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Reflective Medical Education.*RME*

A voice enabled point of care Clinical search engine & Clinical question capturing platform for evidence based medicine

A pilot study

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Road Map

- ✓ *Research hypothesis*
- ✓ *Background*
- ✓ *Objectives*
- ✓ *Study Design/Methods*
- ✓ *Results & Discussion*
- ✓ *Conclusion*

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Research Hypothesis

- *A voice-enabled Clinical search engine with point of care queries capturing tool to provide,fast,and efficient clinical information search as well as to promote reflective learning.*

Background

Healthcare professionals have patient related questions [1]

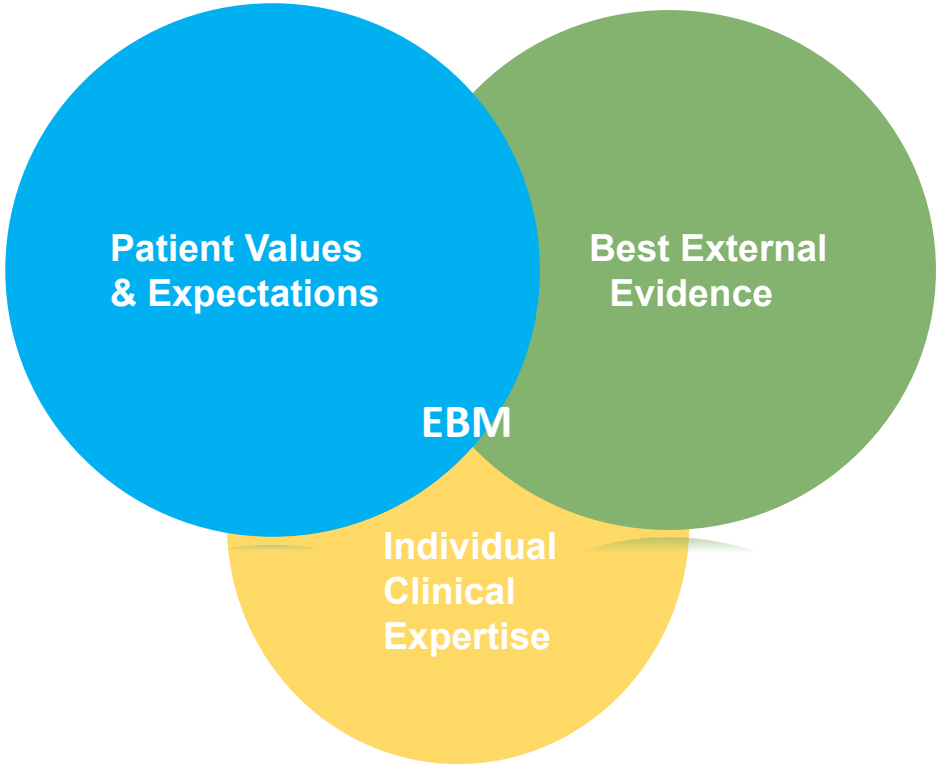
- *For every 2 patients, Clinicians have more than 1 question* [2]
- *Lack of time (2-3 min/question) is the main barrier.* [2]

Just in time answers to clinical question arising at point of care is an unmet need for effective Adult learning for Clinicians [3]

1. Ostropolets A JAMIA Open. 2020 2. Del Fiol G et al JAMA Intern Med. 2014 3. Green ML et al Am J Med 2000.

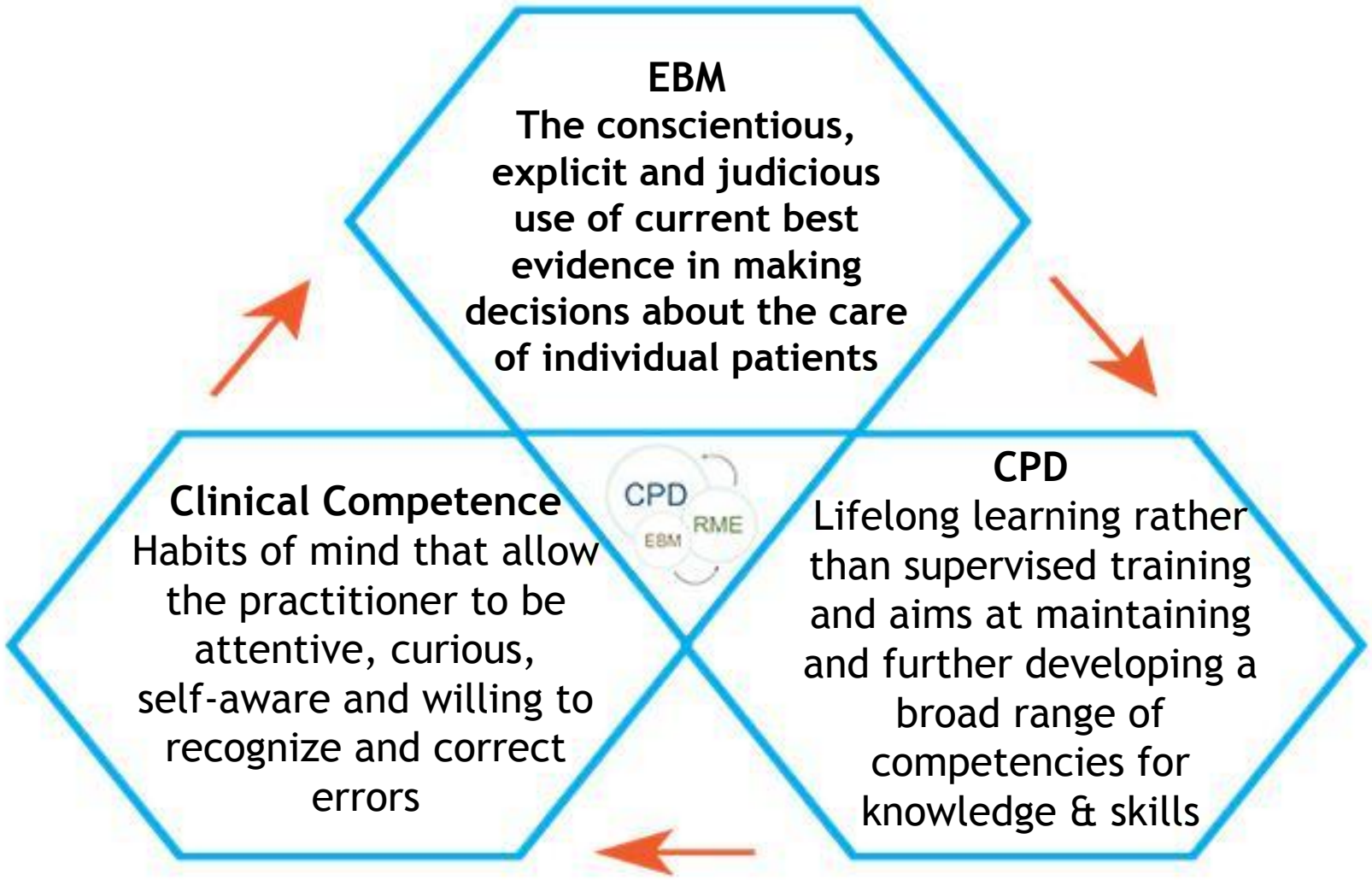
Evidence based vs Experience based?

