Title: Developing A Clinical Evidence Retrieval Service In Response To The COVID-19 Pandemic

Article type: Experience

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About the author: Wei Zhuen Chew is a junior doctor with a strong interest in incorporating evidence-based medicine for patient care. As part of the founding team of this multidisciplinary team service, which has received acknowledgement from the International Federation of Library Associations and Institutions, he was a finalist in the free communication session at the Asia Pacific Medical Education Conference (APMEC) 2022 and has had the opportunity to present this piece of work in APMEC 2022.

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Acknowledgment: CERS would like to thank the librarian team for their continual efforts in ensuring that the service is furnished with the appropriate literature. The role of the different clinicians in providing the necessary clinical questions to run the process is also much appreciated. Special thanks are due to Chrislyn Pereira for proofreading the manuscript.

Financing: No funding body for this project.

Conflict of interest statement by authors: All authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript

Compliance with ethical standards: All data utilised was anonymized for collection and did not involve human subjects.

Authors' Contribution Statement: All authors contributed equally to the design, conception, writing and editing of this manuscript.

Manuscript word count: 998
Abstract word count: 242
Number of Figures and Tables: 4

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Discussion Points:

- How can #medicalstudents address pressing health issues while filling a gap in their education? Learn from our experience with our Clinical Evidence Retrieval Service (CERS) set up during the height of the #COVID19 pandemic!

Dates
Submission: 11/24/2022
Revisions: 01/25/2023, 02/16/2023
Responses: 02/23/2023
Acceptance:04/20/2023
Publication: 04/20/2023

Editors
Associate Editor/Editor: Francisco J. Bonilla-Escobar
Student Editors:
Copyeditor: Sohaib Haseeb
Proofreader:
Layout Editor:

ABSTRACT

In response to the COVID-19 pandemic, policies and treatment guidelines underwent rapid and frequent change. This threatened to disrupt the measured practice of evidence-based medicine (EBM) which relies on tried-and-tested interventions. The uncertainty was compounded by the overwhelming amount of misinformation that was being disseminated via social media. Thus, arose a need for valid information to guide clinical practice. COVID-19 Evidence Retrieval Service (CERS) an evidence retrieval service piloted at a local and then rolled out at a national level was conceived and developed to address this issue. This article describes the components and implementation of the (CERS),

The service's objective was to review the available medical literature for the best evidence to answer COVID-19-related questions posed by practicing clinicians. Team members providing the service comprised librarians, clinicians, public health specialists and medical students.

Multiple lessons were learnt through the development and provision of CERS. Firstly, the rapid nature of the pandemic necessitated adaptations of the current practice of EBM. Secondly, all work processes were conducted online which proved efficient and sustainable. Thirdly, Lower Middle-Income Country (LMIC) oriented services such as CERS were useful because they provided questions that were more relevant to resource-limited healthcare systems.

Our experience has reinforced that an integrated evidence-based retrieval service is feasible and useful to support healthcare workers and policymakers in making informed decisions by performing a systematic appraisal. Crucially, medical students and young healthcare professionals can play a pivotal role in setting up these services.

Key Words: *evidence-based practice; medical students; pandemic*

THE EXPERIENCE

INTRODUCTION

During the initial stages of the COVID-19 pandemic, policies and treatment guidelines underwent rapid and frequent revisions based on varying levels of evidence. The COVID-19 Evidence Retrieval Service (CERS) was founded with the aim of upholding patient care with the conscientious use of EBM amidst the emergent nature of the pandemic to ensure that local clinicians were well-updated on the latest evidence on COVID-19 according to local needs.

Being the first medical student and a coordinator in CERS, I was involved in the designing, implementing and running of CERS. My role as a coordinator often involved identifying and resolving issues ahead of time. This meant that my responsibilities ranged from managerial to administrative to service provision. This allowed me to retain a macroscopic perspective of the service at all times. This article further analyses my experience and further applications from setting up this service.

COMPONENTS AND IMPLEMENTATION OF CERS

CERS was initiated and supported by a multidisciplinary team of qualified EBM practitioners (professors from various specialties like primary care, rehabilitation and family medicine), medical officers, senior medical students and academic librarians across different academic institutions. This service built upon team member's initial study, [1] and incorporated the experience of Grandage et. Al, [2] who highlighted the efficacy of academic librarians and the American Gastroenterology Association, [3] who condensed their recommendations while keeping clinicians aware of the shortcomings of the guiding research.

Three main teams were involved in the service's process: the support team, the evidence retrieval team and the expert panel. The support team oversaw retrieving and segmenting clinical queries into the Population, Intervention, Control and Outcome (PICO) [4] format and sending out pre-appraisal forms containing the relevant literature to the experts. They would then receive completed appraisals from the experts and send out a summary via WhatsApp to the clinician asking the question. The evidence retrieval team would conduct a thorough search for literature as well as upload the completed appraisal forms on to the website. The expert panel identified the best evidence provided by the evidence retrieval team, appraised it, and would conduct their own search for relevant papers if they believed that the literature provided was unsuitable.

