

Transfusion in a paperless hospital environment

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Introduction:

- Blood transfusion is a high risk procedure
- Complex, strictly regulated, (sampling, testing, issuing, collection & administration)
- Multiple staff
- Multiple departments



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Background

- Addenbrookes went 'paperless' October 26th 2014 (Govt Financial initiative)
- No medical notes or charts!
- No 'bits' of paper to go missing
- You can access your patient notes, anywhere in the Trust (even at home!)



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October 27th!!!

- Brilliant????
- Wikipedia mentions Addenbrooke's 'noted issues with blood transfusion & pathology'
- We re-introduced our 'paper' transfusion request card
- Lab staff getting used to system over run with orders
- Weekly 'formal' meetings with Epic
- Transfusion recovery plan in place within 3 months
- Sample labelling major concerns



However....

- Life did improve....



- Would I work in a non-paperless Trust???



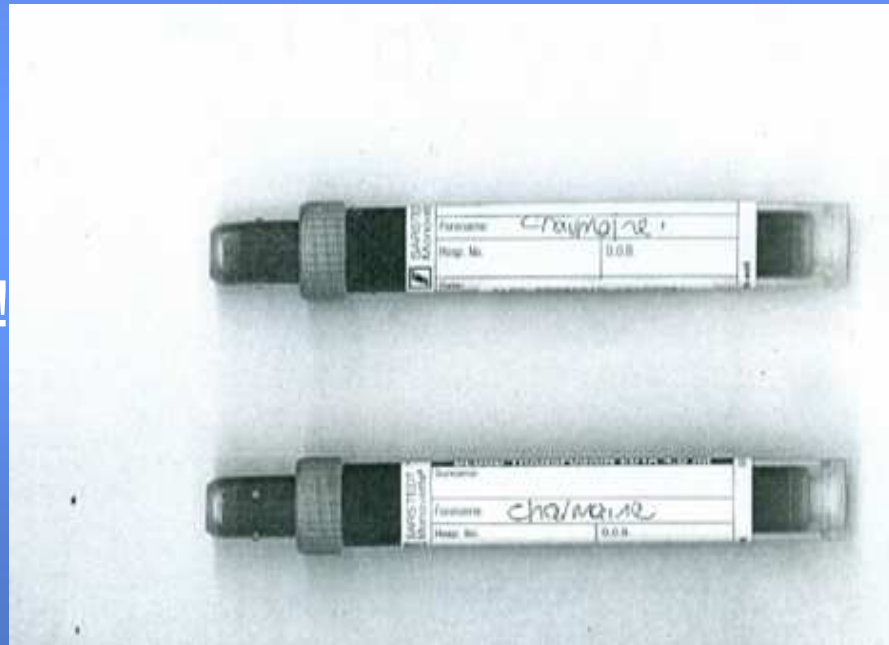
Transfusion order set:

- Common tasks are streamlined
- Group & screen & blood component request:
- G&S (1 or 2 dependent on historical blood bank record)
- FBC
- Prepare order for components (all qualified staff)
- Medics: Admin order
- Easy to follow
- (Hopefully) nothing is missed!



Sample collection

- Electronic order
- Paper request form
- Collection
- Electronic labelling
- Zero tolerance!
- **Problems remain!**
- Equipment & confidence!



Which label?

- Patient wristband scanned at point of collection?
- Use electronic label
- If unable to scan?
- Hand label at patient's side from wristband



Sample collection

Please provide the following information:


Lab: Collection Date: Collection Time:

Collected By:

Specimen Src:

Patient Scan - JONES, Alias

Patient not scanned

 Scan the patient
or
Select an override reason to continue.

Override reason:

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Big brother!

- Can see who & when sample collected
- People can change times & collector ID!