Individual Clinical Expertise



EBM Triad

POC > EBM>Clinical competence> RME> CPD



Aims / Objectives

- ***1. Voice enabled efficient search engine for busy Clinicians***
  - *Develop a point of care,voice enabled clinical search engine*
  - *To create a precise and concise point of care clinician information source base*
- ***2.Point of care capturing tool for lifelong reflective learning***
  - *Develop a point of care clinical questions capturing tool*
  - *Develop a framework for a personalized decision support system for clinicians*

Participants and Setting:

Medical students: DIMC, Karachi, Pakistan

Sample size: (N=20)

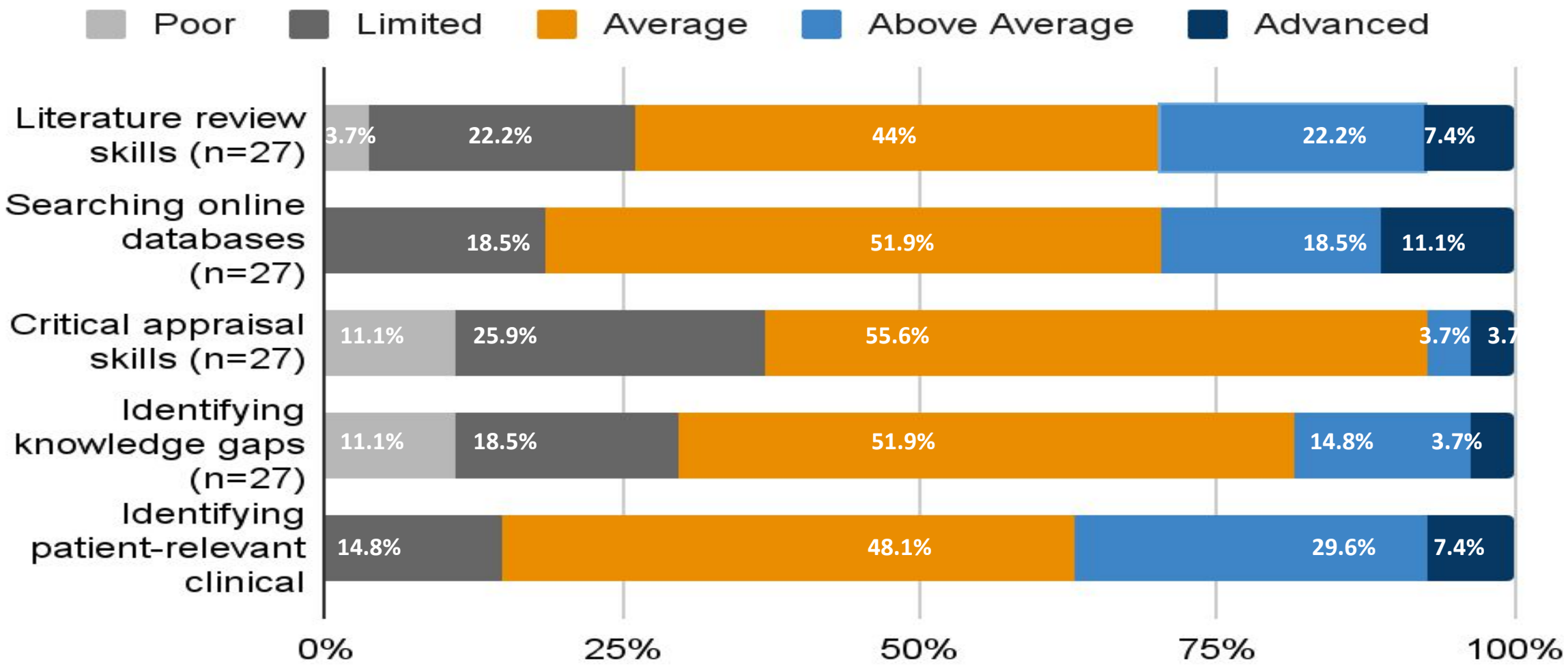
Study Design

A Mixed Method Study

- Useability testing of a point of care, clinical search engine and Clinical query capturing tool for Clinicians

- Pre- and Post- test feedback about useability testing of app in efficient voice enabled search & clinical questions at point of care

