Pharmacist steps to integrated care in high-risk geriatrics:

**Ward Aged Patient Pharmacist Service (WardAPPS)**

Kitty Chu
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Ward Aged Patient Pharmacist Service (WardAPPS)
Service Demand

20% elderly taking ≥5 drugs

Seniors five times more likely to be hospitalized for adverse drug reactions

What:

Adverse Drug Reaction-Related Hospitalizations Among Seniors, 2006 to 2011

March 26, 2013—One in 200 seniors was hospitalized because of an adverse drug reaction (ADR) in 2010–2011, compared with 1 in 1,000 of all other Canadians. This translates to approximately 27,000 people age 65 and older, according to the Canadian Institute for Health Information (CIHI).
Integrated care
Targeted elderly patients
Multi-disciplinary
Patient empowerment
Collaboration of physicians and pharmacists\textsuperscript{1-2}

- Identify drug-related problems (DRP)
- Improve medication safety
- Reduce total falls rate

Integrated Care Model (ICM)

- Implemented in KCC since Oct 2011

- Geriatric patients with HARRPE $\geq 0.2$
  - Hospital Administration Risk Reduction Programme for the Elderly
  - 20% risk of A&E admission in 28 days
# Project Team

<table>
<thead>
<tr>
<th>Role</th>
<th>Members</th>
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<tbody>
<tr>
<td><strong>Project Leader</strong></td>
<td>Ms. Kitty Chu, P (PHA), KH</td>
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<tr>
<td><strong>Project Sponsors</strong></td>
<td>Dr. Hobby Cheung, SD(P&amp;CHC), KCC / HCE, KH&amp;HKEH</td>
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<td>Mr. Kenneth Law, CSC (PHA), KCC / DM (PHA), QEH</td>
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<td><strong>Facilitators</strong></td>
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Objectives

• Implement reconciliation service

• Proactively identify drug-related problems

• Provide medication counseling to geriatric patients
Methodology

1. Streamline inpatient workflow in medical extended care ward 5A
Initial Practice
New Workflow
2. Perform regular pharmacist ward round
   – Identify prescribing discrepancy & drug-related problem
   – Deliver patient counseling
   – Provide drug information
3. Perform weekly clinical round between geriatrician and pharmacist
Outcome Measures

• Capture intervention in web-based program

• Classify DRP³

• Rate the severity of DRP by independent pharmacist⁴

Service Evaluation

Survey on service acceptance

- Healthcare professionals
- Patients

WISER Project
Ward Aged Patient Pharmacist Service - WardAPPS

WardAPPS is a pilot service for high risk elderly with HARRIET 2.0. It has been started in 5A ward from July 2012. The objectives are:

1. To identify reconciliation errors at admission and discharge
2. To proactively identify drug-related problems and advise potential mitigation solutions
3. To provide medication counseling and education to patients

We are interested in obtaining your opinions about this pilot service. We would be very grateful if you would complete this satisfaction survey so that we can improve our service to achieve quality multidisciplinary care to the elderly.

(FOR your information: medication reconciliation is the process of obtaining a complete and accurate list of patients’ medications including all medications and supplements.)

Questions

1) Medication reconciliation performed by pharmacists at transition point (e.g., admission, ward transfer, discharge) can prevent medication errors.
2) This pilot geriatric service can aid healthcare professionals in determining proper regimen for patients.
3) Regular drug review performed by pharmacists can reduce the frequency of adverse drug reactions.
4) Regular drug review performed by pharmacists can avoid drug-drug and drug-food interactions.
5) Educating patients on the appropriate ways to take medication performed by pharmacists can improve patients’ compliance.
6) This pilot geriatric service can reduce treatment costs.
7) Medication reconciliation in this pilot geriatric service is able to improve your wellbeing.
8) Overall, this pilot geriatric service performed by pharmacists is satisfactory.

Please circle the most agreed score:

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
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Other comments


§ Thank you §
## Results

Pilot implementation period: Jul – Dec 2012

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<th>Ward 5A</th>
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<tbody>
<tr>
<td>No. of patients reviewed</td>
<td>238</td>
</tr>
<tr>
<td>Mean age</td>
<td>83.2 ± 9.8</td>
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<tr>
<td>Male : Female</td>
<td>106 (44.5%) : 132 (55.5%)</td>
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<tr>
<td>Old-aged home resident</td>
<td>113 (47.5%) : 125 (52.5%)</td>
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<tr>
<td>Mean HARRPE</td>
<td>0.36 ± 0.13</td>
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Prescribing Discrepancies: 16

- Omitted drug: 11
- Unaware of private drug: 2
- Wrong order: 3

12 (75%) approved by prescribers
## Drug-related Problems: 78

<table>
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<th>Category</th>
<th>Percentage</th>
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<td>Treatment effectiveness</td>
<td>69%</td>
</tr>
<tr>
<td>Adverse reactions</td>
<td>26%</td>
</tr>
<tr>
<td>Treatment costs</td>
<td>5%</td>
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### Severity

- **Serious**: 10%
- **Significant**: 68%
- **Minor**: 17%
- **No error**: 5%
Drug-related Problems Solved

• Phenytoin toxicity in patient with renal impairment & low albumin
• Amitriptyline with unknown indication
• Hypokalemia(K 2.2) due to high dose terbutaline + theophylline
• Gliclazide in severe renal impairment (CrCl~11ml/min)
Drug-related Problems Solved

- Isoniazid-induced neuropathy
- Amiodarone-induced hypothyroidism
- Untreated anemia (Hb: 9, folate: 7.1 & Vit B12: 110)
- Wrong dosage form (Phenytoin, Pantoprazole, Terbutaline SR)

Significant 68%
Demographics: Mr. C, 77-year-old gentleman
Allergy: NKDA
Social history: ex-smoker
PMH
1. Acute coronary syndrome
2. Hypertension
3. Hyperlipidemia
4. Renal impairment
5. Congestive heart failure
6. Atrial fibrillation
7. Chronic obstructive pulmonary disease
8. Benign prostate hyperplasia
Chief complaint: on and off chest discomfort

Medications on admission

1. TNG 500mcg stat prn
2. Aspirin 80mg daily
3. Famotidine 20mg nocte
4. Frusemide 40mg daily
5. Isosorbide dinitrate SR 40mg BD
6. Terazosin 2mg bedtime
7. Ventolin 4 puffs QID
8. Senokot 15mg nocte
9. Synalar 0.025% TDS
10. Aqueous cream BD
• Patient and his son believed TNG was used for headache and dizziness.

• Medication education

NEVER assume patients know!
Pharmacists can empower my self management skills.

Pharmacists can aid me to determine appropriate regimens.

Pharmacists can reduce adverse drug reactions and interactions.

Response rate from professionals: 78.6%

Response rate from patients: 90.0%

Interventions approved by prescribers: 90.2%
Conclusions

In 238 patients, 78 drug problems +16 prescribing discrepancies
Better Health Outcomes, More Efficient Care

Doctor

Nurse

Geriatric Patient

Pharmacist

Carer

Other allied health
Acknowledgement

Dr. Hobby Cheung  SD (P&CHC), KCC / HCE, KH & HKEH
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KH pharmacy colleagues
KH medical extended care ward 5A medical & nursing staff