



Barriers and Facilitators to Implementing Project ECHO in Malaysia During the COVID-19 Pandemic

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Abstract

Objective: In Malaysia, HIV is concentrated among key populations who experience barriers to care due to stigma and healthcare discrimination. The COVID-19 pandemic has increased barriers to healthcare. Project ECHO (Extension for Community Healthcare Outcomes) is a transformative tele-education strategy that could improve HIV prevention and treatment. **Methods:** Practicing physicians who were aged 18 years or older and had internet access participated in asynchronous online focus groups. **Results:** Barriers to Project ECHO were conflicting priorities, time constraints, and technology. Facilitators included content and format, dedicated time, asynchronized flexible programming, incentives, and ensuring technology was available. **Conclusion:** Project ECHO is a promising intervention that can increase physicians' knowledge and skill set in specialty medicine during the COVID-19 pandemic. Interventionists in Malaysia in particular, but also in general, should consider these barriers and facilitators when developing Project ECHO as they may aid in developing a more robust program and increase participation.

Keywords

project ECHO, HIV, Malaysia, COVID

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Introduction

In Malaysia, HIV is concentrated in key populations like men who have sex with men (MSM), people who inject drugs (PWID), transgender persons, and female sex workers, with HIV prevalence ranging from 15.8 to 54.0 times higher than in the general population.¹ These populations experience high levels of stigma²⁻⁵ and discrimination in healthcare settings,⁶⁻⁸ are less likely to be aware they are living with HIV,⁹ and therefore may pose a higher risk for HIV transmission.¹⁰ Additionally, most people at risk for HIV are not being reached by HIV prevention programs and antiretroviral therapy (ART) coverage is also far below the ambitions of the 95-95-95 UNAIDS target which has severe implications on preventing HIV transmission. Primary care and hospital settings are important sites for HIV prevention, which includes testing, linkage to care, and prescribing pre-exposure prophylaxis (PrEP). However, physicians may not be

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knowledgeable or confident in HIV prevention strategies and treatment.

Along with stigma barriers, the COVID-19 pandemic has caused disruptions in care.^{11–14} Project ECHO® (Extension for Community Healthcare Outcomes) is a potential solution for overcoming barriers to HIV prevention and may be particularly useful in resource-limited settings, including low- and middle-income countries.¹⁵ Project ECHO is a transformative tele-education strategy that uses collaborative learning and democratized specialty training for non-specialists¹⁶ via technology (eg, videoconferencing) to enable healthcare providers in community settings to learn from and collaborate with specialists at academic “hubs”.^{17–20} Unlike telemedicine where the specialist sees a patient directly assuming clinical responsibility, Project ECHO® is an expert-guided practice model wherein healthcare providers in the community retain care responsibility, operating with increasing independence as their skills and self-efficacy grow. This low-cost, high-impact program is based on educational theories of social learning and behavior change^{21–23} and effectually de-monopolizes specialty care. The National Academy of Medicine and Centers for Disease Control and Prevention endorse Project ECHO® as a highly innovative strategy likely to produce significant improvements in the quality and efficiency of patient-centered integrated care.^{24,25} It has demonstrated efficacy for multiple chronic health conditions, including HIV prevention and PrEP,²⁶ HIV treatment,²⁷ hepatitis C,²⁰ hypertension,²⁸ diabetes,²⁹ and chronic pain.³⁰ Despite Project ECHO’s success, studies have reported low participation³¹ and further research is needed to identify barriers to implementation and facilitators of engagement in Project ECHO in order to scale up this effort.³²

Methods

Guided by the Promoting Action on Research Implementation in Health Services (PARIHS) framework, this study sought to identify barriers to Project ECHO adoption and scale up, as well as facilitators of Project ECHO engagement in Malaysia. PARIHS highlights evidence, context, and facilitation as key elements that influence successful implementation of health services interventions. Previous research (ie, evidence) suggests that Project ECHO is associated with increases in clinician knowledge of and engagement in HIV prevention and care,^{27,33} yet more information is needed to develop Project ECHO for the Malaysian context and to identify facilitators of its successful implementation. Given the Malaysian healthcare sector is rapidly expanding, further training opportunities such as Project ECHO are needed to bridge the gap between specialty and primary care in order to reduce disparities in HIV prevention.

Participant Recruitment

Eligibility criteria were being a practicing physician and having internet access. Physicians were recruited via advertisements posted to social media networks, including the Doctors Only Bulletin Board System and Malaysian Primary Care Network,

during the COVID-19 pandemic in February 2021. In addition, the Malaysian Medical Association disseminated information about the study. Recruitment efforts targeted general practitioners and family medicine specialists, who may play key roles in HIV testing and prevention efforts. Advertisements contained a link to a Qualtrics survey that included a more detailed description of the study and a consent form. Individuals who accessed the link and consented to participate completed a sociodemographic and clinical background survey, indicated whether they were available on weekdays and/or weekends to participate in an online focus group, and provided their email address. A research assistant then emailed participants to thank them for their interest in the study and invite them to participate in a scheduled upcoming online focus group.

