



<b>Title</b>	<b>The clinical significance of medicines reconciliation in children admitted to hospital</b>
<b>Author(s)</b>	<b>Huynh, C; Terry, D; Tomlin, S; Jani, Y; Haley, H; Smith, R; Lowey, A; Sinclair, A; Wilson, K; Wong, ICK</b>
<b>Citation</b>	<b>The 2012 Prescribing and Research in Medicines Management (UK &amp; Ireland) Conference, London, UK., 9 February 2012.</b>
<b>Issued Date</b>	<b>2012</b>
<b>URL</b>	<b><a href="http://hdl.handle.net/10722/165614">http://hdl.handle.net/10722/165614</a></b>
<b>Rights</b>	<b>Creative Commons: Attribution 3.0 Hong Kong License</b>

# The clinical significance of medicines reconciliation in children admitted to hospital

Huynh Chi<sup>1</sup>, Terry David<sup>2</sup>, Tomlin Stephen<sup>1,3</sup>, Jani Yogini<sup>1</sup>, Haley Helen<sup>4</sup>, Smith Rachel<sup>5</sup>, Lowey Andrew<sup>5</sup>, Sinclair Anthony<sup>2</sup>, Wilson Keith<sup>2</sup>, Wong Ian Chi Kei<sup>1,6</sup>

*Centre for Paediatric Pharmacy Research, University College London, School of Pharmacy, London<sup>1</sup>;*

*Birmingham Children's Hospital, Birmingham<sup>2</sup>*

*Evelina Children's Hospital, Guy's and St Thomas NHS Foundation Trust London,<sup>3</sup>;*

*University hospital of North Staffordshire,<sup>4</sup>*

*Leed's teaching Hospital NHS trust,<sup>5</sup>*

*Dept of Pharmacology & Pharmacy, Li Ka Shing Faculty of Medicine, University of Hong Kong, China<sup>6</sup>*

# Outline

- **Background**
- **Aims and Objectives**
- **Method – Study design, Data collection and clinical assessment**
- **Results – demographics, data, clinical assessment**
- **Limitations**
- **Conclusions**
- **Future work**
- **Key messages**

# Conflicts of interest statement

- Funding received from the Neonatal and Paediatric Pharmacist Group (NPPG)
- Chi Huynh's PhD is joint funded by the UCL School of Pharmacy and Guy's and St Thomas NHS Foundation Trust

# Background

- According to the NICE guidance, children under the age of 16 are excluded from the national guidance on medicines reconciliation upon hospital admission.<sup>1</sup>
- A study, suggested that potential adverse drug reactions are not uncommon in children and may be 3 times more common in paediatrics compared to adults.<sup>2</sup>
- Preliminary work showed that the absence of medicines reconciliation on admission to hospital for children increases their exposure to risk from discrepancies.<sup>3</sup>

# Aims and objectives



## Primary

- Use medicines reconciliation to identify if discrepancies occur upon hospital admission across four hospitals

## Secondary

- Clinically assess for potential harm to discrepancies that were identified

## Population targeted

- Paediatrics (aged 0 – 18 years) on long term medication.

# Method – Study Design

- **Prospective observational study** across 4 NHS hospitals in Birmingham, London, Leeds and North Staffordshire.
- Registered with R&D office, NHS ethical approval not required
- **Setting**
  - Paediatric wards for 2 sites/Paediatric hospital for the other sites
- **Inclusion criteria**
  - Patients aged 0 – 18 years old on long term medication
  - Patients admitted into hospital via A&E and home
- **Exclusion criteria**
  - Patients transferred from other hospitals
  - Patients transferred from the same ward
  - Patients on PICU
- **Sample size**
  - 240 patients consecutively admitted to the hospital ward during the study period January – May 2011 (Approximately 60 per site)

# Method – Data Collection



- Data was collected by pharmacists across the 4 sites – all pharmacists received training
- Standardised paper data collection forms were used to collect information from the following: -
  - Caregiver interview
  - GP (via telephone or fax)
  - Patient Own Drugs
  - Drug chart (Admission medication orders)
- Medication name, Dose, Directions were recorded for each source of information
- The pharmacists would make their own list of what the patient's recommended therapy would be based on the information found.



