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Safe and integrated transfusion process
Agenda

- Background and objectives
- Transfusion safety
- The reengineered transfusion process
- Key Performance Indicators
- Future Developments
Background

Founded in 1925 the Fondazione Istituto Nazionale dei Tumori is widely recognised as a top tier Scientific Research and Treatment Institution (IRCCS)

- 14,000 in-patients
- 12,000 day-hospital patients
- 900,000 out-patients
- >15,000 surgical treatments
- 362 acute care beds, 51 day hospital beds, 8 operating theatres
- ~ 1900 employees
The aim of the pilot project was to address two major pain points:

**Patient Safety**

**Auditing of transfusion process**
Decline in Human Immunodeficiency Virus and Hepatitis risks of transmission through transfusion

Year

Decline in Human Immunodeficiency Virus and Hepatitis risks of transmission through transfusion
Transfusion safety: adverse events

SHOT (Annual Report 2001/2002) transfusion adverse events
Statistics on 482 adverse events reported

Serious Hazards of Transfusion (SHOT)
Better patient care

- Right patient
- Right therapy
- Right match patient-therapy
- Right method
- Right time
Due to the lack of auditing of the transfusion process the goal was to:

- Total unit traceability
- Process performance monitoring
- Timely and complete communication within organization
The reengineered transfusion process

The pilot project started in the early months of 2006 and has been implemented in:

- the Transfusion Centre (SIMT)
- the Allogenic Bone Marrow Transplantation ward (TMO)
“To be” Transfusion process

Transfusion Centre (SIMT)

Sample reception
Sample analysis
Blood bag assignment
Blood bag delivery

Transfusion Centre (SIMT)

Requirement: admission list transmitted to PDA

Blood sample collection
Sample delivery

Blood Bag Request

Allogenic Bone Marrow Transplantation Unit (TMO)

Ward admission

Patient data check against the central information system registers. RFID wristband initialisation by nurse

Blood bag reception
Unit storage preparation
Transfusion

RFID bag-patient cross match, transfusion event recorded

Transfusion data download from PDA, update of synchronisation file for Transfusion Centre database alignment

Audio visual alert in case of mismatch

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RFID technology (13.56 MHz)

**SIMT**
- RFID printer
- RFID tags for blood bags

**TMO**
- 3 HP iPAQ handheld devices equipped with RFID antennae
- Transfusion management application running on PDAs enables:
  - Patient check-in
  - Patient identification
  - Self identification
  - Blood bag identification
  - Bedside cross match
  - Disable Rfid tags
- RFID Patient wristbands and RFID staff cards
Key Performance Indicators

**MATERIAL**

- Δ Efficency
  - Δ Productivity
  - Δ Cost

- Δ Internal Quality
  - Δ Revenue

- Δ Time
  - Δ Volumes

**IMMATERIAL**

- Δ Effectiveness
  - Δ External Quality
    - Δ Margin

- Δ Brand
  - Δ Process Planning & Control
    - Δ Process Transparency
    - Traceability
    - Continuous process monitoring
    - Informative feedback

- Δ Information
  - Δ Flexibility
    - Δ Guidelines Compliance

- Δ Patient Satisfaction

**Benefits for the Transfusion Centre**
- Service Quality
- Patient safety
- Error reduction (Insurance fee reduction)

**Benefits for the entire Institute**
**Key Performance Indicators**

- **System Usage Rate**: 98.4%
  - **SIMT**: 98%
  - **TMO**: 99.6%

- **Additional Observations**:
  - User-friendly application
  - Step-by-step operational guide
  - Successful staff training
  - Proactive staff attitude

*Data referring to Sept-Oct-Nov 2006 trials*

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- Average value of blood bags supplied by SIMT: more than 1,7 million euro/year
- Average value of blood bags non transfused/returned: 11%
- Average cost per blood bag unit: ~ 200 euro
Future developments

- Extension of RFID technology to the whole transfusion process and to all Istituto’s wards
  
  • Blood sample tubes collection
  • Blood units supply to other hospitals

- Extension of RFID technology to cells and tissue banks