



Northumbria Healthcare
NHS Foundation Trust

The role of Order Comms in maximising the potential of a LIMS deployment

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The Northumbria Way
People Caring for People

About Northumbria

- Serves a population of over 500,000 across Northumberland and North Tyneside.
- Twice rated 'Outstanding' by the Care Quality Commission
- In 2015 opened the UK's first purpose build Emergency Care Hospital in Cramlington



Background

- **35+ Year old LIMS system (Telepath)**
 - *Security Vulnerabilities*
 - *Lack of functionality / development*
 - *Aged hardware*
- **ICE implemented in 2008 for Acute & Primary Care:**
 - *Pathology requests made digitally for Blood Sciences/Microbiology*
 - *Paper forms for ALL requests*
 - *Re-labelling in lab*
 - *Limited data transfer / integration into LIMS*
 - *Cellular pathology & BT manually requested (handwritten forms)*
- **Regional Procurement / Collaboration (NENC)**



Our Project



00 WinPath
Enterprise



New LIMS

Upgrade
ICE v8.3.4

Move to
New ICE UI

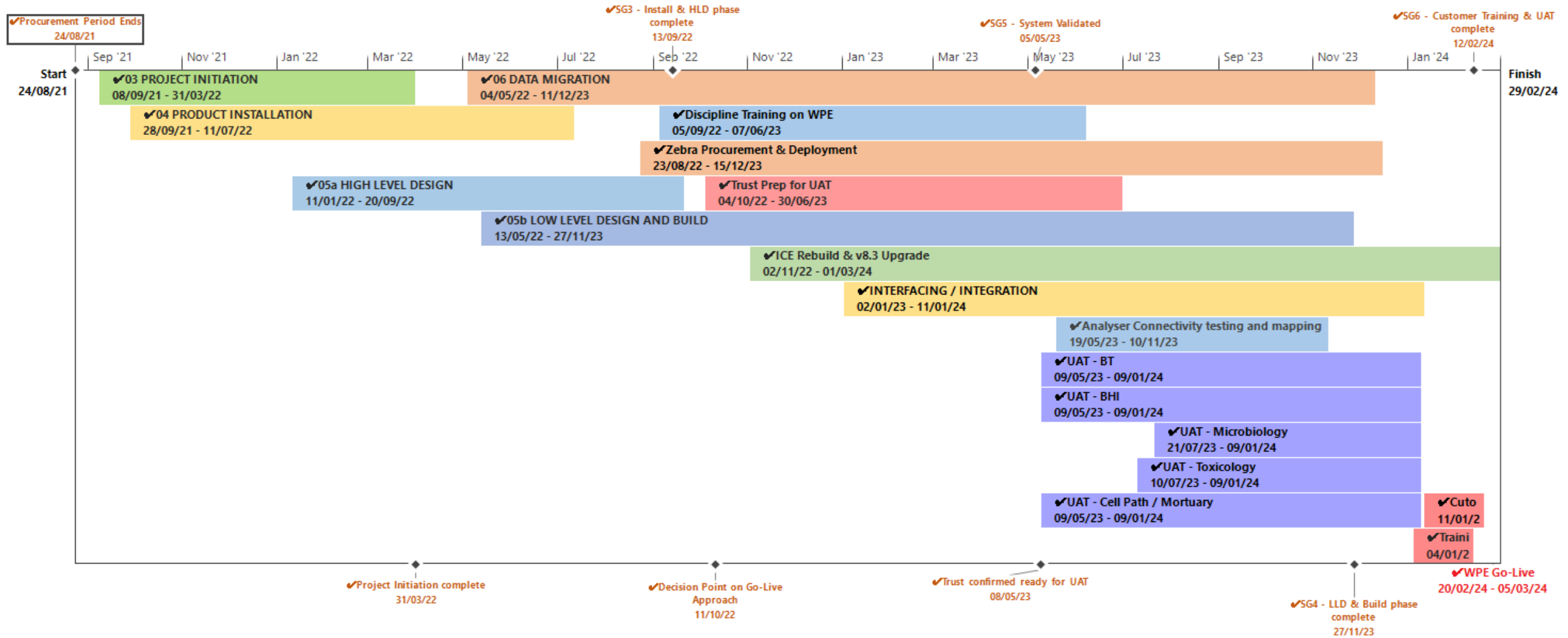
Numbering
at source



Timelines



Northumbria Healthcare
NHS Foundation Trust



Scope (Order Comms)

