



# What is Haemophilia ?

- Haemophilia is a bleeding disorder caused by a deficiency of a clotting factor
- Incidence is between 1:5,000 and 1: 10,000 Males
- The treatment of haemophilia involves the replacement of the clotting factor (previously prepared from pooled blood) using a concentrated preparation "Clotting Factor Concentrate" (CFC)

# The Science bit...!







# What triggered the initiative ?

## Healthcare

*Infection of patients with Hepatitis C and HIV due to contaminated blood products. Infected products remained in the supply chain after recall leading to subsequent infection*

- Lindsay Report 2001
- EU Blood Directive 2002/98/EC

## Industry

- COMBATING COUNTERFEIT DRUGS  
A Report of the FDA: February 2004
- FDA Counterfeit Drug Taskforce Report: 2006 Update
- California: e- Pedigree ruling
- Turkey: Regulation on Packaging and Labelling

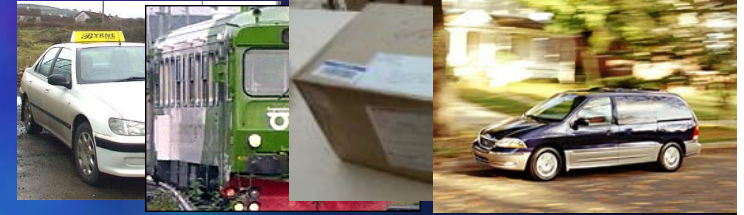
# Business Case



**No Product barcode**



**Non Availability**



**Non validated delivery**



**Incomplete/retrospective  
treatment information**



**Incomplete data**

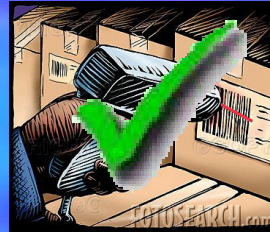


**Wastage/  
ineffective  
Medication**



**Increased Risk**

# The solutions



**Unique GS1 barcoding**

**Encrypted Messaging**

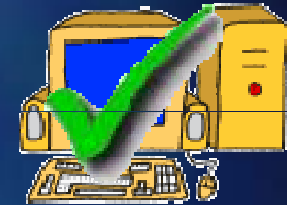
**validation**



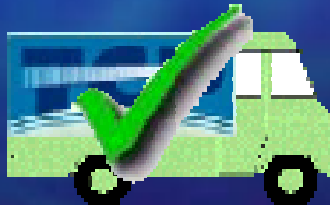
**Home/Hospital tracking**



**Comprehensive integrated care**



**Electronic Patient record**



**Validated cold chain delivery**



# What does Barcode Technology offer ?



- Identify patients, locations and medications uniquely
- Real-time ID and 100% track and trace of all medication
- Studies show the error rate of data entry in a skilled typist is 1 every 300 keystroke
- Error rate in B/C scanning is estimated at 1 in a million characters
- Faster data entry
- Scanned data can be transferred easily to any database

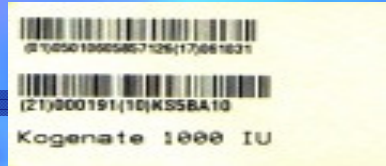
# Why GS1 and Linear Barcodes ?

## FDA Ruling

- Any linear symbology, including Reduced Space Symbology (RSS), can be used for the bar code
- Two-dimensional (2D) bar code symbologies are **not permissible**. This includes Data Matrix, which is already in use in the pharmaceutical industry
- RFID is not an acceptable substitute for the bar code
- **EAN.UCC** or HIBCC standards **may be used**, but neither is required.

# ID Formats

## Current Barcode (2 Linear)



## Manufacturer allocated barcode



## RFID



**Product Name  
(GTIN)**

**Batch Number**

**Expiry Date**

**Serial Number**



# The solutions



**Unique product barcoding**

**Encrypted Messaging**

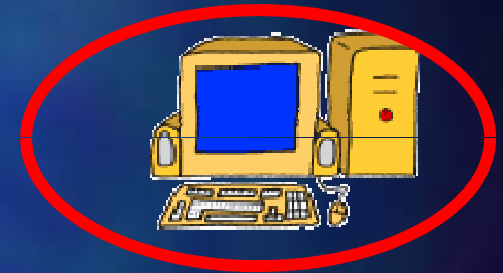
**validation**



**Home/Hospital tracking**



**Patient**

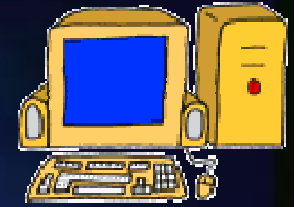


**Electronic Patient record**



**Validated cold chain delivery**

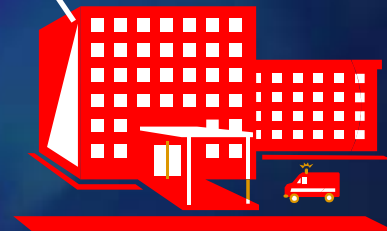
# National Haemophilia EPR



- Working in partnership with a local vendor (Clintech.ie) to add disease specific information capture
- Electronic Chart with up to date information  
*in one place*
- Accessible in any Haemophilia treatment centre throughout Ireland

# Multi location deployment

National  
Haemophilia  
Centre



Regional Haemophilia Centers



**Training Manager**

File Workup Assessments Manage Tx View System Admin Window Help

Summary History Master Plan Sheet Chart Vital Signs Exam Tx Options Rx Drug Admin Prov Appr Reports BT Orders

