Blood derivative (CFC) supply chain in the hospital
How to maximise full traceability
Teaching Hospital (CHU) Rouen

- Multi-site Hospital: 5 sites
  - 2500 beds and places
  - 300 wards
  - 11 Operation rooms

- Yearly Budget of the Pharmacy: 75 M €
  - 22M € for pharmaceuticals
    > + Direct sales to patients (for drugs not in the retail pharmacies): 17 M €
  - 23M € for sterile Medical Devices
Departement of Pharmacy

• Pharmaceuticals
  • Blood Derivates
• Sterile Medical Devices
  • Implants
• Production
  • Manufacturing
    > Parenteral Nutrition
    > Chemotherapy
  • Sterilisation
• Quality Assurance
Departement of Pharmacy

• Clinical Support
• Purchasing
• Logistics
Logistics

- One main platform

- Direct to user deliveries: Aexxdis
  - Baxter, BBraun, Cardinal, Hartmann, Hydrex

- Externalisation
Environment

- Economic constraints
- Tariff per act (T2A ≈ DRG)
- Vigilances
- Quality of care
- Accreditation - certification
- (shared) e-Patient File
Coding systems

CHU Rouen / Medical Devices
distribution units (N=2430)

- EAN-8/ UPC-E; EAN-13/ UPC-A
- UCC/EAN-128 (GTIN only)
- UCC/EAN-128 (with add. inf.)
- NO CODE
- PRVATE
- HIBC (GTIN only)
- HIBC (+add. Inf)
Traceability at CHU Rouen

• Volumes
  • Blood derivates : 17000 units (50 000 mvts/year)
  • Pharmaceuticals T2A
    >25 000 units
  • Chemotherapies
    >100 pouches / day
Traceability at CHU Rouen

• Volumes
  • Implants: 6000 to 8000 products
  • Surgical Instruments: + 70 000 instruments (60% individually marked)
Traceability at CHU Rouen

• Vision
  • Traceability at unit level = serialisation
  • Common IT architecture
1. Send dispensing message to e-Patient file

2. Register administration at ward into CDP2, check serial number and patient ID and send administration message to Traceability Software

3. Check discrepancies dispensation - administration

Product Alert

n products = n products dispensed to x patient(s)
Traceability Blood Derivates

Traceability
Collect. - Manufacturing

Full traceability
From donor to patient and from patient to donor

Plasma lot 1
Plasma lot 2

Pharmaceutical Lot

Unique vial Nr

90 days

From donor to patient and from patient to donor

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Traceability at unit level

Products with same lotNr from manufacturer

Receipt / re-labelling traceability software

Every single item identified with unique Nr
Gest ’Trace DMI = software for implants

Pharmacy: receipt and labelling

Gest ’Trace DMI

CDP2

Theatre:
T-Doc Sterilisation software

Sterilisation: Receipt & sterilisation traceability at instrument level

T-Doc

CDP2

Theatre:
Traceability at unit level

- **Media**
  - Blood derivates/ Implants

- **Surgical tools**

[Images of tools and surgical boxes]
Supply Chain Optimisation Pilot Study

• Scope of study
  • Blood derivates

• “tool box”
  • Products labelled with GS1 standard (GTIN, SSCC), staff identified with GS1 standard (GLN, GSRN), as well as location (GLN)
  • E-procurement (scheduled October 2006) ➔ EDI
  • E-prescribing (scheduled 2008)
  • Stock management software
Supply Chain Optimisation
Pilot Study

• First Step of the study

Modelisation of current Supply Chain

> Description of procedures used in the distribution of blood derivates
> Identification actors, actors linked to events, within the supply chain
> Measurement of frequencies for each operation and event
> Measurement of duration for each operation

=> Simulation to calculate workload for each actor in the supply chain of blood derivates
Supply Chain Optimisation Pilot Study

• Second Step of the study

Modelisation of targeted Supply Chain including:

> Serialisation processed by the Hospital
> “tool box” as listed before

=> New measurements and simulation
PROCEDURES

Diagramme des procédures de gestion des stocks.

1. Stocks
2. Commander
3. Commande
4. Fournisseur
5. Livraison MDS
6. Recevoir
7. Desadv
8. Avis de livraison
9. Stocks (paramètres)
10. Stocker
11. Mise en stock
12. Dispenser
13. Livraison
14. Dispensation prêt à l'adm.
15. Dossier patient informatisé
16. Stocks (m à j)
17. Facturation
18. Administraer
19. Rapport d'activité informatisé (?)
20. Verifier et clôre
21. Rapport d'activité informatisé OK

Département de pharmacie

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Supply Chain Optimisation Pilot Study

• **Qualitative Results**

  > Security Enhancement of SC, to eliminate errors (manual data capture) (≈1% a year)
  > Enhancement of stock management and procurement (accuracy, automatic replenishment)
  > Automatic processes for traceability (recalls !)
  > Human resources optimisation (for the benefit of the patient !)
Supply Chain Optimisation Pilot Study

• Quantitative Results

<table>
<thead>
<tr>
<th></th>
<th>Today’s SC (tasks/year)</th>
<th>Today’s (hours/week)</th>
<th>Future’s SC (tasks/year)</th>
<th>Future’s (hours/week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Technicians</td>
<td>43661</td>
<td>68 ½</td>
<td>9217</td>
<td>17 ½</td>
</tr>
<tr>
<td>Nurses</td>
<td>7687</td>
<td>22 ¾</td>
<td>8580</td>
<td>14</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>3386</td>
<td>9 ¼</td>
<td>2460</td>
<td>4 ¼</td>
</tr>
</tbody>
</table>
Conclusion

• Use of logistics tools
  ╌ Re-engineering (processes made simpler)
  ╌ New allocation of tasks (benefit +++ for nurses and doctors)

• Analysis of a limited domain
  • Extrapolation to other product groups
  • Enabling real traceability (paperless)
  • Impact of serialisation by manufacturer

• Costs and feasibility ?
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