- 1) Introduction of fully paperless requesting
- 2) Digital requesting for Blood Transfusion (inc electronic product requests)
- 3) Requesting Optimisation
- 4) Paperless 'add on' processes
- 5) Data Capture & Rules
- 6) Realtime Sample Collection
- 7) Labelling at Source
- 8) Specimen Packaging
- 9) ICE EUI / Mobile Functionality



1. Paperless Requesting

Introduction of fully paperless requesting for:

Blood Sciences

Microbiology

Cellular Pathology

Including:

Family Origin Questionnaire

DFT's

Sweat Test Requesting

Urine Bottle Requests

Add on Requests

Contact with Duty Biochemist



2. Digital BT Requesting

Digitisation of Blood Transfusion Requesting:

- Routine Group & Screen
- ffDNA Screen
- Antenatal Bookings / Screens
- Reaction Investigations

Including digital product requesting to a real-time dashboard

- No paper forms
- Only MTP telephoned

Select service provider:

Filter by priority:

Filter by status:

Orders in the date range: -

For sample collection date: < ... >

No sample collection date

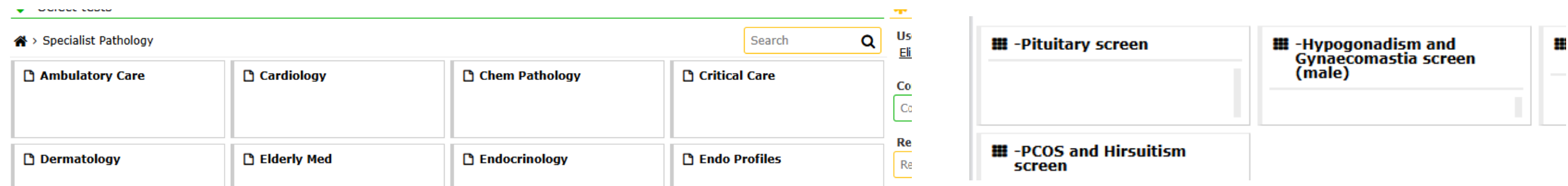
Hospital No.	Patient Name	Date/Time Requested	Sample Collection Date/Time	Investigations	Requesting Doctor	Loc	Status
T5586182	TEST, CHLOE	22 Apr 2026 14:15	22 Apr 2026	OCTA - <i>-Octaplas</i>	Dr Nicola Redding	W04	LST
T5588624	TEST, HELENA	22 Apr 2026 14:13	22 Apr 2026	FACT - <i>-Haemophilia Products</i>	Charlotte Bomken	W04	LST
T5590181	WINPATH, FEMALE	22 Apr 2026 14:12	22 Apr 2026	BER - <i>-Beriplex</i>	Dr Stewart Pattman	W04	LST



3. Requesting Optimisation

Tailored requesting pages and clinical optimisation of profiles

- Created with clinical teams



Benefits / disadvantages of clinically created profiles

- Correct tests included
- Are all of them always required?
- Demand optimisation?
- Ability to have tests pre-selected or individually requestable
- Appropriate tests for the profile – e.g. specific versions of oncology or endocrinology

3. Requesting Optimisation

Reflex testing / excluded tests

- Prevention of inappropriate combinations
- Addition of required investigations – e.g. paired samples
- Can occur within a profile

Diabetes

-GLUCOSE (RANDOM - PLASMA)
Blood sugar level on NON-FASTING sample

-GLUCOSE (FASTING - PLASMA) [E]
Blood sugar level on FASTING sample

Sustainability

- Removal of grey top from profile where not required

ED Pathology > ED PROFILES > -Ectopic-PV bleed

-FULL BLOOD COUNT
Full Blood Count - includes Hb, WBC, Platelets, RBC, HCT, MCV and automated differential

-COAGULATION SCREEN
Prothrombin Time, Activated Partial Thromboplastin Time, and Fibrinogen

-U&E (UREA AND ELECTROLYTES)
Urea, Sodium, Potassium, Chloride, Bicarbonate, Creatinine, eGFR

Use of profiles to digitally request DFTs

- Paper requests removed.
- Specific DFT test code maps to LIMS
- Some over-labelling still required

Endocrinology Dynamic Function Tests

-Canulated Prolactin test

-Growth Hormone Suppression test

-High Dose D Suppression

-Low Dose Dexamethasone Suppression Test

-Mixed Meal Tolerance Test (MMTT)