**Modify Patient**

General **Patient IDs** Contacts Demographics Healthcare Professionals Referrals


Institution: TRAINING ☒ Show History

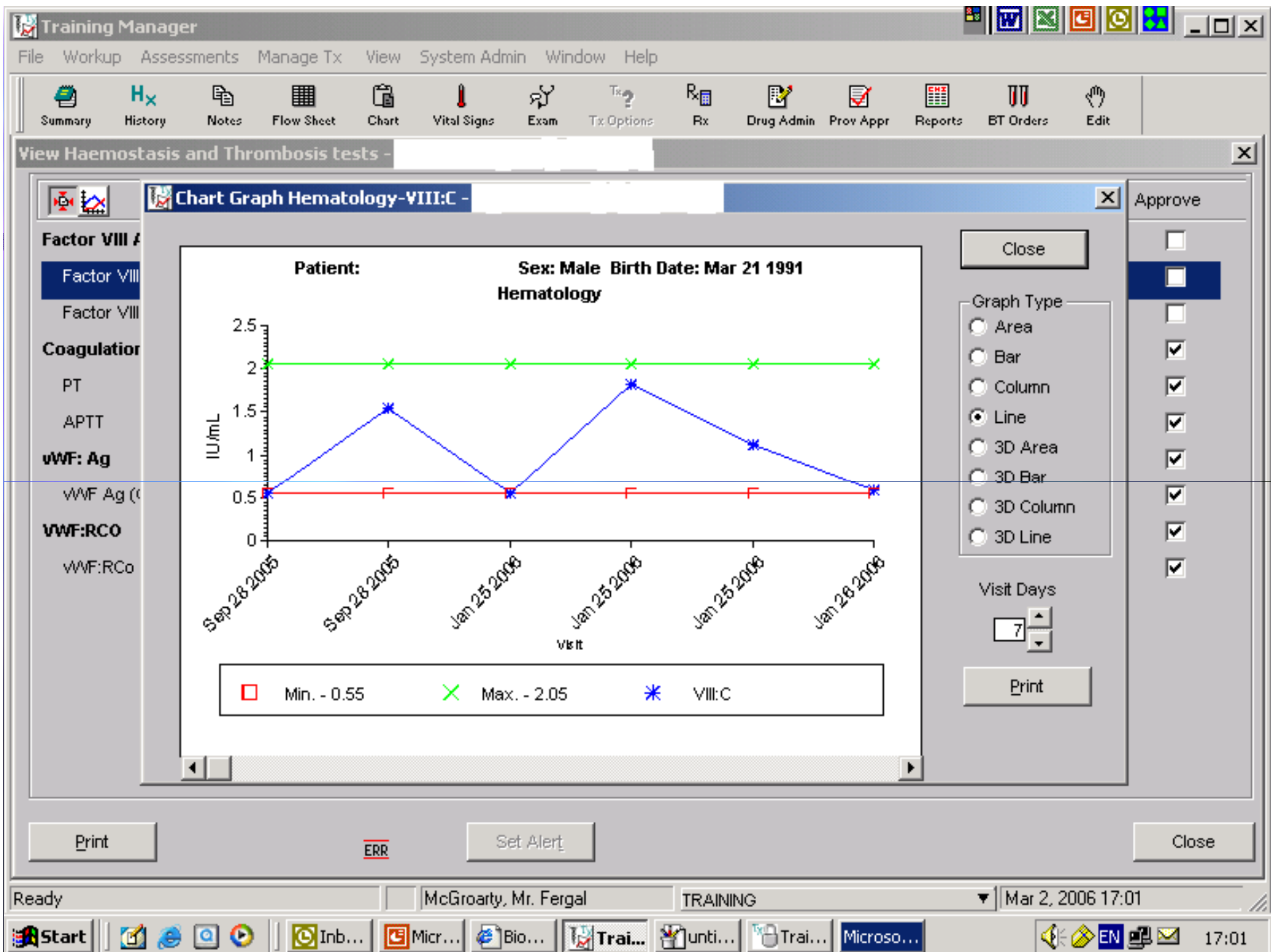
Patient Identifier	Value	Valid Entry	Entered On	Expiry Date
<b>Global Identifier</b>				
master GSRN	5397021050000000083	<input checked="" type="checkbox"/>	Jun 03, 2005	Active
<b>TRAINING</b>				
Beaumont Hospital MRN		<input checked="" type="checkbox"/>		
Coombe Hospital MRN		<input checked="" type="checkbox"/>		
Cork University Hospital MRN		<input checked="" type="checkbox"/>		
Galway University Hospital MRN		<input checked="" type="checkbox"/>		
Holles St MRN		<input checked="" type="checkbox"/>		
Letterkenny General Hospital MRN		<input checked="" type="checkbox"/>		
Limerick Regional Hospital MRN		<input checked="" type="checkbox"/>		
NCHCD Haemophilia Number	7	<input checked="" type="checkbox"/>	Jun 03, 2005	Active

Print... OK Cancel

Ready | McGroarty, Mr. Fergal | TRAINING | Oct 10, 2005 12:08

Start | Inbox - Micr... | Clintech Ma... | Clintech Se... | Training M... | 12:09





**Training Manager**

File Workup Assessments Manage Tx View System Admin Window Help

Summary History Notes Flow Sheet Chart Vital Signs Exam Tx Options Rx Drug Admin Prov Appr Reports BT Orders

**Modify Diagnosis / Problem -**

**Definition** Diagnostic Tests Recommended Treatment

ICD D66.04

Desc Hereditary Factor VIII Deficiency - Severe Clinical Desc Hereditary Factor VIII Deficiency - Severe

Historic Migrated: Factor VIII Deficiency - Severe  
Details Baseline function 1: < 0.01 u/ml or <1% (u/dl)

New Details

dd/mm/yyyy

Card Issued ☒ Issue Date 10/10/2005

Status Active Status Date 28/09/2005



Source Clintech-MGR

OK Cancel

Patient History McGroarty, Mr. Fergal TRAINING Oct 10, 2005 13:34

Start Inbox - Mic... Training M... TAGSYS RF... Microsoft P...

13:35





Modify Patient - Test, One

General

Patient IDs

Secondary GLN

Contacts

Demographics

Healthcare Professionals

Referrals

Race

Religion

Language

Marital Status

Occupation

Educational Level

Country of Birth

Present Employer Name

Mother's Full Name

Mother's Maiden Name

Father's Full Name

Advance Directives on File

Yes

☐ Health Care Durable Power of Attorney

☐ Organ Donor

☐ Autopsy Request

☐ Living Will / Personal Directive

☐ Do Not Hospitalize Status

☐ Do Not Resuscitate Status

☐ Feeding Restrictions

☐ Medication Restrictions

☐ Other Treatment Restrictions

☒ Home Treatment

GLN Assignments

Cards Issued

Last Issue Date:

Print...

OK

Cancel

**GLN Assignments**

☐ Active numbers only ☒ Current addresses only

Patient Identifier	Expiry Date
<b>Primary GLN</b>	
5397021015164	Active
<b>Secondary GLN</b>	
5397021026665	Active
<b>Mobile GLN</b>	
5397021038224	Active

**Match**

**Address**

**Primary**  
5397021015164

Phone:  
Bus:  
Mob:  
Fax:

USA

**Secondary**  
5397021026665

Phone:  
Bus:  
Mob:  
Fax:

USA

**OK** **Cancel**

# The solutions



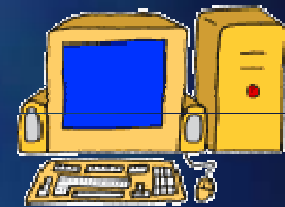
**Unique product barcoding**

**Encrypted Messaging**

**validation**

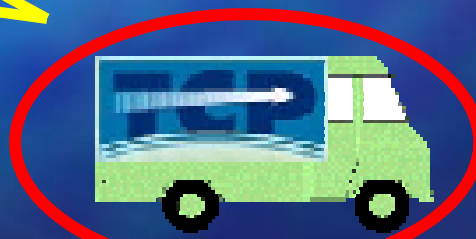


**Patient**



**Electronic Patient record**

**Home/Hospital tracking**



**Validated cold chain delivery**



# Validated Cold Chain Delivery

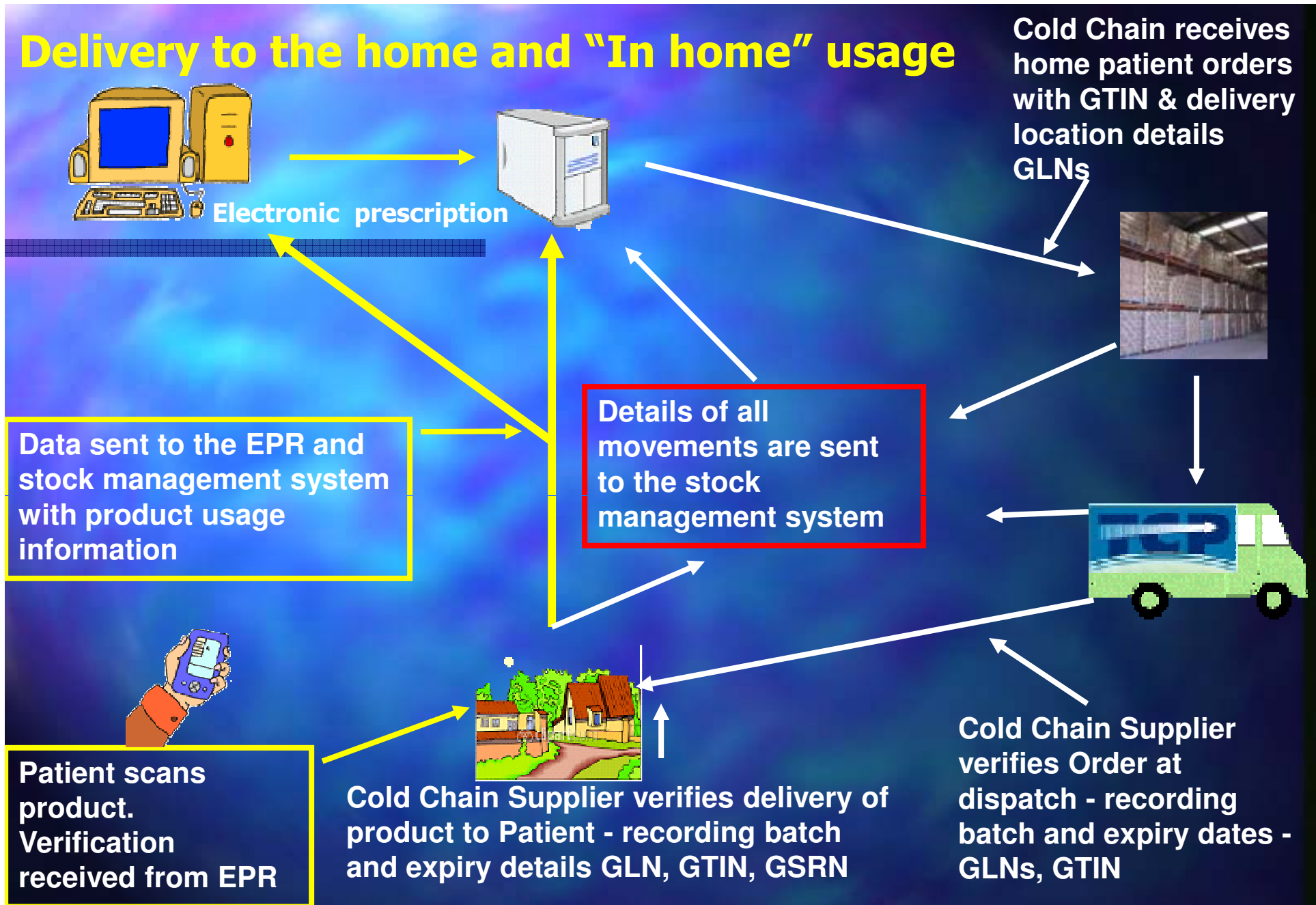


- Over 75% of Patients with severe Factor deficiency receive product at home
- Ensure quality of product using validated scheduled cold chain delivery (Home/Pharmacy/School)
- Licensed by Irish Medicines Board
- Home Fridge management (Temperature monitoring)

# How TCP manage the product

- Transport stock to warehouse from IBTS
- Pharmacist enters product info onto system (double checked)
- Serialised Bar code is produced, label attached, scanned to verify
- Stock held at validated temperature
- Order received from Hospital or Prescription for home delivery, order packed and labelled with SSCC B/C
- Patient contacted prior to delivery
- Fridge is stocked and temperature data downloaded
- All movement is confirmed using hand held scanners

# Delivery to the home and "In home" usage





# The solutions



**Unique product barcoding**

**Encrypted Messaging**

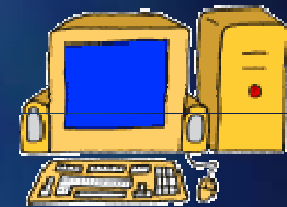
**validation**



**Home/Hospital tracking**



**Patient**



**Electronic Patient record**



**Validated cold chain delivery**

# Solution for tracking and tracing products within the home



- Remove paper trail
- Reduce risk by providing a check on Patient V Product suitability
- Real time alert product recall
- Complete traceability of medication to infusion
- Added value
  - Clinical Information gathering and integration with EPR
  - Messaging

