

# Additional Tables from Purchasing Smart Infusion Systems

Insights From a [Human Factors Usability](#) Study

**Table 4. Results of NMH's Smart Pump Usability Study (User Comments)**

Vendor #1		Vendor #2	
Task	Comment	Task	Comments
1. Attach the infusion pump to the pole.	"Quick-release rotary clamp not intuitive"	1. Attach the infusion pump to the pole.	Several participants commented that the pump was heavier than our current pump, but not awkward.
2. Turn the pump on.	Several participants commented that the buttons were confusing because they had to switch back and forth between the LCD screen and the pump face.	2. Turn the pump on.	No comments
3. Program pump/start infusion (use mock order #1).	Several participants commented that the LCD touch screen was difficult to use.  Several participants commented that the drug library list was confusing and felt like it would be easy to pick the wrong drug.  "Very confusing when changing the VTBI because the dose is automatically changed"	3. Insert tubing.	Several commented that they felt this task was very easy.
4. Change the rate to 62.5mL/hour.	No comments	4. Select care area ("medical/surgical").	No comments
5. Program/start another infusion using the unused channel (use mock order #2).	No comments	5. Program pump/start infusion (use mock order #1).	Several participants commented that once they understood the function of the safety software, the pump was easy and intuitive to program.  One participant commented that the locations of the buttons was confusing.
6. Clamp the tubing to enable an alarm and respond to the alarm.	Several participants commented that they liked the alarm and the fact that the infusion restarts on its own when occlusion is eliminated.	6. Respond to alert and change the program to infuse over four hours.	Several participants commented that the alert gave clear feedback on how to proceed.
7. Report the volume infused for mock order #1.	No comments	7. Program/start another infusion using the unused channel (use mock order #2).	One participant commented that she did not like that the channels are next to each other.
8. Overall comments	Several nurses said they understood why the safety features were there, but would bypass them if they were in a hurry.	8. Clamp the tubing to enable an alarm and respond to the alarm.	Several participants commented that they thought the alarm was not audible enough, and that the pump did not alert the patient or nurse before the pump stopped pumping due to the occlusion.
		9. Report the volume infused for mock order #1.	No comments
		10. Overall comments	The SCN nurses loved this pump and felt it would be warmly welcomed in the nursery.  Several of the oncology and ICU nurses liked the modular system and felt it would save on real estate in the patient's room.  Several nurses said they understood why the safety features were there, but would bypass them if in a hurry.

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Insights From a [Human Factors Usability](#) Study

Table 3. Results of NMH's Smart Pump Usability Study (The bolded score represents the better usability.)			
	Question	Vendor #1	Vendor #2
1	It was easy to correct my mistakes.	2.5	<b>3.2</b>
2	There were too many error messages.	3.0	3.0
3	I found the pump programming unnecessarily complex.	3.1	<b>2.9</b>
4	I thought the information on the screen was easy to read.	3.6	<b>4.3</b>
5	I thought it was easy to confuse the pump program with the corresponding channel (when both channels are in use).	3.0	<b>2.7</b>
6	There is appropriate tactile feedback when programming a dose into the keypad.	1.5	<b>4.6</b>
7	I would imagine that most people would learn to use this infusion pump very quickly.	2.9	<b>3.5</b>
8	It was easy to bypass or ignore safety features such as the confirmation screen or dosing alerts.	4.1	<b>3.1</b>
9	I thought it was difficult to respond to the alarm.	<b>3.9</b>	3.6
10	I felt confident using this pump.	2.7	<b>3.4</b>
11	I would like to use this infusion pump frequently.	2.9	<b>3.5</b>