-PGRH



3. Requesting Optimisation

Ability to use profiles as components of rules-based requesting

- Triple Test requested

-ANTENATAL HEP B/HIV/SYPHILIS SCREEN

-ANTENATAL SEROLOGY SCREEN (HepBsAg, HIV DUO, Syphilis IgG/IgM)

- Consent for triple confirmed

Has this patient consented to all three antenatal serology tests (HIV, Hepatitis & Syphilis)?
 yes no

Single test code for all 3 tests to LIMS (quick & appropriate for majority)

Investigations
ANTE

- If not consented to all 3 tests, automatic switch to 3 separate selectable investigations

Has this patient consented to all three antenatal serology tests (HIV, Hepatitis & Syphilis)?
 yes no
 Switch to tests from -MIC ANTENATAL SEROLOGY

Appropriate testing automatically performed in LIMS

- Requestor selects those consented

> -MIC ANTENATAL SEROLOGY
 -Antenatal Hepatitis B surface antigen
 -Antenatal HIV serology
Antenatal screening HIV serology
 -Antenatal Syphilis serology

Individually consented test codes to LIMS

Investigations
HBS, HIV



4. Paperless add on requests

Digitisation of Add on Requests:

- Auditability
- Realtime dashboard
- Ability to accept OR reject
- ‘Dummy tests’ to inform users of tests that cannot be added
- Separate lists for GP/non-GP

<input type="checkbox"/> -ADD ON Amylase	<input type="checkbox"/> -ADD ON Intrinsic Factor Ab
<input type="checkbox"/> -ADD ON B12 & Folate	<input type="checkbox"/> -ADD ON Phosphate
<input type="checkbox"/> -ADD ON B12, Ferritin & Serum Folate	<input type="checkbox"/> -ADD ON PSA (Diagnosis)
<input type="checkbox"/> -ADD ON Ca125 (Diagnosis)	<input type="checkbox"/> -ADD ON PSA (Monitoring)
<input type="checkbox"/> -ADD ON Ca125 (Monitoring)	<input type="checkbox"/> -ADD ON Troponin T
<input type="checkbox"/> -ADD ON Calcium	<input type="checkbox"/> -ADD ON TSH (Thyroid function)
<input type="checkbox"/> -ADD ON CRP	<input type="checkbox"/> -ADD ON Blood Sciences - Other Test
<input type="checkbox"/> -ADD ON D-Dimer	<input type="checkbox"/> -ADD ON PARAPROTEIN
<input type="checkbox"/> -ADD ON ESR	<input type="checkbox"/> -ADD ON SERUM FREE LIGHT CHAINS
<input type="checkbox"/> -ADD ON Ferritin	
<input type="checkbox"/> -ADD ON Full Blood Count	Microbiology
<input type="checkbox"/> -ADD ON Gentamicin	<input type="checkbox"/> -ADD ON Microbiology
<input type="checkbox"/> -ADD ON Liver Function Test	
<input type="checkbox"/> -ADD ON Magnesium	

Select service provider:

Filter by priority:

Filter by status:

Orders in the date range: -

For sample collection date:

No sample collection date

Hospital No.	Patient Name	Date/Time Requested	Sample Collection Date/Time	Investigations	Requesting Doctor	Loc	Status
T5588624	TEST, HELENA	22 Apr 2026 14:23	22 Apr 2026	ADDAMY - -ADD ON Amylase / ADDLFT - -ADD ON Liver Function Test	Kevin Smith	W04	LST
T5590181	WINPATH, FEMALE	22 Apr 2026 14:22	22 Apr 2026	ADDICAL - -ADD ON Calcium / ADDLFT - -ADD ON Liver Function Test	Claire Patterson	W04	LST



5. Intelligent Data Capture and rules

Building rules for data capture

- Rules reviewed as component of project
- Minimise impact on clinicians – streamline
- Formal approval process that can include CCIO or Medical Director discussion
- EUI has no pop ups – rules are a component of the requesting screen
- *Defined and agreed benefit*



5. Intelligent Data Capture and rules

Thyroid Function Tests

- Added on dummy test maps to LIMS (T4S) and is populated
- Results are auto-authorized with appropriate comments
- Reducing manual authorisation for ~ 200 results per day

✓ TSH - -Thyroid Function Test (TFT) ✕

[A] Is this patient prescribed thyroxine?

yes ✓

no

[A] Please select the thyroid condition the patient is medicated for

Hypothyroid - on stable thyroxine dose ✓

Add tests from -T4 stable dose (TPO Abs not requestable) ✓

✓ T4S - -T4 stable dose ^ ✕

What thyroxine dose is prescribed?