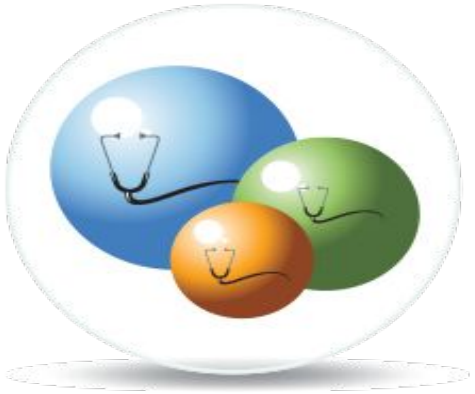
Pre Course Survey - EBM SKills



Study Instrument

Clinical Pearl

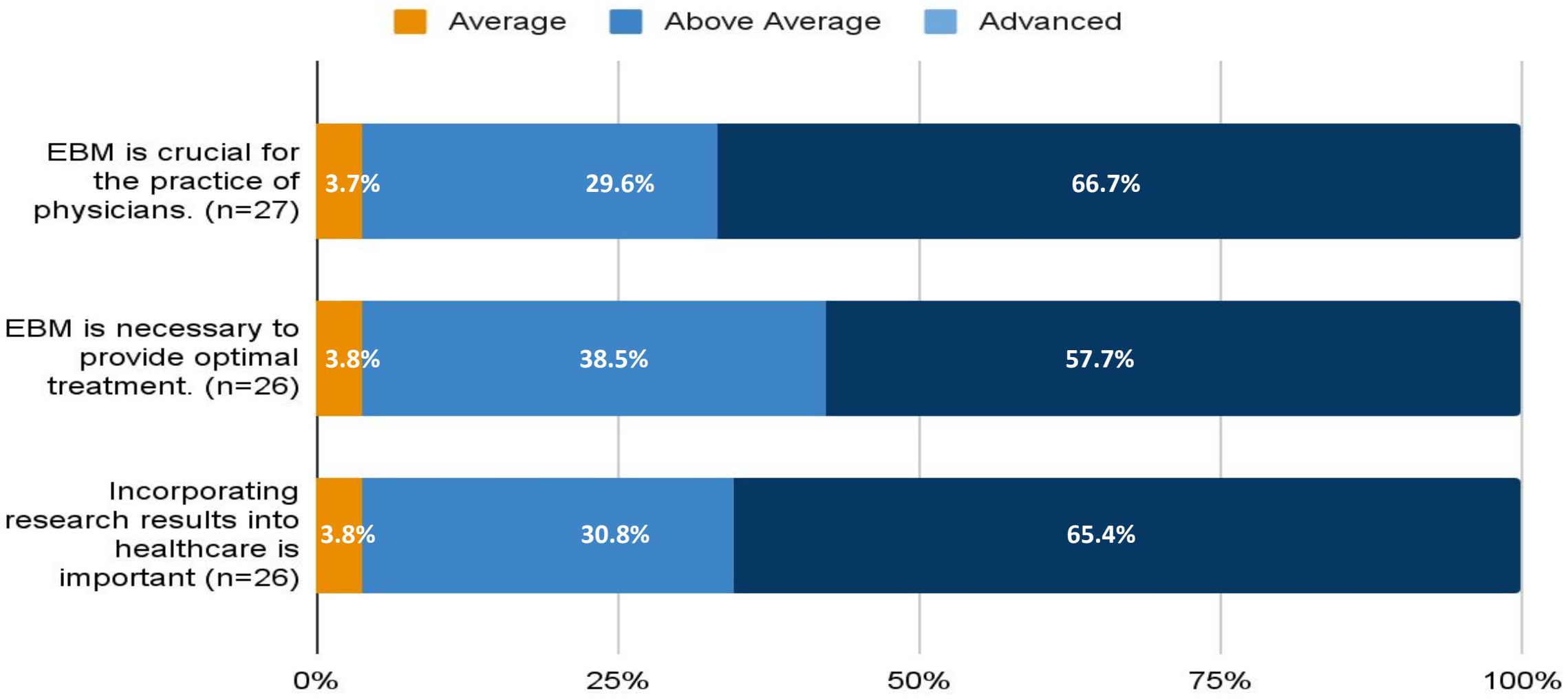
- Clinical query-guided search engine
- Clinical query capturing tool
- Clinical knowledge repository
- Customized knowledge base
- Built in editorial flow
- Authentic knowledge based database



Study Procedure:

- Set up student user portals on Clinical Pearl
- Provide Application useability Clinical Pearl app training
- Randomly assign topics for searching and query development
- Collect and analyze user data with pre/post survey for application useability feedback.

Pre Course Survey - EBM Attitudes



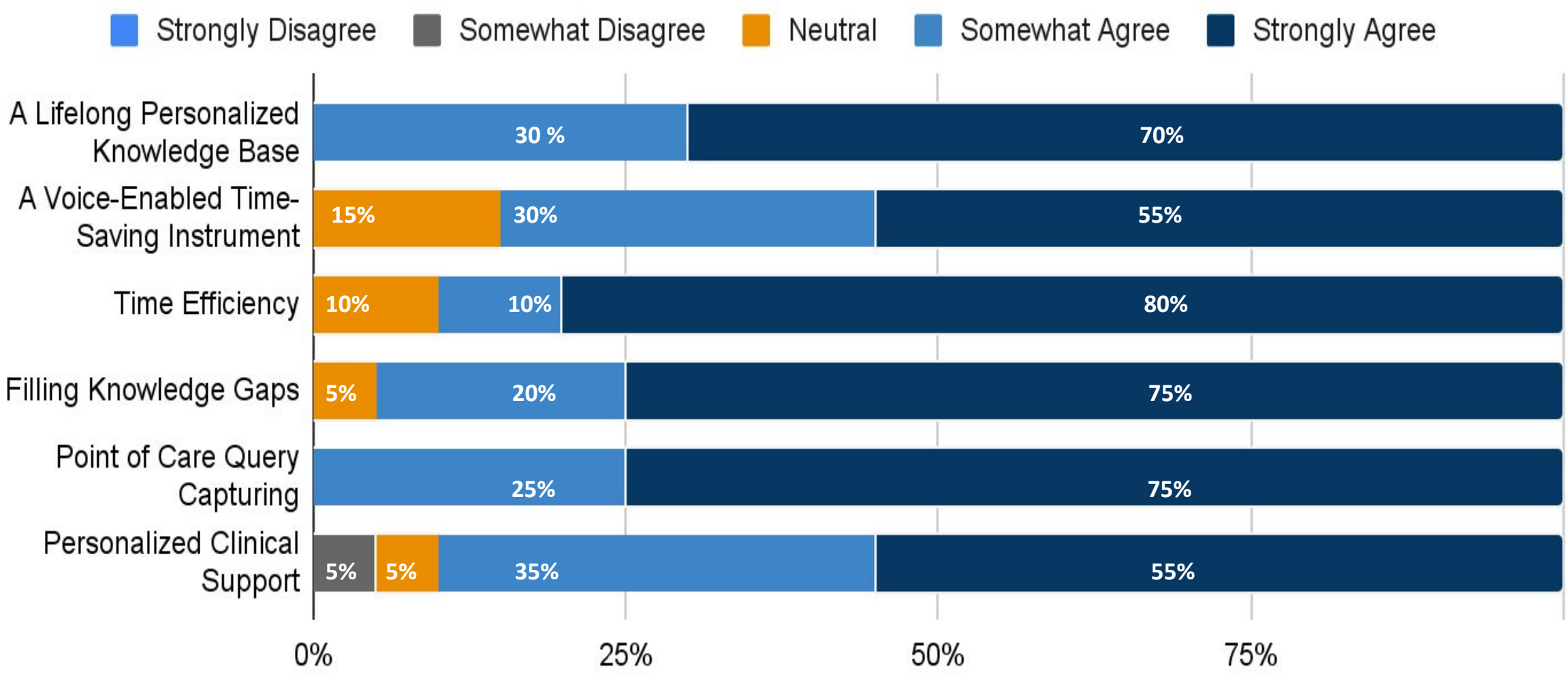
Data Analysis of Post-Pilot Survey (N=20)

Evaluation Item:	Strongly Disagree	Somewhat Disagree	Neutral	Somewh at Agree	Strongly Agree
Clinical pearl app is an innovative idea for life-long personalized clinical expertise and professional development:	0	0	0	6(30%)	14(70%)
The voice enabled features on the app will save time at point of care i.e when dealing with patients:	0	0	3(15%)	6(30%)	11(55%)
I believe the clinical pearl app is a more time efficient way to look up information compared to traditional methods e.g textbooks:	0	0	2(10%)	2(10%)	16(80%)

