



Virga Jesseziekenhuis

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# **Implementation of clinical pharmacy services in non- academic hospitals: opportunities and links to university programmes**

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**8th june 2006**



- 1. Link with university program of Leuven**
- 2. Implementation in a non-academic hospital**
- 3. Pilot-project on an oncology service**
- 4. Future plan**
- 5. Conclusion and opportunities**



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## Background

- hospital pharmacist at Virga Jesse Hospital since 1995
- 2003: Opportunity: fellowship in clinical pharmacy at university of Leuven

## Fellowship

cooperation between

- faculty of pharmaceutical sciences
- university hospital Gasthuisberg
- pharmaceutical industry



# 1. Link university program Leuven

## Basic education to become a hospital pharmacist

- **extensive knowledge ...**

- pharmacology, pharmacokinetics, interactions, antibiotics, cytotoxics, ...

- **but...**

- theoretical knowledge
- insufficiently linked to clinical practice

- **need for additive knowledge ...**

- pathophysiology
- specific domains: intensive care, oncology, pediatrics...



**=> Refresh basic knowledge and self-study!**



# 1. Link university program Leuven

## Fellowship

trainingscourse of 12 months

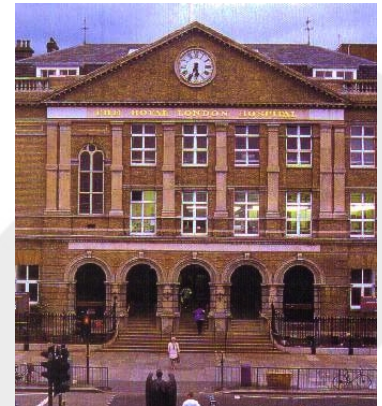
=> mainly practical

° UZ leuven: traumatology and MICU

° teaching hospital in London: 14 days

⇒ posters

⇒ script





## Develop methodology to evaluate medication therapy

⇒ Start from pathology, clinical status, lab parameters, medication on admission

⇒ Evaluate medication therapy:

- Medication on admission?
- Pathology: what is indicated?
- Correct dose and frequency?
- Correct route of administration?
- Interactions?
- TDM?
- Guidelines for use of antibiotics?
- Enteral and parenteral feeding?
- Adverse effects?



“St. John’s Wort is a great herb for improving your mood. But maybe it’s time to cut back the dosage.”



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## 2. Implementation in non-academic hospital



### Implementation in different steps:

1. Preparation in cooperation with medical director
2. Discuss with management commission
3. Discuss with physician, head of service



## 2. Implementation in non-academic hospital

### 2.1 Preparation in cooperation with medical director

→ **determine target:**

- policy of “patient safety” of VJH
- anticipate in “medication-budget”

→ **determine method:** clinical pharmacist  $\frac{1}{2}$  time on service and  $\frac{1}{2}$  time in pharmacy

→ **choice of service:**

- polypharmacy, polypathology
- patient tour
- consult together

=> oncology ward



## 2. Implementation in non-academic hospital

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### 2.2 Discuss with management commission

- **supported** the proposal
- **agreement:**
  - pilot project
  - evaluation after 3,6 and 12 months
  - plan for future

### 2.3 Discuss with oncologist

- **determine tasks of clinical pharmacist**



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## 3. Pilot project oncology

