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)

- Different steps:
  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
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?
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)

- Scanning of:
  - 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
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 \(\rightarrow\) 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
• 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.