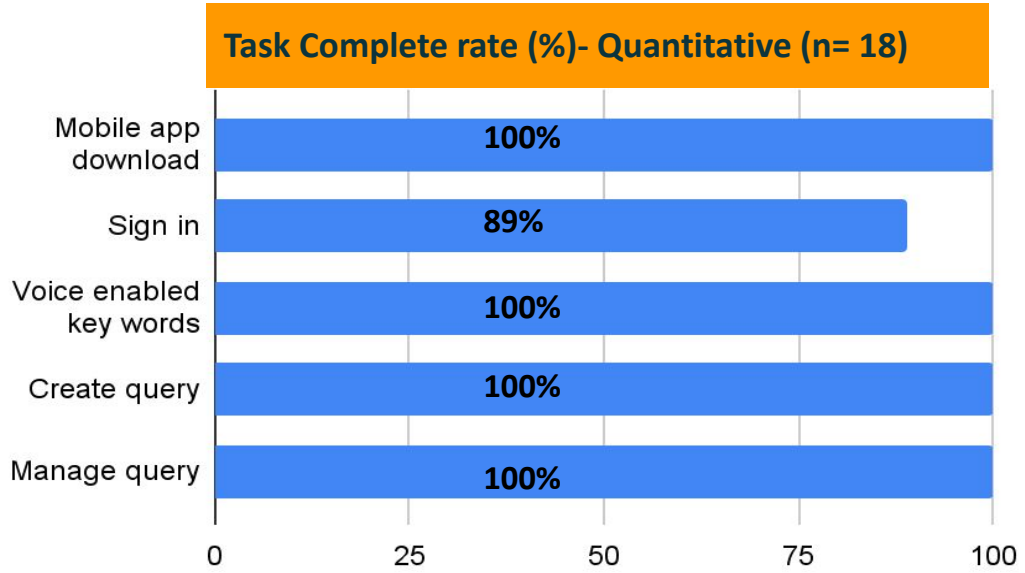
Post course Survey results

Evaluation Item:	Strongly Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Strongly Agree	M	SD
Clinical Pearl app will help me to capture point of care questions for continuing medical education:	**0**	**0**	**0**	**5(25%)**	**15(75%)**		
I believe the Clinical Pearl app can serve my personalized living Clinical decision support system:	**0**	**1(5%)**	**1(5%)**	**7(35%)**	**11(55%)**		
What new feature(s) would you like to see for the Clinical Pearl application?	• Diagnostic lab camera scanner • Links to source material • Discussion forum • More flexible search suggestions • Quicker loading • Medication tracking						

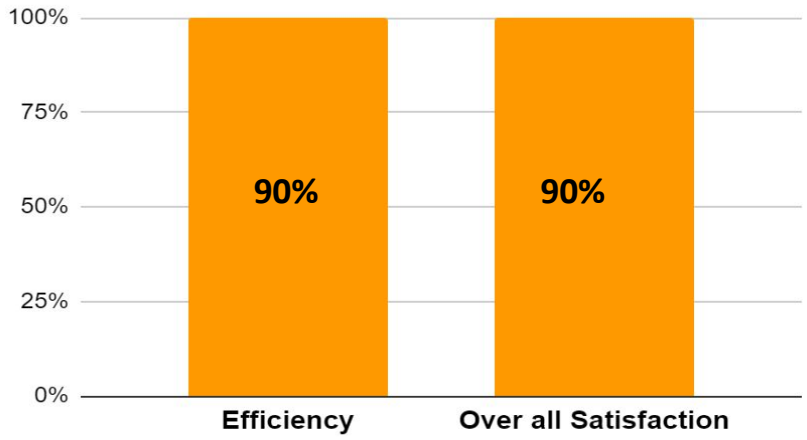
Post Course Survey - Summary Results



Clinical Pearl Usability Testing Results

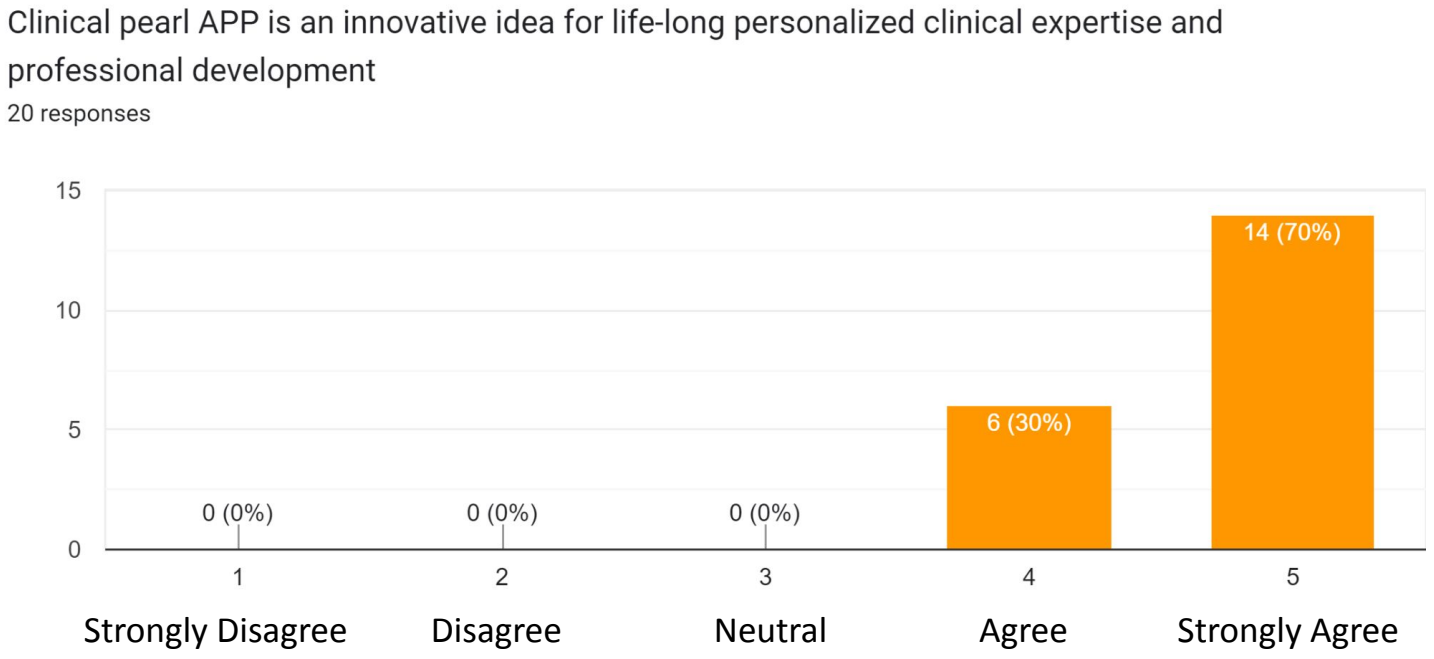


Qualitative	
Failure cause/rate	5%
Erros description	Log in, Search not found,
Top comments	It took me **minutes to complete my assigned tasks**. All the keywords and information is a search away.
	My experience with clinical profile was excellent **I am 100% satisfied**
	The application was generally useful and provided **concise information on certain topics**