### Start: november 2004

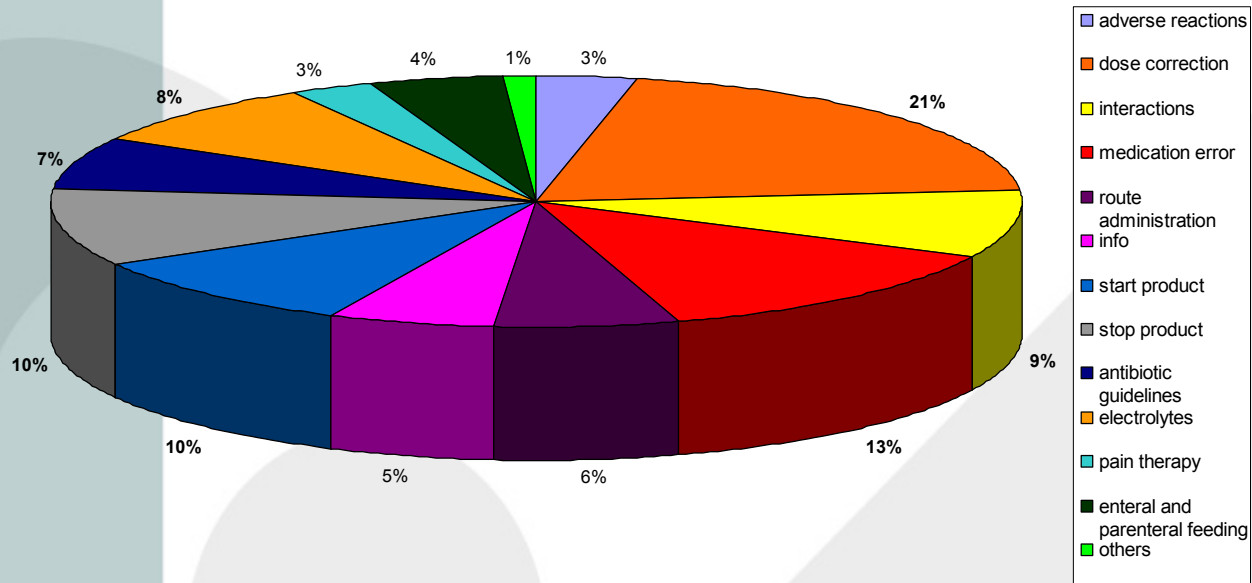
- Oncology service: 30 beds, 1700 admissions/yr
- daily work:
  - preparation:
    - ° new pts: medical file, nursing file, labs....
    - ° others: daily labs, parameters...
  - patient tour
  - look for: interactions, guidelines, literature...
  - discuss possible interventions with physician

### Further progress of project

- evaluation 3 months: report interventions
- evaluation 6 months: individual patient + procedures
- endevaluation



