

## LITRE MEETING – MONDAY 8<sup>th</sup> MAY 2006

**Subject:** To receive presentations on two portable PN pumps – McKinley Bodyguard and the Smiths Medical CADD Prism VIP. The presentations would form the basis for a report which would provide the companies with feedback and would be posted on the LITRE website.

In November 2005 it became apparent that the Baxter 6060 multi-infusion therapy ambulatory pump was to be withdrawn from the market. Both PINNT and LITRE had discussions with Baxter to determine how this withdrawal would be managed. An assurance was given that patients would not have their 6060 pump withdrawn from them until healthcare professionals had identified a suitable replacement for the pump. Baxter have stated that they will continue full service of the pump along with providing the necessary ancillaries, but the new giving sets and re-designed rucksack will not be available for use. PINNT has subsequently issued a statement which appears on their website ([www.pinnt.co.uk](http://www.pinnt.co.uk)) and has promised to keep members updated with information about alternative pumps.

LITRE had previously held a meeting on 16<sup>th</sup> January which had presentations from representatives for the Ambix IVantage and the Hospira Gemstar. Smiths Medical was also invited to the meeting but did not respond to the invitation. A report was compiled regarding these two pumps and can be found on both the PINNT and the LITRE website. After this meeting the McKinley Bodyguard was proposed to LITRE as a possible replacement, and Smiths Medical also contacted LITRE, so it was felt that our May meeting should provide a forum for presentations from these two companies.

As with the January meeting, it was decided to co-opt interested parties in addition to the experts on the committee to ensure an effective panel.

LITRE wish to state that they fully appreciated that given the limited time allocated for presentations it would not be possible to fully evaluate individual pumps on full functionality, but it was hoped a better insight into the products would be gained.

One of LITRE's previous projects was to work with BIME (Bath Institute of Medical Engineering) to design and use a 'User Assessment Questionnaire for Enteral and Parenteral Feeding Pumps'. This formed the basis of the panel's thought process for the meeting, with additional aspects added to take into account aspects of pump use that had changed since the first questionnaire was designed. The following headings relate to those on the questionnaire.

### **Section 1 – General:**

***Appearance, weight, size, operating manual, moving about whilst pump is on stand, length of battery life, charging time for battery, total time to set up feed, carrying pack. Additional questions on this section: Is there an external power pack/battery, is there a dry cell battery support option?***

Bodyguard: this pump is compact and lightweight. The dimensions are 112mmx89mmx32mm (H/W/D), and the weight is 280 grams without the battery. There is an operating manual and laminated instruction cards. There is a rechargeable battery and a dry-cell battery option, as well as mains. Four hours are required to charge a fully depleted battery. The power pack is lightweight. The representative from McKinley said that any modifications that feedback provided would be used to modify the existing rucksack, and different sizes could be available.

CADD VIP: this pump is quite heavy. The dimensions are 4.4cmx10.4cmx14.1cm, and the weight is 568g including a 9-volt battery. There is an operating manual and instruction cards. There is an external power pack (which is relatively heavy) and a dry-cell battery option, as well as mains. Charging time for the power pack is 8 hours. The rucksack is a good design, with one size available.

## **Section 2 – Use of Pump:**

***Reliability, accuracy, noise of pump, lights on pump, vibration of pump, pump stability whilst in use:***

Given the nature of the presentations, none of the above aspects were fully investigated on either of the pumps, although noise, lights and accuracy were discussed. Accuracy is reported to be  $\pm 5\%$  for the Bodyguard and  $\pm 6\%$  nominal for the CADD.