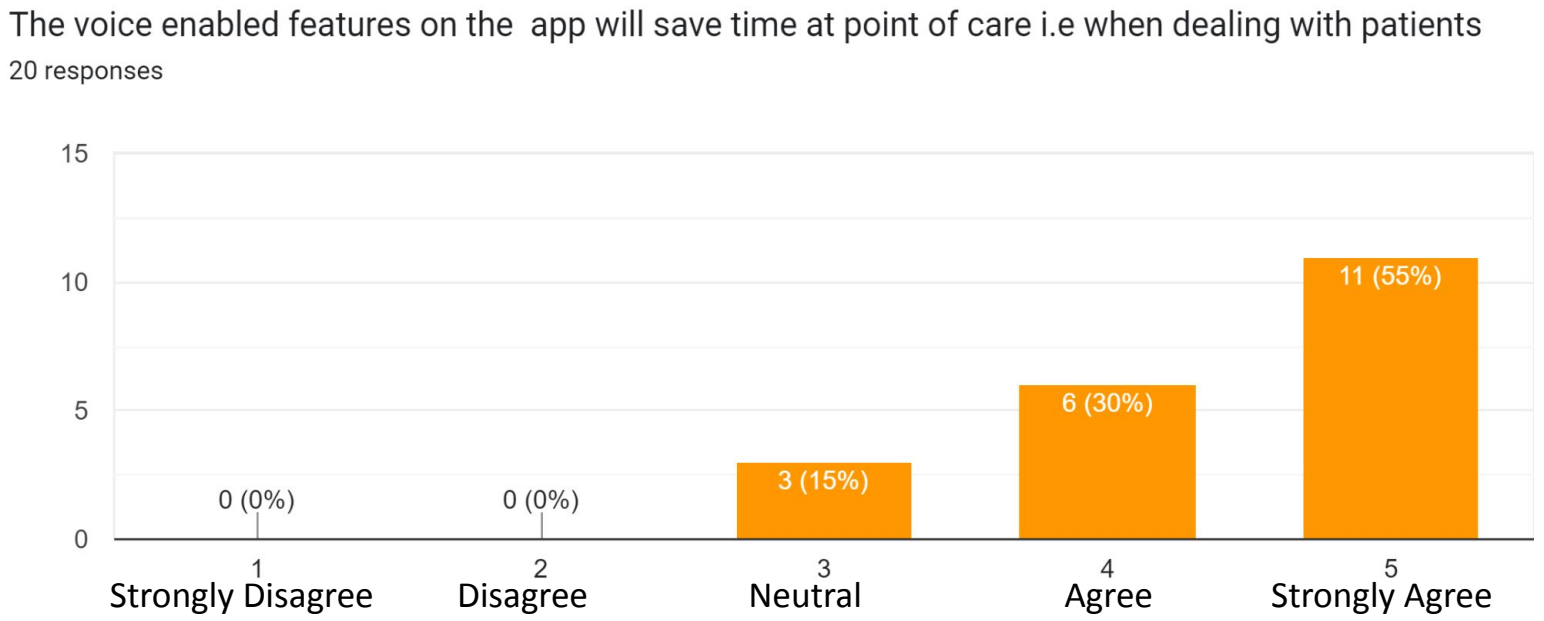
Clinical Pearl: A Lifelong Personalized Knowledge Base

- 100% agree that this app is an innovative idea for life-long personalized clinical expertise and professional development



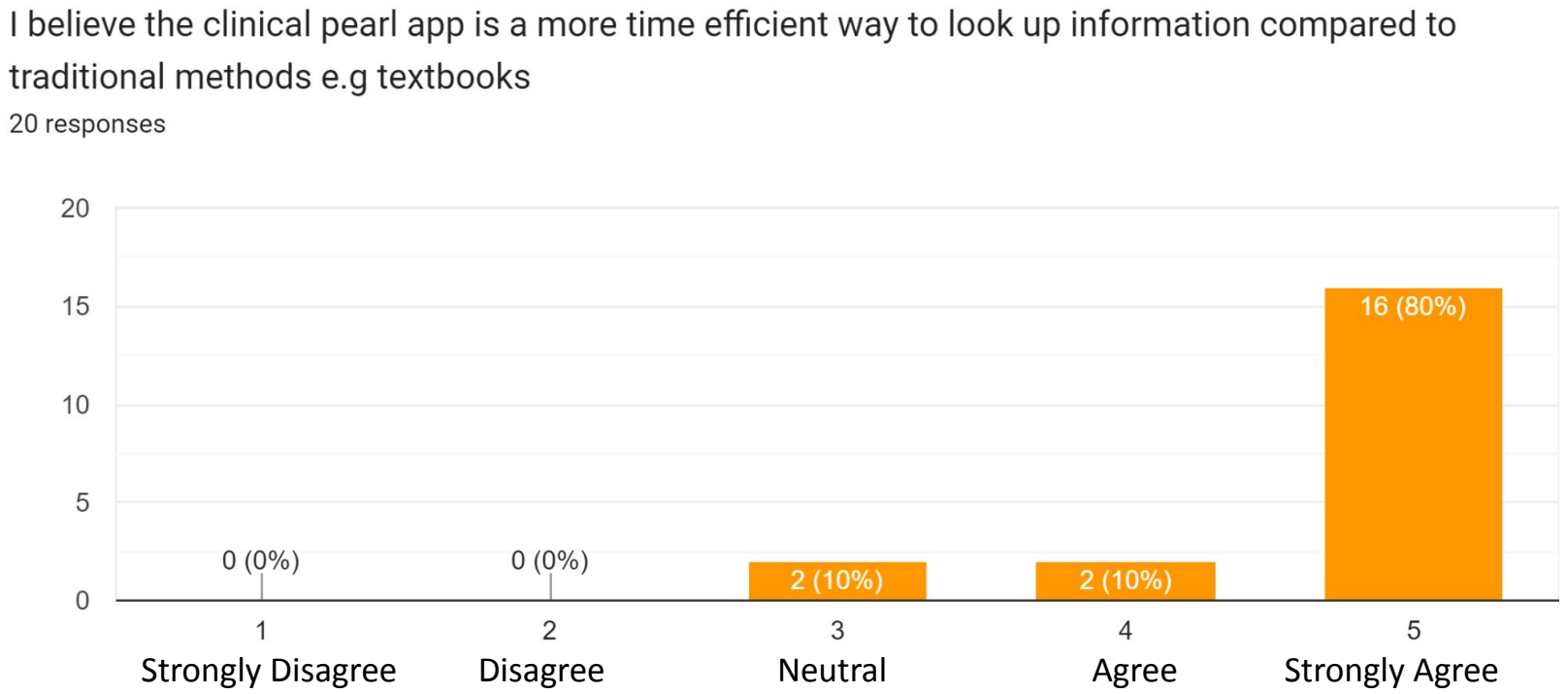
Clinical Pearl: A Voice-Enabled Time-Saving Instrument

- 90% agree that the app's voice-enabled features will save time when dealing with patients.



