Use of an Automated Distribution System to Reduce Pharmaceutical Waste

Oak Hills Living Center
New Ulm, MN

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MnTAP Intern 2009

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Helping Minnesota businesses maximize resource efficiency, increase energy efficiency, reduce costs, and prevent pollution

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Company Overview

- Oak Hills Living Center, New Ulm
  - Nursing home and assisted living facility
  - 94 seniors in nursing home
  - 16 person rehab wing
  - 24 hour care
  - Social activities
  - Laundry, barber
  & beautician services

Motivations for Change

- Cost Savings
  - 17,100 oral tablets disposed annually
  - $25,800 (AWP)

- Resident annually pays over $200 for unused medications

- Controlled substance management

Reasons for MnTAP Assistance

- Minimize environmental impact

- Waste management costs

- Limited staff resources

Approach

- Learn process and systems
  - Shadow nursing staff
- Document waste
- Identify alternatives
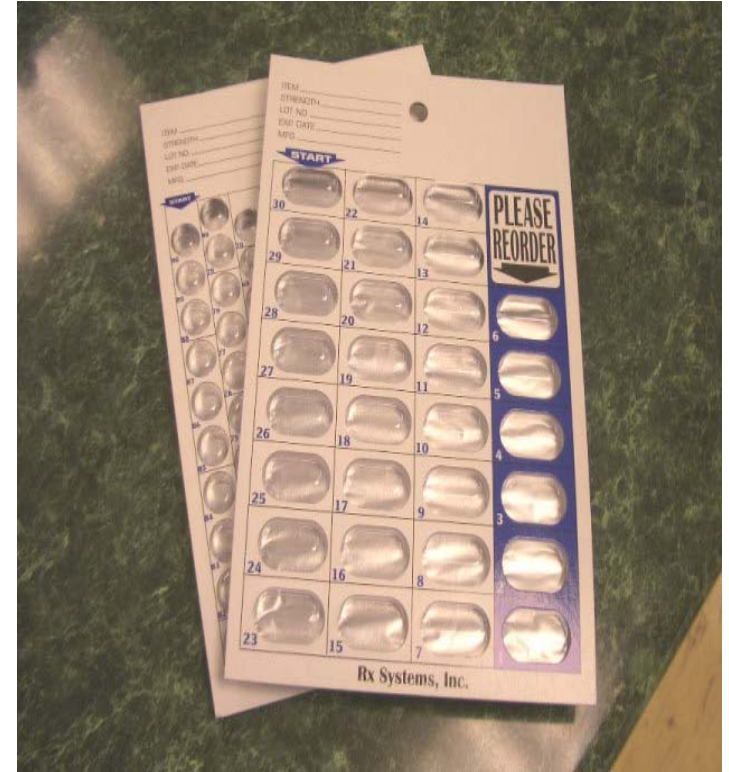- Research barriers
- Cost analysis

