



# Healthcare Conference 2022

17 - 18 March 2022 | QEII Centre, London

## Medicines traceability

#bettercarecostsless

Stage sponsored by  Omnicell™





# Healthcare Conference 2022

17 - 18 March 2022 | QEII Centre, London

## Medicine misidentification

**Iain Davidson**

Chief pharmacist, Royal Cornwall Hospitals NHS Trust

#bettercarecostsless



# Medicines Misidentification

## GS1 UK Healthcare Conference

Iain Davidson-Chief Pharmacist & SRO/Clinical lead  
for Cornwall Covid-19 Mass Vaccination Programme

BPharm. MRPharmS. MSc. FFCI.  
Royal Cornwall Hospitals NHS Trust

# Medication Without Harm

[who.int/patientsafety](http://who.int/patientsafety)



***Third Global Patient  
Safety Challenge***



**World Health  
Organization**

# MEDICATION ERRORS: WHERE DO THEY HAPPEN?

Reducing medicines-related harm requires a clear understanding of where and when errors occur. This visual summary shows the latest estimates in England per year.

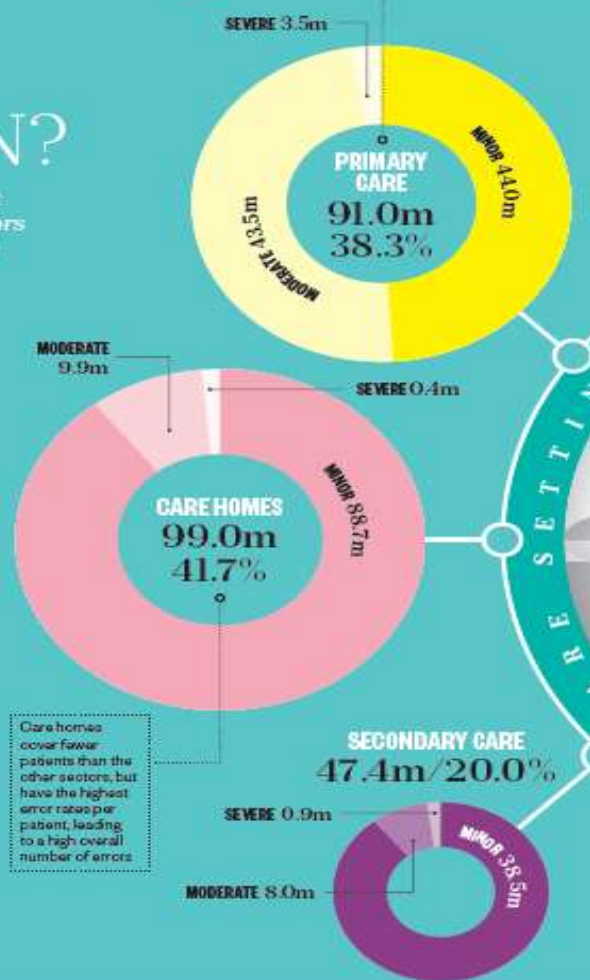
DAWN CONNELLY & MARTIN COTTERELL



Source: Data obtained via a Freedom of Information request submitted by The Pharmacy Research Institute to NHS Improvement. Incidents reported to the NLRB as occurring between 1st April 2017 and 31 March 2018.



Error rates per patient are lowest in primary care but more medicines are used, so the overall number of errors is second highest



The World Health Organization wants to reduce severe avoidable medication-related harm globally by **50% by 2022**

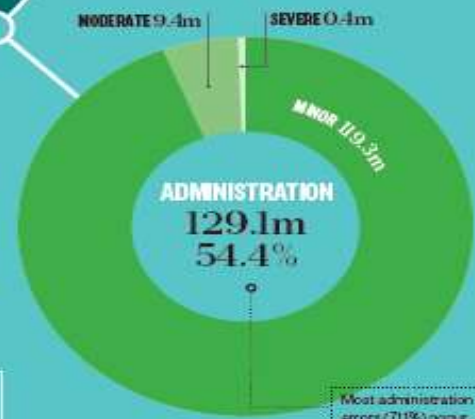
Care homes cover fewer patients than the other sectors, but have the highest error rates per patient, leading to a high overall number of errors



Deaths owing to definitely avoidable adverse drug reactions per year:

712

NHS costs of definitely avoidable adverse drug reactions per year:



MINOR: Error with little or no potential to cause harm  
MODERATE: Error with potential to cause moderate harm  
SEVERE: Error with potential to cause severe harm



### POTENTIAL SOLUTIONS

Several strategies can be employed to reduce medicines-related harm.

- Roll out and optimise electronic prescribing and medicines administration systems
- Roll out proven interventions, such as Pincer, where pharmacists identify patients who are at risk from hazardous prescribing (see page 95)
- Improve the information available to patients to promote joint decision-making
- Use patient-friendly packaging and labelling
- Improve shared care across different settings
- Embed adequate training in safe and effective medicines use in undergraduate training and continuing professional development
- Encourage reporting of medication errors (see page 120)
- Reduce inappropriate polypharmacy

Source: Department of Health and Social Care. The report of the patient warning group on reducing medicines-related harm, February 2018.