Thyroxine dose: 175ug ✓

Thyroid stimulating hormone	13.3	mIU/L	0.3 - 4.5
<p>interpretation of lipid results.</p> <p>Raised TSH suggests thyroxine replacement may be inadequate. Suggest review thyroxine dose/compliance with medication/absorption of medication. Consider medications affecting absorption, e.g. calcium salts, iron salts, PPIs, antacids. Or malabsorptive conditions, e.g. coeliac disease, pernicious anaemia, atrophic gastritis. Please note it can take at least 6-8 weeks for TSH to stabilise following introduction of thyroxine or a change in dose.</p>			
Free thyroxine (T4)	10.6	pmol/L	10.0 - 22.0
T4 Stable dose	Thyroxine dose: 175ug		
Total Vitamin D			



5. Data Capture and Rules

Using ICE to determine specific Microbiology investigations

- Removed the need for BMS to manually grade
- The most appropriate pathogens for the clinical scenario are automatically requested (and visible on the label).

This example shows the use of rules and test profiles:

✓ GCLE - -HIGH VAGINAL SWAB CULTURE ...
✕

* H1 - -HIGH VAGINAL SWAB CULTURE
^ ✕

Is this being sent with a Cervical Swab?

yes
 ✓

no

Please indicate the relevant clinical details from the list below:

Bartholin's abscess / Pelvic Inflammatory Disease ▾
✓

Switch to tests from -HVS (H4)
 *

5. Data Capture and Rules

Travel Details:

✓ FOCP - -FAECES - OVA CYSTS AND PARA... ✕

[A] Please select symptom onset date

22/04/2026 ✓

[A] Has patient travelled outside of the UK within the last 6 weeks?

yes ✓

no

[A] Please enter country of travel (outside of UK)
(max 25 chars)

Kenya ✓

- Automatic addition of parasite and cholera testing
- Country captured for clinical interpretation

Medication Details:

* CORT - -CORTISOL ^ ✕

Please use the list below to provide details on steroid medications:

- Hydrocortisone *
- Prednisolone
- Dexamethasone
- Other steroid replacement
- Dexamethasone SUPPRESSION TEST
- NO STEROID MEDICATIONS

- Enables clinical interpretation / additional testing
- Enables appropriate telephoning decisions

5. Data Capture and Rules

Family Origin Questionnaire

Order Comms:

Antenatal Haemoglobinopathy reflexed if high risk ethnicities ticked for a parent

LIMS:

Antenatal Haemoglobinopathy is also reflexed if the MCH <27

✓ FOQ - -FAMILY ORIGIN QUESTIONNA...
^ x

Booking location

NSECH
▼
✓

Gestation at booking (approximate)

10+0 - 12+0 weeks
▼
✓

Is this pregnancy the result of IVF using a Donor egg?

yes
 no

✓

Has the mother had a Bone Marrow transplant?

yes
 no

✓

Woman's family origins (# = Higher risk of alpha zero thalassaemia) PLEASE SELECT MULTIPLE ETHNICITIES IF APPLICABLE

* E. Poland / Romania / Russia
 * E. Any other Mediterranean country
 F: England / Scotland / Northern Ireland / Wales

✓



6. Labelling at Source



Significant benefits to process and waste reduction



Vast investment required for label printers and installations – ~2000 printer deployed



Consideration needs to be given into networked u USB connectivity



Wireless devices in community teams

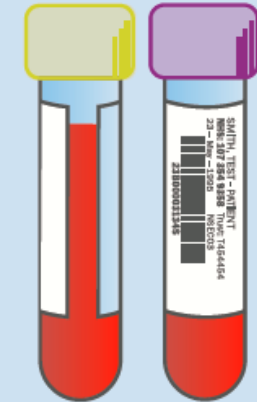


MUST be fully incorporated into requesting and phlebotomy workflows within order comms



Samples are marked as 'Collected' in ICE before the label can be printed. Significant training and organisation wide process changes