# Phone with integrated B/C scanner







**Patient Scans ID Card  
or enters Username  
and password**

Home Scan

**Patient Details**  
**James O'Reilly**

**Contact Details:**  
5 Hill Park  
Beechwood  
Sandyford  
Dublin 18

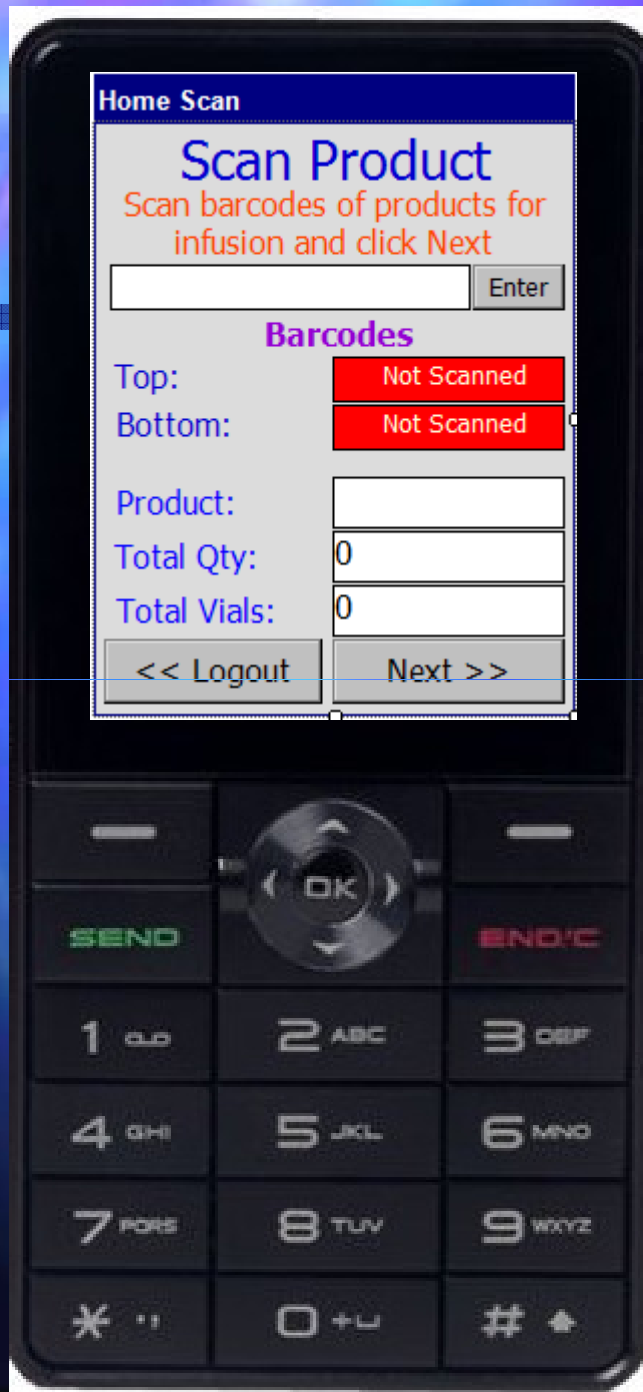
**Product of Choice:**  
Benefix

☐ Don't show this screen again

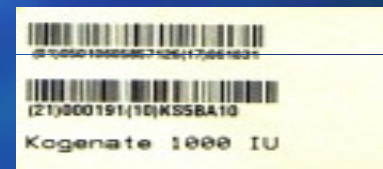
<< Logout      Next >>

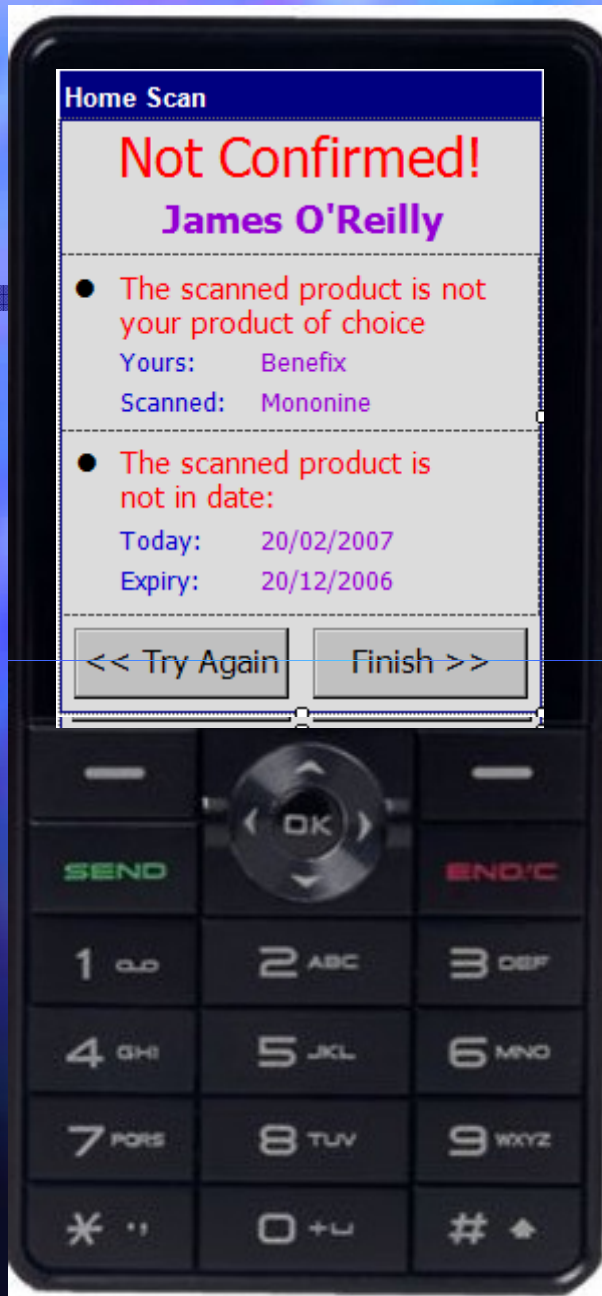


**Patient can confirm  
details including  
treatment of choice**



**Patient scans the  
barcode on the box**





**A check is performed against the product of choice and the expiry date. An audible and visible warning will appear if there is a problem**



Home Scan

## Infusion Reason

**James O'Reilly**

Please select the reason for infusion:

☒ Prophylaxis  
☐ On-demand bleed

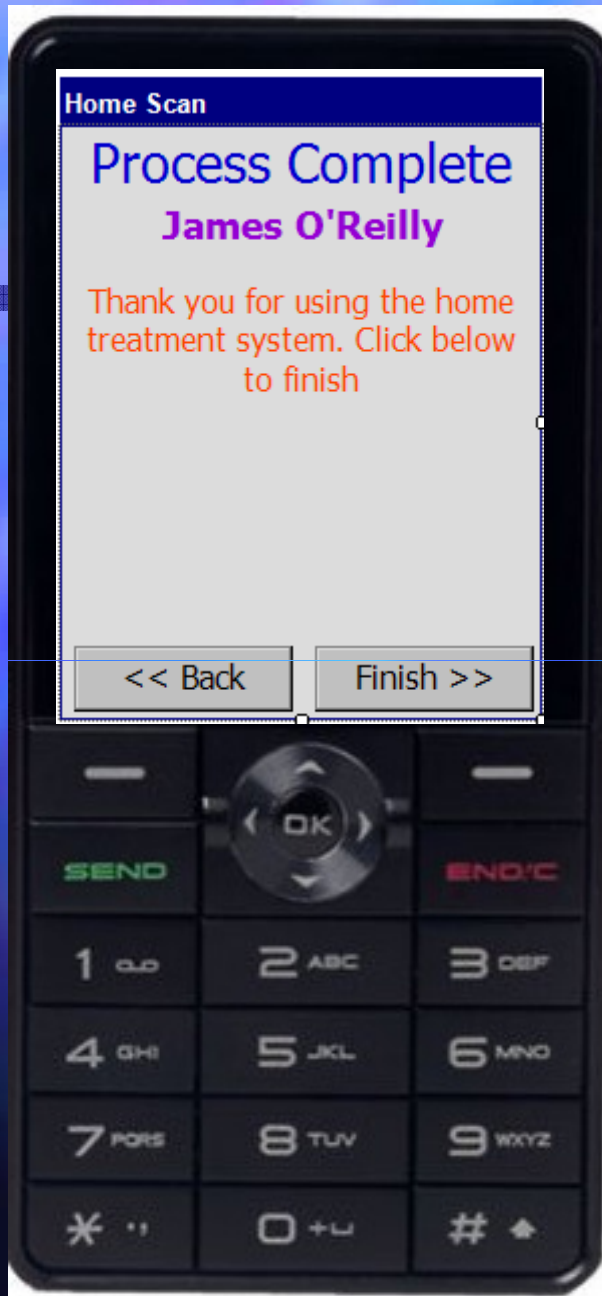
Please enter bleed site details:

<< Back      Next >>

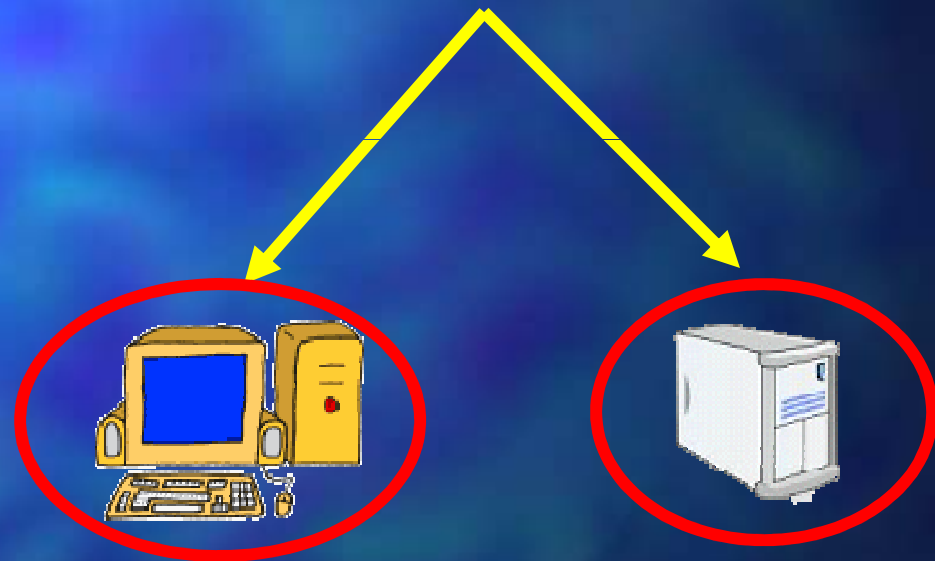
SEND      OK      END/C

1 QW      2 ABC      3 DEF  
4 GHI      5 JKL      6 MNO  
7 PQRS      8 TUV      9 WXYZ  
\* +      0 +L      # ^

**The reason for treatment can be entered**



Once the patient clicks  
“Finish” all information  
will be transferred to  
the EPR and the stock  
management system