MARTIN COTTERELL

Source: Policy Research Unit in Economic Evaluation of Health & Care Interventions, Pharmacy and associated burden of medication errors in the NHS in England, February 2018

# Overworked pharmacist's error led to death of grandmother who died from the 'wrong pills'



Mr White said the two boxes were “side by side on the shelf and have similar branding”.

Mr White claimed to have carried out the required checks under the pharmacy standard operation procedures.



**HUMAN FACTORS**

# NEWS

Home | War in Ukraine | Coronavirus | Climate | UK | World | Business | Politics | Tech | Science | Health

England | Local News | Regions | Dorset

## Cancer patient 'given drug overdose after hospital pharmacy error'

17 May 2021



= 100mg in 5ml



= 400mg in 5ml

# Closed Loop

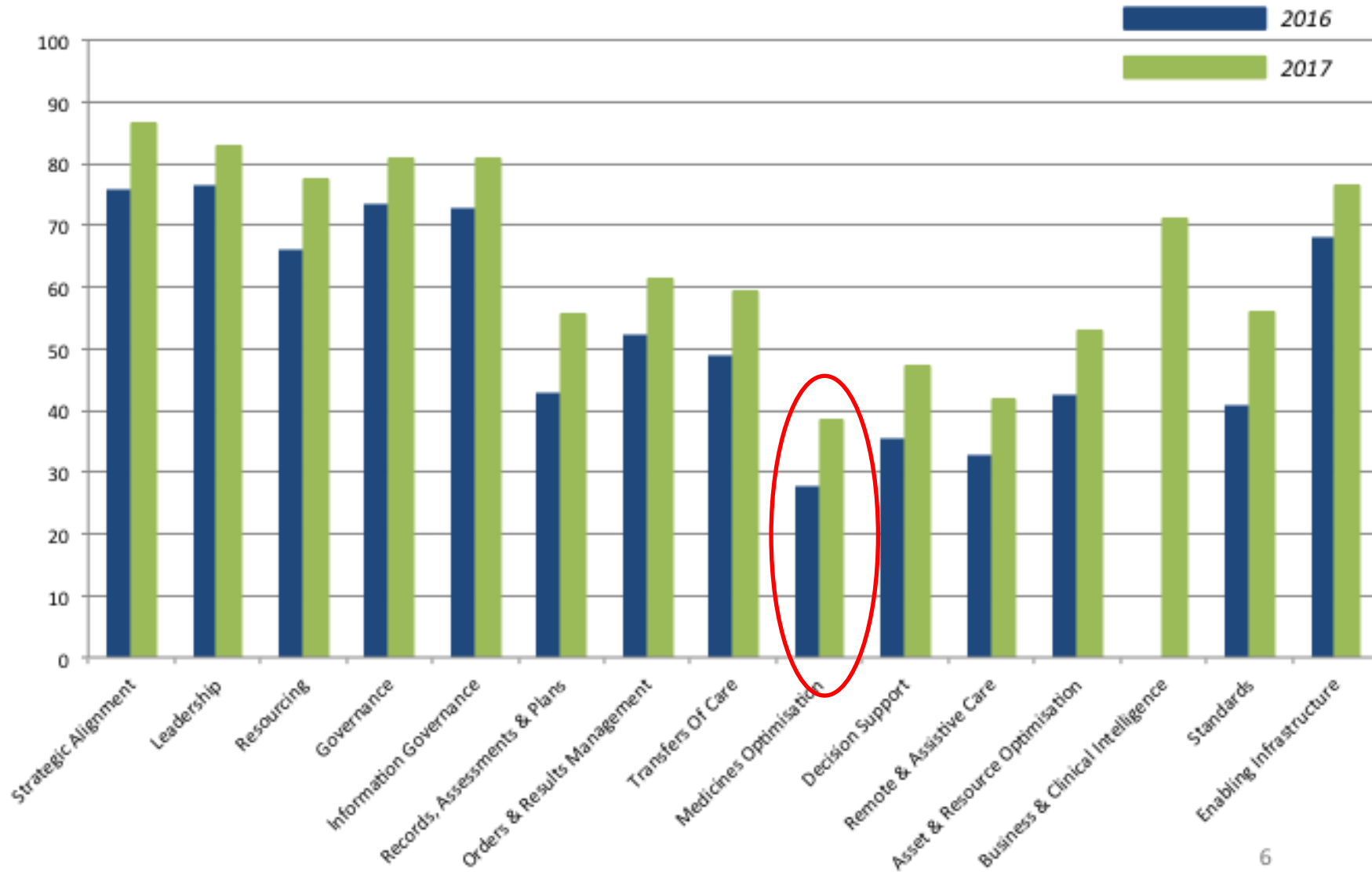


- Medicines Administration
- Medicines Supply



## 2017 Digital Maturity Self-Assessment: Early Analysis (Section-level)

The average scores for each section of the assessment are shown below. This is based on the full dataset (acute, community, mental health & ambulance providers) and compares this year's results to the 2016 baseline. Medicines Optimisation, Decision Support and the Remote & Assistive Care sections are still the lowest scoring sections overall.