Interventions by clin pharm on oncology service in 11 months

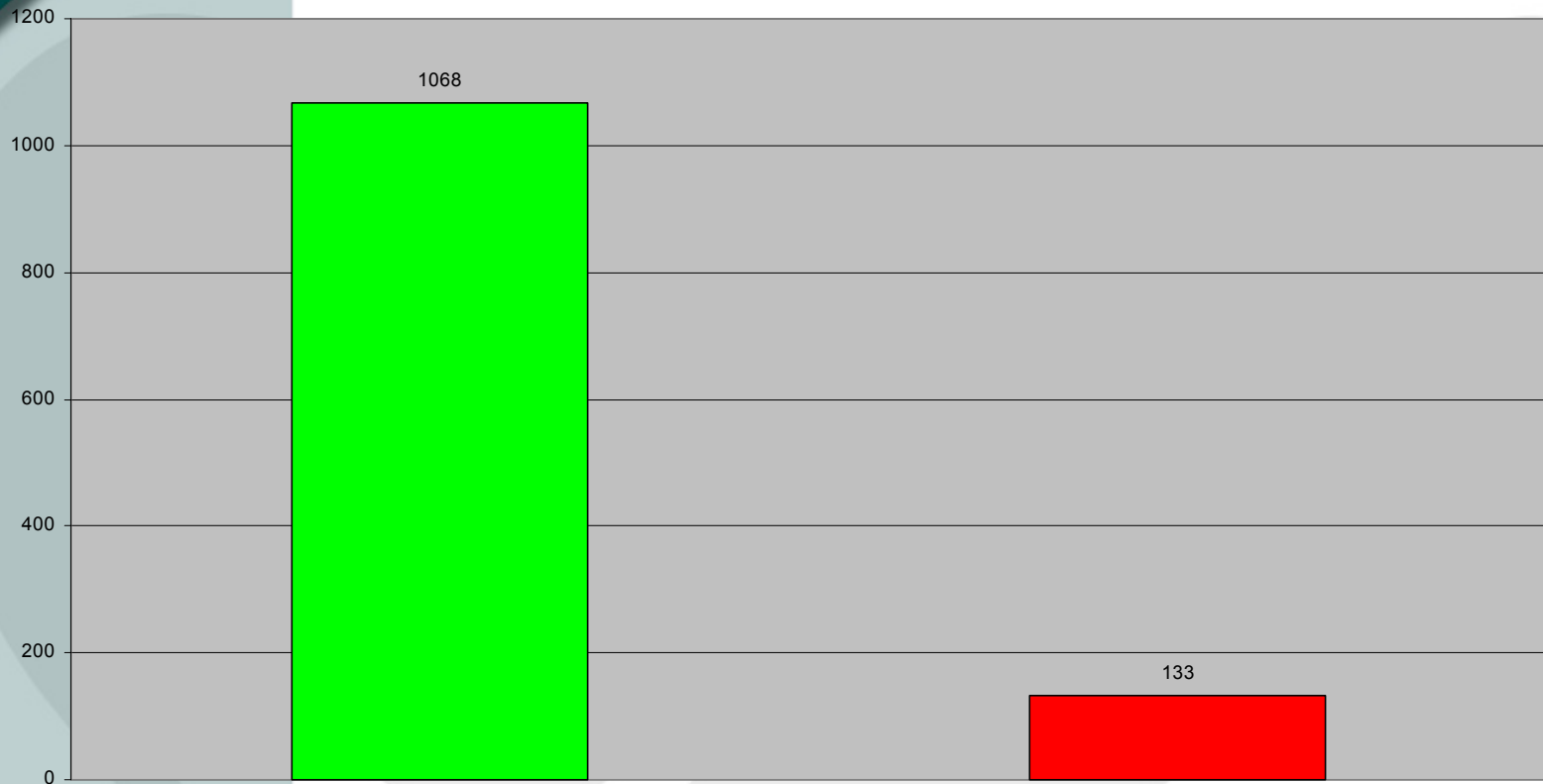


**Interventions:** every proposal that leads to a change in medication therapy

- report in Access-file
- aim: observe qualitative and financial implications



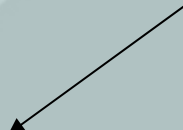
## Rate of acceptancy





# Procedures: standardised schemes

| Te bewaren in chemoboekje |             |                         |                |       |        |
|---------------------------|-------------|-------------------------|----------------|-------|--------|
| Patiëntnaam               | Boer wortel | <b>THERAPIE:</b>        | mg/m2 * dosis% | mg/m2 | dosis% |
| Kamernummer               | B5          | Taxol                   | 175            | 175   | 100%   |
| Gewicht (kg)              | 70          |                         |                |       |        |
| Lengte (cm)               | 172         |                         |                |       |        |
| BSA gelimiteerd (m2)      | 1,83        | <b>Carboplatine</b>     |                |       |        |
| BSA (m2)                  | 1,83        | <b>AUC (waarde 5-7)</b> |                | 5     |        |
| leeftijd (aantal jaar)    | 65          |                         |                |       |        |
| serumcreat (mg/ dl)       | 0,82        | schema:                 | q 3 wk         |       |        |
| Geslacht (M/V)            | M           |                         |                |       |        |
| Cl creat man (ml/min)     | 88,9        |                         |                |       |        |
| Cl creat vrouw (ml/min)   | 0,0         |                         |                |       |        |
|                           | 88,9        |                         |                |       |        |
| Startdatum                | 5-okt-05    |                         |                |       |        |
| Cyclus                    | 4           |                         |                |       |        |
| Dag                       |             |                         |                |       |        |
| Bijkomende medicatie      | Aantal      |                         |                |       |        |
|                           |             |                         |                |       |        |
|                           |             |                         |                |       |        |
|                           |             |                         |                |       |        |
|                           |             |                         |                |       |        |
|                           |             |                         |                |       |        |



Automatic prescribing by physician







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# Procedures: standardised schemes

