AECOPD-Mob Clinical Decision-Making Tool. Part 2.

Hi everyone, and welcome to the second part of this two part episode regarding AECOPD-Mob. In the last episode I talked about the development of the AECOPD-Mob clinical decision-making tool, and you know as you recall this tool guides health care professionals who are mobilizing hospitalized patients with an acute exacerbation of COPD. I'll link to that episode in the show notes. In this episode, I'm going to focus on our recently published study about the implementation of the tool in acute care settings. The link to the paper will be added into the show notes as well.

As mentioned in the previous episode, the AECOPD-Mob tool was developed through a knowledge translation process by a team of experts in the field and was designed to help newly graduated physical therapists or clinicians who are new to caring for patients with AECOPDs in acute care settings. It provides guidance on how to mobilize them safely and effectively. Now, although it has been available since 2015, we know that simply publishing a paper about a clinical tool is not sufficient to actually getting it implemented in clinical practice. We need to support clinicians in how to use the tool in their care settings.

And so you really have to look at the feasibility and usability of a tool like this. And I'd like to say that testing feasibility and usability in a proposed instrument is always an important step when creating clinical tools. It's also important to consider different formats of a tool, you know including all the different types of technology-based formats, to understand which one best applies in the context for which it was created. And in the case of the AECOPD-Mob, that's an acute care hospital setting. Therefore, determining the feasibility and usability of the tool was a key goal of our team and it's the main purpose of the study that I will talk about in this episode.

So, we created a study to be conducted in five hospitals in Metro Vancouver, Canada. And we used a mixed-methods, convergent parallel design. So, what does that mean? It means that we collected and analyzed both qualitative using focus groups and quantitative data using questionnaires and other types of metrics and we looked at them together to determine the tool's usability and feasibility. And that kind of design was selected instead of conducting a randomized clinical trial design, because comparing different formats and identifying a single format that was "best" would not reflect the context in which PTs and other healthcare professionals synthesize information from different sources as part of clinical decision-making.

We invited newly graduated PTs (within 3 years of clinical practice since graduation) or PTs new to the AECOPD practice area to participate in the study. They needed to have provided physical therapy treatment to a minimum of 5 inpatients with an AECOPD within the previous month and were currently working at least 2 days per week on an acute care ward. They were also required to own a compatible smartphone and have access to the Internet.

Now as you may recall, the original format of the tool was a 4 page, paper document. However, paper-based clinical tools may not be the most feasible way of accessing the information in an acute care setting. So we created other 'formats' of the tool in addition to the original paper tool. We also had a web-based learning module; a smartphone application; and a didactic in-person in-service session. And so, let me just talk about the each one of these formats in more detail.

The AECOPD-Mob interactive web-based learning module was hosted on a secure Learning Management System and consisted of a series of short modules that the clinician would work through. These included five 2-to-3-minute video case-based scenarios, and there was also textual information in multiple pages on the Management System, and two multiple-choice quizzes to deliver the content and to test the participants' knowledge.

The smartphone application, also called "AECOPD-Mob App", was developed in partnership with a medical app company called QxMD, who are based in Vancouver, Canada. This app included screening questions to aid in decision-making, and it also had the added feature of having photographs of exercises that are described in the tool.

Finally, because much of PT learning and much of the healthcare professional hospital setting happens in group learning sessions, we created a 1-hour, face-to-face in-service lecture which was delivered by a clinical specialist PT. This in-service included an overview of AECOPD and guidance on how to use the AECOPD-Mob tool using case scenarios, and also participants were able to ask questions of the clinical specialist regarding different situations or concerns they had. So altogether, 4 formats of the AECOPD-Mob tool were assessed.

Now, all of these recruited participants were asked to attend a 1-hour standardized session to complete questionnaires, activate the app, access the learning module and understand how to navigate that, and schedule their attendance at the in-service. They were asked to also complete the learning module during the next three weeks, when convenient, and to use any of the formats while caring for their patients hospitalized with an AECOPD. Participants were invited to return to a focus group session 3 weeks later and then 3 months later, you know, after the orientation session.

And then, we collected data at 3 different time points:

At baseline, each participant completed an adapted version of the Jette Evidence-Based Practice Questionnaire, and that's a questionnaire designed to ask questions about PT evidence-based practice. And we were especially interested the personal use and understanding of clinical practice guidelines, as well as the barriers to the use of evidence-based practice, and general demographic and practice information.

At 3 weeks after the orientation session, each participant also completed the Post-Study System Usability Questionnaire, and that is a validated tool that was used to examine the learning module's and the smartphone app's usefulness, information quality, and interface, how it actually looked and was easy to use.

At 3 weeks and 3 months after the orientation session, each participant attended a focus group led by one of the coauthors, and in that focus group we could really dig down and ask for participants' views regarding the different formats of AECOPD-Mob, as well as suggestions for their improvement.

Throughout the study, we also collected data on how many times the learning module was accessed, how long people spent in that system if they completed all the quizzes and watched all the videos.

I will now go thought the main findings of this research with you:

Seventeen PTs participated in the study, and they were all female. 94% had graduated from their entry-level professional training within the last 3 years. The others were not new to physio but were new to the AECOPD practice area. Only 18% of participants said they were "extremely confident" in mobilizing hospitalized patients with AECOPD. For the majority of the participants, formal practice guidelines for mobilization of these hospitalized patients with AECOPD were either not available or they were not aware of them. And the top barrier for implementing up-to-date evidence in clinical care was "insufficient time", followed by "lack of generalizability of the literature findings to their patient population," and "inability to apply research findings to individual patients with unique characteristics". And if you're in clinical practice these probably sound very familiar to you as well.

