

## 2007 NSW Health Awards Entry

<b>Entry Title</b>
Keeping Kids Safe in the ED – Think Amber
<b>Abstract</b>
<p>A key opportunity to improve patient safety in the Emergency Department (ED) at The Children’s Hospital at Westmead (CHW) was identified in 2006. This initiative was the introduction of oral syringes that are incompatible with intravenous (IV) lines, thus preventing the inadvertent administration of harmful oral medications or oral rehydration fluids through an IV line.</p> <p>These syringes were introduced into the ED during 2006, accompanied by an education program. To ascertain a baseline for knowledge and use of syringes, a staff survey was conducted in June 2006 and May 2007. Numbers of oral syringes were also counted.</p> <p>The use of oral syringes increased from zero in April 2006 to 60 per day in April 2007. Awareness increased from 81% to 100%. Respondents reporting ‘always’ using oral syringes increased from 12% to 57% for oral medications and from 8% to 75% for oral rehydration solutions. There were no related adverse events reported during this time.</p>
<b>Aim</b>
To introduce oral syringes into the ED to improve patient safety and to measure their use by a repeated staff survey, counting oral syringes and IIMS reporting; comparing 2006 to 2007.
<b>Nature of the Problem</b>
<p>‘Safe and appropriate use of medicines is critical to ensuring patient safety in NSW hospitals’ Prof Cliff Hughes, CEO Clinical Excellence Commission (Clinical Excellence Commission 2007).</p> <p>NSW Health suggests that each year in excess of 70,000 hospital admissions are associated with an adverse drug event, resulting in 8,000 deaths and \$350 million in direct hospital costs (NSW Health 2006) . Within the paediatric ED about 10% of patients may be exposed to medication errors (Kozler et al. 2002).</p> <p>Traditionally, IV syringes have been used for the administration of oral medications and rehydration solutions in paediatric practice. This can lead to inadvertent IV administration resulting in adverse outcomes or death.</p>
<b>Extent of the problem</b>
<p>There have been many documented adverse events, including the death of a patient in Sydney West in 1992 who was given an oral anticonvulsant intravenously. In May 2006 an incident was reported via IIMS of a child in the ED at CHW potentially receiving a dose of oral carbamazepine via an intravenous line. There was no adverse outcome for the child, but this incident highlighted an area of potential risk in the ED.</p> <p>Oral syringes have been successfully introduced in other hospitals with an estimated reduction in the risk of IV/oral ‘wrong route’ errors by 67% in patients with intravenous access (Cavell</p>

2006). In March 2007 the National Patient Safety Agency in the U.K. decreed that by 30th September 2007 all NHS hospitals should use oral syringes for the measurement and administration of oral medicines (National Patient Safety Agency 2007).

Oral syringes may reduce wrong route drug administration errors by improving potential error detection (amber colour) and by preventing completion of the action as tips don't fit IV Luerlocks (Graham 2003).

### Strategic importance

Introduction and use of medical devices with safer designs, such as oral syringes, reflects commitment of the staff in the ED to deliver a high quality of care. The project reduced the risk of 'wrong route' errors while administering medication or rehydrating paediatric patients and hence helped in creating better experiences for people using health services.

### Planning and implementing solutions

An expert multidisciplinary panel was established consisting of an ED Staff Specialist, Acting Nurse Educator and Registered Nurse with the support of the ED management team and the Medication Safety Committee.

Oral syringes were sourced on behalf of the hospital. Oral syringes are approximately 4-5 times more expensive than IV syringes, but the reduction of potential risk was thought to outweigh the increased cost.

Oral syringes had already been introduced to the ED in 2006 after the reported adverse event, so it was important to take this into account in planning our project. The strategy was to collect subjective data on oral syringe use for current and previous practice, to collect objective data by counting the oral syringes, promote oral syringe use in the ED and then remeasure a year later.

The first survey was sent out in June 2006 to all regular nursing and medical staff who worked in the ED. This survey was repeated in May 2007.

Objective use of oral syringes was obtained by counting the number of syringes in the ED each day for 10 days in June 2006 and weekly in April 2007.

Oral syringes were first available in the hospital in May 2005 in limited sizes. During late 2006 10 ml white oral syringes were introduced and in January 2007 the amber oral syringes became available. Currently amber oral syringes are available in 1ml, 2ml, 5ml and 10ml sizes (Figure 1).



Figure: 1

In order to promote their use in the ED, the team engaged staff, increased awareness, developed a multidisciplinary education package and also looked at ways of promoting their use by removing alternatives. As a result, IV syringes were removed from areas where IV meds are generally not given (eg Triage and Cubes) and replaced with amber oral syringes. Oral syringes were also placed more prominently in the drug room. This meant that in most areas the only syringe available for oral medications or rehydration fluids was an amber oral syringe. Related adverse events were monitored using the IIMS database.