# Falsified Medicines Directive

- 9 February 2019 the UK was subject to the EU's Falsified Medicines Directive (FMD).
- The FMD ceased to apply in Great Britain on 31 January 2020
- The government had missed its deadline of opening such a consultation by 11 February 2022.

# What did FMD do for us?

- In the first ten months of implementation of the FMD, data showed that although 44.7 million packs of medicines were dispensed in the UK.
- No counterfeit medicines were found through the FMD system.
- **But GTINs on every pack.....😊**



# The importance of GS1



- It's not just about supply chain any more.
- Now fundamental to our point of care patient safety processes.
- Key to secondary use of data.



## Right Patient

Setting standards to make sure we always have the right patient and know **what** product was used with **which** patient, **when**.



## Right Product

Setting standards to make sure our staff have **what** they need, **when** they need it.



## Right Place

Setting standards to make sure that patients and products are in the right place.



## Right Process

Setting standards and implementing common ways of working to deliver better and more easily repeatable patient care.



Improve Efficiency

Improve Patient Safety

Release Time to  
Care

# **RESEARCH & EVALUATION**

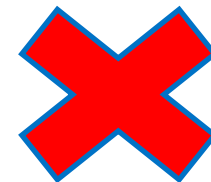
## **The Adoption of Barcode Scanning Technology in an Acute NHS Hospital Pharmacy**

One + all | we care

Royal Cornwall Hospitals



NHS Trust

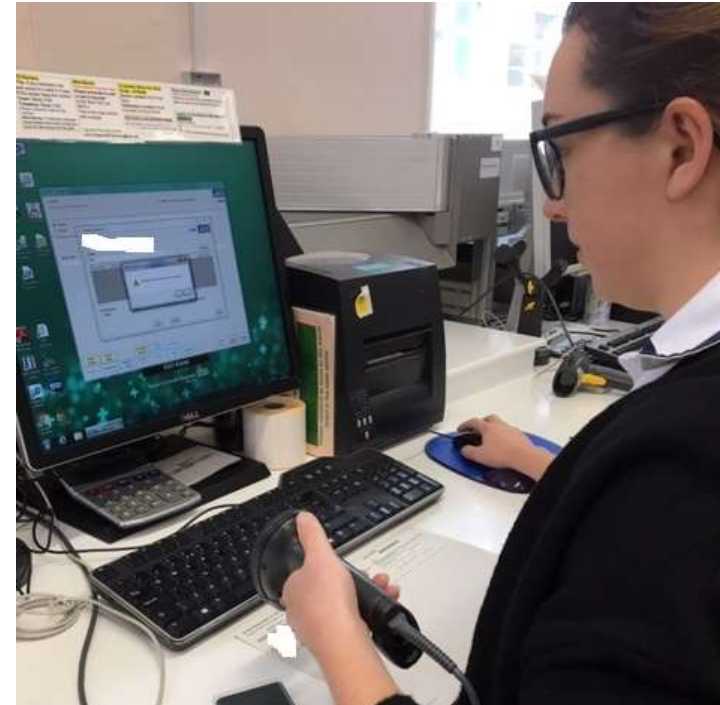
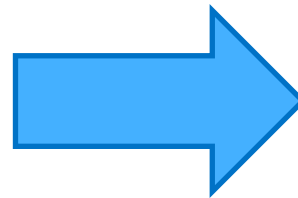
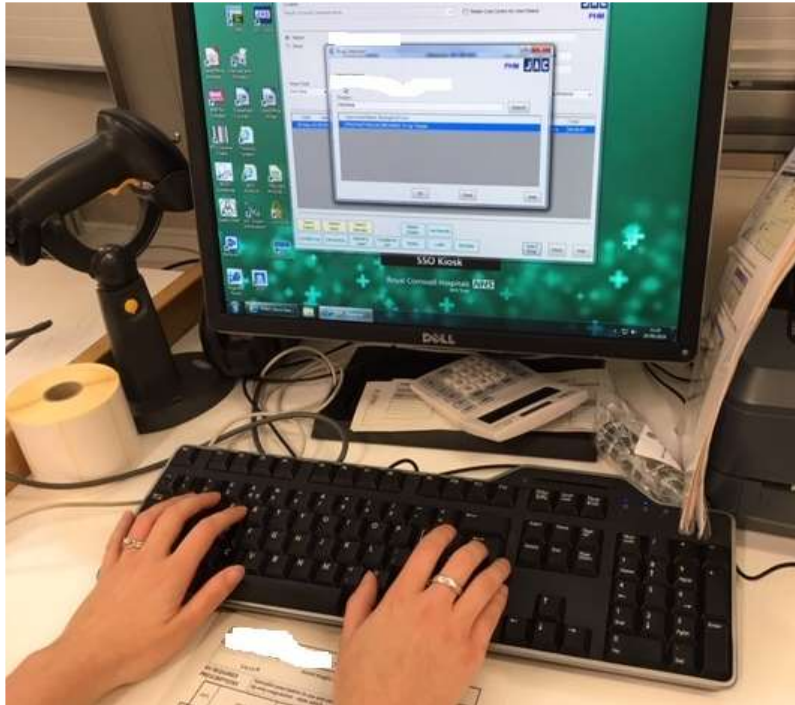


One + all | we care

Royal Cornwall Hospitals



NHS Trust



SCAN+ SAFETY  
Patient. Product. Place. Process.