# Method – Data collection (2)

- Data from all sites were transferred onto an excel spreadsheet and combined
- Discrepancies between the GP record and Drug chart at admission were identified and marked as intentional or unintentional after discussion with prescriber
- An expert panel screened through the unintentional discrepancies

# Method – Clinical Assessment

- Panel of 5 Healthcare professionals met together and were presented with each unintended discrepancy which was discussed.
- **A score would be agreed by discussion until a consensus was met.** Judges were not given the opportunity to record their own scores
- Scores were given based on the likelihood of causing potential discomfort or clinical deterioration: -
  - **Class 1** Unlikely
  - **Class 2** Moderate
  - **Class 3** Severe
- Scoring had been used in adult studies<sup>4</sup> and also adopted by a Canadian paediatric study<sup>5</sup>

# Results (Demographics)

- Over the 5 month data collection period 244 patients were seen and 1004 medication regimens were identified.  
(60 patients seen in Birmingham/Leeds, 61 at North Staffordshire, 63 in London)
- Age range 1 month – 16 years of age (median 5 years, interquartile range 1.5 years to 11 years)
- Majority of patients from General Paediatric medicine

# Results (Data)

- 1004 medication regimens (n = 244) were identified
  - 588 Discrepancies were identified (n = 205 patients)
  - 316 of which were initially identified as unintentional (n = 135)
  - **209** were true unintentional discrepancies (n = **109** patients)

# Results – Clinical Assessment

- A panel of 5 healthcare professionals (2 registrars, 1 nurse, 2 senior pharmacists) discussed the 209 discrepancies
- 189 were classifiable.

189 were classified (100 patients)

- **Class 1 discrepancies (unlikely) = 57 (30%) 40 patients (40%)**
  - **Class 2 discrepancies (moderate) = 89 (47%) 62 patients (62%)**
  - **Class 3 discrepancies (Severe) = 43 (23%) 28 patients (28%)**
- **\*20 unintended discrepancies (18 patients) were cases where the deviation from the GP record would have been the right thing to do.**

# Limitations

- The method of comparing the GP and Drug Chart did not consider the scenario where deviating would have been beneficial
- The clinical assessment method assessed the discrepancy per medication basis
- The research captured what was on the GPs record but did not look into adherence.

# Conclusions

- Medicines reconciliation used has identified that medication discrepancies do occur when a child is admitted to hospital
- The unintended discrepancies have been found to be potentially harmful if unresolved in 70% of cases

# Future work

- Development of a pharmacist led – medicines reconciliation intervention for children upon hospital admission
- Exploring post hospital discharge medicines reconciliation in children



# Key Messages

- Children who are admitted to hospital who are on long term medication
  - Do experience medication discrepancies at this point of transition which have a clinical consequence if not rectified
  - Medicines reconciliation is required in this group of patients in order to resolve these discrepancies. This may not be as straightforward as contacting the GP

# References

1. National Institute for Health and Clinical Excellence. National Patient Safety Agency. PSG001. Technical patient safety solutions for medicines reconciliation on admission of adults to hospital. London: NICE; 2007.
2. Kaushal R, Bates D, Landrigan C, et al 2001. Medication errors and adverse drug events in pediatric inpatients. *JAMA* 2001;285:2114-2120
3. Terry D, Solanki G, Sinclair A, Marriot J, Wilson K. Clinical significance of medication reconciliation in Children admitted to a UK paediatric hospital. *Pediatric Drugs*. 2010;12(5):331-337.
4. Cornish PL, Knowles SR, Marchesano R, et al. Unintended medication discrepancies at the time of hospital admission. *Archives of Internal Medicine* 2005;165(4):424-30.
5. Coffey M, Mack L, Streitenberger K, et al. Prevalence and clinical significance of medication discrepancies at pediatric hospital admission. *Academic Pediatrics* 2009b; 9(5): 360-366.