



$$E[e^{-sX_{+,i,u}} | A(X_{-,i,u}) = k] = \text{Prob}(A(X_{-,i,u}) = k) \sum_{i=1}^k \left[\frac{1}{2L i!} \frac{d^i}{dz^i} \Big|_{z=0} \left(\frac{G_p^*(-\lambda, \lambda G)}{\lambda G} \right) + \frac{1}{2L(k-i)!} \frac{d^{k-i}}{dz^{k-i}} \Big|_{z=0} \left(\frac{G_p^*(-\lambda, \lambda G)}{\lambda G} \right) \right]$$





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Medisch Spectrum Δ Twente





Introduction

- One of the largest topclinical hospitals in The Netherlands
- Centre for:
 - Basic care
 - Trauma care
 - Teaching hospital
 - Transmural care
- 4000+ employees, 250+ medical specialists
- Budget €300,000,000



Project 1: Inducement centralisation syringepumps

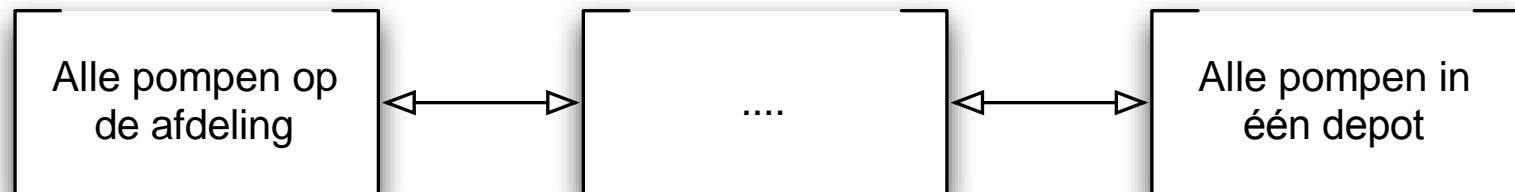
- Feeling of shortage of syringe pumps
- Nurses spend too much time on searching of pumps elsewhere
- Maintenance was poorly secured
- Pressure on investment budget
- Good experience with centralisation of pressure-reducing mattresses and Vacuum Assisted Closure pumps (VAC-therapy) by the Logistics Department

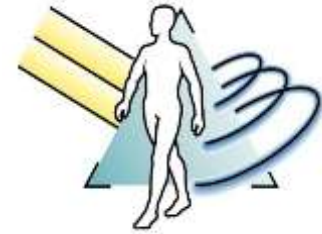


Key Element

- *Can I have a syringepomp please?*
 - ...and make it fast!

The alternatives:





Pilot centralisation infusionpumps

- 4 wards participated in a pilot starting in December 2010
- Performance indicator was taken from the pharmacy system
- All existing pumps are marked
- Registration is required when a pump is collected
- Registration is required when a pump is reduced

The screenshot displays the 'mijn MST' (my MST) web application interface. The header includes the logo and the text 'mijn MST Medisch Spectrum Twente is mijn ziekenhuis'. A navigation menu is visible on the left side. The main content area shows the 'Deput Pallet' page with a 'Selectie' section containing input fields for 'Ordercode' (value: M002101) and 'Vstet van d'Poged' (value: 1000), and a 'Zet' button. Below this is the 'Hulpmiddel' section with a table of pump details:

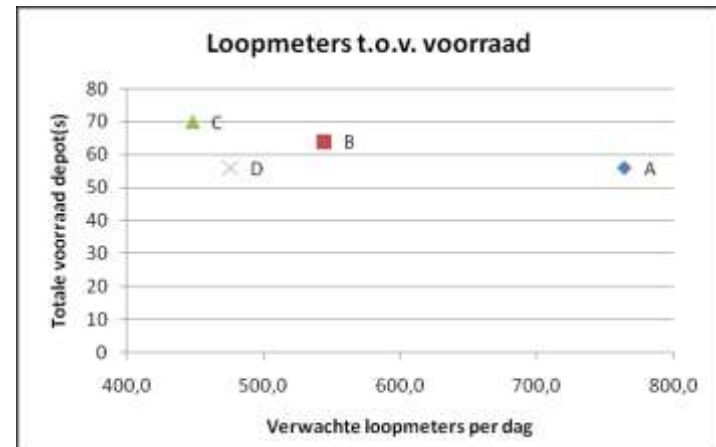
CI nummer:	10229	BESCHIKBAAR locus: Deput AP
Naam:	CompartBout	
Uitstel uitgeleend op:	00-04-2013 16:15	
Omschrijvings op:	10-04-2013 15:38	
Locatie:	Deput AP	

At the bottom, there is a 'Registreren' button and two 'Aankomen overzicht' buttons.