Collection Information

Specimen ID: BS-15350H0002

Collected: 16/12/2015 11:54
INPATIENT, NURSE

Blood

Venepuncture

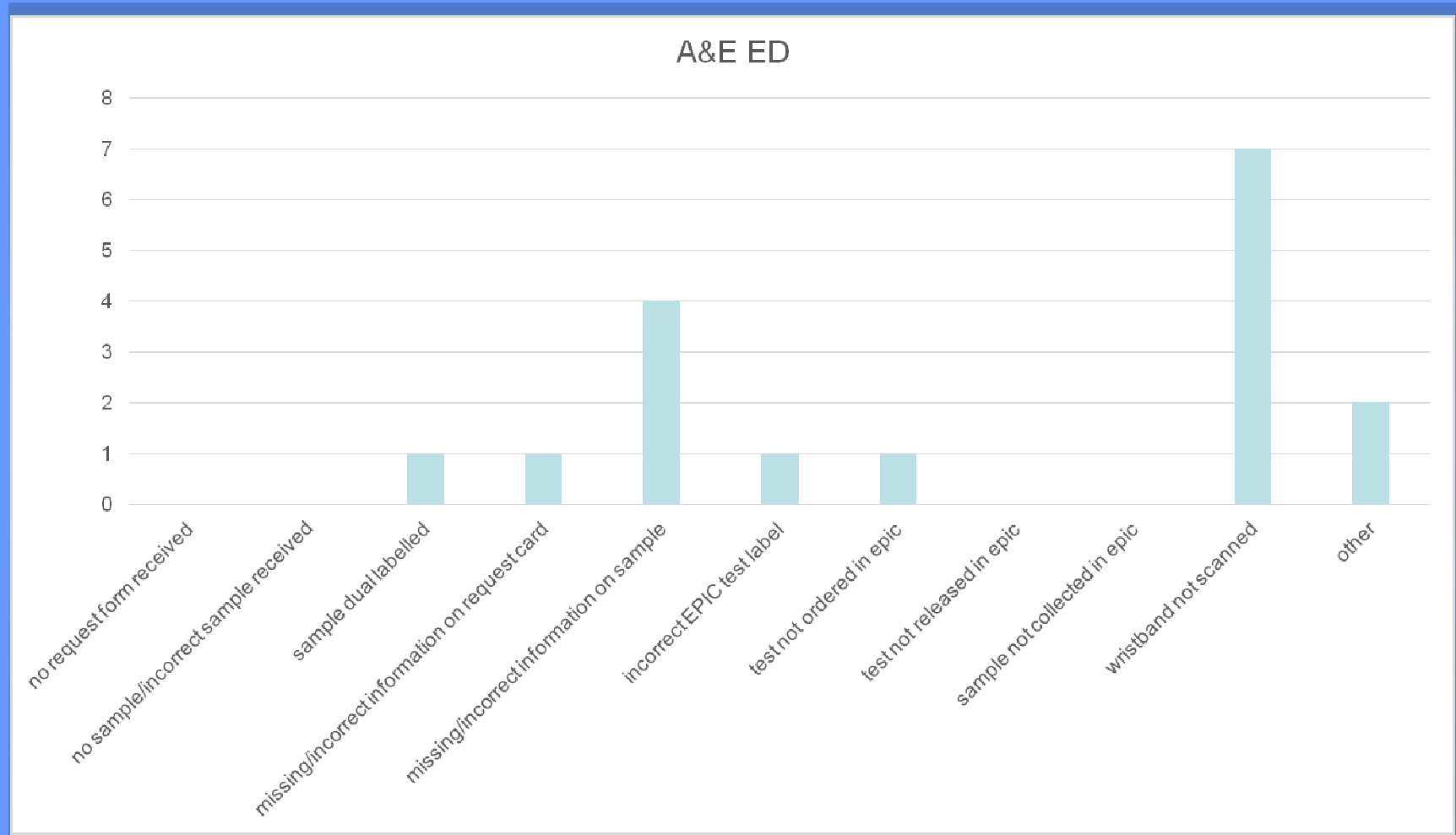
Resulting Agency: ADDENBROOKE'S PATHOLOGY SERVICES

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April 2016



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Prepare order

- For all components, goes straight to lab electronically :
- No of units
- Indications
- Special requirements (listed)
- Patient transfusion history
- Date & time required.
- Hard stops!
- Last recorded Hb/plt count shown (reduction of unnecessary transfusions!)



Future developments???:

- If a patient Hb is above a certain threshold, the medic will be prompted to only order 1 unit



Prepare order but...

- Indication, staff will list acute blood loss (it's the first check box)!
- Transfusion history (unknown is easier option) 3 day rule then applies (theatres & anaesthetists)



Example:

- Patient bled 3 weeks ago (lab hold sample up to 6 weeks)
- Theatres called transfusion lab to ask if sample is valid
- Yes!
- Prepare order made (not urgent)
- Unknown selected in transfusion history
- Sample not valid!
- However.. Easy to investigate & gather evidence rather than heresay, everything is documented!



Administration

- Electronic prescription & matching (single person administration)
- Prescription, unit details & observations are all in one place.
- Person starting the transfusion, date, time accurately & clearly recorded.
- No more undecipherable medical writing!



Administration order

✔ Accept ✖ Cancel

Priority:

Frequency:

For: Occurrences Hours Days Weeks

Starting:

First Occurrence:

First Occurrence: **Today 22:21** **Until Specified**

i There are no scheduled times based on the current order parameters.