Pathology Blood Sample Labelling

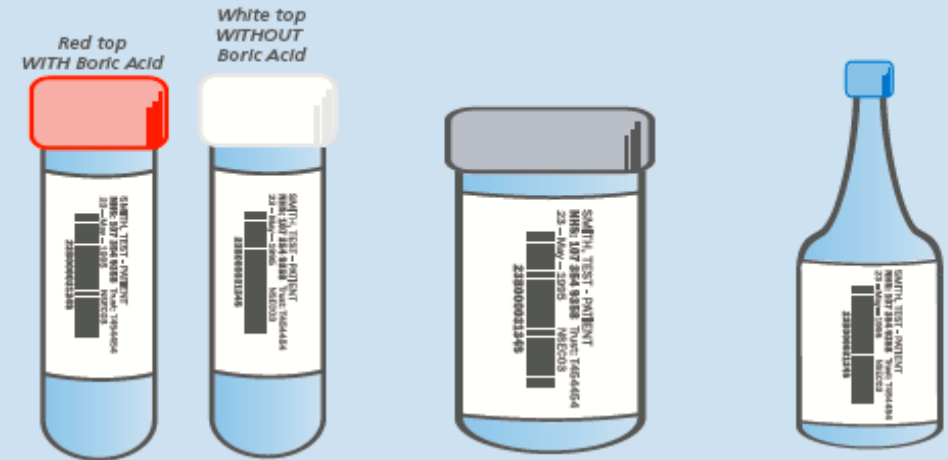


Label must be affixed to the correct container type / colour which is indicated on the bottom of the label.

Urine Samples

Sputum Pot

Blood Cultures



6. Labelling at Source

- Labels printed with unique Sample ID
- Barcode scanned directly into LIMS (or placed into front end of track system....)
- Separate lab number for each tube (majority of cases)
- Community - Handheld printers deployed to support agile working
- ICE on laptop or mobile
- No travelling to site to make or print requests
- Significant efficiency savings in community
- Travel time, patient experience, patients seen in a shift



7. Realtime Sample Collection

- Visibility of which samples have / have not been collected
- Phlebotomy directly from order comms – all uncollected samples clearly visible
- Time and date of collection clearly visible to phlebotomy and clinical teams – to understand status of samples
- Enables sample tracking
- Time and date of collection provides clinical laboratory information:

Delayed separation

Early morning sample

Pre/post medication/intervention collection

Collection / fulfillment option

- Collect Sample NOW ✓
- Phlebotomy Collection (Today)
- Phlebotomy Collection (Future Date and Time)
- Collect Sample Later (Approximate Date)

Collection / fulfillment date

22/04/2026 14:49 ✓

SPC	FBC - -FULL BLOOD COUNT, FOQ - -FAMILY ORIGIN QUESTIO...	22 Apr 2026 14:42
	Andrew Smith	NSECH Chemistry
REQ	FOCP - -FAECES - OVA CYSTS AND PARASITES	22 Apr 2026 14:38
	Andrew Smith	NSECH Chemistry

▶ FOCP - -FAECES - OVA CYSTS AND PARASITES (Awaiting collection)

⚠ Samples awaiting collection

▼ 26M50105683 - -Faeces MICRO


Investigations	FOCP
Collection date	22 Apr 2026 14:38
Container	-Faeces MICRO

End of request



7. Realtime Sample Collection

Required containers

 1 X EDTA Tube (Purple Top)
4

Order no: 44698558

REQ






Routine

Scheduled collection date
22 Apr 2026 14:42




Set danger of infection

Collect now

  EDTA Tube (Purple Top)   

Accession number	Container volume	Investigations
26B50243798	4	FOQ, FBC

Collected containers

 1 X EDTA Tube (Purple Top)
4



Order no: 44698558

SPC

Routine

Set danger of infection

Collected

  EDTA Tube (Purple Top)

