

Specifications and script for usability testing

7/7/04

*** Tracy always involved when working with anesthesia

*****video** only focuses on module and tubing upper chamber

*****audio recorder** on as soon as instructions begin

one usability testing **questionnaire** per staff person

always program basic infusions

Equipment/supplies:

One IV pole

Blue labels – four, labeled A-D and placed on respective modules [2 “generation three” (labeled A, D), 1 generation one (labeled C); 1 generation two (labeled B)]

Four tubing sets

Four normal saline bags – 500 ml

One programming module

Four pumping modules – 2 generation three, 1 generation two, 1 generation one (labeled as in “blue labels”, above)

Set-up

pumps at standing height

super-users – try to avoid looking at platen (standing on left side best)

Change tubing if it becomes kinked/stretched/broken/etc.

ruler – for measuring door gap

Usability Testing **Questionnaire** to be completed prior to beginning and again at end of testing when questions 5-12 are re-answered (as well as question #13)

Phase I
Scenario A (comparable to Alaris scenario 1)

General instructions

Thank you for being willing to participate in this usability testing. This is part of a joint effort between UWHC and CQPI (in the COE) funded by a federal grant assessing the Alaris pump implementation at UWHC. What we are about to do has been approved by the Health Sciences Human Subjects Committee. Please read this Information Sheet before proceeding. As it states, if you wish to withdraw now or at any time during this usability testing you may do so with no ramifications. There are four scenarios associated with this testing.

Do you have any questions, comments, etc. before you proceed?

Alaris has made a minor modification to the design of the Medley pumping modules. Today we are asking you to provide us feedback on your perceptions concerning various modules you will be testing over the next hour or so. At this time we ask that you complete this questionnaire based on your current experience with the Alaris pumps. Only answer questions 1 through 12 at this time.

Do you have any questions, comments, etc. at this time?

Throughout this testing we ask that you “speak aloud” as you interact with the pumps. By this we mean that you describe both what you are doing as well as what you are thinking. We’d like you to say whatever is on your mind.

Proceed

In the following scenarios we will be giving you instructions concerning module loading, and in the final scenario, allow you to interact with the pumps as you normally do. What we are testing in this and the next few scenarios, is the likelihood of misloading a pump and what the consequences of the misload are. In addition, we want to assess error messages and alarms provided by the system.

Do you have any questions, comments, etc. before you proceed?

Scenario A (Alaris #2) – top fitment extended above door

*Please set up a basic infusion while loading the tubing selecting the profile you normally use. Select a slow rate (100) and typical volume (100), using normal saline. Please load the tubing so the upper fitment is above its normal position, keeping the clamp open. **For each module please first load the tubing, then program the pump and press start.** Please remember to speak aloud, including stating any error message(s) you get. Once you close a module door, please allow us to measure the gap created at this point. We ask that you only perform this twice – once with module A and again with module C.*

Do you have any questions, comments, etc. before we proceed?

Module	Iteration	Mode (A vs N)	Result (nl, no, free-flow?)	Alarm?	Message?	Measurement	Comments

Scenario B (RN SUPERUSERS AND ANESTHESIA ONLY) Alaris scenario #3

In this scenario we ask you to do the following with each module. You will be using anesthesia mode and following bad practice – but please follow our instructions anyway. Each module will require two programmings (at least) – once with the tubing front loaded, once with it cocked back. When you front load the tubing you should have the top fitment slightly lower than it should be and therefore jammed in the door.

Iteration 1:

*turn the system on
select new patient
choose adult ICU mode
in options, go to anesthesia mode, enable it and press confirm
select the appropriate channel & then basic infusion
use 100 for both volume and rate
press start and immediately press pause
open door
load tubing (**bottom-up**) –front loaded
remain in PAUSE*

Iteration 2:

*turn the system on
select new patient
choose adult ICU mode
in options, go to anesthesia mode, enable it and press confirm
select the appropriate channel & then basic infusion
use 100 for both volume and rate
press start and immediately press pause
open door
load tubing (**bottom-up**) -- cocked back*

When utilizing this document please cite:

1. Carayon, P., Wetterneck, T.B., Hundt, A.S., Rough, S., & Schroeder, M. (2008). Continuous technology implementation in health care: The case of advanced IV infusion pump technology. *In Zink & Klaus (Eds.) Corporate Sustainability as a Challenge for Comprehensive Management.* (pp. 139-151). Springer Press: Dordrecht, The Netherlands.
2. Hundt, A. S., Carayon, P., Wetterneck, T. B., Love, T., Haack, B., Schroeder, M. & Enloe, M. (2005). Evaluating design changes of a smart IV pump. In Tartaglia, Bagnara, Bellandi, & Albolino, (Eds.). Proceedings of the International Healthcare Systems, Ergonomics, and Patient Safety (HEPS) Conference, Florence, Italy. Taylor & Francis: London.