Scheme for  
administration by  
nurses

| Schema voor verpleging  |       |       |   |               |             |  |         |
|---|-------|-------|---|---------------|-------------|--|---------|
| Cyclus:   | 4     |       |   | Patiënt       | Boer wortel |  |         |
| Dag:  | 0     |       |   | Kamernummer   | B5          |  |         |
| Datum   | Paraf | Hoef. | Medicatie                                     | Tijd          | Uur         | Opmerking  | Dosis % |
| 4-okt-05  |       |       | Glucose 5% 1 liter + 20 meq KCL               | 12 u          |             | spoeling<br>geen naschrift maken   |         |
|   |       |       | NaCl 0.9% 1 liter + 20 meq KCL                | 12 u          |             | spoeling<br>geen naschrift maken   |         |
| 5-okt-05  |       |       | Glucose 5% 1 liter + 20 meq KCL<br>+ 4 g NaCl | 12 u          |             | waakinfuus<br>geen naschrift maken   |         |
|   |       |       | phenergan 1 amp I.M.                          |               |             | toedienen 1 uur vóór taxol   |         |
|   |       |       | dexamethasone 20 mg IV in<br>NaCl 0.9% 50 ml  |               |             | toedienen 45 minuten vóór<br>taxol   |         |
|   |       |       | zantac 1 amp I.V.                             |               |             | toedienen 30 min vóór<br>taxol   |         |
|   |       |       | kytril 1 amp in NaCl 0.9% 50 ml               | 10 min        |             | toedienen 30 min vóór<br>taxol   |         |
|   |       | 320   | mg TAXOL in NaCl 0.9% 500 ml                  | 3 u           |             | toedienen met pomp,<br>0.22 micron filter en<br>infuusleidingen zonder<br>weekmakers | 100%    |
|   |       |       | SPOELEN met 100 ml<br>waakinfuus              | 10 min        |             |  |         |
|   |       | 570   | mg CARBOPLATINE in glucose<br>5% 250 ml       | 30 min        |             |  |         |
|   |       |       | Glucose 5% 1 liter + 20 meq KCL               | 12 uur        |             | spoeling<br>geen naschrift maken   |         |
|   |       |       | verdere spoeling navagen                      |               |             | indien verder spoeling ndz:<br>naschrift maken                                       |         |
|   |       |       | Heparine slot 500 E                           |               |             |  |         |
| <b>Mee naar huis te geven:</b><br>Dexamethasone 4 mg 2/d ged. 2<br>dagen (te starten 12 uur na vorige<br>dexamethasone)<br>Novaban 5 co<br>Litican 12 co zo nodig |       |       |   |               |             |  |         |
| <b>Bijkomende medicatie<br/>voorgeschreven:</b>   |       |       |   | <b>Aantal</b> |             |  |         |
|   |       |       |   | 0             |             | 0  |         |
|   |       |       |   | 0             |             | 0  |         |
|   |       |       |   | 0             |             | 0  |         |
|   |       |       |   | 0             |             | 0  |         |
|   |       |       |   | 0             |             | 0  |         |
|   |       |       |   | 0             |             | 0  |         |

stempel en handtekening arts



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# Procedures: standardised schemes