# Barcode Enabled Dispensing



PharmacyOrders.pdf - Adobe Reader

File Edit View Window Help

1 / 1 88.4%

Comment

25/04/2019 12:23:25

Ward: <b>BOTOX WARD</b>	Verified: <b>No</b>	Drug/Packet/Directions: <b>BISOPROLOL 5 mg Tablets/28 Tablet Pack</b>	Order Notes: <b>TEST!!</b>	Order Type: <b>NON STOCK</b>
Patient: <b>TESTING CITO-TESTFOUR [D298084]</b>				Stock/Location: <b>Stock at : 0 container(s) 0 du at</b>
				

**\*\*THIS MEDICINE IS NOT CURRENTLY PRESCRIBED FOR THIS PATIENT\*\***

Ordered By: **Iain Davidson on 25/04/2019 12:22:21**  
Clinically Checked By:  
Dispensed By:  
Checked By:

Pharmacy Ordering Portal Home Administration Management User Options Help

Welcome to the Pharmacy Ordering Portal

- My Orders**  
Add new orders and view my pending orders...  
Add Orders
- View Orders**  
View active orders by ward...  
View Orders
- Pharmacy Worklist**  
Orders awaiting action by Pharmacy...  
View Orders
- Pharmacy Fields Worklist**  
Full Field Orders awaiting action by Pharmacy...  
View Orders

Copyright © Royal Cornwall Hospitals NHS Trust 2016

Page 1 of 1

# Results

**76%**

Reduction in  
Prevented  
Error Rates  
( $p < 0.001$ )



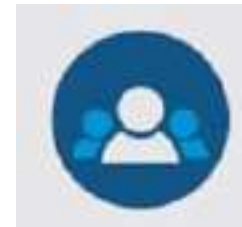
**7%**

Faster than  
Manual  
Process  
( $p = 0.015$ )



**97%**

Users agree it  
reduces the  
likelihood of  
medication  
errors



**67%**

Want to use  
the bar-code  
enabled  
system



# **Next Steps for Pharmacy Stock Control**

**Integration of GS1 & Scanning into  
the Final Accuracy Check**

**Improved Integration between  
Pharmacy Stock Control and EPMA**

# We are getting there....

## GS1 File Maintenance (Additional Permissions)

As outlined in the Part One document there is a new section called **GS1 File Maintenance**.

The screenshot shows a 'User' configuration window with a 'HELP' section on the left and a list of permissions on the right. The 'Permissions' section is active, and the 'GS1 File Maintenance' permission is highlighted with a red box. A message at the top indicates 'Permissions added successfully.'

Category	Permission	Checked	Expandable
User Details	All Permissions	<input checked="" type="checkbox"/>	
Permissions	Administration	<input checked="" type="checkbox"/>	>
Groups	ADT	<input checked="" type="checkbox"/>	>
Stats & Password	Discharge	<input checked="" type="checkbox"/>	>
User Localities	GS1 File Maintenance	<input checked="" type="checkbox"/>	>
Prescribing Details	Medicines Reconciliation	<input checked="" type="checkbox"/>	>
	Mental Health	<input checked="" type="checkbox"/>	>
	Minimum	<input checked="" type="checkbox"/>	>
	Monitoring & Assessment	<input checked="" type="checkbox"/>	>
	Non-drug allergen maintenance	<input checked="" type="checkbox"/>	>
	Outpatient	<input checked="" type="checkbox"/>	>
	Patient	<input checked="" type="checkbox"/>	>



Auto-Technical Check



Manual Technical Check



Fast Technical Check



Stack Management



Admit Discharge Transfer



Clinical Drug Info



Patient



Configuration



Reporting



User Management



System Info

1

**Co-Codamol Tablets**

60 tablets

ONE tablet to be taken FOUR times a day, when required for pain



Mr. Alex Krasnov

16-FEB-2018

Lviv Hospital Pharmacy, Lviv Hospital, LVIV, LV  
Oblast

**KEEP OUT OF REACH OF CHILDREN**



2



Home Patient Finder Name of Pharmacy is Displayed Here Name of User My Account Logout

**POJAR, Cosmin (Mr)** Born **14-Jul-1991 (23y)** Gender **Male** National No. **123 456 7890**

Address **Strada Cometi Nr. 340, 70123, Cluj-Napoca, CJ, Romania** Hospital No. **567898E** Allergy Status **Recorded Allergies**

Consultant **Chandrasekhar** Ward **Admissions** Body Surface Area **2.1 sqm (e)** Weight **81 kg (e)** Height **188 cm**

Communication Zone

[Clinical Drug Information](#) [Help](#)