# The solutions



Unique product barcoding

Encrypted Messaging

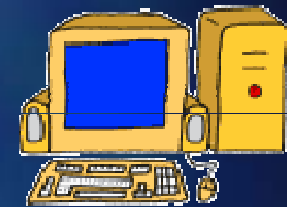
validation



Home/Hospital tracking



Patient



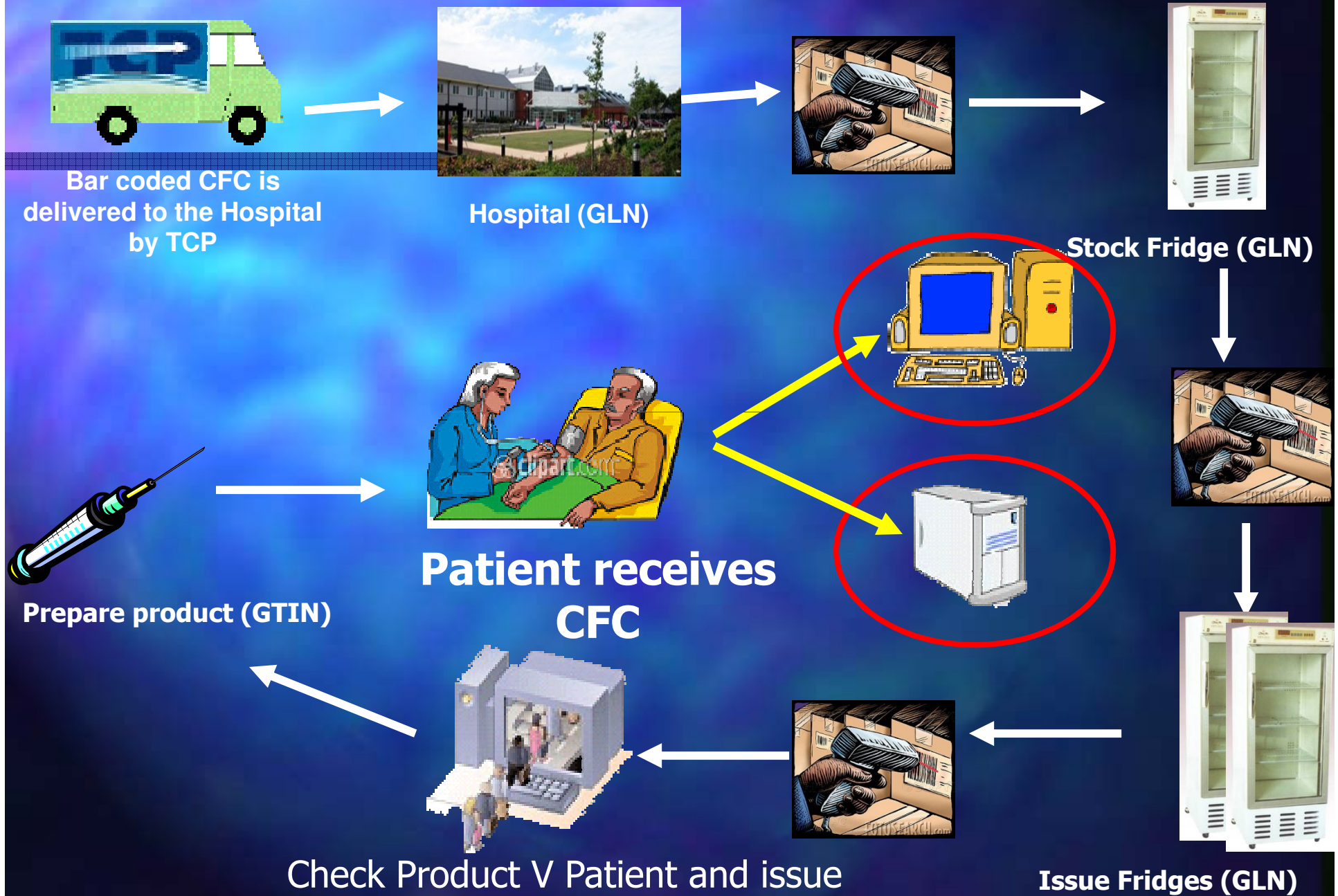
Electronic Patient record



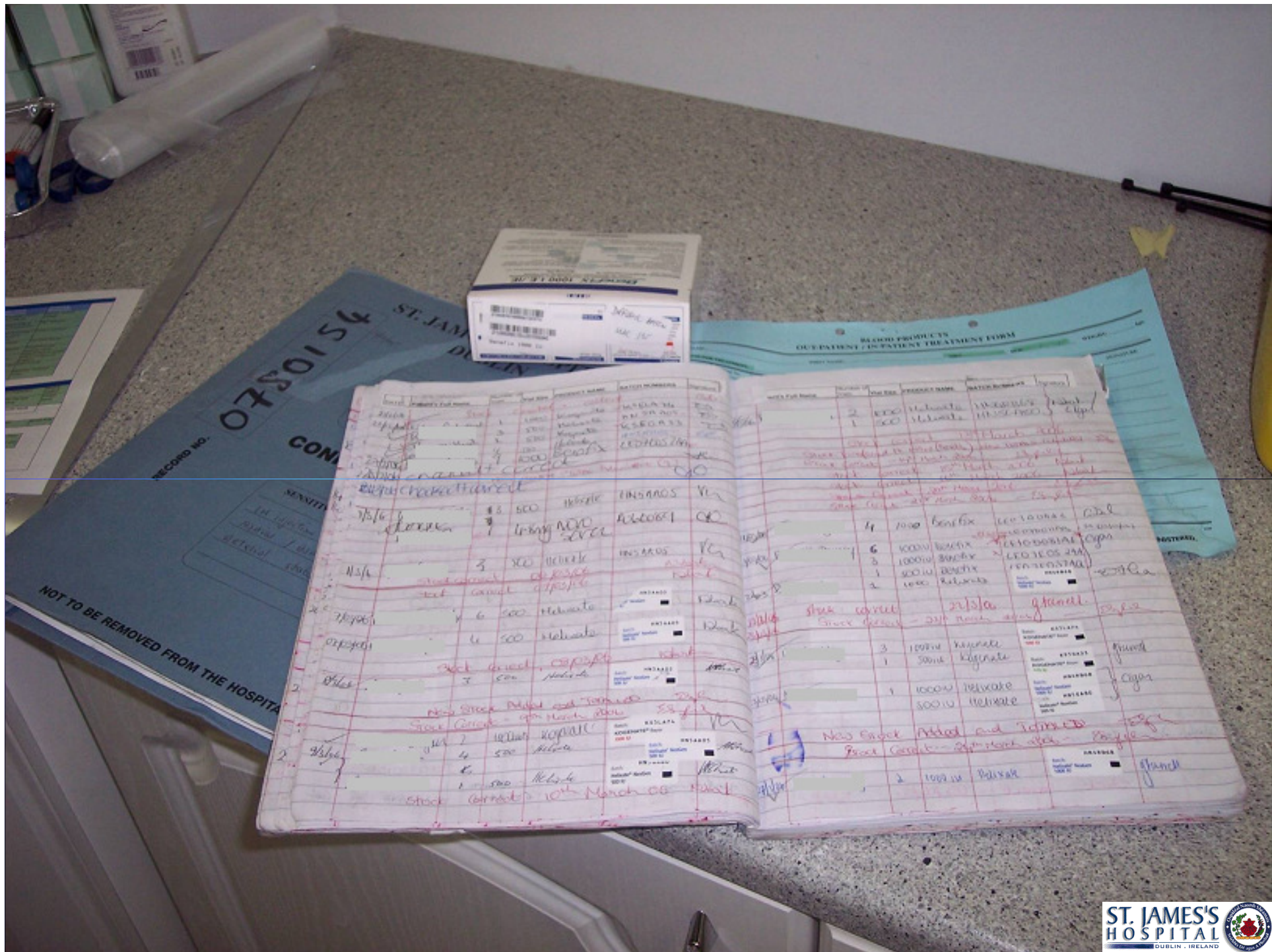
Validated cold chain delivery



# Solution for tracking and tracing products within the Hospital









[illegible]

Test's Full Name	Number of Vials	Vial Size	PRODUCT NAME	SATCH NUMBERS	Signature

Test's Full Name	Vials	Vial Size	PRODUCT NAME	SATCH NUMBERS	Signature
9/10/17	2	1000	Helixate	HNURB68	Nash Clegg
	1	500	Helixate	HN5C-ABO	

Stock Correct 13<sup>th</sup> March 2006  
 Stock Transferred to new (Pasha) - new turnover calculation  
 Stock Correct - 14<sup>th</sup> March 2006 - ES 2  
 Stock Correct 15<sup>th</sup> March 2006 N/A  
 Stock Correct 16<sup>th</sup> March 2006 N/A  
 Stock Correct - 20<sup>th</sup> March 2006 - ES 2  
 Stock Correct - 21<sup>st</sup> March 2006 - ES 2

21/05/06	4	1000 Benefix	LE0700445	Adal
21/05/06	6	1000IU Benefix	LE0700114	20 (2000)
21/05/06	3	1000IU Benefix	LE0700814E	Orgas
21/05/06	1	500 IU Benefix	LE0700529A	
21/05/06	1	1000 Helixate	LE0700374Q	

403/06	6	1000IU Birefix	LE040831AF	Cyan
	3	1000IU Birefix	LE07ECS 29A	
	1	500 IU Birefix	LE07ECS 74Q	
24/03	1	1000 Reluxato	HL4068	

2/3/06 Stock correct 22/3/06 g. tanell.  
25/3/06 Stock correct - 28<sup>th</sup> March done - ISH

23/1/06	3	1000W	Kogenate	Batch: KOGENATE <sup>®</sup> Steril 1000 W
	1	500W	Kogenate	Batch: K556A53 KOGENATE <sup>®</sup> Steril 500 W
23/05/06	1	1000W	Helixate	Batch: HX48608 Helixate <sup>®</sup> Steril 1000 W
		500W	Helixate	Batch: HX56A80 Helixate <sup>®</sup> Steril 500 W

New Stock Added and Totalled  
Stock Correct - 24th March 2000 - Royal

DATE	DESCRIPTION	AMOUNT	CHECK NO.	BANK
1/1/00	2	1000.00		WELLS FARGO

2 1000 in. Volixat



# Issue Item To Patient

## Patient Details

PMGSRN	Name	Address Line 1
123456789012345678	Mr Joe Bloggs	23 Happy Lane

VBSN Part 1:

VBSN Part 2:

Add

## Issue Items ->

No	Vial Box Serial	Product	Description
1	(01)05010605857126(17)061231(21)000134(10)KS5GA31	BC	Kogenate 1000 IU
2	(01)05010605857126(17)061231(21)000135(10)KS5GA31	BC	Kogenate 1000 IU
▶ 3	(01)05010605857126(17)061231(21)000136(10)KS5GA31	BC	Kogenate 1000 IU



# Main Features of the Hospital Stock management System

- Removes paper trail
- Time and date stamp movement
- Real-time location of all medication
- Medication V Prescription check
- Rapid Recall
- Reporting suite



Company: **St. James Hospital**Source: **PharmaTrack**Criteria: **(GLN = NCHCD)****Stock Report By Location**Owner: **Feargal**Date: **02/05/07 16:28****NCHCD**

<b>ProductName</b>	<b>Batch No</b>	<b>Received On</b>	<b>Expiry Date</b>	<b>Quantity</b>
Advate 1.1 1000iu Baxject II Ireland	LE01F515AC	23/03/2007	30/08/2008 23:59	10
Advate 1.1 1500iu Baxject II Ireland	LE01F042AS	26/02/2007	31/08/2008 23:59	6
Advate 1.1 500iu Baxject II Ireland	LE01E127CH	20/10/2006	30/11/2007 23:59	5
Benefix 1000 IU	LE07F021AA	11/04/2007	31/07/2009 23:59	17
Benefix 500 IU	LE07F046AA	09/03/2007	31/03/2009 23:59	9
Fandhi 500 IU	IBVB6MRNT1	23/03/2007	28/02/2008 23:59	4
Novo Seven 2.4mg (120 KIU)	SU60351	05/09/2006	30/06/2008 23:59	1
	SU61573	08/03/2007	31/03/2009 23:59	3
Novo Seven 4.8mg (240 KIU)	SU60724	16/03/2007	30/09/2008 23:59	3
Novo Seven 1.2 mg (60 KIU)	SU60350	16/03/2007	31/03/2008 23:59	2
	SU60785	19/09/2006	28/02/2008 23:59	3
Prothromplex 600 IU	VNP2F001	11/10/2006	31/12/2007 23:59	2
	VNP2F002	02/11/2006	31/05/2008 23:59	4

PharmaTrack (Live)

PharmaTrack Hospital Stock Patient Reports



Dashboard



VBSN Info



Stock Transfer In



Stock Transfer Out



Hospital Book In



Hospital Book Out



Issue Items



Terminal

VBSN Details

Please scan or enter Part 1 and Part 2 of the VBSN to get information

Part 1 :

Part 2 :



(21)000191(10)KSSBA10

Kogenate 1000 IU

VBSN Details Movements

Product Information

GTIN :

Group Name :

Serial #:

Batch Information

Batch #:










Date Received :

Expiry Date :

Received By :

**PharmaTrack (Live)**

PharmaTrack Hospital Stock Patient Reports

 Dashboard  VBSN Info  Stock Transfer In  Stock Transfer Out  Hospital Book In  Hospital Book Out  Issue Items  Return Items  Lock Terminal

### VBSN Details

Please scan or enter Part 1 and Part 2 of the VBSN to get information

Part 1 :  VBSN :

Part 2 :

VBSN Details **Movement** Patient Details

**Product Information**

GTIN :

Group Name :

Serial #:

**Batch Information**

Batch #:

Date Received :

Expiry Date :

Received By :

**Issued to Patient**

PharmaTrack (live)

PharmaTrack Hospital Stock Patient Reports

Dashboard VBSN Info Stock Transfer In Stock Transfer Out Hospital Book In Hospital Book Out Issue Items Return Items Lock Terminal

### VBSN Details

Please scan or enter Part 1 and Part 2 of the VBSN to get information

Part 1 : 010501795400036417080930 VBSN : 01050179540003641708093021000317105U60724

Part 2 : 21000317105U60724

VBSN Details Movements Patient Details

	TransactionType	TransactionDate	From	To	Reference	Reason	LoginName
▶	Booked In	16/03/2007 14:25	TCP DELIVERY VAN	CPL 05 DISPATCH		CPL Stock top up	ammcann
	Transferred In	16/03/2007 14:25	CPL 05 DISPATCH	WALTER STEVENSON WARD		WSW Stock Top Up	bgraham
	Issued	01/05/2007 10:52	WALTER STEVENSON WARD	(REDACTED)	ACQUIRED VIII DEF WITH INHIBITORS ISS...		Feargal

**Issued to Patient**

Close



# Recall Reports

TX Type  
Product

Benifix 1000 IU

Batch Number	Expiry Date	Name	Trans-Date	Total
LE07E055AA	31/10/2008	SJH, Blood Transfusion Lab.	06/09/2006	1
			05/09/2006	2
			27/09/2006	2
			08/09/2006	1
			15/09/2006	2
			08/11/2006	2
		<b>Total issued to SJH</b>		<b>9</b>
		<b>Total issued to OLCCH</b>	11/09/2006	20
		<b>Patient name</b>		
Home Patient	XXXX, XXXXXXXX		11/09/2006	10
Home Patient	XXXX, XXXXXXXX		21/09/2006	25
Home Patient	XXXX, XXXXXXXX		01/09/2006	10
Home Patient	XXXX, XXXXXXXX		29/09/2006	6
Home Patient	XXXX, XXXXXXXX		21/09/2006	30
Home Patient	XXXX, XXXXXXXX		22/09/2006	10
Home Patient	XXXX, XXXXXXXX		06/09/2006	24
Home Patient	XXXX, XXXXXXXX		06/09/2006	15
Home Patient	XXXX, XXXXXXXX		02/05/2007	10
Home Patient	XXXX, XXXXXXXX		11/09/2006	10
Home Patient	XXXX, XXXXXXXX		21/09/2006	30
Home Patient	XXXX, XXXXXXXX		25/09/2006	20
Home Patient	XXXX, XXXXXXXX		28/08/2006	30
Home Patient	XXXX, XXXXXXXX		21/09/2006	25
Home Patient	XXXX, XXXXXXXX		14/09/2006	8
Home Patient	XXXX, XXXXXXXX		24/08/2006	30
Home Patient	XXXX, XXXXXXXX		08/09/2006	30
Home Patient	XXXX, XXXXXXXX		22/09/2006	30
Home Patient	XXXX, XXXXXXXX		01/09/2006	60
Home Patient	XXXX, XXXXXXXX		19/09/2006	20
Home Patient	XXXX, XXXXXXXX		19/09/2006	30
Home Patient	XXXX, XXXXXXXX		14/09/2006	30
<b>Grand TOTAL Issued to Patients</b>				<b>493</b>