Prescription  
pharmacy

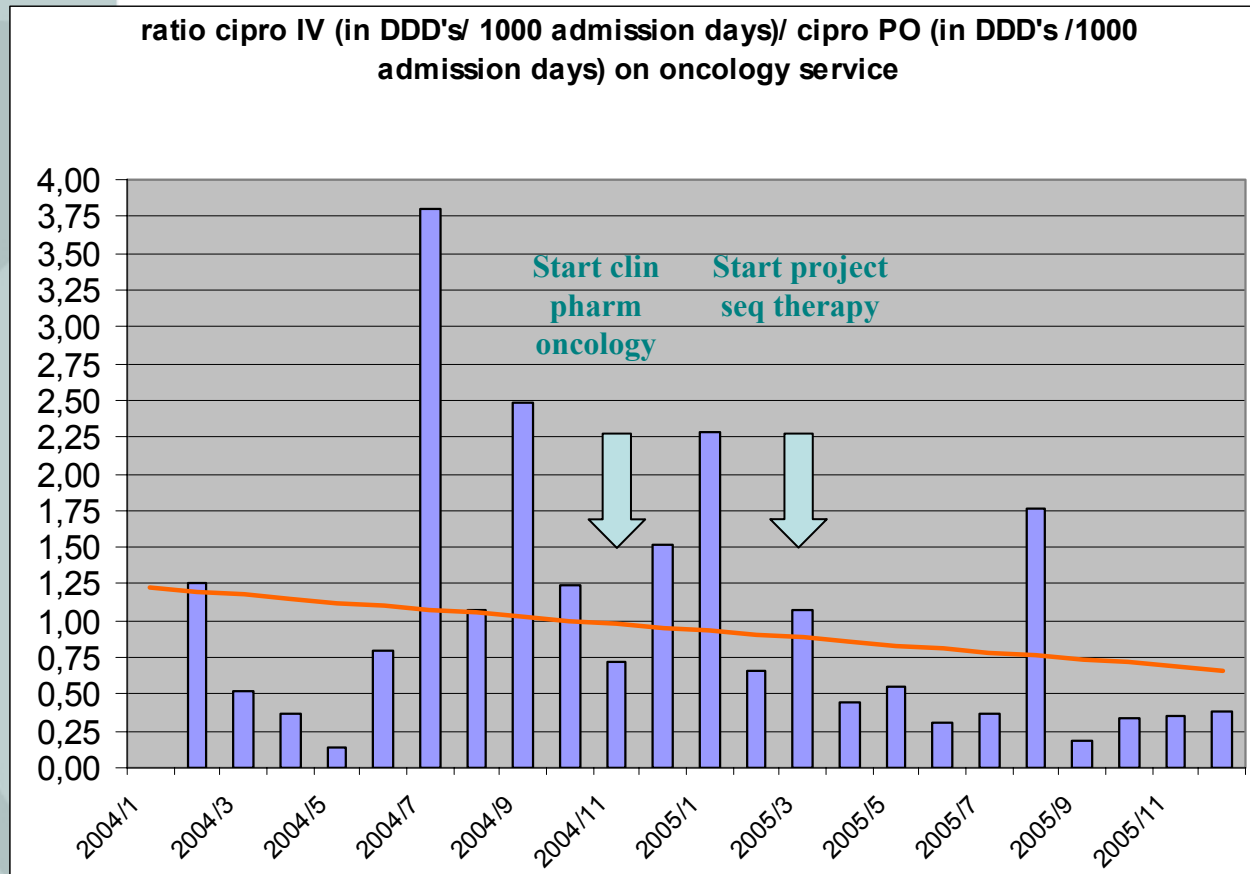
| Voorschrift                 |   |                                     |                                     |                       |           |
|-----------------------------|---|-------------------------------------|-------------------------------------|-----------------------|-----------|
| Patiënt                     | Boer wortel                                   |                                     |                                     | Identificatie sticker |           |
| Kamernummer                 | B5  |                                     |                                     |                       |           |
| mg/m2                       |   | % dosis                             | lengte (cm)                         | 172                   |           |
| 175                         | taxol   | 100%                                | gewicht (kg)                        | 70                    |           |
|                             |   |                                     | BSA gelimiteerd (m2)                | 1,83                  |           |
| AUC                         |   |                                     |                                     |                       |           |
| 5                           | carboplatine                                  |                                     |                                     |                       |           |
|                             |   |                                     | Datum + Paraf Ap.                   |                       |           |
|                             |   |                                     |                                     | 4/10/2005             | 5/10/2005 |
| Dosis                       | Medicatie                                     | Hoev                                |                                     |                       |           |
|                             | KCL 20 meq/ 20 ml                             | 4 x                                 |                                     | o                     |           |
|                             | NaCl 2 g MP                                   | 2 x                                 |                                     | o                     |           |
|                             | dexamethasone 20 mg IV in NaCl 0.9% 50 ml     | 1 x                                 |                                     |                       | o         |
|                             | phenergan 1 amp I.M.                          | 1 x                                 |                                     |                       | o         |
|                             | zantac amp 50 mg                              | 1 x                                 |                                     |                       | o         |
|                             | kytril amp 3 mg                               | 1 x                                 |                                     |                       | o         |
| 320                         | mg TAXOL in NaCl 0.9% 500 ml                  |                                     |                                     |                       | o         |
|                             | macoflex                                      |                                     |                                     |                       |           |
| 570                         | mg CARBOPLATINE in glucose 5% 250 ml macoflex |                                     |                                     |                       | o         |
|                             | Dexamethasone 4 mg PO                         | 4 x                                 |                                     |                       | o         |
|                             | Novaban co                                    | 5 x                                 |                                     |                       | o         |
|                             | Litican co                                    | 12 x                                |                                     |                       | o         |