**Technical Check** Patient Medication Record

DISPENSING EPISODE: 23-JUNE-2017 @ HH-MM (Number of items = 5) STATUS: PENDING

Amoxicillin 500 mg Capsules x 28	Product: Enalapril 5 mg Tablets
Bendroflumethazide 5 mg Tablets x 28	Directions:
Aspirin EC 75 mg Tablets x 28	Advanced
Enalapril 5mg Tablets x 28	Expiry Date: <input checked="" type="checkbox"/>
Simvastatin 20mg Tablets x 28	Batch Number: <input checked="" type="checkbox"/>
	Decommission: <input checked="" type="checkbox"/>

**Technical Check Alert**

**WARNING**  
The dispensed product does not match the issued product

Action	User
H:MM Dispensed	Ethan Richardson
H:MM Checked	Paula Dughton
H:MM Dispensed	Ethan Richardson
H:MM Checked	Paula Dughton

Provide Steroid Card  
 Provide Warfarin Booklet

JAC Medicines Management Powered by TECKNOWORKS

Address 1 The Street London W1 234

Hospital No TP110319

Allergy Status Unknown

Consultant

Ward

Body Surface Area

Weight

Height

Communication zone

CLINICAL DRUG INFORMATION HELP


Technical Check

DISPENSING EPISODE: 27-Mar-2019 @ 12:30 (Number of items = 1)

STATUS: PENDING

PARACETAMOL 500 mg Caplets (32 Caplet...

Product:

PARACETAMOL 500 mg Caplets (32 Caplet Pack) 

Directions:

Take ONE to TWO tablets up to a maximum of FOUR times a day when required for the relief of pain.

Quantity:

1

Dose Units

Containers

End Technical Check ✕

This dispensing episode contains 1 Item(s).  
Item(s) will be decommissioned.

Confirm

Expiry Date



Batch Number



Decommission Status



User

27-Mar-2019 12:30 Dispensed

Test Doctor

27-Mar-2019 12:33 Checked

Test Doctor

End Technical Check

Send for Re-Dispensing

STOP Technical Check

Error

Manually Confirm



Address 1 The Street Low

Consultant

Weight

CLINICAL DRUG INFORMATION

Technical Check

DISPENSING EPISODE

STATUS: PENDING

PARAC

PARACETAMOL

Take ONE to TWO  
day when requir

1

End Technical Check

This dispensing episode contains 1 Item(s).  
Item(s) will be decommissioned.

Expiry Date

Batch Number

Confirm

Expiry  
Check

Product  
Recall

'FMD'

Dispensing  
Accuracy

One Single BEEP.....

End Technical Check

Send for Re-Dispensing

STOP Technical Check

Error

Manually Confirm

# Misidentification in the Vaccine Programme



# Multiple Vaccines & Multiple Doses

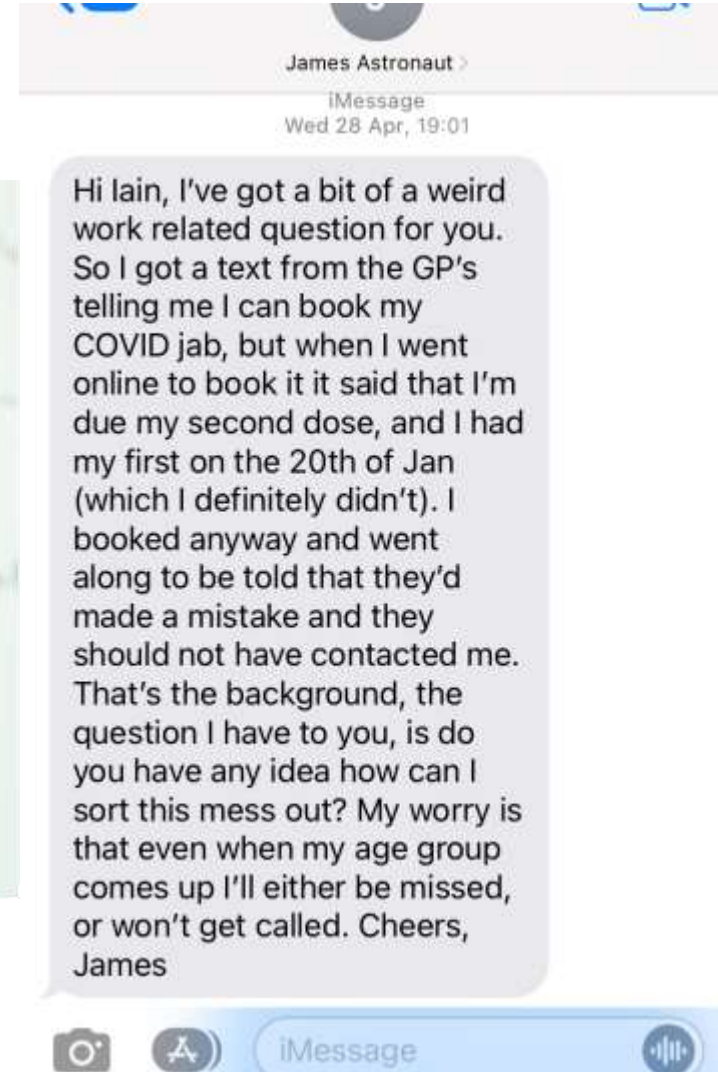


**A missed opportunity.....**

# Right Patient



# My Friend James.....



# Right Place....



Thu 20 May, 15:47

Yeah thanks mate, it went as smoothly as it could given my situation. Yeah Tamsyn sorted it all out for me, and I'm much happier now I've got my first dose in. Thank you so much again for sorting it for me.