The Post-Study System Usability Questionnaire indicated that the participants were actually quite satisfied with both the web-based learning module and the Smart Phone apps, and that they would use it in the future. But when we actually started asking questions in the focus groups, that actually showed that although participants certainly considered AECOPD-Mob a useful tool in PT clinical practice and were open to different formats of information, it was actually the paper version was seen as the most useful format.

Now, why was paper preferred? Well, there were a few reasons. There's a lot of information in those 4 pages, and clinicians could find what they wanted quite easily when using the paper version. They also found that information regarding mobilization for AECOPD was easy to share with that paper in hand – it facilitated conversations about safety and efficacy for mobilization, especially in instances where other members of the health care team were maybe concerned about mobilization out of an abundance of caution. Here's a quote from one participant, she said:

> *I find on the ward the nurse says, "he's a little bit short of breath, maybe just keep him in bed," but (with the AECOPD-Mob paper) you have something solid to show them, "actually according to this he should be out of bed." I think (the nurses) are more receptive to that.*

You know, when they see the actual evidence and the details in that tool. And this is something we know from other research in critical care, having a physiotherapist on the team increases mobilization sessions in a unit. So having the paper in hand helped those conversations. Now, some participants were concerned about the smart phone app because of infection control with using their smartphone at the bedside. And although smartphones are used extensively by other health care professionals in acute care, especially by medicine, in physiotherapy that doesn't seem to be the case, at least in these hospitals. Some of the quotes were:

> *I would say the professional appearance of bringing your phone out at work is not a great look in front of your colleagues or in front of your patients.*

Now, another comment was:

> *(Using the app) makes the patient feels like you're not connected to what you're doing with them, that you're playing on your phone, you're doing something else.*

So, the app in clinical care settings was not that popular. The participants were quite receptive to other format other than the paper one, and they felt that the learning module and the in-service worked well together as an orientation to mobilization in patients with AECOPD, but wouldn't be their preferred format as an ongoing support. And, although the majority of participants intended to use the app and the learning module again, the findings from the 3-month follow-up suggested that the paper tool continued to be the preferred format and most participants did not use the app again. And those who did used it only to view the exercise pictures and they suggested creating a patient handout with pictures of exercises, similar to the ones in the app would facilitate the discharge.

And I should note some limitations to this study:

All of our recruited participants were from hospitals that were already using the AECOPD-Mob paper tool or were already aware of it. And they had support from PT leadership to use the document clinically. And so, that may have influenced their responses. You know, it is well known that implementing any new evidence or any new tool in a clinical setting is certainly facilitated by having support from clinical leadership in the setting.

There were some negative feedback regarding the design and how the therapist navigated through the different parts of the app, so it might be that it wasn't that apps in general are a problem, but that there were certain features of the app would need to be re-designed to improve its use at the bedside. But, the comment about the issue of professionalism and smartphone use will not be solved obviously by a better app design. So, there does need to be changes in that institutional culture about how phone use is perceived by different healthcare professionals. And that might be required in order to enable the use of technology-based formats supporting health care.

We also used our own LMS of our institution for the web-based learning module, which had very specific features that might not be present in other systems. So, the generalizability of the comments related to our learning modules may be quite limited. Nevertheless, the lessons learned from the design and use of these technology-based formats would inform future studies that aim to translate knowledge via technology.

And although we recruited a large proportion of the available cohort of newly graduated PTs, the number was quite small, and the perspectives of our participants may not be shared with other PTs in other settings.

Despite these limitations, newly graduated physical therapists in this study confirmed the clinical utility and value of AECOPD-Mob tool to support their care of hospitalized patients with AECOPD. And although these PTs were receptive to the introduction of technology to facilitate knowledge translation, the paper format of

the tool was strongly preferred as it aided communication, was the most feasible to use in clinical practice, and was seen as more professional and accessible than other formats.

And these findings are important to researchers and educators who are making decisions regarding the format of knowledge translation tools in their clinical area and can enable future research to explore how these tools could be implemented in other health disciplines. What makes this topic relevant for pulmonary rehab and all areas of health, is of course understanding that the transfer of knowledge into practice is not achieved by just publishing a paper! You need to carefully plan an implementation strategy. And in this sense, both researchers and health care professionals in clinical practice should work together and in collaboration to seek the support the application of evidence-based practice into the clinical setting. And we need to remember this when we think about all aspects of pulmonary rehab – from the acute care setting where AECOPD-Mob tool is used, to our outpatient, community, telerehab, home-based rehab settings. It's important for researchers to understand how clinicians access, adapt, and implement new knowledge into those care settings, and think beyond putting out another publication!

So I invite you to access the AECOPD-Mob clinical decision-making tool, and that's available on my website – I'll put the link again in the show notes.

Feel free to share it, it's completely open to sharing and perhaps you'll find it helpful if you're working in an acute care setting yourself.

I hope you enjoyed hearing about the development and implementation of the AECOPD-Mob tool. Thank you so much for listening to this episode and until next time -- stay well and keep moving 😊 Bye for now!