Working in a multidisciplinary team offered me the opportunity to hone my communication skills by presenting information in a concise and appropriate manner to team members of various hierarchy. To ensure that morale was high, weekly virtual team meetings were organised to ensure that the team members were aware of the service's efficacy and could see their impact.

The service was piloted across public hospitals in Malaysia on the 21st of March 2020 with support provided by the Faculty of Medicine, University of Malaya. Weekly publication of the service occurred via the team members' personal communication networks to clinicians based in Malaysia to raise awareness of this service. Dissemination was carried out through existing WhatsApp group chats; research mailing lists and posters being displayed physically around various hospitals. Clinicians interested in the service would contact the service and fill in their questions via Google Forms. These questions would then be categorized into critical or non-critical questions and background or foreground questions. The distinction between critical and non-critical questions was made on the basis that critical questions would alter the clinician's healthcare practice. Background questions were defined as questions with established answers and foreground questions were defined as questions requiring an appraisal from the available evidence.

[Insert Figure 1]

Figure 1 provides a visual representation of the service.

The search strategy was conducted by identifying and searching for key concepts alongside the terms seen in Table 1. The databases searched are listed as follows: MEDLINE, Cochrane Library, COVID19, TRIP Database, Wiley, UpToDate, WHO database, CINAHL, Ovid database- COVID-19 special collection, Clinical Trials (clinicaltrials.gov), Web of Science, Science Direct, Google Scholar, Google. CEBM ERS and Ministry of Health, Singapore also had their databases searched. These search strings would then be saved on the respective clinical search structure to allow the search to be rerun after 4-6 weeks. This repeated search run was necessary given the nature of rapidly evolving evidence to incorporate any new evidence into the appraisal. Any new evidence would undergo the same process of appraisal and dissemination.

[Insert Table 1]

Service Analysis

Our experience proved that many opportunities arise from a virtual work environment. The virtual environment contributed to CERS' sustainability as it provided team members with the flexibility to work at their convenience and collaborate with members from different institutions and disciplines. The inclusionary nature of this service should have far-reaching effects in the future because of the expansion of local networks of researchers with a similar focus.

[Insert Table 2]

CERS fulfils a niche in catering to the needs of the local population in Malaysia. Having a local service reduces the barriers for a clinician to ask questions because the members of the service recognize cultural nuances while providing a platform for local medical student participation and education.

[Insert Figure 2]

Formal feedback was sought from users who engaged with the service. 11 out of 12 users reported feeling satisfied or very satisfied with the service in addition to rating the quality of answers high or very high. A further 75% (8/12) respondents reported that using this service made significant changes to their clinical practice. The mean time it took for questions to be answered from the time it was received for our sample size was 10.5 days (range 1-19 days, median =10 days).

TAKEAWAYS

Our experience has reinforced that an integrated evidence-based retrieval service is both feasible and useful for two key reasons. Firstly, it supports healthcare workers – both future and current - and policymakers in making informed decisions. Secondly, undertaking systematic appraisals, efficiently trains the next generation of practitioners to prioritise an evidence-based approach.

The cohort of medical students, including myself involved in CERS have used the skills learnt – literature searching and critical appraisal skills - to complete and publish their own research across various specialties in different peer-reviewed journals. The leadership skills developed through the developing of this evidence retrieval service have also enabled them to make strong contributions during their clinical placements by presenting cases in multi-disciplinary team meetings.

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SUMMARY - ACCELERATING TRANSLATION

Title: Developing A Clinical Evidence Retrieval Service In Response To The COVID-19 Pandemic

Main Problem to solve: Addressing a local population's health needs through equipping front line workers who needed to concentrate their efforts on addressing patient's acute needs. Further, identifying opportunities for medical students to further their development as medical education took a break during the pandemic.

Aim of the experience: Sharing lessons learnt and offering a consultancy service for aspiring medical students/clinicians wanting to start their own local evidence retrieval service.

Methodology, Results and Conclusion: Each population has unique circumstances. A local evidence retrieval service addresses these needs while training the next generation of doctors in evidence-based medicine. The lessons learnt from our experience can help to accelerate the composition and starting of similar services which have long lasting impacts for clinicians served and medical students educated.

FIGURES AND TABLES.

