The implementation of traceability and hemovigilance system in a University Hospital

Timothy Devos

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1) Introduction

2) Traceability of blood components

3) Transfusion incident reporting

4) Future perspectives and challenges

University hospitals UZ Leuven (UZL)

- Several hospital sites (campus Gasthuisberg, Pellenberg, ….)
- 1894 hospital beds
- JCI-accredited

- 50.000 - 55.000 blood transfusions / year for +/- 12.000 recipients

Blood transfusion chain

HOSPITAL - UZL

indication for transfusion (physician)

↓

order sent to blood bank

EXTERNAL LABORATORY RC FL

selection of stock

DISTRIBUTION

↓

transport

↓

reception / check on the ward

↓

TRANSFUSION

BLOOD BANK (Red Cross Flanders)

donor evaluation / selection

↓

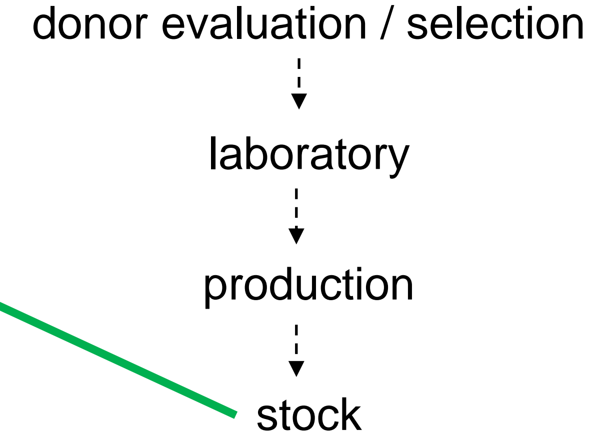
laboratory

↓

production

↓

stock



Start implementation hemovigilance system

- Since 2005 (implementing Directive 2002/98/EC)
- Initial focus:
    - developing transfusion procedures (SOPs)
    - implementation of electronic identification systems and barcode scanning
    - purchase of blood fridges, plasma defrosters, transport boxes, guidelines for transport, …

Current key tasks: hemovigilance nurses

- Daily follow-up of **correct registration of blood products** (monitor traceability !)
- Development and implementation of **transfusion procedures**
- **Training** of (new employed) nurses
- Follow-up of **transfusion incidents**: corrective actions and feedback, reporting to the national authorities
- Link to RC FL and IT

Key tasks: hemovigilance physician

- Follow-up of **medical transfusion issues**
- Development and communication of **transfusion guidelines**
- **Training**
- Internal communication to physicians (changes in procedures, legislation, etc)
- Chairman of **Transfusion Committee UZL**

2) Traceability

- Electronic scan procedure since 2005 (KWS)

- <u>Different steps:</u>

  a) Ordering blood component (BC)
  b) Pick up BC at the blood bank
  c) Reception BC at the hospital ward
  d) Administering BC to the patient
  e) Returning unused BC

A. Ordering blood component

Electronic order:

- each order:

unique reference number

- print-out sent to blood bank

Order and cross match sample arrived at the blood bank?

Cross-matched units available ?

File - Pt. -

Acties Dossier | Lisa | mynexuz | PiMS | ABO/D (2)

Con | Probleem | KBest | Waar | PO | ECG | Medicatie | Attest | Beelden | Opname | Info

Acta | Afsp | MVer | Verw | Labo | Rx | Zorg | Med. attest | Documenten | Param | >>

Status stalen

aanvraag	rnr	staalId	receptieOpBTC	besteldTegen
BTC erytrocyten aanvraag	22775425	46097452	15-01-2013 20:39	16-01-2013 08:00

Vernieuw

Staal gereceptioneerd

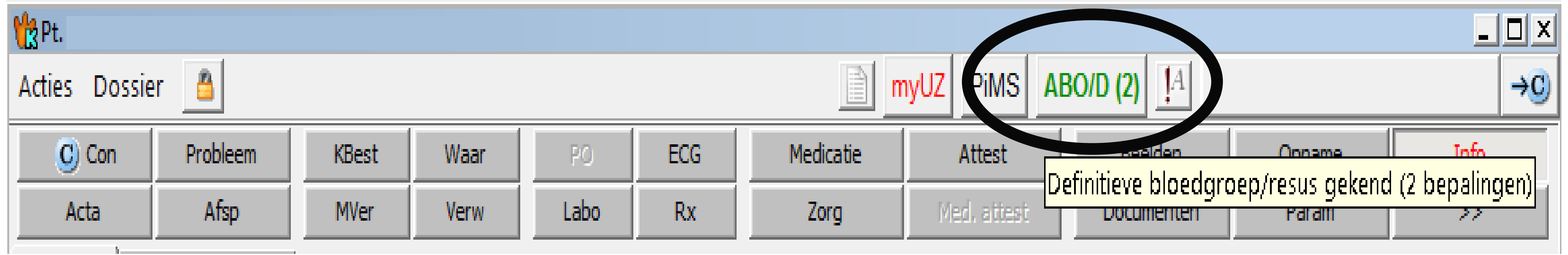
Status units

unitNr	product	rnr	uiterste TransfusieDatum	vervalDatum	afhaling	receptie	controle	toediening	terugg
03701338753900	E5259V00	22775425	18-01-2013 20:36	18-02-2013 23:59					
03701246237100	E5259V00	22775425	18-01-2013 20:36	06-02-2013 23:59					