## 28<sup>th</sup> April- 20<sup>th</sup> May

- A 3 week delay.
- For some, that delay could have had fatal consequences.

# Patient ID

## Patient Lookup via the Personal Demographic Service (PDS)

[More information about PDS \(opens in new tab\).](#)

The commissioner of this service **requires** that the PDS service is used to attempt to verify patient details **at least once**.

[Search by patient details](#)

Please provide a minimum of the patient's Date of Birth and NHS Number. Press 'Lookup via PDS' to try and find the patients details:

Date of Birth

Enter as dd-mmm-yyyy (eg 23-Feb-1989)

NHS Number

The patient's verified NHS Number

## Patient Lookup via the Personal Demographic Service (PDS)

[More information about PDS \(opens in new tab\).](#)

The commissioner of this service **requires** that the PDS service is used to attempt to verify patient details **at least once**.

[Don't use PDS](#) [Search by patient NHS Number](#)

Please provide a minimum of the patient's Date of Birth, Sex and Last Name. Press 'Lookup via PDS' to try and find the patients details:

Date of Birth

Enter as dd-mmm-yyyy (eg 23-Feb-1989)

Sex

Male  Female

Family Name

Last Name

Given Name(s)

First Name or names

Postcode

[Lookup via PDS](#)

National call/recall booking letter for people on the basis of their age



Address 1  
Address 2  
Address 3  
Address 4  
Postcode

Your NHS Number: XXXXX  
Date: XXXXXX

## Book your coronavirus (COVID-19) vaccine appointments now

Dear XXX

You are able to book your free NHS coronavirus vaccine now.

We have sent you this letter as experts recommend that people in your age group are among the first to be vaccinated. This shows that risk of serious illness is higher for you than for other people in your age group.

### How to book your appointment

To book your vaccination appointment, you can:

If you cannot use the NHS app, you can:

You can ask someone to book for you. This service is open into the evening or early evening when you are unable to book yourself.

When you book, you will need to provide:

- your name and date of birth
- your NHS number



Thank you for booking your 1st coronavirus vaccination appointment.

## Your appointment

### 1st appointment

Booking reference: [48978527](#)  
Royal Cornwall Hospital '12-15'  
Perranporth Suite, Health & Wellbeing Innovation Centre,  
Treliske, Truro, TR1 3FF  
Date & Time  
27/10/2021 – 9:30 AM

## What to bring with you

# Right Product





# Product- Manual Data Entry

## Covid Vaccine Batch Management

Start Date

**Vaccine Type** More

- Comirnaty Children 5-11 years COVID-19 mRNA Vaccine 10micrograms/0.2ml dose concentrate for dispersion for injection multidose vials (Pfizer Ltd) 10 dose
- Comirnaty COVID-19 mRNA Vaccine 30micrograms/0.3ml dose concentrate for dispersion for injection multidose vials (Pfizer Ltd) 8 dose
- COVID-19 Vaccine AstraZeneca (ChAdOx1 S [recombinant]) 5x10,000,000,000 viral particles/0.5ml dose suspension for injection multidose vials (AstraZeneca UK Ltd) 10 dose
- COVID-19 Vaccine AstraZeneca (ChAdOx1 S [recombinant]) 5x10,000,000,000 viral particles/0.5ml dose suspension for injection multidose vials (AstraZeneca UK Ltd) 8 dose
- Spikevax COVID-19 mRNA (nucleoside modified) Vaccine 0.1mg/0.5ml dose dispersion for injection multidose vials (Moderna, Inc.) 10 dose

Batch Number   
Checked against known batch number patterns

Manufacturer Expiry   
Enter as dd-mm-yyyy (eg 23-Feb-1999)

Use by date   
Enter as dd-mm-yyyy (eg 23-Feb-1999)

Batch Available  Active  Finished

Save and enter another

**Vaccine Batch selection**

<input type="button" value="Select"/>	Spikevax COVID-19 mRNA (nucleoside modified) Vaccine 0.1mg/...
	Batch 3005889      Expiry 2022-03-31      Dose Half Dose
<input type="button" value="Select"/>	Comirnaty COVID-19 mRNA Vaccine 30micrograms/0.3ml dose c...
	Batch FL9994      Expiry 2022-06-30
<input type="button" value="Select"/>	Spikevax COVID-19 mRNA (nucleoside modified) Vaccine 0.1mg/...
	Batch 000050A      Expiry 2022-04-09      Dose Half Dose
<input type="button" value="Select"/>	Comirnaty COVID-19 mRNA Vaccine 30micrograms/0.3ml dose c...
	Batch FN4817      Expiry 2022-05-30
<input type="button" value="Select"/>	Comirnaty COVID-19 mRNA Vaccine 30micrograms/0.3ml dose c...
	Batch FN5754      Expiry 2022-06-06
<input type="button" value="Manual Entry"/>	