Medication Carts

- Medications ordered in blister packs
- Cart organized by time of day
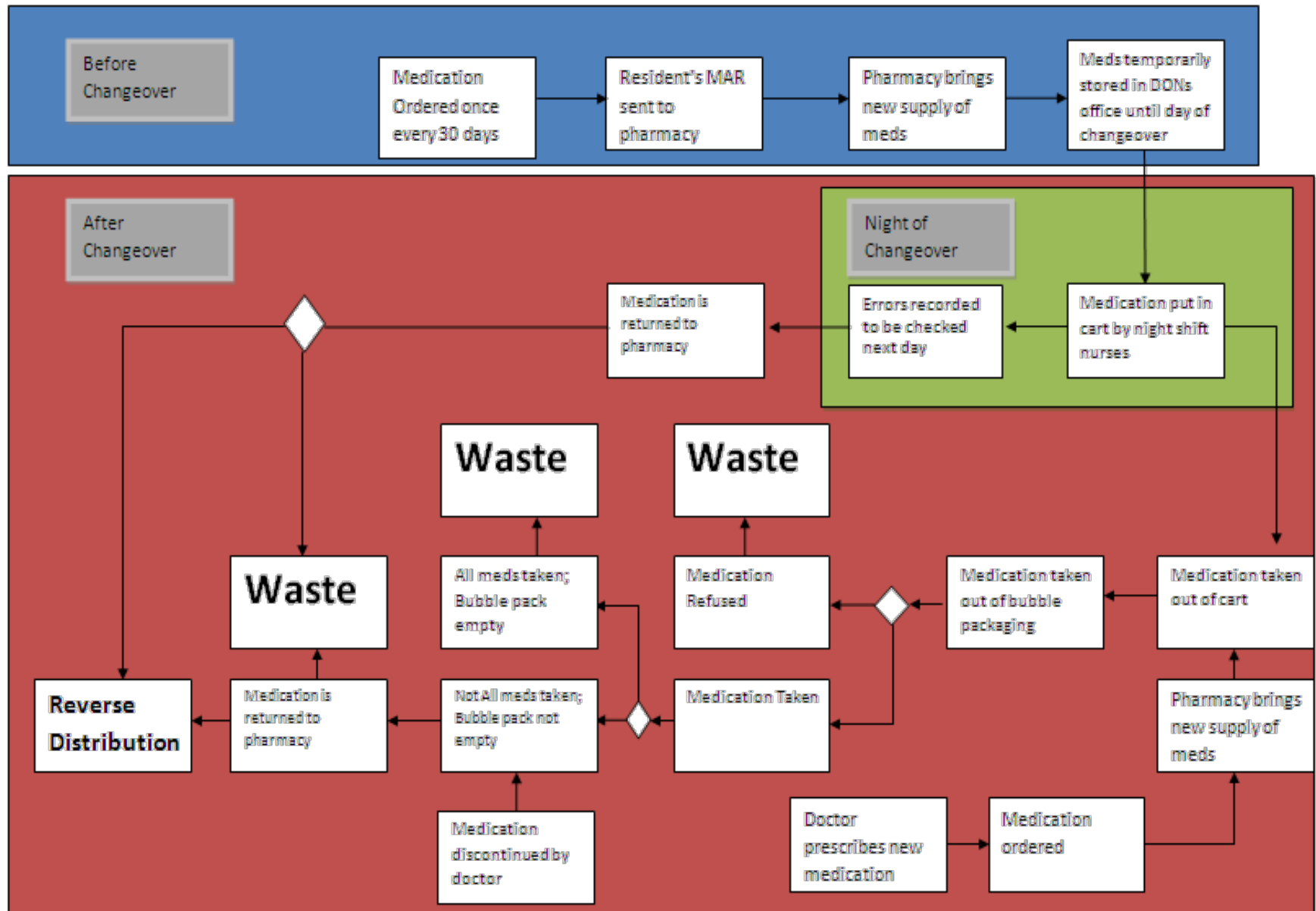- Controlled substances locked separate inside cart

Inefficient Processes

- Pre-ordering 30 day supply of medications

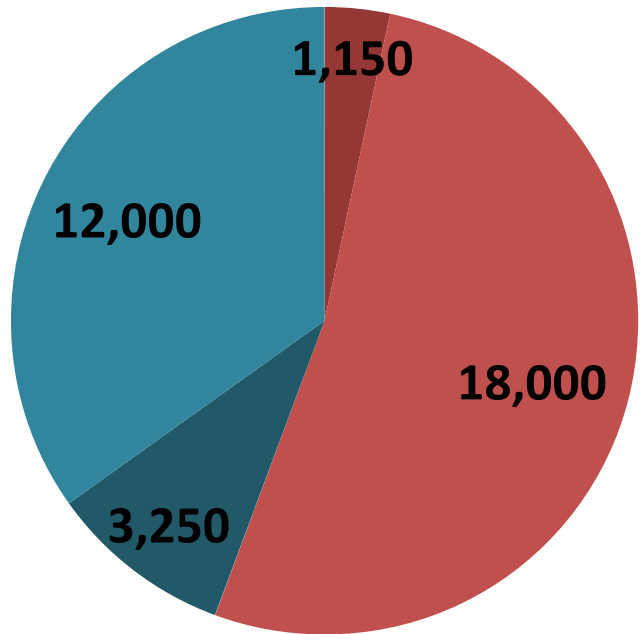- Most medications cannot be returned to the pharmacy