Vernieuw

Afgehaald Toegediend Teruggebracht Vervallen

ABO/D in electronic patient file



Dependent of ABO/D status:

ABO/D(0): blood type not known

ABO/D(1): blood type analyzed only once

ABO/D(2): definitive blood type analyzed and confirmed

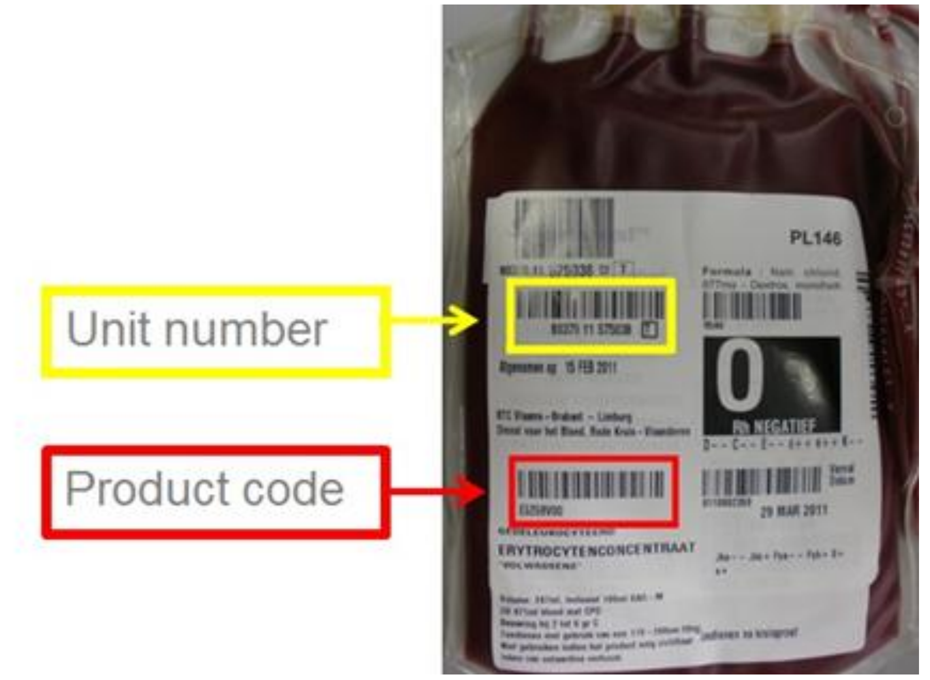
B. Picking up BC at BB

- BB only accessible with UZL badge (access control)

- <u>Scanning of:</u>
  - ➢ unit number
  - ➢ product code
  - ➢ reference number on the attached compatibility label

C. Reception of BC at the hospital ward

- Scanning of:
  - unit number
  - product code



→ **BC is ready for administration or storage at the ward**

D. Administering BC to the patient

- 1) **Visual check** by nurse or physician

- 2) **Bedside scanning** of:
  - patient ID (on barcoded wristband)
  - unit number
  - product code

→ only possible with laptop cart + barcode scanner

Scan patient ID on barcoded wristband

Scan unit number

Scan product code

Continue

Controle & toediening bloedproducten aan bed

Patient gegevens

Eadnr: Emdnr: ? Naam: ?

ABO patient: Rh patient:

Uitvoerder

Activiteit: / Patient

Uitv: ecoste0 Costermans Els ik

Sup: ik P

Anest: P

Dat D N dringend < > Aant: 1 Geen

15-01-2013 11:31 Eenh: Afd: ?

Info:

Toegediende units

Unitnr: Productcode:

Boodschappen

Voer Uit Initialiseer Annuleren

E. Returning unused BC

- Electronic registration in patient file: unit not administered to the patient

- Scanning of:
  - unit number
  - product code

- Print-out ((**non)-conformity report**):

sent to BB together with the unit

Traceability and bar code scanning: bottlenecks

- Proper collection and **labeling of blood samples** (41% of incident reporting !)

- **Correct scanning !**

- Urgent stock, non cross-matched BC (other pathway)
  - ➢ manual order
  - ➢ no link to electronic system

- IT = crucial but ….
  - ➢ electronic communication UZL – RC FL (sometimes complex)

3) Transfusion incident reporting

PIMS

- electronic reporting system, hospital-wide
- transfusion reactions, near misses and severe incidents
- easily accessible in electronic patient file

Challenges for the future …

- **research on transfusion incidents** in our hospital:
  - causes of transfusion incidents ?
  - barriers to report transfusion incidents ?

- transparent use of blood components: **feedback to users**

- continuous work: upgrading the different IT systems

- **project ‘anesthesiology’**

Project ‘anesthesiology’

- anesthesiology = ‘large consumer’

- But: registration (scanning) of BC could improve
  - **quality** issue (traceability)
  - **financial** issue: no invoice, cost of non-registered BC → hospital

- 2011: HV team started regular feedback to ANE:
  - monthly report of ‘consumption’ of BC, number of accurately registered and administered BC
  - monthly report of number of corrected registrations by HV team

Take home messages

- Electronic identification and registration systems improve BC-traceability and transfusion safety.

- Confirmation/check of blood typing on two independent samples, together with a visual 'reminder system' of the blood typing-status of the patient, raises awareness of correct pre-transfusion sampling.

- Regular feedback on BC-registration activities to specific user-groups, ameliorates traceability of blood transfusions in the hospital.