THE EVALUATION OF THE IMPACT OF A DOCTOR - PHARMACIST COLLABORATIVE PRESCRIBING MODEL IN A MULTIDISCIPLINARY SURGICAL PRE-ADMISSION CLINIC

Princess Alexandra Hospital

Medication Services Queensland

Andrew R Hale

Supervisors:
Dr Lisa Nissen
Dr Ian Coombes
Dr Danielle Stowasser

Co-authors:
Dr Julie Stokes
Ms Elaine Lum
Overview

• Issues with current prescribing
  • Broader issues
  • Specific issues to our pilot site
• Aim – Evaluation of a new model
• Methods
• Results and Discussions
• A new way forward?
Issues

• Medicines as an intervention
• Suboptimal patient care
  – Safety
  – Access
  – Appropriateness

• Causes
  – Aging population: burden of chronic disease
  – Aging workforce
  – Workforce shortages
Surgical Preadmission Clinics

• High risk medications used
  – Heparin (VTE prophylaxis)

• Potentially contraindicated with surgery

• Age related diseases being treated

• Intervention not focused medicines specifically
  – RMOs time pressure ++
  – prescribing errors and omissions

• Prescribing in PAC
  – Continue, cease, withhold, therapeutic substitution, initiate

• Existing PAC have collaborative model
Non medical prescribing
Prescribing Model

Information gathering

Decision making

Communication

Review
Monitor
Follow-up

Coombes PhD 2008
Aim

• Evaluate a doctor – pharmacist collaborative prescribing model in elective surgery pre-admission clinic

• A doctor - pharmacist prescribing model provides at least as high a quality of care as usual care, with regards to:
  – safety
  – access
  – appropriateness
  – effectiveness
  – efficiency
  – consumer participation

(Anderson G, Hussey PS Health Aff 2001)
(AIHW National Health System performance 2000)
Pre-Admission Clinic Evaluation

**Primary End Point**
- quality of medication charts generated in PAC

**Secondary End Point**
- appropriateness of prescribing of medications and devices for VTE prophylaxis according to agreed local and national guidelines
## Patients and Medications

<table>
<thead>
<tr>
<th></th>
<th>Control N (Median) [Range]</th>
<th>Intervention N (Median) [Range]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Patients</strong></td>
<td>190</td>
<td>194</td>
</tr>
<tr>
<td><strong>Mean Age [Range]</strong></td>
<td>57.6 [18-89]</td>
<td>55.8 [18-86]</td>
</tr>
<tr>
<td><strong>Sex (M/F)</strong></td>
<td>110 / 80</td>
<td>115 / 79</td>
</tr>
<tr>
<td><strong>Regular Medications</strong></td>
<td>947(4)[0-16]</td>
<td>720(3)[0-18]</td>
</tr>
<tr>
<td><strong>PRN Medications</strong></td>
<td>270(2)[0-7]</td>
<td>167(1)[0-4]</td>
</tr>
<tr>
<td><strong>CAM</strong></td>
<td>126[0-9]</td>
<td>87[0-6]</td>
</tr>
<tr>
<td><strong>OTC Medications</strong></td>
<td>21[0-2]</td>
<td>9[0-2]</td>
</tr>
<tr>
<td><strong>Total Medications</strong></td>
<td>1364(7)[0-25]</td>
<td>983(4)[0-20]</td>
</tr>
<tr>
<td><strong>Medication Charts Prescribed</strong></td>
<td>161 (85%)</td>
<td>194 (100%)</td>
</tr>
</tbody>
</table>
Findings To Support Collaborative Models
Venous Thromboembolism (VTE) Prophylaxis

- VTE Risk Assessment
- Mechanical And Chemical Contraindication Assessment
- Mechanical And Chemical Prophylaxis Prescribed
- Appropriateness of VTE Prescribing in PAC
- Reasons for Omission
- Appropriateness of VTE Prescribing and Administration on Admission

- Info Gathering
- Decision making
- Communication
- Review Monitor Follow-up
Prescribing model

Information gathering

Review
Monitor
Follow-up

Decision making

Communication
Information gathering
VTE Risk and Contraindication

- VTE Risk Assessed
- Risk Assessment Correct
- Chemical C/I Assessed
- Assessment Correct
- Mechanical C/I Assessed
- Assessment Correct

Control N=147  Intervention N=160

* p<0.001
Prescribing model

Information gathering

Review
Monitor
Follow-up

Decision making

Communication
VTE Prescribing Appropriateness PAC

**Control N=147  Intervention N=160**

* p<0.001
Prescribing model

- Information gathering
- Decision making
- Communication
- Review
- Monitor
- Follow-up
VTE Prescribing Appropriateness on Admission

Control N=133  Intervention N=144

% of patients

VTE Appropriate PAC
Should be receiving a/c
Should not be receiving a/c
Should be receiving both
Should be receiving mech
Should not be receiving mech
Prescribing model

Information gathering

Decision making

Communication

Review
Monitor
Follow-up
### Total Omissions

Crude odds ratio of omission = 43, Adjusted OR after stratification = 38

<table>
<thead>
<tr>
<th>Medication Category</th>
<th>Control</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRN</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>CAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTC</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

Crude odds ratio of omission = 43, Adjusted OR after stratification = 38
Prescribing Errors

Control N=807  Intervention N=857

* p<0.001

% of total orders

Regular  PRN  Total

Medication Category
All Communication Errors

Number of Errors per Order

Control

Intervention

% of total orders

0 1 2 3 4 Total Errors

*p<0.001
Summary - Support for a New Way Forward?

Information Gathering

- VTE assessments undertaken significantly more
- VTE Risk assessments correct 94% of time
- Contraindication assessments correct 100% of time

Clinical Decision Making

- VTE prescribing:
  - significantly more appropriate in PAC
  - more appropriate on admission
Summary - Support for a New Way Forward

Communication

Medication charts in intervention arm:

• significantly less omissions
• significantly less prescribing errors

significantly more accurate with regards to patient history and plan for medication
New way forward?

• Support for collaborative prescribing model in multidisciplinary surgical pre-admission clinics
• Further research required in other models
• HIV pilot Gold Coast
• Various pilots Australia and New Zealand
Acknowledgements

- Prof Steve Lynch
- Dr Buff Maycock
- Ms Lynette Loy
- Ms Ching-Ting Hung
- Mr David McDougall
- Ms Renea Collins

- All PAC staff
- Dr Karen Whitfield
- MSQ Steering Committee
- PAH Steering Committee
Questions?