

Medication Use Process Survey in Irish Hospitals:

Implications for Patient Safety and Continuity of Care

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Medication Use Process

- Medication management
- Clinical pharmacy service
- Discharge prescribing
 - Discharge summary
 - Discharge prescription



Medication reconciliation (Med Rec)

“The process of obtaining and maintaining an accurate and detailed list of all prescribed and non-prescribed drugs a patient is taking, including dosage and frequency, through all healthcare encounters and comparing the physician’s admission, transfer, and/or discharge orders to that list, recognising any discrepancies, and documenting any changes, thus resulting in a complete list of medications, accurately communicated”.

Institute for Healthcare Improvement, 2005



Pre-implementation evaluation

- Objectives
 - Frequency, nature and predictors of med rec
- Study design
 - Healthcare record review survey
 - Medication reconciliation performed
- Study sample
 - Consecutive discharges at two acute hospital sites
- Data management
 - SPSS, version 15
 - Associations, correlations
 - Multiple linear regression
 - Multivariate categorical data analysis (HOMALS)

Brown et al., Qual Safety in Health Care 2008; 17: 158-62..



Study population

- Timeframe Jan 2006 to May 2008
- 1245 inpatient episodes
- 9569 medication orders
- 55% male, 77% medical, 86% chronic illness
- 71% handwritten, 29% computerised
- Number of meds
 - Admission, median 5, range 0 to 22
 - Discharge, median 6, range 0 to 24



Frequency of reconciliation

- Non-reconciliation observed in
 - 50% inpatient episodes
 - 16% medication orders
- Potential for harm
 - severe 2%; moderate 63%; minor 35%
- Potential for unplanned readmission 3/12
 - high 1%; medium 37%; low 62%

Dean B and Barber N. Am J Health-Sys Pharm 1999; 56 (1): 57-62.



	Per medication (%)	Per episode (%)
Omission active discharge med	609 (6.4)	233 (18.7)
Discontinued but not communicated	402 (4.2)	268 (21.5)
Omission pre-admission med	234 (2.4)	140 (11.2)
Dose discrepancy	128 (1.3)	101 (8.1)
On hold discrepancy	84 (0.9)	67 (5.4)
Other	86 (0.9)	23 (1.8)
Total	9569	1245

	Per medication %
Omission active discharge med	6.4
Discontinued but not communicated	4.2
Omission pre-admission med	2.4
Dose discrepancy	1.3
On hold discrepancy	0.9
Other	0.9
Total	9569

} 13.9%

Absence, PAML

Predictors of non-reconciliation (Multiple linear regression)

- Increasing number of meds
 $\beta = 0.368, p < 0.05$
- Discharge prescribing process
Handwritten v Computerised
 $\beta = 0.138, p < 0.05$
- Medical rather than surgical care
 $\beta = 0.096, p < 0.05$

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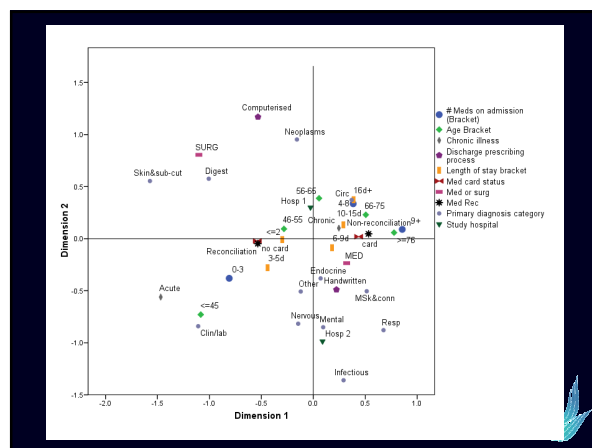
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Handwritten 54%

Computerised 40%

Odds ratio 0.57



Medication Type (BNF)

Omission of active discharge medication

χ^2 84.9, df 9, P < 0.05

- Endocrine (9.7%)
 - Insulin, thyroid drugs
- Central nervous system (9.5%)
 - Hypnotics, opioid and non-opioid analgesics, anxiolytics, drugs used to control epilepsy, SSRIs and related antidepressants
- Nutrition & blood (9.1%)
 - Calcium & vitamin D, oral iron, drugs used in anaemia
- “Other” (9.8%)
 - Preparations for tear deficiency and glaucoma



Medication Type (BNF)

Discontinued but not communicated

χ^2 80.7, df 9, P < 0.05

- Musculoskeletal or joints system (7.2%)
 - NSAIDs
- Obstetrics, gynaecology & urinary tract (6.0%)
 - oral contraceptives, drugs for urinary retention/ frequency
- Cardiovascular (6.0%)
 - Antiplatelets, calcium-channel blockers, beta-blockers, ACE inhibitors, loop diuretics, lipid regulating drugs, nitrates
- Central nervous system (3.8%)
 - Anxiolytics, opioid analgesics



Medication Type (BNF)

Omission of pre-admission medication

χ^2 127.5, df 9, P < 0.05

- Obstetrics, gynaecology & urinary tract (15.0%)
 - Oral contraceptives
- Musculoskeletal or joints system (5.1%)
 - NSAIDs
- Respiratory (4.9%)
 - A variety of inhalers



Summary

- Non-reconciliation on discharge from acute care in Ireland is common
- Omission of medication is the most common
- There is potential for harm and unplanned readmission
- Non reconciliation is strongly associated with:
 - Increasing number of medications
 - High transcription burden



Future Work

- Prioritise vulnerable patients to receive medication reconciliation services
- Decrease the transcription burden
- Assess the impact of an electronic medication reconciliation tool
- Assess the feasibility and impact of delivering a dedicated medication reconciliation service

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