Process Diagram

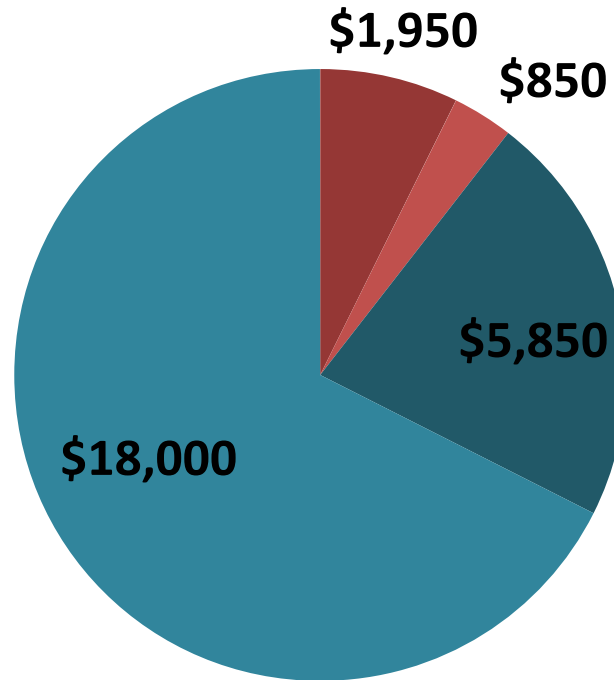## Medicine Distribution Processes– Medical Carts

Before Changeover

Medication Ordered once every 30 days → Resident's MAR sent to pharmacy → Pharmacy brings new supply of meds → Meds temporarily stored in DONs office until day of changeover

After Changeover

Night of Changeover

Medication is returned to pharmacy ← Errors recorded to be checked next day ← Medication put in cart by night shift nurses

Waste

Waste

Waste

Reverse Distribution

Medication is returned to pharmacy ← All meds taken; Bubble pack empty

Medication Refused

Medication taken out of bubble packaging ← Medication taken out of cart

Not All meds taken; Bubble pack not empty ← Medication Taken

Pharmacy brings new supply of meds

Medication discontinued by doctor

Doctor prescribes new medication → Medication ordered

Amount of Pharmaceutical Waste

Number of Doses Wasted

- 1,150
- 12,000
- 3,250
- 18,000

Cost of Wasted Medications

- $1,950
- $850
- $5,850
- $18,000

Legend:
- Medicare Controlled Substance
- Medicare Non-Controlled Susbtance
- Private Pay Controlled Substance
- Private Pay Non-Controlled Substance

Automated Distribution System (ADS)

- Distributes one unit dose medication
- Computer controlled
  - Storage
  - Documentation of distribution
- Interfaced with pharmacy software
- Proven system used in hospitals

ADS Examples

Option 1: ADS on Rehabilitation Wing

- Rehabilitation Wing
  - 16 residents
  - High turnover
- Use Med Dispense® Base 45
- Reduce waste
  - 1,150 oral tablets
- Reduce medical errors

Option 1: ADS on Rehabilitation Wing

- Not economically favorable
    - $6,000 more than current system annually
    - Waste and labor savings not justified by cost of machine
    - Increase pharmacist's time at facility
- Not recommended

Option 2: ADS controlled substances for the entire facility

- Support 94 residents in the facility
- Use 3 Med Dispense® machines to manage controlled substances
- Decrease diversion, increase security, increase resident care
- Eliminate annual sewering of 4,600 doses of controlled substances

Option 2: ADS controlled substances for the entire facility

- Economically Similar
  - $1,000 more annually than current system
  - Reduces time of administrative tasks