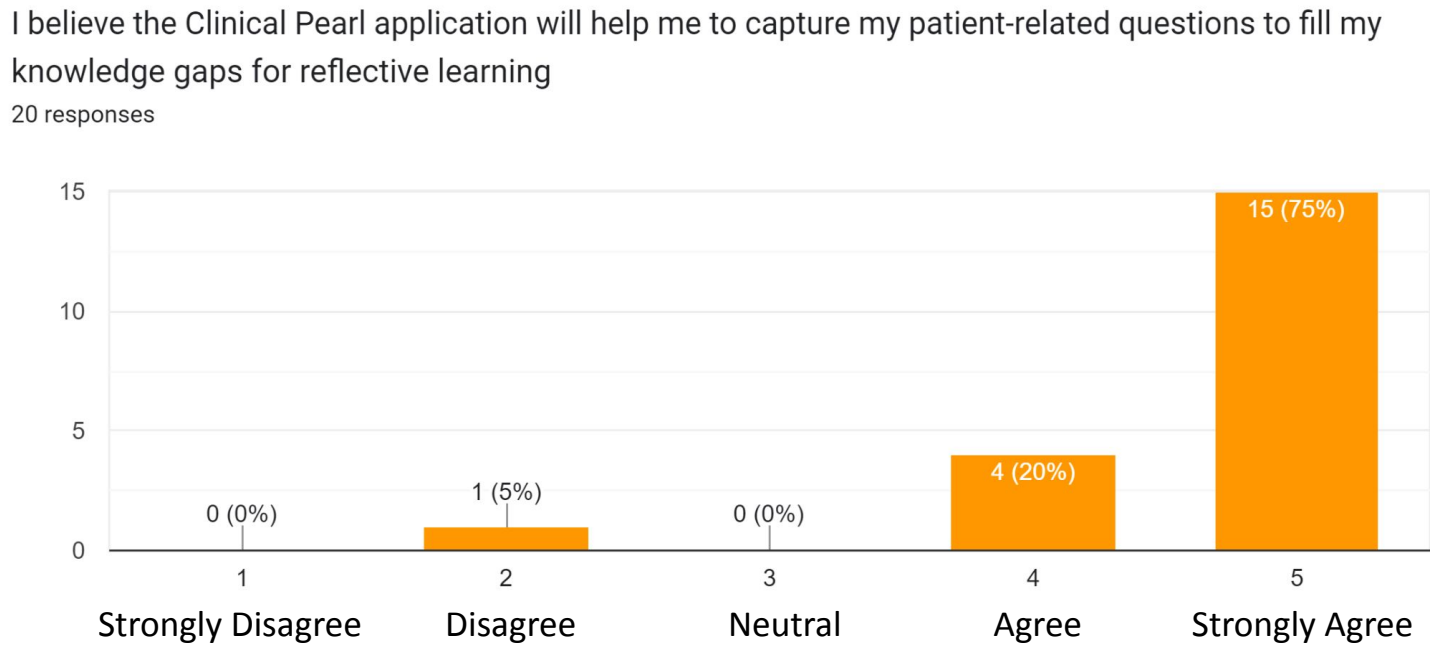
Clinical Pearl: Time Efficiency

- 90% agree it is a more time-efficient way to look up information compared to traditional methods.



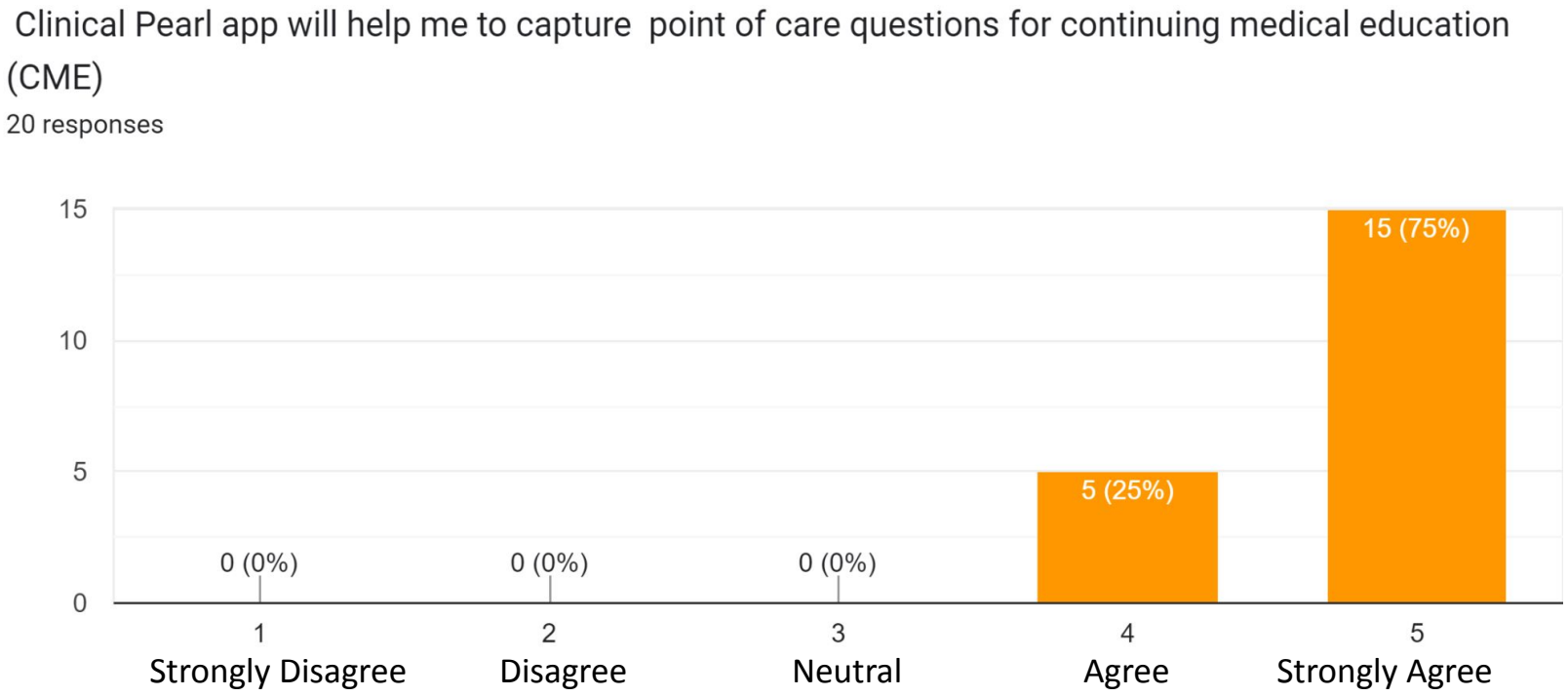
Clinical Pearl: Filling Knowledge Gaps

- 90% believe this will help to capture patient-related questions to fill knowledge gaps for reflective learning.



