


Pharmacist Prescribing in Pre-Admission Clinic (PAC):

A prime opportunity to apply pharmacists' expertise

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Admission Process

- Medication history obtained at point of admission⁴
 - Documented directly onto patient medication chart
 - Foundation for all other changes




Figure: Admission Process

4. Carter MK, Allin DM, Scott LA, Grauer D. Pharmacist-acquired medication histories in a university hospital emergency department. *Am J Health-Syst Pharm.* 2006;63(24):2500-3.

Australian Research

- Local research on pharmacist prescribing⁷⁻⁹
- Pre-Admission Clinic**
 - Screening procedure
 - Pharmacotherapeutic interventions
 - Stopping/starting medications
- Pharmacist involvement in PAC
 - Current role:
 - Medication history taking
 - Counselling



7. Hanes C, Bajorek B. Pharmacist prescribing: views of Australian hospital pharmacists. *Journal of Pharmacy Practice and Research.* 2005;35(3):178-80.
8. Ray OC, Bajorek BV, Bilen JAE. Pharmacist prescribing activities - An electronic survey on the opinions of Australian Pharmacists. *Journal of Pharmacy Practice and Research.* 2008;38(9):199-203.
9. Nguyen N.A, Bajorek BV. Pharmacist Prescribing in Warfarin Therapy: Exploring Clinical Utility in the Hospital Setting. *Journal of Pharmacy Practice and Research.* 2008;38(1):35-9.

Current Issues in PAC

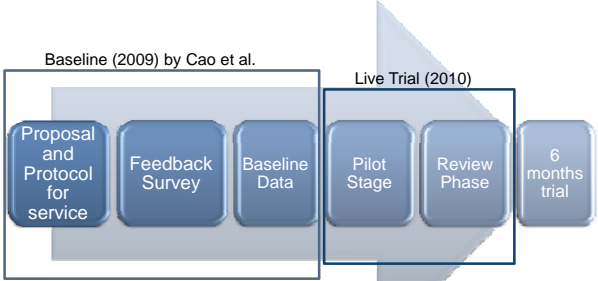
- Prescribing errors persist via doctors¹¹
 - Medication omission
 - Incorrect dose
 - Time and frequency
 - Inefficiency
- Development of Pharmacist Prescribing Service in PAC¹¹
 - 2 specialist PAC pharmacists at Royal North Shore Hospital (RNSH)
 - Daily service (16 patients/day)
 - But no prescribing previously

11. Cao B, Bajorek BV. Development of a Pharmacist Prescribing Service in the Pre-Admission Clinic (PAC): A pilot initiative at Royal North Shore Hospital. 2009

Phases of Study

Baseline (2009) by Cao et al.

Live Trial (2010)



Ethics and Drug Committee approval obtained

Aim and Objectives

- To trial a pharmacist prescribing service, comprising medication charting, in PAC at Royal North Shore Hospital
- Objectives
 - To evaluate the impact of pharmacist prescribing on service/workflow in PAC (consultation time, staff feedback)
 - To evaluate the impact of pharmacist prescribing in terms of error reduction (accuracy and completion)
 - To identify areas which may be improved for sustained implementation of service (feedback)

Study Method

Data collected prospectively

- Direct observational measures and data extraction from medication charts
- Two "dummy runs"

Primary outcome measures

- **Process measures ("Appropriateness"):**
 - Number of medication charts/documents completed
- **Clinical measures ("Effectiveness"):**
 - Accuracy/Completeness of charts, chart amendments, consultation times
- **Comparative data (pre- vs post-intervention) ("Effectiveness"):**
 - Accuracy/Completeness of charts, consultation times

Purpose-designed data collection instruments

Flyer, Stickers and Communication Sheet

The flyer contains the following text: "Pharmacist prepared Medication Chart", "Pharmacist Medication Charting in PAC", "This is NOT a valid prescription... DO NOT ADMINISTER... (UNLESS APPROVED & SIGNED BY A MEDICAL OFFICER)", "Chart PREPARED by: [Name]", "Chart APPROVED by: [Name]", "PAC (Pharmacist)", "Dr. (Medical Officer)", "Page(s) of Total", "Date: ___/___/2010", "Date: ___/___/2010".

