



## Ways to improve patient safety in the compounding supply chain – cooperation between health care professionals and the hospital pharmacy

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Conflict of interest: nothing to disclose

Interactive questions:

1. Do you agree that the majority of acute/short leadtime orders (compounded cytostatic preparations) could be avoided with better planning?
2. Are differentiated prices a good way to reduce the proportion of acute/short leadtime orders (compounded cytostatic preparations)?



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### Disposition:

- Background and context
  - the Swedish model
  - APL
- Forms of cooperation, Hospital Pharmacy/APL/Health Care
  - Planning
  - Introduction and takeover
  - Administration and development
- Examples, results



## Health care at hospitals in Sweden

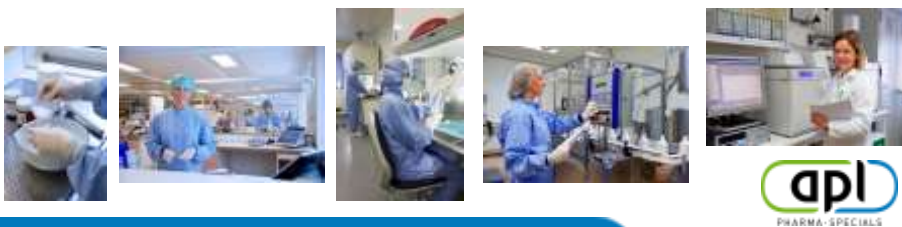


- Responsibility for financing and providing hospital health care is organized in 21 regions.
- Hospital pharmacy processes such as for example distribution, procurement, compounding and clinical pharmacy services are organised /defined by the respective region.
- In most regions hospital pharmacy activities are procured and contracted with supplier/s that becomes a part of the regional hospital pharmacy organisation.
- So far only one region manages the hospital pharmacy "in-house" (Jönköping)
- *Previous model (Sweden re-regulated the pharmacy market in 2009/2010) was that one state owned company managed all hospital pharmacy services according to agreements with regions.*





- APL is a state-owned company and a national centre of excellence for manufacturing and development of extemporaneous pharmaceuticals (individual & stock preparations) and compounded pharmaceuticals.
- APL is an “extempore pharmacy”, with license from MPA, that offers extemporaneous and compounded pharmaceuticals to community and hospital pharmacies.
- APL compounding services are offered either directly according to agreements as a part of the hospital pharmacy or as a subcontractor.
- APL offers its services to pharmacies according to equal and non-discriminating conditions, as an assignment from the government.
- Manufacturing of extempore and compounding services are today on a competitive market.
- APL is also a CDMO (Contract Development and Manufacturing Organisation) that offers development and manufacturing services to companies within Life Science.



## APL's extemporaneous and compounded pharmaceuticals

- > 10.000 compositions in data base
- ~ 2.000 compositions manufactured frequently
- About 300 stock preparations, of which ~ 140 with a national license from MPA
- In total ~ 1 700 000 units/year supplied to Swedish pharmacies and hospitals
- Compounding at hospitals (agreements)
  - West Sweden
  - Stockholm



## Region -West Sweden

### Data:

- Population approximately 2 millions, ~20% of Sweden
- 21 Hospitals
- Cytostatic and sterile compounded preparations are supplied to hospitals from 6 compounding sites
- Total units supplied/month:
  - ~7000 Cytostatic units
  - ~1550 Sterile compounded units
  - ~16 300 Extemporaneous (stock preparations and individually manufactured) units
- Decision of new supplier (APL) in West Sweden in June 2011. Start supply between dec. 2011 and march 2012



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- Critical Success Factors – CSF
- Examples



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**Planning** – before procurement process:

- Requirements
- Opportunity to reengineer the supply process
  - Lead time alternatives
  - Compounding Units/Sites
  - Transports
  - Reduce variability – strive for standardisation
- Long agreement to emphasize long-term partnership

Critical Success Factors, CSF:

- Close collaboration in defining requirements
- Datadriven requirements
- Change & improvement agenda
- Communication



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**Introduction** – after procurement process:

- Organisation of introduction/"take-over" team:
  - Roles & responsibilities
  - Focus of patient safety
    - Risk analysis
    - Common procedures and processes
    - Training, testing and validation

Critical Success Factors, CSF:

- Stepwise takeover
- Communication and close collaboration with the previous supplier
- Continuity personnel resources
- Communication and close collaboration with customers/Health Care



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### Administration and development:

- Roles and Responsibilities
  - Framework and charters describing the administration and development organisation

### Critical Success Factors, CSF:

- "Partnership attitude" - requires transparency and trust
- Dialogue and involvement with customers/health care – structured and measurable way's
- PDCA systematics
- Datadriven decisions
- Standardisation – understand and work with "variation"
- Common goal setting and priorities – "Urgent vs Important", Root cause, corrective actions, preventive actions
- Focus on the supply chain/process, understand the customer demand



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### Example 1:

#### **"Inflexibility" in the Supply Chain drives proactivity that improves Patient Safety and Customer Satisfaction**

- **Closed one compounding unit and centralised the compounding activities**
  - Initial resistance
  - Led to longer lead-times and fixed delivery slots
  - Proportion of acute/short lead time orders decreased
  - Customer Satisfaction improved
  - Deviations and Issues decreased
  - Consequential effects, sample handling in labs optimised