- Increases management of controlled substances

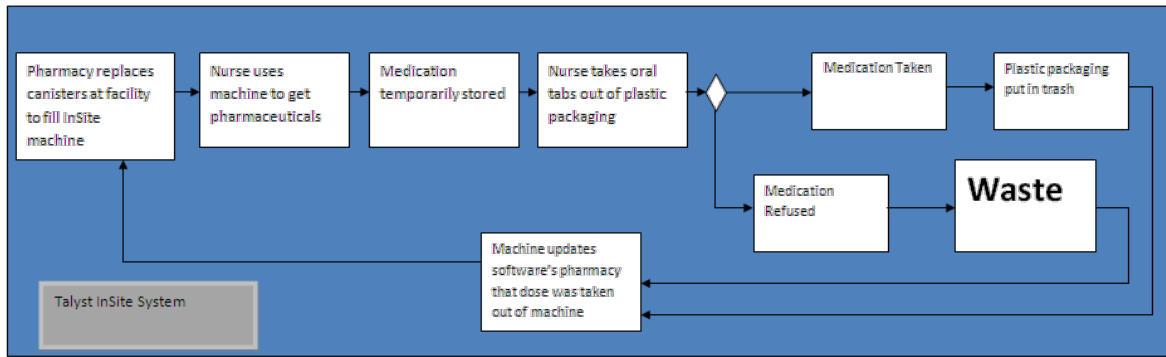- Recommended upon further analysis

Option 3: Remote Distribution

- Talyst InSite®

- Monitored by pharmacy

- Holds 300 doses of 240 types of medications
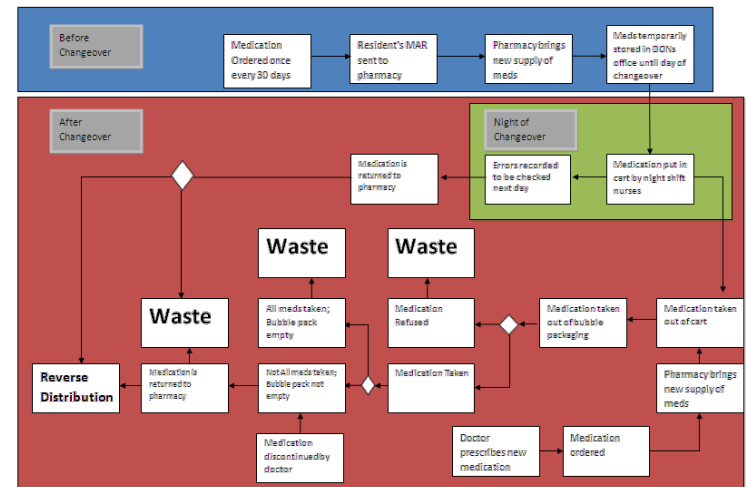
- Package medications "just in time"

InSite vs. Current System

System of Medicine Distribution Processes- Use of Talyst InSite

Medicine Distribution Processes– Medical Carts

Option 3: Remote Distribution

- Economically favorable
  - Reduce annual costs by $18,400 per year
  - Increase nursing and resident "face to face" time
  - Eliminate disposal of 17,100 oral tabs annually
- Reduce medical errors
- Obstacles to implementation
- Recommended

Medication Distribution Systems

Capability	Med Cart	Med Dispense™	Talyst InSite ™
Pharmacy profile mode	No	Yes	Yes
Resident name printed on medication	Yes	No	Yes
Medication organized by time	No	Yes	Yes
Access to only one type of medication	No	Yes	Yes
Access to only one dose of medication	No	No	Yes
Real time inventory	No	Yes	Yes
Automatic billing	No	Yes	Yes
Just in time distribution	No	Yes	Yes
Fingerprint user identification	No	Yes	Yes
Unit dose distribution	No	Yes	Yes
Reduces waste	No	Yes	Yes
Only pharmacy access to controlled substances	No	No	Yes
Automatic medication pass capability	No	No	Yes
Filled by pharmacist	No	Yes	Yes
Packaged by pharmacist	Yes	Yes	No
Electronically recorded transactions	No	Yes	Yes
Pharmacy Board Approval	Yes	Yes	No

Personal Benefits

- Communication
  - Technical reading comprehension
  - Technical writing ability
- Self motivation
- Attention to detail

Questions?

Photo credits

- Capsule
  - www.callumconsultancy.com
- Blister Pack
  - http://www.betterlivingmedical.com/images/blister_packs.jpg
- Faucet
  - http://www.best-water-filter-guide.com/water-quality-monitoring.html
- Pyxis
  - www.medifair.hu/pyxis/med3000.jpg
- Unit dose roll
  - http://addedpharma.com/images/practical_4.gif
- ADS
  - www.webmm.ahrq.gov/media/cases/images/case118_fig01.jpg
- InSite
  - www.insiterx.com