Questions:

Prompt	Answer	Comments
1. Has consent been obtained? !	Yes No	<input type="text"/>
2. Transfusion duration per unit in hours !	STAT 1.5 2 3 4 Other (specify)	
3. Transfusion Indications !	Acute blood loss Anaemia Bone marrow failure Exchange transfusion Pre-operative Renal anaemia Other (specify)	
4. Special Requirements !	<input type="text"/> CWV Negative Irradiated Hepatitis E Negative No special requirements Other (Specify)	

Process Inst: By indicating that consent has been obtained it is understood that:
"You have explained to the patient risk, benefits and alternatives to blood transfusion and gave the option to refuse"

Comments (F6): abc Insert SmartText

Patient information

▼ Adult Blood Component Administration

Adult Group and Screen and Blood Component Request

Please remember to place your transfuse orders by opening the Adult Blood Component Administration order set.

▼ General

▼ Vital signs - Adult Blood Component Administration

Vital signs Once

Routine, Once First occurrence Today at 22:21

Once before transfusion (within 60 mins), then every hour during transfusion; first check 15 minutes after start of transfusion including BP, Pulse, temperature and respiratory rate. Once at end of transfusion (within 60 mins).

Vital signs - Specify

▼ Notify doctor - Adult Blood Component Administration

Notify doctor and hold transfusion if 1) Temperature rise 2) Change in blood pressure 3) Increased pulse 4) Rash 5) Rigors 6) Shortness of breath/Increased respiratory rate 7) Patient complains of feeling 'unwell'

Routine, Once First occurrence Today at 22:21

and hold transfusion if 1) Temperature rise 2) Change in blood pressure 3) Increased pulse 4) Rash 5) Rigors 6) Shortness of breath/Increased respiratory rate 7) Patient complains of feeling 'unwell'

▼ Nursing interventions - Adult Blood Component Administration

Give Patient/Family Transfusion Information Brochure

Routine, Once First occurrence Today at 22:21

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Paperless Administration

Product

✕ **Transfuse RBC** : Intravenous : Status: Ordered -- Start: 14/09/16 22:02 R

? **Transfusion instructions**

Has consent been obtained?	Yes
Transfusion duration per unit in hours	STAT
Transfusion Indications	Anaemia
Special Requirements	No special requirements

Order Start Time: Today 14/09/16 at 22:02

Line at time of administration: Currently Unlinked

Scan the unit number

Unit number:

Expiry:

Product code:

Patient blood type:
O positive

Action:

Route:

Rate:
 mL/hr

Date: **Time:**

Site:

Comment:

Associated Flowsheet Rows:

Request Cosign by: (none)
User taken by: INPATIENT, NURSE

New Value: Date: Time: Check the box to link to previous value if no new assessment is needed. Only values from 14/09/16 21:30 to 14/09/16 22:00 are allowed.

OTHER		
⚠ BP	<input style="width: 80%;" type="text"/>	No data filed in allowed time range
⚠ Temp	<input style="width: 80%;" type="text"/>	No data filed in allowed time range
⚠ Heart Rate	<input style="width: 80%;" type="text"/>	No data filed in allowed time range
⚠ Resp	<input style="width: 80%;" type="text"/>	No data filed in allowed time range
⚠ Confirm 4 ID points	<input type="text" value="Yes"/>	No data filed in allowed time range

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Electronic Match

Product

Transfuse RBC : Intravenous : Status: Stopped -- Unit: G0724 14 507001 X-04333

? Transfusion instructions	
Has consent been obtained?	Yes
Order Start Time:	06/06/14 at 15:14
Last Admin Given:	04/05/16 at 09:45
Line at time of administration:	Peripheral IV Cannula 20/11/15

Ready!

Patient blood type: A POS

Unit number: G0724 14 507001 X Expiry: 05/05/16

Product code: 04333

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Traceability

- Not paperless!
- 100% manual process
- Orange ticket in place (95% approx)
- EPIC traceability report
- Easily accessible notes (not all units are recorded).
- May: 99.75% (2862 units, 7 PT)
- June: 99.72% (2497 units, 7 PT)
- July: 99.49% (2559 units, 13 PT)

- Overall verdict: Much improved



Consent

- Signed consent is on paper consent form (if required) & chemotherapy charts, for example.
- Every time a prescription is made, Medic required to obtain consent (risks benefits & alternatives).
- Easy to audit!



Consent incident:

- Jehovah's witness patient approached by nurse with first unit of red cells.
- Investigation of incident showed:
- Who had prescribed blood, was consent obtained?
- Audit immediately carried out in critical care to check for consent of patient's unable to give:
- 24 patients identified
- 5 were given transfusions & were unable to give consent
- In all cases consent recorded as not being obtained with a comment.