The sticker contains the following text: "Recommendations for discharge planning", "Medication Discharge Sticker", "Medication on Counselling by ward pharmacist", "Compliance aids (eg Webster's Packs) needed".

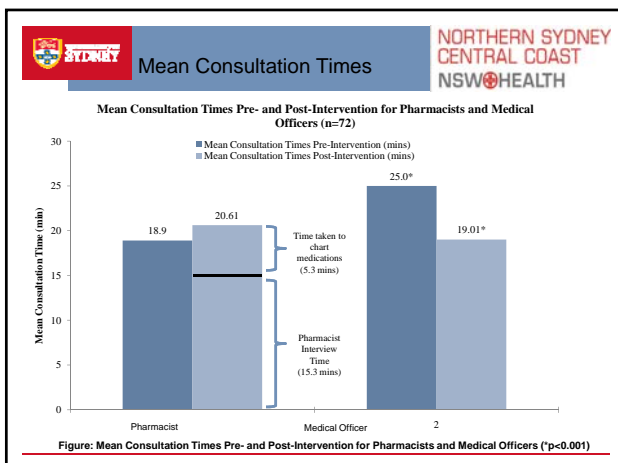
The communication sheet contains the following text: "Pharmacist Prepared Medication Chart", "NOT VALIDATED, SIGNED BY A MEDICAL OFFICER", "To be attached to the front of the medication chart", "Communication sheet".

Flyer, Stickers and Communication Sheet

Results

Overall:

- 2x PAC pharmacists
- 12x Junior Medical Officers and 1 Resident Medical Officer
- 72 medication charts completed
- 12 "Communication Sheets" used
- 1 "Medication Discharge Sticker" used
- Feedback obtained from 12 PAC staff



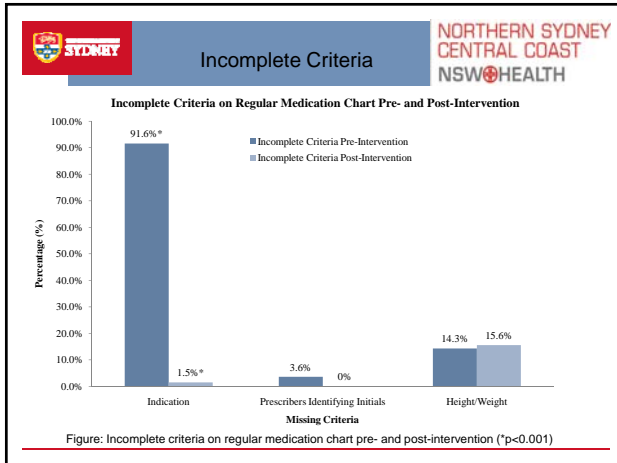
Completeness of Medication Charts

Overall:

- Pre-intervention: 5.4% complete
- Post-intervention: 80.6% complete (p<0.001)

	Pre-Intervention (n=56)	Post-Intervention (n=72)
Proportion of Charts with at least ONE missing criteria*	94.6%	19.4% (p<0.001)
Proportion of Charts with TWO or more missing criteria*	80.4%	4.2% (p<0.001)

*Compliance with NIMC requirements



Accuracy of Medication Charts

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	Pre-Intervention (n=56)	Post-Intervention (n=72)
Percentage of Charts deemed INACCURATE	41.1%	1.4% (p<0.001)
Percentage of Charts with INCORRECT MEDICATIONS	7.4%	1.4% (p<0.001)

- ### Feedback from PAC Staff
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- › Staff strongly AGREED that:
 - PAC pharmacists were **competent and adequately skilled** for such a prescribing function
 - › Staff strongly AGREED that the service led to:
 - **Increased accuracy** of medication charts
 - **Increased completeness** of medication charts

