

Usability, Acceptability and Perceived Barriers of a Jugular Venous Pressure Point-of-Care Device to Diagnose and Assess Heart Failure in Long Term and Primary Care

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Introduction

- Over 50,000 Canadians are diagnosed with Heart Failure (HF) every year, most of whom are over the age of 65 years
- Estimating Central Venous Pressure (CVP) by assessing jugular venous pressure (JVP) is important to determine volume status and possible HF
- Clinicians of varying levels of experience are not confident in their ability to measure JVP correctly
- The Mespere CVP 1000 is a non-invasive point-of-care device which provides a measure of CVP and its waveform (Figure 1)

Figure 1 - Mespere CVP System



Methods

- Descriptive, exploratory qualitative design
- We recruited 29 nurses and physicians from long term and primary care, segregating participants into 3 focus groups and 4 interviews by professional role. The sample included 13 registered practical nurses, 3 registered nurses, 3 nurse practitioners and 10 physicians.
- The procedure for the focus groups and interviews was separated into 4 components (Figure 2)

Figure 2 - Procedure



Results

Objective 1: To explore clinicians' perceived skill and confidence in assessing JVP

	Physicians		Nurses	
	LTC	Primary Care	LTC	Primary Care
	Current Assessment of JVP	3/4 physicians regularly assessed JVP	2/6 physicians regularly assessed JVP	1/10 nurses cited ever assessing JVP
Perceived Confidence in Assessment	"I try...I look at it...I make a comment about it but I'm never confident that's really that's going on"	"I have not checked JVP since residency and that was cause I had to...and even then I don't think it was accurate...you make it up"	"(Nurse) just graduated....she is the only one that knows. The rest of us have all forgot"	"I don't know if I feel so comfortable saying ya that's what is it and this is how I'm going to treat based on this number"
Skill in Assessing	"I guess I've gotten out of the habit of assessing JVP"	"it's just bounding and obvious...I can't say I actually give a measurement of the JVP (others agree) "	"Look at it if it's throbbing or not"	"So I'll look at the JVP but I don't need a number... if it's bounding... if it's elevated...I can tell it's elevated"

Objective 2: To explore the acceptability and perceived barriers to the use of the device

	Physicians		Nurses	
	LTC	Primary Care	LTC	Primary Care
Acceptability	"assuming I had confidence in the accuracy of the measurement, I think it would be a terrific additional piece of information"	"I can't imagine anybody using it" "Our chronic heart failure is managed very well here"	"I see it as pretty useful" "Treating heart failure early and better is good for both us and the resident"	"If I see it clinically that she has a bounding JVP, she is going to emerg regardless of the number that I get"
Perceived Barriers	"I would have concerns about whether the nurses are positioning the patients properly"	"It just takes some time, HF is not something you can diagnose within one session"	Behavior and Cooperation	"Nurses don't really have time to do that"

Results

Objective 3: To explore the usability of the device

	Physicians		Nurses	
	LTC	Primary Care	LTC	Primary Care
Usability	"I would feel pretty comfortable using it"	"I like that the trouble shooting is already built in so that it'll just tell you and follow the prompts, that might even be doctor proof"	"It has simple instructions which is always nice"	"I wouldn't feel comfortable doing it myself and verbally telling the doctor what I see. If he's in the room with me and I do it, that's fine" "It's user friendly"

Discussion

- Our study highlights the difficulties and lack of confidence in assessing the JVP in long term care and in primary care, consistent with previous literature.
- LTC clinicians were generally more favorably predisposed to considering the CVP device as clinically useful than were primary care clinicians.
- This may reflect differences between LTC and primary care with respect to:
 - perceived time constraints specific to each sector
 - perceptions of the role of the emergency department
- Our identification of perceived barriers and usability analysis helps to inform challenges to using technology in these settings

Conclusions

- The Mespere CVP 1000 system was perceived to have high acceptability, usability and minimal perceived barriers in long term care. Next steps include assessing the reliability and validity in this care setting.
- Greater understanding of primary care barriers to the use of the device, and of HF care in general, is required.