

hSite Annual Research Review

Linking Medication Monitoring to Hospital – Based Support



Lili Liu, Ioanis Nikolaidis, Eleni Stroulia,
Kathy Lechelt, Adrian Waag, Cheryl Sadowski

Katie Woo, Veselin Ganev, Julia Vlasenko

University of Alberta, Edmonton, AB

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Linking Medication Monitoring to Hospital – Based Support

Multi-disciplinary partnership

- University of Alberta and Alberta Health Services

Research Team

- Computing Sciences, Rehabilitation Medicine, Medicine and Pharmacy

Site

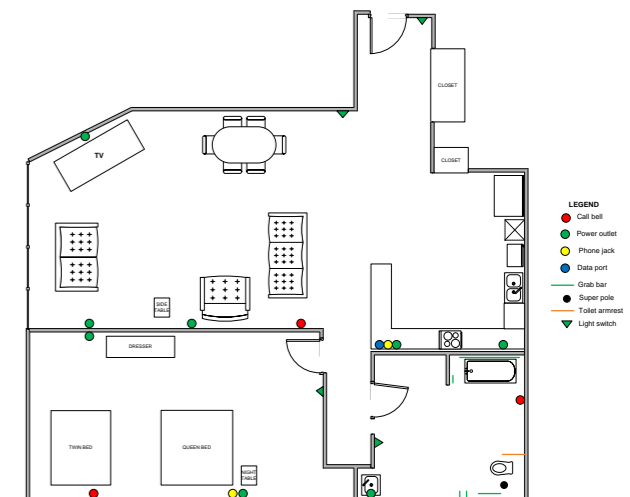
- Glenrose Rehabilitation Hospital, Edmonton AB
- largest free-standing tertiary rehabilitation center in Canada
- devoted to high-level rehabilitation care and academic teaching
- covers the entire age span (birth to geriatrics)
- 244 in-patient beds
- 128 outpatient programs



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Independent Living Suite (ILS)

- 802 square ft space designed to be a home-like setting within the hospital
- consists of entry way, bedroom, living room, bathroom and kitchen
- stocked with electrical appliances (i.e., kitchen, stove, microwave, tv)
- can simulate a variety of discharge support scenarios
- allows patients to practice activities of daily living skills
- safety features include: call bells, emergency response pendant and visual nursing inspections per shift





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BACKGROUND

Medication adherence:

- the extent patients follow their prescribed medication regime
- 81% of community dwelling older adults use medication and 29% use 5+ prescription medications

What our clinicians are telling us:

- generally difficult to assess in-patient medication adherence (i.e., relies on patient self-report)
- very few acute care units have access to a clinical pharmacist to monitor and trial a self-medication program
- poor adherence post-discharge results in re-hospitalization, adverse drug reactions, lowered quality of life, and possible mortality
- open to examine the use of technology to assess adherence



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Objective #1

- Determine if electronic medication reminders can increase medication adherence

Objective #2

- Determine if objective data from both the medication adherence device and ambient sensors can assist with discharge planning

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Technology

- medication adherence device (Medsignals)
 - provides visual and auditory alarms
 - online platform to monitor and program the medication schedule
 - ability to send caregivers email, phone or SMS alerts when doses missed
- ambient sensor network throughout the suite
 - pressure
 - motion
 - electrical
 - switches





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Study Design

Randomized control trial

- Treatment group (n=6): electronic medication reminders enabled + ambient monitoring
- Control group (n=6): electronic reminders disabled + ambient monitoring

Participants

Inclusion criteria

- in-patients 65 years of age and over
- polypharmacy
- mild to moderate cognitive impairment
- medically stable and close to discharge
- community-dwelling

Exclusion criteria

- physically incapable of managing their medications (i.e., amputees)
- significant visual impairments
- non-English speaking
- patients with required injectable medications (i.e., insulin)
- patients on modified diet restrictions (i.e., swallow dysfunction)



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Procedures

Total time per participant: **3 days**

- **Day 1:** participants provided training by pharmacist at bedside
- **Day 2:** participants taken to Independent Living Suite (ILS) in AM and are responsible for meals and medications throughout the day and overnight
- **Day 3:** participants remain in ILS until early afternoon. Medication adherence % and activity pattern report provided to discharge team
- **Day 3 continued:** participant exit interview and medical team survey, patient discharged with support recommendations
- **3 months post:** electronic records checked for re-hospitalization



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Outcome measures

- sensor activity report and medication adherence level comparison ($\geq 80\%$)
- participant exit interview
- medical team survey
- 3 month post-discharge check (electronic medical record)

Current status

- Health Research Ethics Board Panel B approval obtained
- Northern Alberta Clinical Trials and Research Center operation approval obtained
- trial launched May 9th 2011