Figure 1. Flowchart of CERS Operational Structure

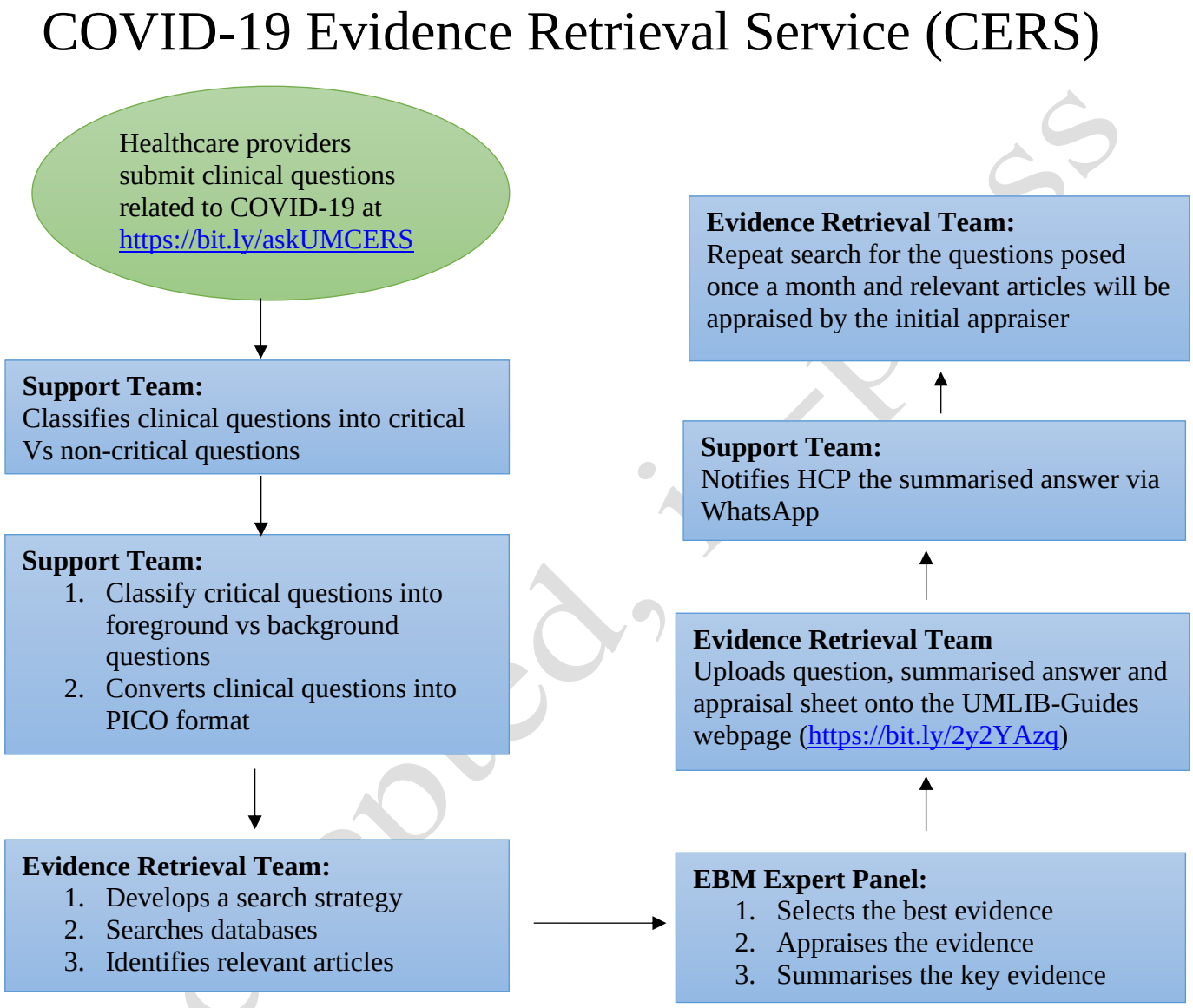

Figure 2. Unique Questions Received by CERS

'Is there literature present regarding boiling pharyngeal swab samples to 98 degrees celsius for five minutes instead of using chemical kit reagents?"
'In view of face mask shortage, what is the best way to sterilize and reuse a face mask safely?'
'Can we wear 2 pieces of 3ply Surgical Mask to replace N95?'
'Do we really need a full PPE suit if the SARS-CoV2 virus is transmitted via the respiratory tract? Should review PPE usage, and avoid unnecessary practice/waste.'
'What is the best method to sanitize N95 masks for reuse in Primary Care Setting?'

1 **Table 1 Search Strings Used**

(wuhan, OR buaian)	"coronavirus"[MeSH Terms]
2019 novel cox	Coronavirus infection*
2019nCoV	2019 novel coronavirus*
2019-nCoV	novel coronavirus
2019-novel corona virus (2019-nCoV)"	novel coronavirus pneumonia (NCP)
soronavir*	betacoronavir*
coronavirus	DEOX
coronavirus infections"[McSH, Terms]	sarcov2
COV2	. COVID-19
COVID 19	Cav
COVID19	COVID
NCP	SARS-CoV-2
new coronavirus	sari
SARS	severe acute respiratory syndrome corona virus-2
severe acute respiratory infection (sari)	(SARS-CoV-2)
Wuhan pneumonia	corona virus

2

3

Table 2. Composition of meeting attendees

Date	Number of attendees at the meeting	Profile of attendees	Meeting duration (hours)
26/03	4	Professor Medical officer (X2) Medical student	1
28/03	3	Professor (X2) Medical student	1.5
3/04	9	Professor (X5) Medical officer (X2) Medical librarian Medical student	1.5
10/04	10	Professor (X6) Medical officer (X2) Medical librarian Medical student	1.5
24/04	10	Professor (X6) Medical officer (X2) Medical librarian Medical student	1.5
07/05	9	Professor (X6) Medical officer (X2) Medical librarian Medical student	1