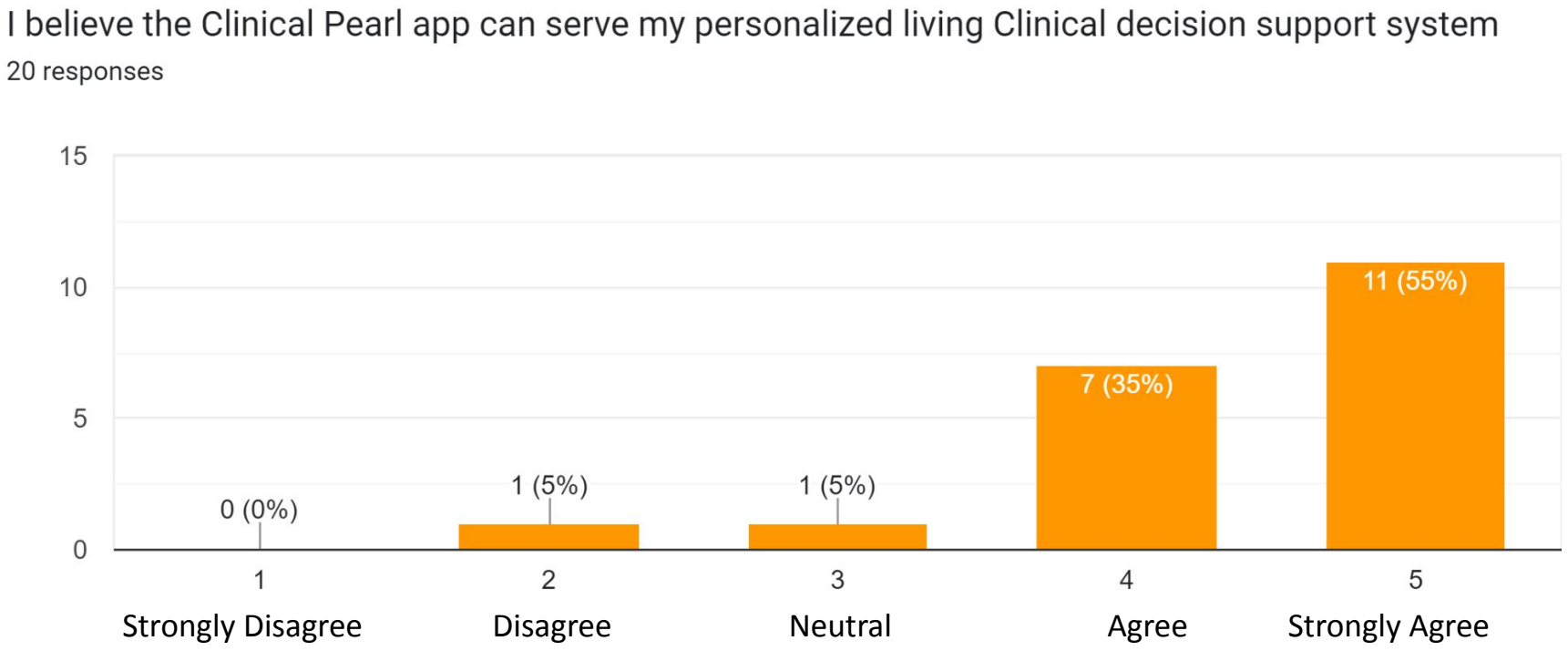
Clinical Pearl: Point of Care Query Capturing

- 100% believe the app will help to capture point of care questions for continuing medical education (CME)

