

SUPPLEMENTAL FILE:

DATA COLLECTION: TESTING FOR FEASIBILITY AND SOLICITING FEEDBACK

Setting:

e-PC101 was loaded onto 10 tablets for piloting in four facilities in the Eden district of the Western Cape. These clinics were selected on the basis of the following pre-defined criteria.

- Staff at these clinics had previously been trained and used one or more of the PACK predecessor guides (PALSA or PALSA PLUS) but had had no prior exposure to PC101
- Nurses' willingness to participate in interviews or focus groups conducted in English
- Location of clinics: two in rural towns and two in the Cape Town metropole.
- Clinics varying in terms of size and number of staff to represent the range of clinics in the Western Cape

Participants:

At each clinic, nurses were approached by the research coordinator and invited to participate as pilot users of a tablet based version of PC101. Those that volunteered provided consent as described below.

Ethical Considerations:

As this pilot was intended to support the technical development of the PACK programme, permission was obtained from the Provincial Government of the Western Cape (Department of Health) and all participants were provided with comprehensive written information about the purpose of the study. They were informed that the interview and focus groups would be recorded, but that data would not be analyzed individually and would be reported in a de-identified form, and that the findings would not be used in ways that might affect participants' employment or jeopardize their

professional career in any way. The voluntary nature of the research was emphasized in the consent forms, along with the fact that participants were free to withdraw at any time. The majority of participants were fluent in English, but versions in Afrikaans and Xhosa were offered. Participants were informed that the tablets needed to be returned at the end of the study. Although personal use of tablets was permitted, it was participants' responsibility to remove any personal information from the tablet prior to returning it.

Although the names of the interviewees and focus group participants were known to the interviewer and focus group facilitator, this information was not included in the transcripts and were not known to data analysts. Identifying information (including the name of the clinics) was not included in the report.

Data Collection

Interviews:

Interviews were used to determine the effectiveness of training e-PC101. Nurse clinicians were trained to use e-PC101 during two one-day workshops. Training was case-based, and focused on introducing the user to the device and e-PC101 programme and to navigate through the clinical, and to and from home.

Before training, nurses engaged in a semi-structured interview to collect demographic information, record previous exposure to electronic devices (e.g. tablets and smartphones), and ask about their confidence levels using electronic guides. After training, nurses completed a second follow-up interview to determine the clarity of the training, as well as initial impressions of the usability and feasibility of e-PC101. Six domains were examined: user ability to operate the tablet, ease of navigation of the digital guide; affinity for the device; ergonomic factors; impact of interactions with patients; feasibility of integration into practice; and safety. Interviews were audio-recorded and transcribed for analysis verbatim.

Focus Groups:

Qualitative data was obtained by a KTU member during focus groups with the nurse clinicians. Focus groups lead by a third party facilitator (PM) were conducted for each participating clinic. Pre-determined questions were asked and any additional topics of interest were explored. Focus groups were audio-recorded and transcribed for analysis verbatim.

Collecting Training Data (Semi-structured interviews)

Pre-training:

The baseline questions established that all participants (17 nurses) owned cellphones, 9 (53%) of whom had standard cellular devices, and 8 (47%) had smartphones. Only 1 nurse owned a tablet. The majority of nurses did not utilize their phones to assist with clinical consultations. For those who did, the usage was in a limited manner, such as using search engines to find information on specific diagnoses or using calculator applications. Participants were asked to describe their self-assessed level of competency with mobile technology on a scale of novice (“not comfortable”), basic (“I can help myself with what I need”), or advanced (“I like to play with other functions”). 3 users identified themselves as not being comfortable, 10 viewed themselves as basic, and 4 reported an advanced grasp of mobile technology.

Post-training:

After two days of training, there was convergence of the perspectives as all respondents felt comfortable using e-PC101. 16 of 17 nurses (94%) indicated that they felt “excited” after completing training. All participants felt that they learned new, clinically relevant skills during training. e-PC101 was perceived as a practical tool for clinicians in primary care facilities and all participants believed the digital tool would improve their workflow. All participants reported that they felt more competent with technology as a result of training, regardless of their baseline level of comfort with technology. 11 nurses (61%) felt ready to implement e-PC101 in practice without further training and 15 (89%) believed that e-PC101 could be implemented without barriers.

Respondents noted several concerns about e-PC101. Firstly, the amount of time and resources required to sufficiently train healthcare workers in tablet use and e-PC101 may be prohibitive to scaling. In addition, the comprehensive clinical encounters guided by e-PC101 may not always be feasible during busy clinic hours.

Collecting Implementation Data (Focus Groups)

Sixteen nurses across the four clinics participated in focus groups. The focus group facilitator engaged participants on three main themes: views on e-PC101, electronic guideline functionality, and suggestions for modifying features and procedures. Selected questions and responses from the focus groups can be found in Table 3.

Selected Focus Group Quotes

Theme	Question	Response
Views on e-PC101	How did it feel when you first got the tablet? How was it to use the tablet?	“It felt very professional to have an electronic device in your hand and to use it as a reference tool. Eye contact with the patient diminished a little bit in the beginning, but as it was with the book, once you have it in your head you don’t use it so much anymore”
	As you got more familiar with the tablet how did it feel?	“It felt comfortable and nice. And the patients were also excited! Patients would say – “You are upgrading now, so we’re not so behind anymore.” “You are going forward now!”
	How does this guideline differ from how you have been trained during your education/training?	“We could diagnose and prescribe after our training (on the paper version of PC101) in Stellenbosch, but this (electronic version) is more broad and treating more holistically. This is straight to the point to what we do every day. Previously we would refer more but now we can treat more ourselves.”
Electronic guideline functionality	In terms of the layout, what was more user friendly for you (book vs tablet)?	“It had the same layout as the book, it was fine, the e-version was easier to flip to sections. Screen size was not a problem. Zooming was fine if you want to enlarge the content on the screen. Worked comfortably with it.”

	<p>Did it impact on your workload?</p>	<p>“It went much better with the tablet. Just when you have a patient with 3 or more complaints. Then it gets more complex and time consuming. And then the guideline finds something else as well that you need to check.</p> <p>“We eliminated many back pains ourselves now; we could treat many patients ourselves now and do not need to refer them to the doctor all the time. Patients with back pain could now be treated with understanding.”</p>
<p>Suggestions for modifying features and procedures</p>	<p>“Were there any challenges that you have experienced?”</p>	<p>“You had to be more conscious about safety. In the beginning it was a problem to remember this. It is something that can disappear easily. You get used to cover it with pages on the table or I got used to a routine of locking it in my drawer.”</p> <p>“The device can easily be stolen like one of the patient’s cell phone was stolen yesterday when she was pre-occupied with her child for a moment. I also had an incident where my cell phone was stolen out of my jacket’s pocket when I stepped out for a minute. So to me security is an issue.”</p> <p>“It would have been better if it was locked up/fixd to desk. Safety/security was the main problem for me.”</p>
	<p>“Can you please explain how you worked with the tablet when you saw your first new patient.”</p>	<p>“Sometimes it felt a little bit longer on the tablet dealing with a new patient due to the lack of the back (return to last page) option.”</p> <p>“You get it all together. It is very nice, really nice, and you can see everything. With the book, you do it but you are sometimes lazy so you would just give something for stomach pain. With the tablet it is really quick.”</p>