# Recall Reports

## PharmaTrack Batch Recall Report

Company: **St. James Hospital**

### Batch Recall Report

Source: **PharmaTrack**

Criteria: **(Batch No = LE07E055AA)**

**Batch No :** LE07E055AA **Benefix 1000 IU**  
**Serial No** **Transaction Type** **Transaction Date**  
**000035** **Issued** 31/10/2006 15:22

Patient Name: XX XXXXXXXX



Reference : Prophylaxis

**000260** Transferred In 29/02/2006 12:24

**In Stock** **GLN:** **NCHCD**

Reference :

Reason : NCHCD Stock Top Up

**000046** **Issued** 03/10/2006 13:02

Patient Name XXXXX XXXXXXXX



Reference :

**000120** **Issued** 13/09/2006 10:34

Patient Name XXXXX XXXXXXXX



Reference : surgical site bleed

**000121** **Issued** 14/09/2006 11:51

Patient Name XXXXX XXXXXXXX



**000378** Transferred In 12/03/2008 12:02

**In Stock** **GLN:** **WALTER STEVENSON WARD**

Reference :

Reason : WSW Stock Top Up

Reference :

**000122** **Issued** 03/10/2006 15:26

Patient: XXXXX XXXXXXXX



Reference : right thigh bleed

**000123** **Issued** 14/09/2006 11:51

Patient: XXXXX XXXXXXXX



Reference :

**000134** **Issued** 02/10/2006 15:31

Patient: XXXXX XXXXXXXX



Reference : Right thigh bleed

### BATCH SUMMARY

Total Booked In :

Issued to patients :

Stock in GLN(s) :

9

7

2

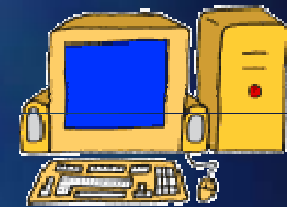
# The solutions



Unique product barcoding

Encrypted Messaging

validation



Electronic Patient record

Patient

Home/Hospital tracking

Validated cold chain delivery

# Why is validation of Computer Systems Important?



- The FDA believes that the only way to develop validatable software is within a **"Quality Regulated Environment."**
- **SJH** choose GAMP, the validation system of choice for European pharmaceutical industry and is equivalent of  
FDA CFR 21 11



# Outcomes/ROI

## *EPR*

- Standardisation of data entry (ICD 10 Coding/procedures etc) allows better reporting
- Access to key clinical information available electronically out of hours via summary screen

## *Hospital Product tracking system*

- 100% visibility of all stock within the hospital
- Detailed reports on stock movement /issued/wastage
- Reduce errors by providing an electronic check on product V prescription before issue

# Outcomes/ROI

## *Validated Cold Chain delivery System*

- Since Cold Chain delivery started all products verifiably delivered between 2<sup>0</sup>-5<sup>0</sup> Celsius
- Product wastage reduced from €90,216 to zero in the immediate year post service implementation
- Documentation errors reduced from 12 to zero in the year post service implementation
- € 5 Million worth of medication stock has been removed from the supply chain
- Mock Recall identified location of all (100%) Medication within 10 minutes along with quantities of alternate stock available

# What do the patients think?

- Convenience of new service – 100% satisfaction
- Privacy and confidentiality – 99% satisfaction
- Overall service satisfaction rating
  - 89% very satisfied
  - 10% satisfied
  - 1% dissatisfied

# Future developments

- Continue developing the EPR (additional functionality)
- Roll out the EPR and stock management system to other Hospitals
- Move to Manufacturer allocated datamatrix B/C and EPC and eventually RFID?



# Datamatrix Barcodes



European Federation of Pharmaceutical Industries (efpia) endorsed the use of datamatrix barcodes on 30<sup>th</sup> May 2007 because it was recognized that RFID is currently "more expensive and less reliable..."

20<sup>th</sup> Jan '09 - The FDA is calling for all drugs to be labelled using a standardised numerical identifier similar to the one suggested in the delayed California e-Pedigree guidelines. Another feature on the guidance is its compatibility with the serialised Global Trade Item Number (sGTIN) model set up by the international standards organisation GS1

January 2008 - Pharmaceutical Bar Coding to Improve Patient Safety Options for Technical Standards in the Canadian Environment - Roundtable Discussion Paper

"For discussion purposes, ISMP Canada proposes that the guidelines recommend two-dimensional (Data Matrix) symbology"

The data content and structure of the B/C developed by Baxter/GS1 and St. James's Hospital has become the de facto standard

# Regulatory bodies

**Turkey:** Significant amendments were made in the Regulation on Packaging and Labelling on February 1 2008. This amendment introduced new identification and traceability requirements and stipulates that medicines must have a data matrix type 2-dimensional barcode. It is worth mentioning that a transitional period is accepted by the regulators, and licence holders of the medicinal products should start inserting 2D barcodes in their products at the latest on January 1 2009.

**California:** In January 2011, California was due to become the first US state to implement legislation mandating that drug manufacturers, wholesalers and distributors create electronic pedigrees (e-pedigrees) to track and trace all prescription drugs distributed within the state. Now 50% wholesalers must have system in place by 2015 with all wholesalers and retailers compliant by 2016

# EU Catch up?

- European Commission consultation document issued on 11th March 2008
- Compared to 2005 seizures of counterfeit medicines at the border of the EU have increased by 380%
- The consultation document makes reference to Datamatrix bar codes

*...dealing with product characteristics and Good Manufacturing Practices (GMP). Obligatory safety features shall allow for; identification checking, authenticity checking and tracing...*



# **“Heparin recall only partially successful”**

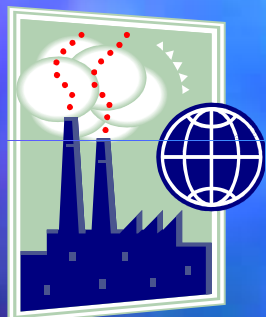
(4th Global Forum on Pharmaceutical AntiCounterfeiting 2008)

- **Heparin recall that occurred during the spring of 2008 had only been partially successful**
- **Recalls had been issued by FDA and, among others, Baxter Healthcare, several times since contaminated vials of the blood treatment were found early in the year**
- **According to press reports, upwards of 83 patients have died nationally as a result of receiving the apparently sub-potent product—making the recall a high priority throughout the healthcare system**
- **Through May, upwards of 18% of the 500 hospitals in California still had unrecalled product in their stockrooms**
- **Some dosages were found that had been returned to intermediate distributors—and then sent out again !**

Source: <http://www.pharmaceuticalcommerce.com>



# Where we are



# Conclusion

- Measures need to be implemented to ensure patient safety
  - Barcodes work!
- Simply implementing bar code scanning can improve patient safety, increase efficiency and reduce costs
  - GS1 can help with technical issues (standards) and practical issues (implementation)
  - Medication suppliers are now moving towards barcoding
- Collaboration with other standards bodies will simplify processes



# Thank You