Results pilot

- Availability of pumps for the 4 wards of 99.6%
- Performance indicator from the pharmacy system proved to be reliable
- simulation with data from other wards shows that no additional investments are needed
- maintenance can be properly planned and executed
- multiple (4) repositories for all syringe pumps are fully operational
- Other materials are added to the repositories after datastudy
 - Volumetric pumps
 - Suction sets
- Currently studying on:
 - vacuum- and oxygen clocks
 - Blood pressure meters
 - Bladder scans

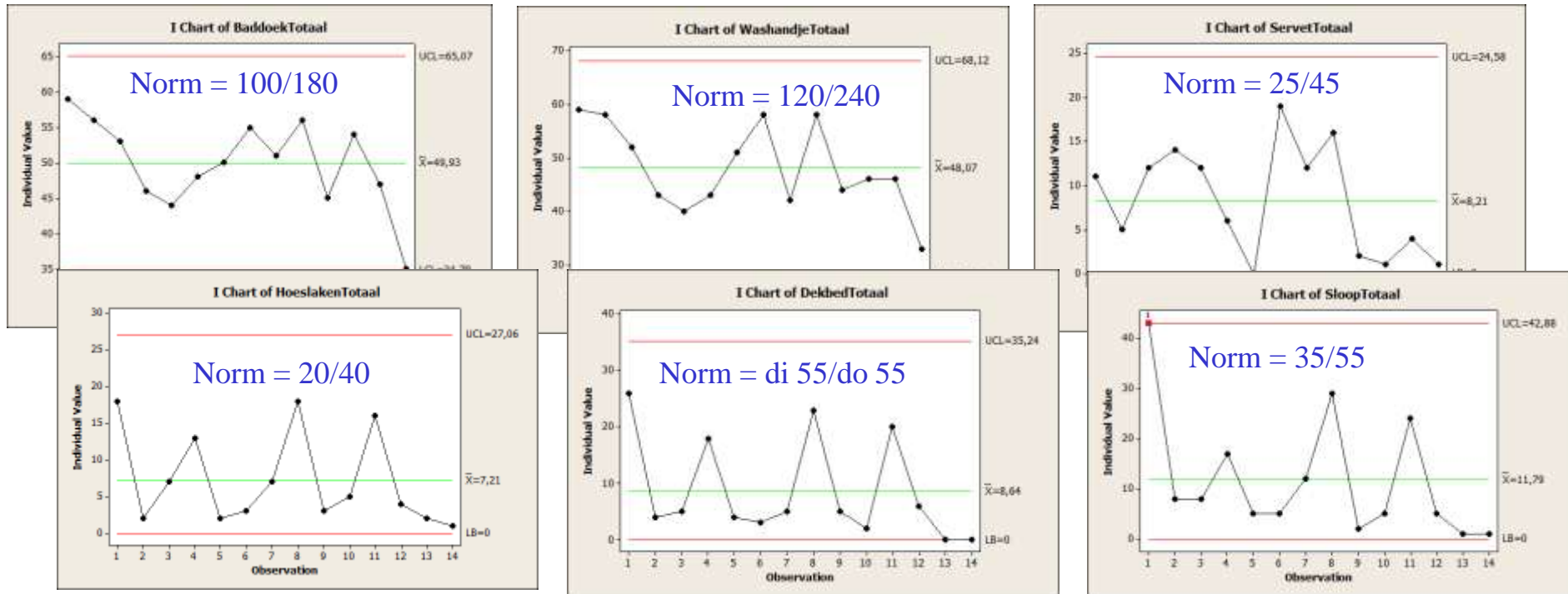




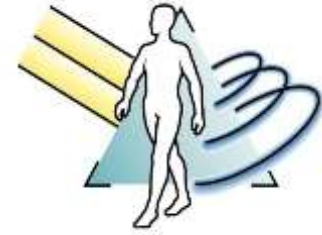
Project 2: Less sheeting, no shortage

- High variation on delivery of sheets
- High stock, both on the ward aswell as in the patient room
- Manual labour required for counting, transportation and relocating
- Start-up with 3S, MST's LEAN programme

How much is being used every day?

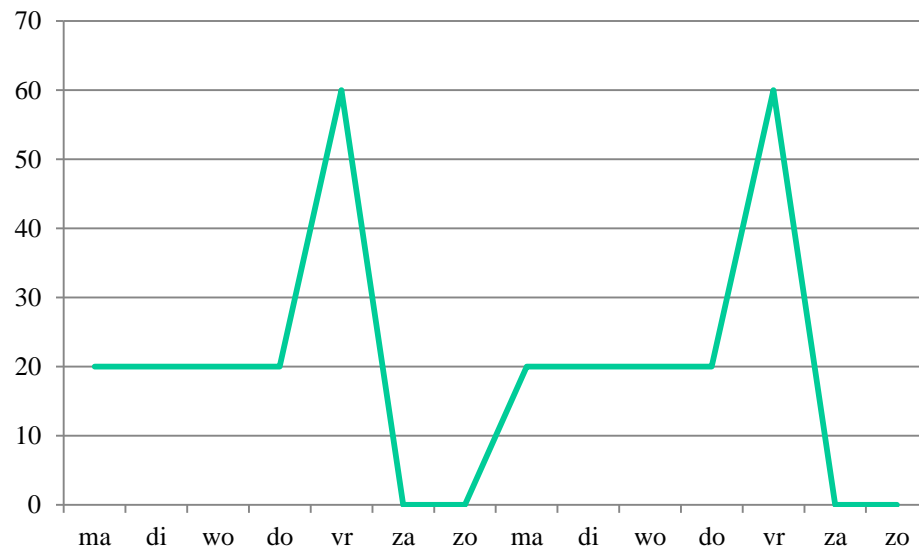


- Uit meting 'gebruik' blijkt dat de norm hoger ligt dan daadwerkelijk gebruik
- Het gelijke ritme bij beddengoed is te verklaren door de vaste verschoondagen