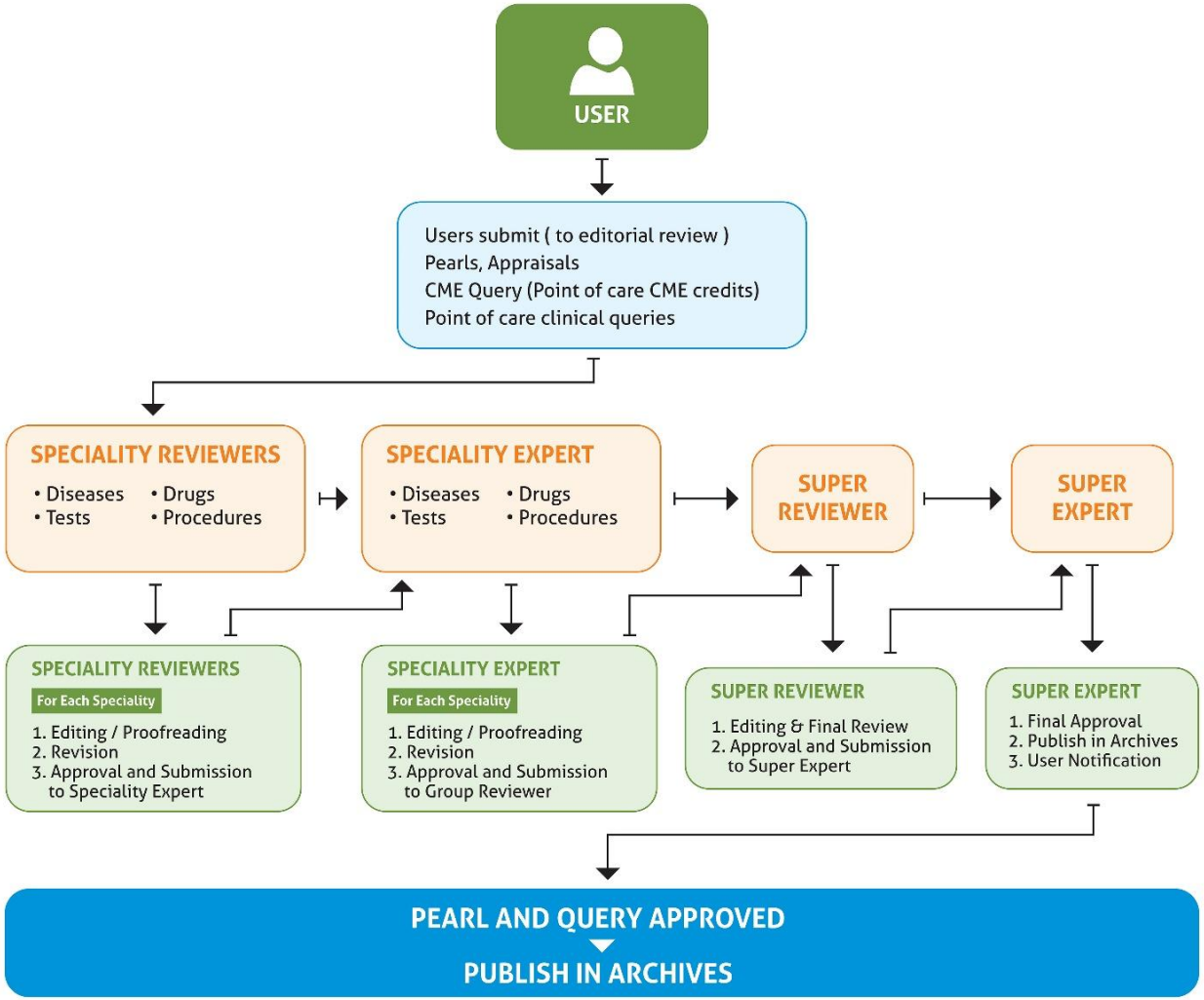


Clinical Pearl: Personalized Clinical Support

- 90% agree that the app can serve their personalized living clinical decision support system



Editorial workflow



Conclusions

- Successful implementation of a personalised voice-based, clinical search engine and question capturing tool
- Pilot users were highly satisfied that the app may serve as a lifelong knowledge repository for self-directed learning
- Clinical Pearl app may help to organize the most important commodity of physicians own; **Clinical Experience**

Further Work

- Role of clinical pearl in providing granular insights about clinician's daily clinical knowledge needs
- All healthcare professionals (PA, NP, nurses, physical therapists, pharmacists and dentists)
- Role of clinical pearl in providing granular insights about clinician's daily clinical knowledge needs
- Impact of clinical pearl in enhancing self-directed learning activities and professional competence.
- Infobutton integration with EHR to poc access to Clinical Pearl to clinicians

Limitations

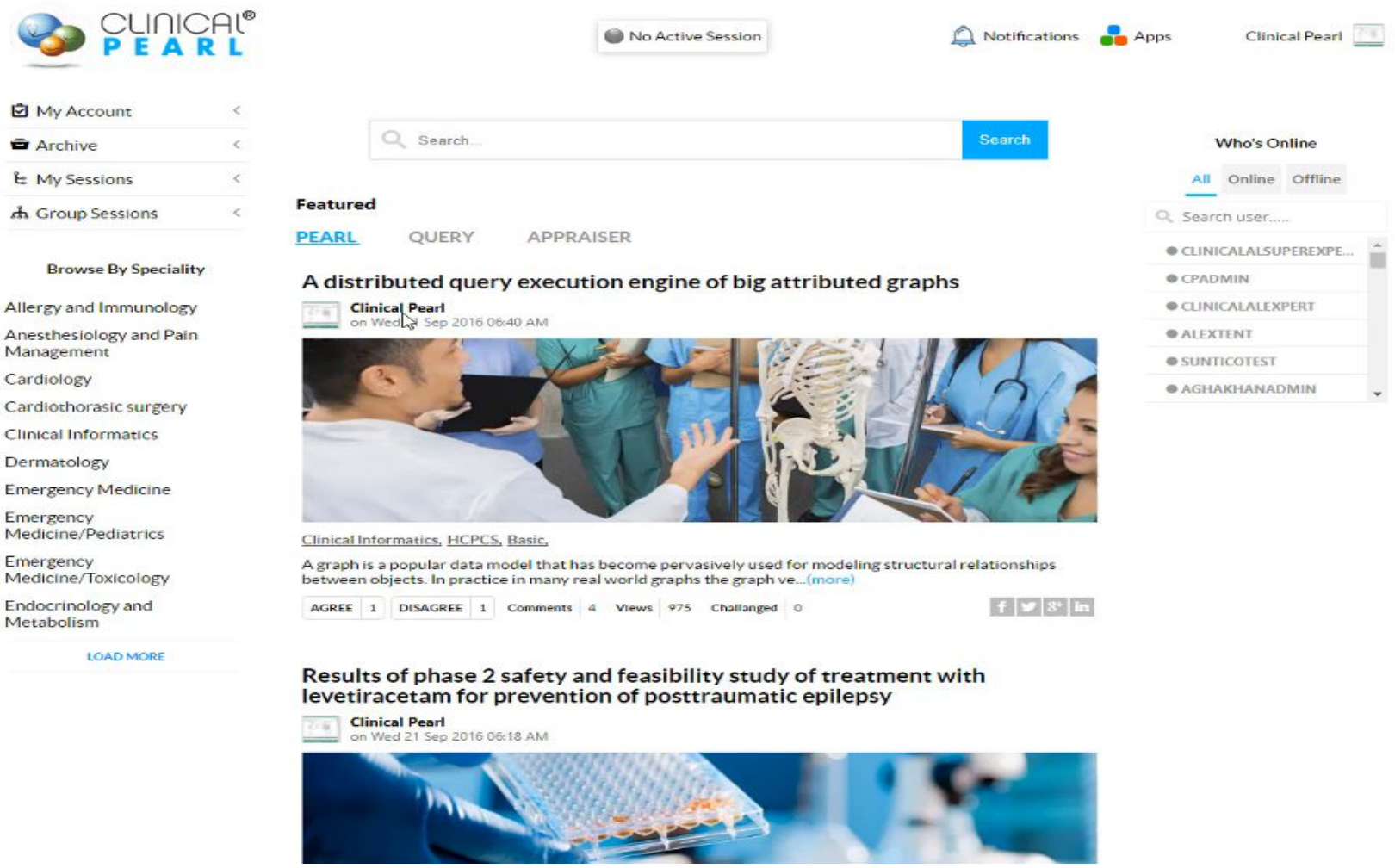
- ✓ Limited user group
- ✓ Lack of proper funding (Private venture)
- ✓ Cost & time for large sample size management
- ✓ Application stability and scalability
- ✓ Lack of formal Software application training environment
- ✓ Users that were not computer savvy might have been discouraged

Application Demo

If picture speaks a thousand words then,

Web App attracts a million downloads

Application Demo



Thank you

Any Questions?

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