|                             | Glucose 5% 1 liter ECO                        | 3 x                                 |                                     | o                     |           |
|                             | NaCl 0.9 % 1 liter ECO                        | 1 x                                 |                                     | o                     |           |
|                             | NaCl 0.9 % 50 ml VF                           | 1 x                                 |                                     |                       | o         |
|                             | Heparine 1000 E/ 10 ml                        | 1 x                                 |                                     |                       | o         |
| <b>Tarificatie apotheek</b> |   |                                     | <b>Bijkomende medicatie:</b>        | <b>Aantal:</b>        |           |
| 65650                       | 3 x   | Glucose 5% 1000 ml ECO              |                                     | 0                     | 0         |
| 97030                       | 1 x   | NaCl 0.9% 1000 ml ECO               |                                     | 0                     | 0         |
| 180272                      | 4 x   | KCL 20 meq/ 20 ml MP                |                                     | 0                     | 0         |
| 180280                      | 2 x   | NaCL 2 g/ 10 ml MP                  |                                     | 0                     | 0         |
| 500                         | 4 x   | aacidexam 5 mg amp                  |                                     | 0                     | 0         |
| 119510                      | 1 x   | phenergan amp                       |                                     | 0                     | 0         |
| 177700                      | 1 x   | zantac amp                          |                                     |                       |           |
| 12499                       | 1 x   | kytril amp                          |                                     |                       |           |
| 158600                      | 2 x   | NaCl 0.9% 50 ml VF                  |                                     |                       |           |
| 5010450                     | 1 x   | NaCl 0.9% 500 ml macoflex           |                                     |                       |           |
| 65600LL                     | 1 x   | Glucose 5% 250 ml macoflex          |                                     |                       |           |
| 170505                      | 4 x   | dexamethasone 4 mg po               |                                     |                       |           |
| 97047                       | 5 x   | novaban co                          |                                     |                       |           |
| 83610                       | 12 x  | litican co                          |                                     |                       |           |
| 211192                      | 1 x   | heparine 1000 E/ 10 ml Leo          |                                     |                       |           |
| 13525                       | x   | taxol 100 mg/ 17 ml                 |                                     |                       |           |
| 11153                       | x   | taxol 30 mg/ 5 ml                   |                                     |                       |           |
| 424136                      | x   | carboplatine 150 mg/15 ml Pharmacia |                                     |                       |           |
| 424144                      | x   | carboplatine 450 mg/45 ml Pharmacia |                                     |                       |           |
|                             | x   | MBH 972000                          |                                     |                       |           |
|                             |   |                                     | <b>Handtekening en stempel arts</b> |                       |           |