***To set the rate and/or volume, to fill/prime set, to load the giving set into the pump, using pump whilst walking around, attaching pump to the drip stand, cleaning the pump:***

Bodyguard: There is a numeric keypad plus other specialised keys. The screen messages for programming the infusion are logical. The pump message window provides information including volume to be infused and the rate. The giving set cannot be primed by gravity as there is an integral anti-syphon valve in the set. There are sets available with 1.2 micron and 0.22 micron filters. The giving set spike has been altered according to MHRA guidance and is easy to use. The air-in-line sensor is ultrasonic and adjustable (0.1 – 1.0ml) air bubble size. Occlusion pressure is adjustable – high 10psi/normal 7.5psi/low 5psi. There is an upstream occlusion sensor. Loading the set into the pump involves a special 'key-part' which slots into the pump. There is a clamp to attach the pump to a dripstand.

CADD VIP: There is a keypad with nine keys, none of which are numeric. The screen messages for programming the infusion are logical. The giving set cannot be primed by gravity as there is an integral anti-syphon valve in the set. There are sets available with 1.2 micron and 0.22 micron filters. The relevant giving set was not available so the spike was not seen; however it appears to be acceptable from the illustration. The air-in-line detector will alarm when it senses a single air bubble greater than 100 microlitres (0.1 millilitres). There is an upstream occlusion sensor. The giving set has a cassette which is loaded into the pump with a coin-operated catch and a key-operated lock to prevent accidental removal. There is a clamp to attach the pump to a dripstand.

## **Section 3 – Display:**

***Is display panel clear to read, brightness of display, dimmer (if available)***

Bodyguard: The pump was quiet in operation and lights were not too bright. The display panel is easy to read.

CADD: The pump was quiet in operation and lights were not too bright. The display panel is easy to read.

## **Section 4 – Controls**

Bodyguard: Once an infusion has commenced it is possible to alter parameters if the relevant password is known. There are three security levels of access for users. It has an indicator to show the pump is running and the flow rate and volume remaining are displayed while the pump is running. The pump allows tapering up and down.

CADD VIP: Once an infusion has commenced it is possible to alter parameters if the pump is operating in a lock level which allows changes. There are three lock levels and an Auto-lock. There is no ON/OFF switch, so the battery must be removed to turn it off fully. The pump message window provides information including volume remaining. It is able to taper the infusion rate up and down.

**Section 5 – Alarms; Can you hear the alarms easily? Is the alarm volume adjustable? Can the alarm be silenced for a short period? If yes, if the period of silence long enough?**

Bodyguard: There are alarms for – end program; low battery; end battery; air-in-line; system malfunction (followed by error code); down occlusion; door open; pump unattended; lock mode and missing key (giving set loaded incorrectly). The alarm is loud and there is an option to change the volume.

CADD VIP: There are alarms for – low battery; depleted battery power; external power source low, faulty, depleted; pump stopped; pump faulty; upstream occlusion, air-in-line; air detector faulty or

detached; air detector port cover detached; delivery too slow, key stuck; cassette detached for unlocked. The alarm is loud and the volume cannot be adjusted.

### **Section 6 – Labels on Pump:**

#### ***Are there clear instructions on the pump?***

Both pumps have step by step guidance during the programming of the pump. Function buttons are clearly labelled but neither pump has any set up or error information on the actual pump, due to the size.

### **Section 7**

#### **Charging time:**

Information provided on both pumps indicated acceptable charging times – please refer to Section 1.

### **In conclusion**

It is not our place to put the pumps through the technical tests and therefore leave such matters to experts in this field.

People at home on PN have become familiar with a pump that answers the purpose for them and many will be reluctant to change; however there are some patients who have experienced problems with their previous pump and will welcome the change.

We recognise that despite the common factor of being fed parenterally there are still differences in the styles and preferences of centres. The inability to 'gravity prime' raises the issue of adaptation of aseptic technique to take this into consideration. With MHRA guidance stipulating an anti-syphon valve, there is no possibility of doing anything other than priming through the pump.

Both of these pumps are contenders for replacing the Baxter 6060. LITRE feels that patients should have the opportunity to choose which one they feel most comfortable with.

LITRE committee  
May 2006