# Errors happened....



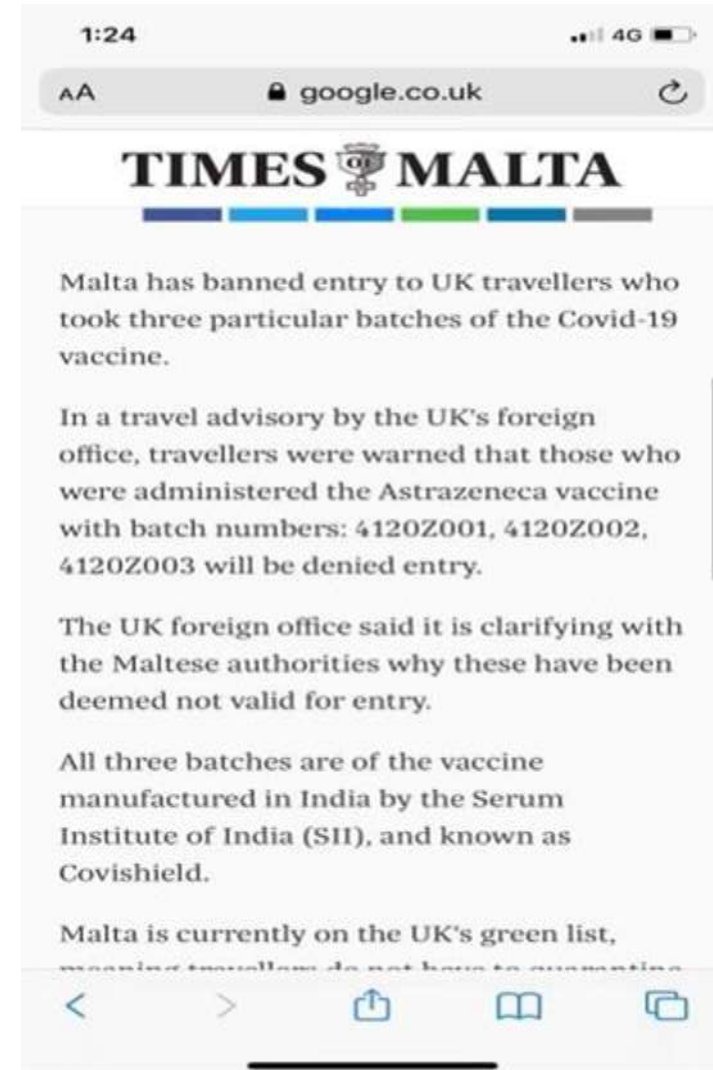
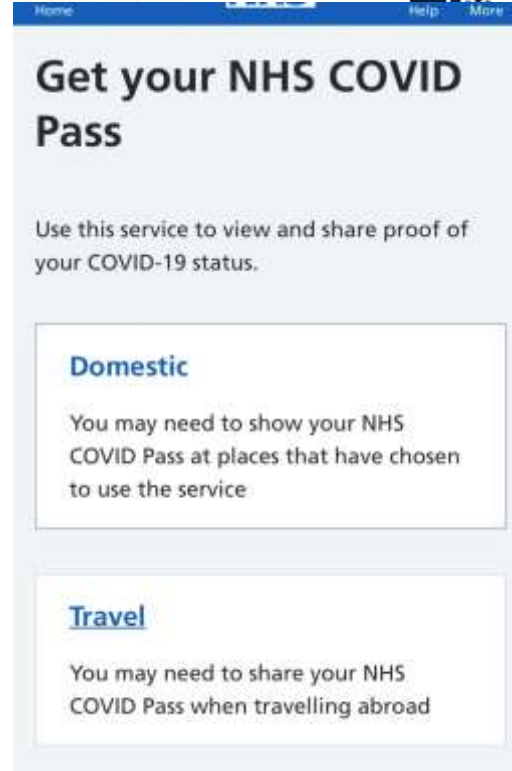
- The records for Stithians Showground on 11<sup>th</sup> March 2021
  - 21 Pfizer doses administered.
  - We had no Pfizer on site.
  - An AstraZeneca batch had been added incorrectly as Pfizer.