# Anticipate in medication budget

Price Cipro IV 400 mg = 27,88 €

Price Cipro PO 500 mg = 1,07 €



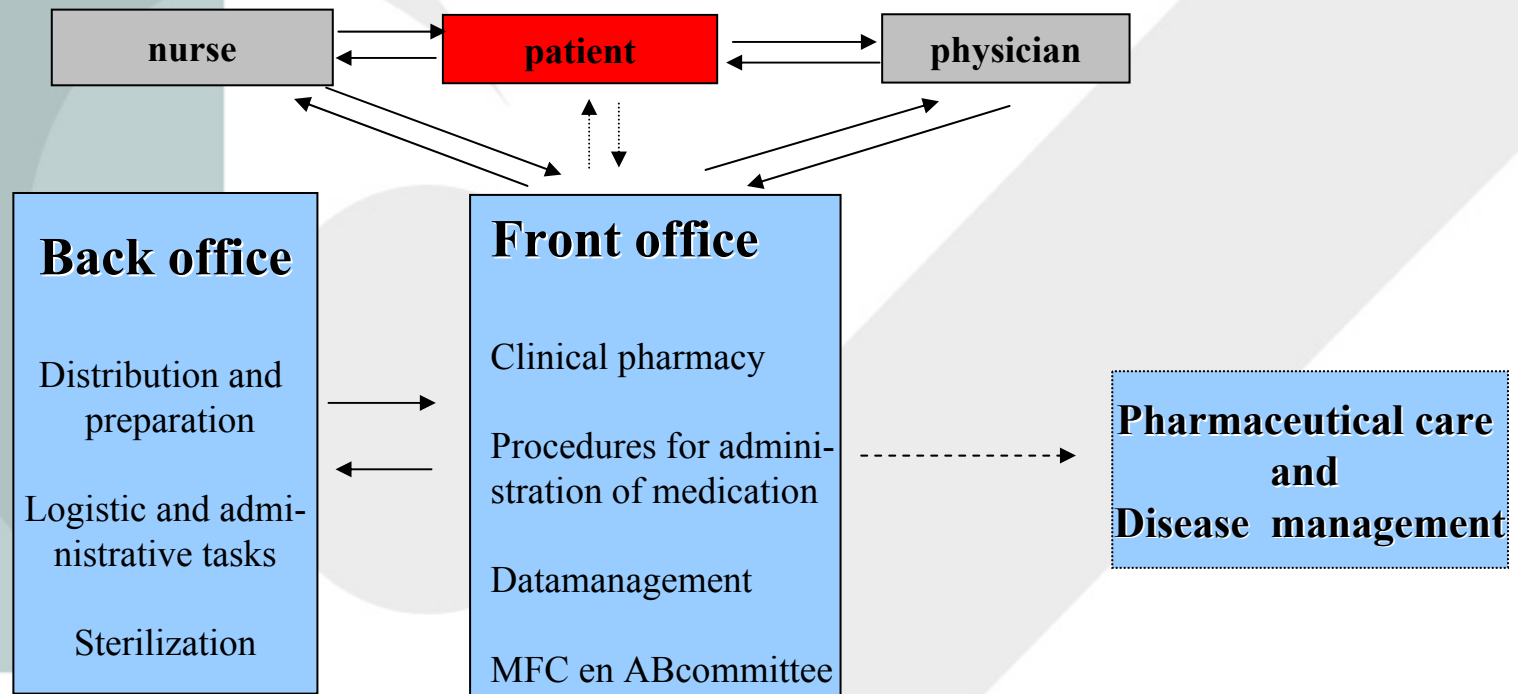


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## 4.1 Management of the hospital:

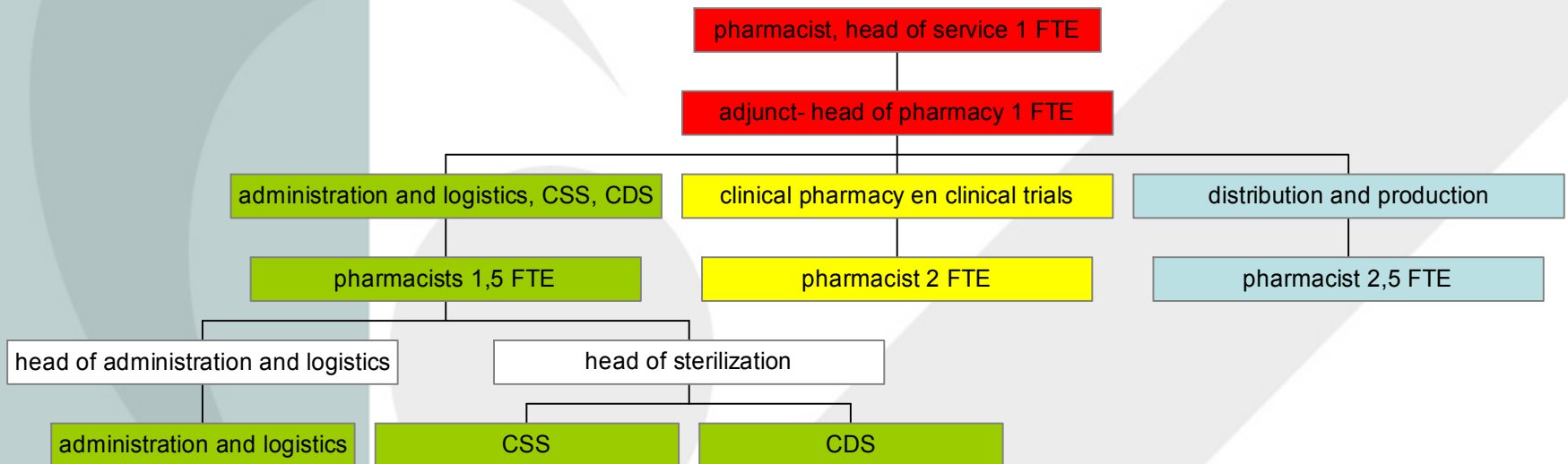
→ **Vision text:** development of hospital pharmacy next 5-10 years





## 4. Future plan

→ **change organogram pharmacy: clinical services as a separate division**





**4.2 Medical director:** consultation of different medical and surgical disciplines

### 4.3 Plan

- End 2006: Enlargement of clinical pharmacy services to 3 wards
- 5-10 years: every pharmacist spends  $\frac{1}{2}$  time on clinical activities



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## 5. Conclusion and opportunities

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- clinical pharmacy is possible in a peripheral hospital
- pharmaceutical added value for patient
  - positioning of hospital pharmacist in future
- More rational use of medication
  - medication-budget = opportunity to enlarge clinical activities for pharmacist in Belgium