Accession number	Container volume	Investigations
26B50243798	4	FOQ, FBC

COLLECT SAMPLES

PRINT



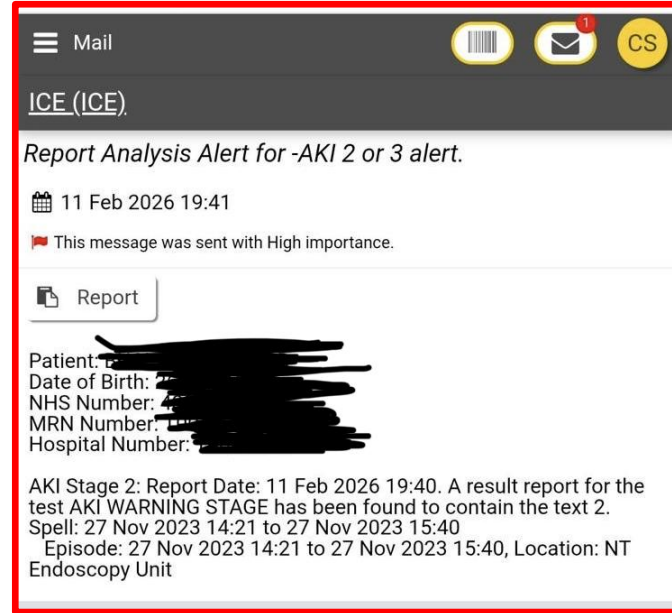
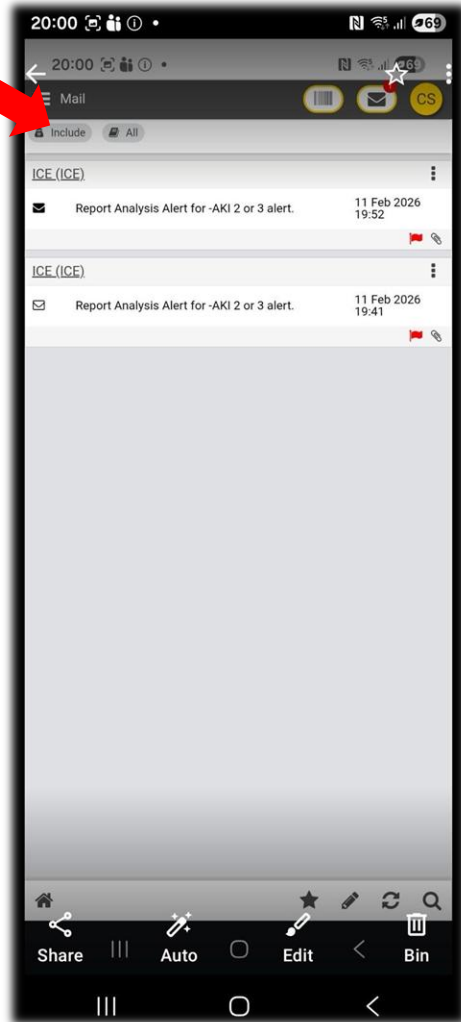
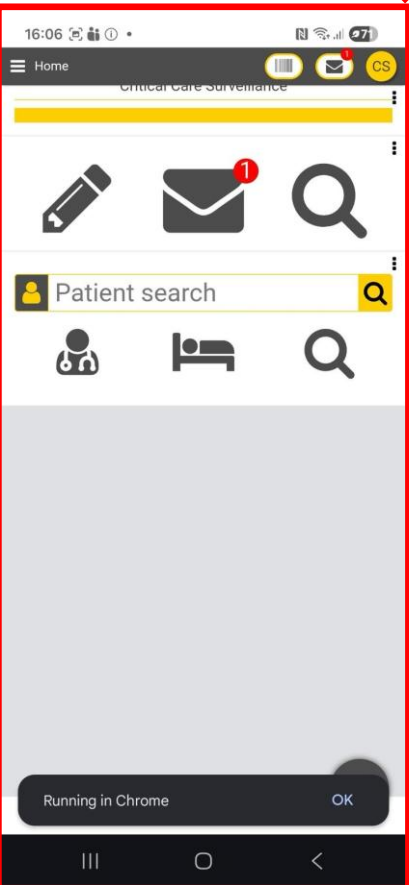
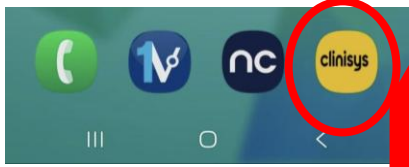
8. Specimen Packaging

Move away from department specific coloured sample pouches

- Reduction in number of bags per patient
- GP's/Outpatients etc use of boxes
- Environmental impact
- Cost Improvement (*Significant!*)
- Realtime tracking during transport



9. EUI functionality



- On the go access – Device Agnostic
- Results in pocket, along with EPR / ED & Prescribing system
- On the go alerts e.g. Critical Care Outreach Team (*AKI 2 and 3 & Lactate >3.9 alerts*)
- Significant component of deteriorating patient pathway
- Takes results or specific comments from LIMS
- Ordercomms applies rules looking for results or comments to generate alerts



The background features several overlapping circles in shades of blue and green. A large light blue circle on the left contains the text 'Questions?'. To its right is a large light green circle. Below these are smaller, overlapping circles in teal and light blue.

Questions?