Syringe Driver update

Margaret Kendall (WHHFT)
Jeanette Renshaw (UHAT)
Syringe Drivers

• Syringe drivers are an important piece of medical equipment to help maintain good symptom control. They can provide a useful alternative method of administration of medication when it cannot be taken orally. However, as with any piece of medical equipment they are not without risks and limitations, often due to lack of education and competency in their use.
Syringe Drivers
(Two most used within Merseyside and Cheshire)

The McKinley T34 Syringe Pump

The Graseby MS26 Syringe Driver
# Medical Device Risk Classification System

Medical Devices are now classed in three risk groups. Please ensure the following action is taken when using devices marked as follows:

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>Description</th>
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| **High Risk Device.**  
|                    | These are items that have the potential to cause serious adverse consequences or death should they be misused or fail. Do not use the item unless you are trained to do so |
| **Medium Risk Device.**  
|                    | Items that would have a significant impact on patient care or cause temporary adverse health consequences should they be misused or fail. Prepare to proceed after taking advice / guidance from a safe user. |
| **Low Risk Device.**  
|                    | Items that would be unlikely to cause any serious consequences should they be misused or fail. Go – Continue in a safe and sensible manner |
Literature Review

Inclusion criteria

- Although it is recognised that the needs of children regarding palliative care are different to those of adults (WHO 2002), syringe driver use in both adults and children are similar. For the purpose of this project articles relating to children were included.

- Studies from both primary and secondary care were included. Inclusion criteria included articles and studies syringe driver use, syringe driver education and standards/guidelines.

Exclusion criteria

- The requirement that articles were relevant and included up to date evidence and so could not be written prior to 1996.
Literature Review Main Themes

• Syringe driver training has evolved rather than been planned and it is lacking in evidence.
• Inadequate/poor training concerning the use of syringe drivers and that staff competency is under assessed.
• The use of syringe drivers is unregulated in many areas and that there have been serious incidents/errors nationally involving syringe driver use. This has mainly been contributed to confusion between different syringe driver models.
Syringe driver training has evolved rather than been planned (Dunne et al 2000, O’Doherty et al 2001) and is lacking in evidence. It is recognised that there has previously been inadequate training concerning the use of syringe drivers and that staff competency is under assessed (Flowers and McLoed 2005). There have been errors documented concerning syringe driver use mainly attributed to confusion between syringe driver models (Kain et al 2006). This reflects concerns relating to syringe driver use Nationally (Groves 2003).
Rapid response Report
NPSA/2010/RRR019

• On the 16 December 2010 the National Patient Safety Agency issued the report “Safer Ambulatory Syringe Drivers”

• The following two slides highlight the four areas that require action.
For IMMEDIATE ACTION by all organisations in the NHS and independent sector who use ambulatory syringe drivers. Deadline for ACTION COMPLETE is 16 December 2011.

An executive director, nominated by the chief executive, working with the clinical users, chief pharmacist, and procurement and equipment management personnel should by 16 December 2011:

1. Develop a purchasing for safety initiative that considers the following safety features before ambulatory syringe drivers are purchased:
   a) rate settings in millilitres (ml) per hour;
   b) mechanisms to stop infusion if the syringe is not properly and securely fitted;
   c) alarms that activate if the syringe is removed before the infusion is stopped;
   d) lock-box covers and/or lock out controlled by password;
   e) provision of internal log memory to record all pump events.
For IMMEDIATE ACTION by all organisations in the NHS and independent sector who use ambulatory syringe drivers. Deadline for ACTION COMPLETE is 16 December 2011.

2. Agree an end date to complete the transition between existing ambulatory syringe drivers and ambulatory syringe drivers with additional safety features (as soon as locally feasible, and within five years of this RRR).

3. Take steps to reduce the risks of rate errors while older designs of ambulatory syringe drivers remain in use, based on a locally developed risk reduction plan which may include: raising awareness, providing information to support users with rate setting, and using lock-boxes.

4. Take steps to reduce the risks during any transition period when both types of design are in use, including:
   a) reviewing and updating policies and protocols to include the safe operation of all designs of ambulatory syringe driver in local use;
   b) revising user training programmes to include the safe operation of all designs of ambulatory syringe driver in local use.
Method

• Telephone questionnaire of all ICN areas
• Hospice, Hospital and Community for each ICN
• Answered by Specialist Nurses/Senior Nurses
• 100% response rate
• 10 questions as per previous standards
Standards

1. All syringes should have labels containing the following information:
   Name of patient
   Name(s) of drug(s) in syringe
   Dose(s) of each drug
   Name of diluent
   Length of fluid in syringe at commencement
   Date and time syringe driver started
2. Syringe drivers should be checked 4 hourly for inpatients and at least daily in the community. Checks should be documented.
Information was also requested about:

- Type of syringe.
- Minimum size of syringe.
- Measurement of length of fluid (Graseby).
- Type of syringe driver used.
- Training.
• 11 units are using McKinley T34
• 10 using Graseby MS26
• 3 using Micrel MP daily
• 21 units have competency based training in place for those operating syringe drivers
Training

• Competence based training is provided by a variety of trainers:
• In the main those using McKinley T34 have received competency based training from the company and this has been cascaded via a “train the trainers” scheme.
• 7 PCNS team provide ongoing training.
• Other trainers include practice development teams, medical device managers, clinical skills departments, practice educators and senior nurses within hospices.
• 10 units include syringe driver training as part of mandatory training schemes.
Syringes

- Luer lock syringes were used in 22 units.
- The other two respondents did not know whether they were used or not.
- Apart from 2 units all advocated the use of a 20ml syringe as a minimum. One unit used 10ml size, and one used a 30ml as minimum.
- 100% of units labelled syringes according to the standard.
Measurement and Priming

- Only Graseby MS26 and Micrel MP daily require manual calibration.
- Of the 13 units using these syringe drivers only 4 measure the length of fluid after the line has been primed. (sect 42.2.2)
Checklist

• Syringe driver checklists are in use in 20 of the responding units

• In the community the syringe driver is checked at each visit, which would be at least daily. Hospices check 4 hourly, and hospitals 4 hourly in the main with 2 responding 4-6 hourly.
Conclusions

• In spite of the different syringe drivers in use across the network, competency training does appear to be in place, although there is an argument for syringe driver updates to be mandatory.

• The discrepancies in why two units use syringes other than 20ml as a minimum should be addressed.

• There is a clear education issue about timing of measurement of length for those using Graseby MS26 or Micrel MP daily.
Conclusions contd.

• Review of the NRLS database has revealed that incorrect operation of ambulatory syringe drivers can lead to patient harm and even death.

• The use of mm-calibrated syringe drivers and a lack of in-built safety design features on older models were shown to be important contributory factors to many of the incidents reported. The NPSA also recommends that healthcare organisations providing NHS-funded care actively manage the transition between driver models by setting a target date for completion of transition. In the interim, risk should also be actively managed.

• Actions in the Rapid Response Report (RRR) to be completed by 16th December 2011.