Results

- Pilot on 4 wards: availability of sheeting remained well
- Data from our supplier proved to be usable
- Simulation with data from other wards shows that it was worth it
- Reduce costs by 10%
- Manual labour for counting and relocating is eliminated
- All wards are currently working with the new system



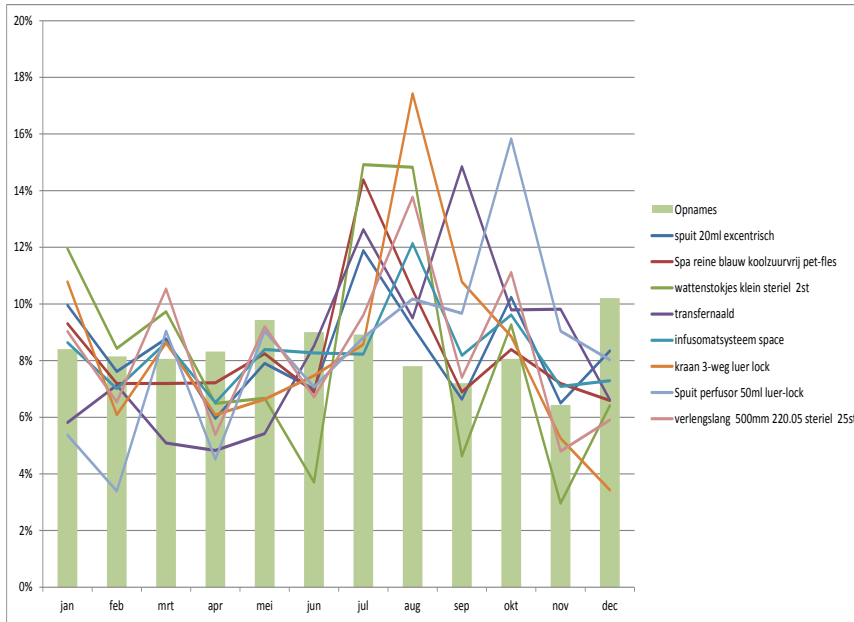


Project 3: Reducing supplies at the ward

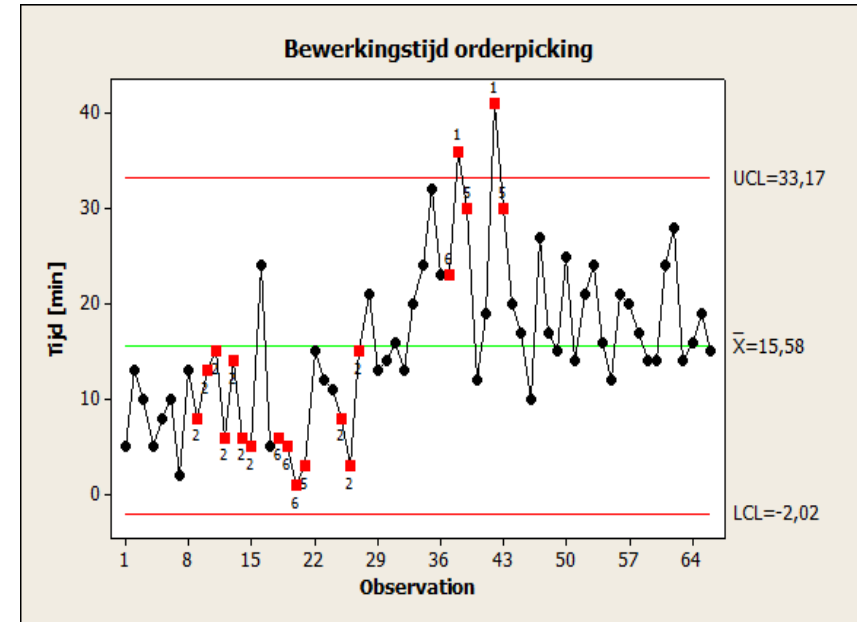
- High stock for supplies in the ward
- Topping-up system makes counting the stock labour-intensive
- Necessity for reducing the stock due to less space in our new hospital



Project 3: Reducing supplies at the ward



Relation between occupation on the ward and usage of materials



Leadtimes orderpicking



Results

- Pilot on 1 ward: SIPOC and value stream mapping template
- Data from our ERP system is very usefull
- Simulation with data show reduce of stock of approximately 50% (!!)
- Topping up will be replaced by Two-Bin (KANBAN)
- Set-up for stocking cabinets will be changed by nursing staff (Productive Ward)



Questions???

Feel free to call or e-mail me anytime:

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