Perceived Benefits

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“medication charts easier to read”

“consistency in charting”

“pharmacists are concentrating only on medications and making sure they are correct – so this is their field of expertise”

“Pharmacist aware of what is on the formulary and can substitute if necessary or ask patient to bring non-formulary drugs, so NOT miss out dose”

Perceived Disadvantages

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“The JMO’s/CMO’s are not regularly signing the medication charts, which leads to increased workload as you either have to chase the doctor who saw the patient in PAC or get the medication chart rewritten.”

“De-skilling the JMO’s”

“May cause delays in the clinic on busy days”

- ### Significance of study
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- › Increased efficiency and streamlining of current PAC workflow
 - › Improve accuracy and completeness of medication charts
 - › Potential reduction in:
 - Post-operative medication discrepancies
 - Inappropriate medication administration
 - › Future
 - Longer (6 month) trial in PAC
 - Prospective trials at other points of entry (ED, Admissions Department)

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Thank You

Questions..

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Medication Errors in hospitals

- › Errors in the prescribing process¹
 - 56% of all medication errors
 - Problem at points of admission
- › Errors in medication history taking
 - Most common cause of prescribing errors^{2,3}

1. Barker KN, Flynn EA, Pepper GA, Bates DW, Mikeal RL. Medication errors observed in 36 health care facilities. *Archives of Internal Medicine*. 2002 Sep 9;162(16):1897-903.
2. Bates DW, Cullen DJ, Laird N, Petersen LA, Small SD, Servi D, et al. Incidence of adverse drug events and potential adverse drug events: Implications for prevention. *Journal of the American Medical Association*. 1995;274(1):29-34.
3. Reeder TA, Mutnick A. Pharmacist- versus physician-obtained medication histories. *Am J Health-Syst Pharm*. 2008;65(9):857-60.

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Medication History taking and Prescribing

- Doctors record less accurate history compared to pharmacists^{4,5}
 - 25% medications omitted
 - <22% complete medication histories
- › Pharmacist prescribing as an intervention⁶
 - Using accuracy and knowledge
 - Bridging the gap between medication history taking and prescribing
 - Error reduction and patient satisfaction

5. Nester TM, Hale LS. Effectiveness of a pharmacist-acquired medication history in promoting patient safety. *Am J Health-Syst Pharm*. 2002;59(22):2211-5.
6. Vira T, Goljohoun M, Eichelb E. Reconcilable differences: Correcting medication errors at hospital admission and discharge. *Quality and Safety in Health Care*. 2006;15(2):112-4.

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Previous Baseline Data⁹

% Missing criteria on medication chart for regular medications (n=56)

Criteria	Percentage
Indication	94.6%
Contact	67.9%
Initials	10.7%
Height/Weight	16.8%

- › Incomplete charts
 - 94.6% had one or more incomplete criteria
 - 80.4% had two or more missing criteria

Figure 2: Percentage of missing criteria on medication chart for regular medications

9. Cao B, Bajorek BV. Development of a Pharmacist Prescribing Service in the Pre-Admission Clinic (PAC): A pilot initiative at Royal North Shore Hospital. 2009

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Previous Baseline Data⁹

Nature of inaccuracies on medication chart (n=27)

Inaccuracy	Count
Incorrect spelling	2
Incorrect dosages	6
No SR indication	6
Incorrect medication	2
Incorrect route	2
Missed medication	5
Incorrect directions	4

- › Inaccurate charts
 - 58.9% charts were accurately documented
 - Incorrect dosages
 - No Slow Release (SR) indication

Figure 3: Nature of inaccuracies on medication chart

9. Cao B, Bajorek BV. Development of a Pharmacist Prescribing Service in the Pre-Admission Clinic (PAC): A pilot initiative at Royal North Shore Hospital. 2009