**Outcomes and Evaluation**

The overall response rate for survey one and survey two was 81% (61/75) and 76% (57/75) respectively. The proportions of doctors to nurses were similar for both surveys. Awareness of oral syringes increased from 81% to 100% overall (Figure 2).

Comparing data from 2006 and 2007 respondents reporting ‘always’ using oral syringes increased from 12% to 57% for oral medications ( Figure 3) and from 8% to 75% for oral rehydration solutions (Figure 4). The main barrier to use expressed in Survey 1 was the lack of 10 ml syringes and this was rectified in late 2006 which probably accounted for increased usage as well as the rearrangement of stock within the ED.

Stock counts demonstrated a ten fold increase in oral syringe use between 2006 and 2007, with 5ml and 10ml the most used (Figure 5). This equates to an extra cost of around \$15/day. There were no related adverse events reported during this time.

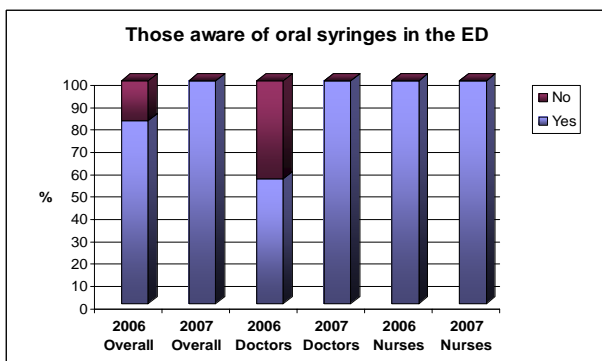


Figure :2

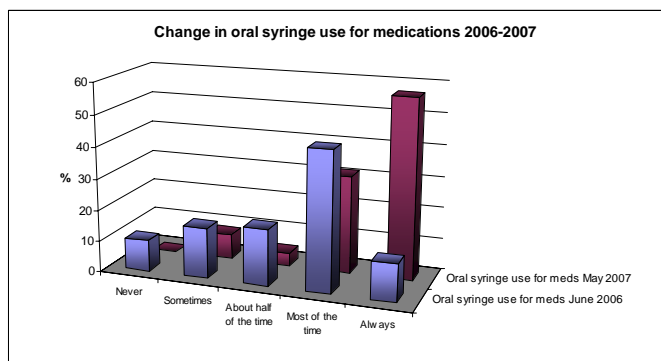


Figure : 3

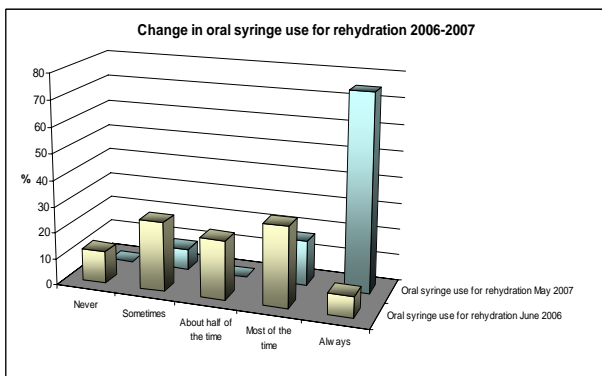


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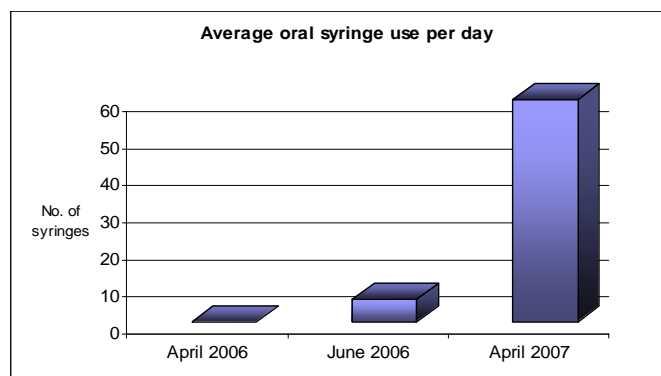


Figure : 5

## Sustaining change

The use of amber oral syringes has now become standard practice within the ED for the administration of oral medications and oral rehydration solutions. As new staff arrive they receive education and peer support to continue the practice. The removal of alternatives has aided this progression considerably. Informal feedback and education is given to all staff regarding the use of oral syringes if they are seen to be using the IV ones. Incident and near-miss data continues to be closely monitored.

## Future Scope (100 words)

As this project has been such a success in our ED, we would hope that by promoting it hospital and statewide, other wards and hospitals will enthusiastically adopt the changes. Key factors leading to change were a committed, enthusiastic multidisciplinary project team, the availability of larger (10ml) amber syringes and the removal of alternatives where possible.

## References

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