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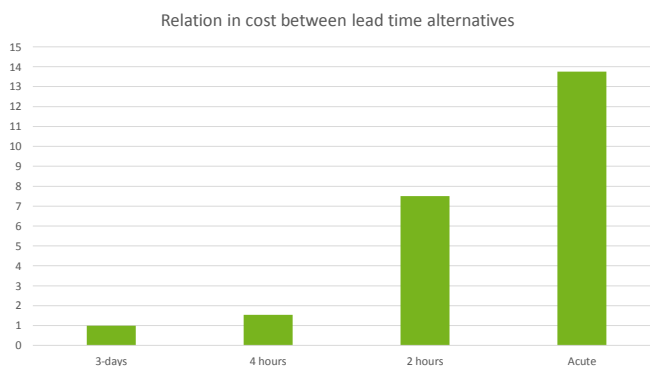
### Example 2:

#### Change in price model for different lead-time alternatives drives proactivity that improves Patient Safety and Customer Satisfaction

- Initial result, reengineered model:
  - Result: percentage acute/short leadtime decreased (~ 40%→~10%)
  - Customer Satisfaction not affected
- Continuous improvements and adjustments
  - Datadriven



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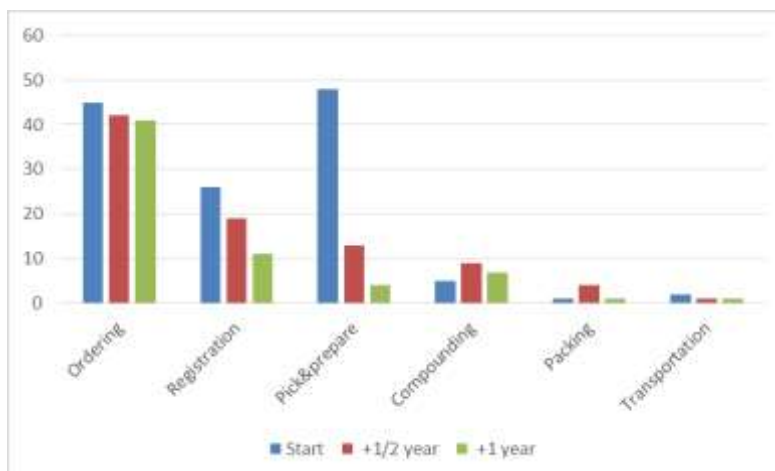
### Example 3:

#### Standardised ordering form – continuous improvements/PDCA

- Based on regular incident measurements - triggered changes and improvements
- Capture “Best Practice” from different variants
- CSF
  - Involvement customers (fieldtrips)
  - Communication
  - Monitoring compliance – feedback
- Next step, electronic ordering
  - National e-standard is decided in Sweden 2014 (content, data, format) for ordering Extemporaneous Pharmaceuticals
  - Sets conditions for integrated solutions



## Example, Incident measurements compounding Supply Chain





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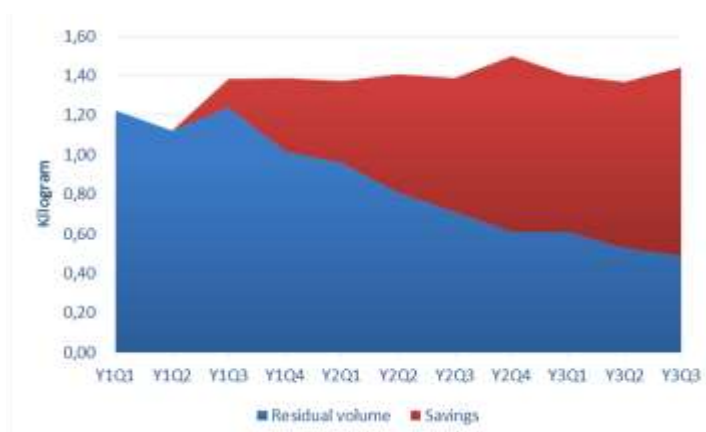
#### Example 4:

##### Reduced residues Cytostatic drugs

- Reduced residues with more than 50% (%mg)
  - Optimise shelf life in stock solutions
  - Dose adjustments
  - Adjust treatment schedules
  - Important input to the procurement process, suitable packaging sizes
- CSF
    - Access of detailed data for analysis – transparency and trust, “payment model”
    - Cross functional decision teams (health care professionals and the hospital pharmacy), priorities and decides



## Reduced residual volume of cytotoxic drugs by 66 %(weight)



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Summary:

- Partnership
- Patient safety and an cost effective supply chain, goes “hand-in-hand”
- Price model that drives/supports proactivity
- Formalised and standardised structure for continuous improvements - PDCA
- Datadriven decisions
- Encourage a culture of trust
- Communication and involvement Health Care Professionals is critical – common understanding



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Jonas Holmén

Lena Jansson



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Thank you!



Together we contribute to drugs  
that improve and save lives!  
We are proud of that!