# Batch Numbers are important!



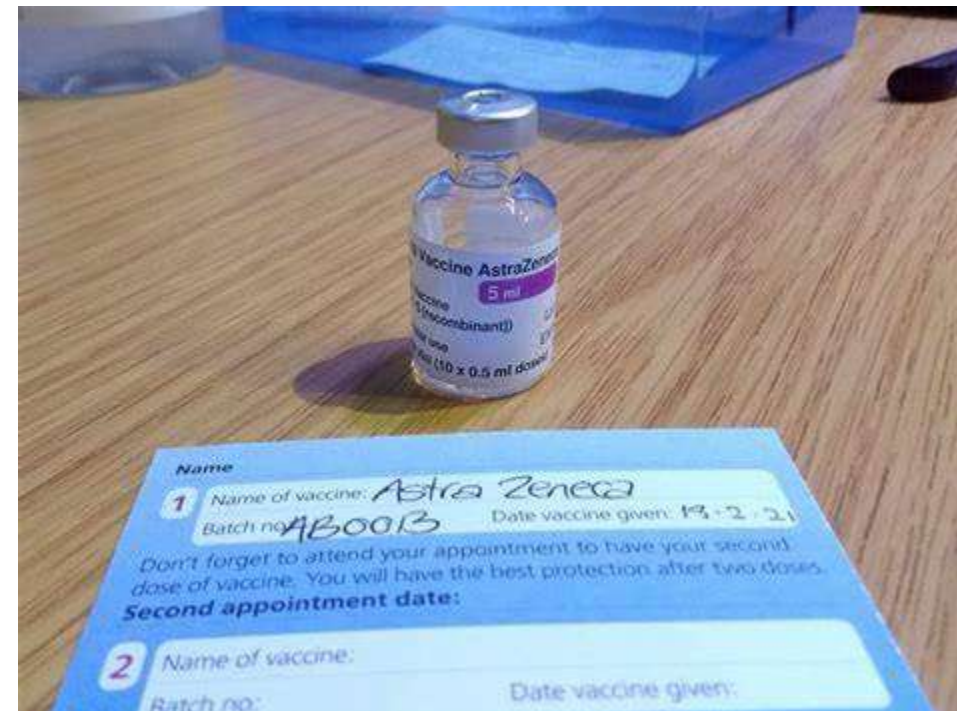
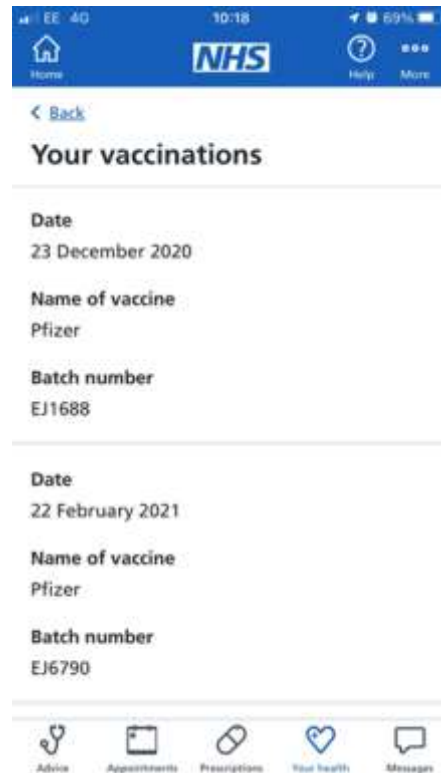
Asia Australia Middle East Africa Inequality Global development

## Britons with Indian-made AstraZeneca vaccine face extra EU travel hurdle



# Medicines Misidentification

- Lots of examples during the programme of the patient record showing the wrong vaccine.
- Electronic record not matching the hand-written card.



**Is**  **Possible?**  
Patient. Product. Place. Process.

# Is the IT set-up for it?

Is the IT set-up for it?

Scan the 1-D bar-code- just the GTIN goes into the box



Batch number

Checked against known batch number patterns

Manufacturer expiry

Enter as dd-mmm-yyyy (eg 23-Feb-1989)

Use by date

Enter as dd-mmm-yyyy (eg 23-Feb-1989)

- within 30 days for Spikevax® (Moderna)
- within 31 days for Comirnaty® (Pfizer)
- within 45 days for some Comirnaty® (Pfizer)
- within 70 days for Comirnaty® Children (Pfizer)

Scan 2-D barcode- get the GTIN & the batch number but in the same box..

---

Batch number

Checked against known batch number patterns

Manufacturer expiry

Enter as dd-mmm-yyyy (eg 23-Feb-1989)

Use by date

Enter as dd-mmm-yyyy (eg 23-Feb-1989)

- within 30 days for Spikevax® (Moderna)
- within 31 days for Comirnaty® (Pfizer)
- within 45 days for some Comirnaty® (Pfizer)
- within 70 days for Comirnaty® Children (Pfizer)

# Is the product set up for it?



- Multiple bar-codes on the outer box.
- No bar-code on the vial.

# Is the process set-up for it?



- No bar-code at the point of administration.

(\*disclaimer- this photo is not from the Cornwall vaccination programme!)



# Quality Improvement for the next phase of the C-19 programme



One + all | we care

Royal Cornwall Hospitals



NHS Trust

# Scan4Safety Needs to be Designed Into the Workflow



SCAN+ SAFETY  
Patient. Product. Place. Process.

# Key Messages

- GS1 standards are enabling so much more than supply chain integrity.
- Now increasingly being used to deliver front line care.
- Used for secondary use of data.
- GS1 remains central to the digitalisation of the NHS and patient safety.

# Medication Without Harm

[who.int/patientsafety](http://who.int/patientsafety)



***Third Global Patient  
Safety Challenge***



World Health  
Organization