Audit:

- Easily accessible notes.
- Need to have correct processes in place to identify patients but notes are then immediately available
- Traceability report, audit who is giving blood , are they compliant with training.
- National audits, once patient's are identified we can access their notes immediately (clear writing!)
- Reports can be run automatically or ad-hoc (mismatch/traceability)
- Incident investigation, audit & external reports can be completed without pulling patient notes or competing with other staff for access to patient notes on ward



Incidents:

- EPIC has electronic record of responsible personnel at all stages: **sampler, requester** (associated consent, reason for transfusion and special requirements) and administrator to allow targeted investigation.

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**Blood
Venepuncture**

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Transfusion reactions:

- EPIC enables reporting against unit number
- Evidence of observations in line with transfusion times
- Actions and interpretations of reactions in notes visible to all including laboratory conducting transfusion reaction investigation
- Clarity of medical notes - don't have to interpret handwriting
- Electronic evidence can easily be attached to incident investigations
- Testing and results undertaken by NHSBT can be attached to patient records and visible beyond laboratory.



Discharge

Order Sets

General Discharge — Required

Add Order

Instructions to be given to the patient on discharge should be specified in the comments section/questions. Where applicable the nursing team as well as physiotherapy, occupational therapy, dietitians and others may add additional instructions.

General — Required

- ▶ Discontinue IV/ Remove Catheter 0 of 2 selected
- ▶ Activity instructions 0 of 4 selected
- ▶ Diet instructions 0 of 3 selected
- ▶ Dressing 0 of 6 selected
- ▶ Seek Medical Advice 0 of 9 selected

Follow-up — Required

Follow up in clinic: this order will be scheduled. Specify specialty/clinic in the questions below.

Follow up with GP/No Follow up required: these orders will not be scheduled, but will appear on the AVS for patient information.

- Clinic Follow Up
- Follow-up with GP
- No Follow Up Required For This Admission
- Follow-up orders already placed

Blood Component administration during this admission — Required

This patient had Blood Components (RBC, FFP, PLT or Cryo) ordered/administered during this admission. Please select one of the following according to whether the patient actually received the Blood Components. Further information can be found in the Blood Transfusion Information section in the Overview report in Patient Summary.

- This patient received blood components during this admission
- This patient did not receive Blood Components during this admission

- ▶ Additional Discharge Instructions 0 of 1 selected

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Discharge information

- Small % of patient's receive a transfusion
- Time consuming, partially completed.
- Relevant patient's only

Transfusion Information

This patient received blood components during this admission

If further details regarding the transfusion are required, please contact the clinical team. Please note that patients that have received blood components are no longer eligible to donate blood. Provision of information regarding blood transfusion to patients and GPs is recommended by NICE Guidance in Blood Transfusion (NG24) <https://www.nice.org.uk/guidance/ng24>

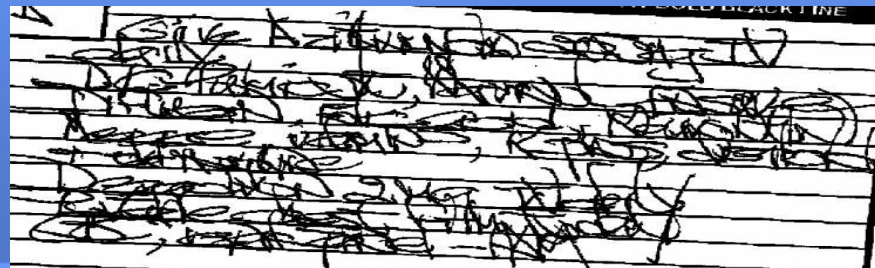
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Advantages of paperless transfusion:

- Clinical practice is supported by 'embedded decision support tools':
 1. Order sets
 2. Electronic prescription & matching
 3. Reports: wristband scanning, mismatches & traceability
 4. Electronic evidence can easily be attached to incident investigations
 5. Clarity: don't have to interpret handwriting!



Disadvantages:

- Can be a lengthy process to make changes/developments (Rover)
- Lack of very expensive equipment
- Training & competence esp in medics
- Staff will always find ways around the system!



Conclusions:

- All hospitals are expected to go paperless by 2018.
- Prior to EPIC we had 'bits' of paperless (meditech, PACS, Emr, OCS, Web OCS etc.....)
- Multiple systems, multiple logins all controlled by different teams.
- PBARS: introduced & managed by TP's in 2006 (did all wards know who to contact???)
- EPIC: one system, one login (confidentiality), one support team (paper records eg consent are scanned into EPIC)
- Real time data



In conclusion:

- Technology is there but does not guarantee safe practice.
- Less time and effort in accessing information about patients;
- Remote monitoring can help clinicians better understand the progress patients are making.



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