Focus Group Protocol

Asynchronous, online focus groups were hosted by FocusGroupIt (<https://www.focusgroupit.com/>). Asynchronous and online methods were chosen because they minimize barriers to focus group participation, including time and confidentiality concerns, and enable the inclusion of geographically dispersed individuals.^{34–36} Participants were invited to create an account with FocusGroupIt. To maintain anonymity, participants were encouraged to create a screen name that was different than their actual name. Four focus groups were held over the span of three weeks. The focus groups were organized thematically, with each group focusing on one of four key populations at risk for HIV: MSM, PWID, transgender women (TGW), or female sex workers. Each focus group lasted three days, with brief sets of questions posted each morning and evening. Day one and two focused on perceptions and treatment of patients. On the third day, participants received the following prompts “*We’d like to get your feedback on Project ECHO today, which is a live internet-based training program for clinicians. In our intervention, which will focus on HIV testing and prevention, clinicians would meet twice a month for one hour with a Project ECHO team for a period of 9 months. Please watch this 1.5-min video about Project ECHO and then answer today’s first question.*” In summary, the video described how Project ECHO delivers “specialist medical knowledge to regions most in need” and that practicing physicians will learn from experts and each other. Participants were informed that this is facilitated through videoconferencing with experts. After watching the 1.5-min video describing Project ECHO, participants were asked several questions.

In the morning, participants were asked: “*What do you think about Project ECHO for HIV testing and prevention? Would you want to do this? Why or why not?*” They were also asked: “*What might make it difficult for you to participate in Project ECHO for HIV testing and prevention? Please describe at least 3 things that might make it hard for you to join Project ECHO meetings or learn from Project ECHO.*”

In the evening, participants were asked: “*What could make it easier for you to participate in Project ECHO for HIV testing and prevention? Please describe at least three things that*

could make it easier for you to join Project ECHO meetings or learn from Project ECHO.”

Participants were emailed notifications when questions were posted to the FocusGroupIt website as well as reminders if they did not respond to the questions within approximately one day. Only after responding to questions were participants able to see and comment on other participants' responses. Moderators asked clarifying questions if participant responses were brief or unclear. Participants received compensation for answering each question, with compensation increasing over the three-day focus group. Participants could earn up to RM225 (\$54 USD) for responding to all questions.

Data Analysis

Focus group transcripts were downloaded from FocusGroupIt and read by two Malaysian and one U.S. team member. Relevant themes were compiled in a qualitative codebook as they emerged from the data, and the codebook evolved throughout the coding process using an iterative process as new themes emerged.^{37,38} After reading all transcripts and coding we believed we have met theoretical saturation and therefore did not collect additional data.^{38,39} The codebook included themes, descriptions of themes, and example quotes. Codes were reviewed through dialogue and a final consensus was reached among the three coders. Definitions and examples of themes were revised in the codebook as final consensus was reached. Coding was done in Dedoose (Version 8.3.17).

After the initial coding, the parent code “Reactions to Project ECHO” included three child codes focusing on acceptability, barriers, and facilitators which were re-coded and re-organized using in vivo coding and grandchild codes were created by theme.³⁸

Table 1. Sociodemographic Characteristics of Participants (n = 34).

Clinical Rank	
House Officer	1
Medical Officer	10
Registrar	1
Family Medicine Specialist	5
Consultant	1
General Practitioner	16
Age	
29 or younger	6
30–39	16
40–49	5
50–59	5
70 or older	2
Gender	
Male	20
Female	14
Ethnicity	
Malay	9
Chinese	16
Indian	4
Other	5

Ethical Approval and Informed Consent

All procedures received ethics approval from the Medical Research Ethics Review Committee of the University of Malaya Medical Centre (202047-8467) and the Institutional Review Board of the University of Delaware (1588354). All participants provided informed consent to participate in this study.

Results

Participants included 34 clinicians, with focus groups ranging from 7–10 participants. Regarding sociodemographic characteristics, 58.8% identified as men and 41.2% as women; 47.1% identified as Chinese, 26.5% as Malay, 11.8% as Indian, and 14.7% as another race or ethnicity; 17.6% were 29 years or younger, 47.1% were 30–39, 14.7% were 40–49, and 20.6% were 50 or older. Regarding clinical characteristics, 47.1% were general practitioners, 29.4% were medical officers, 14.7% were family medicine specialists, and 8.8% were house officers, registrars, or consultants. Participants had practiced medicine for an average of 14.2 years (SD = 10.76, Range = 2–44). Table 1 provides a summary of participant demographic information. All participants mentioned in this paper have been given pseudonyms to protect their identities.⁴⁰

Barriers

Two prominent barriers to Project ECHO emerged from the focus group discussions. The first related to not having adequate time allotted for Project ECHO. The second related to not having adequate technology that would allow for participants to engage in video conferencing.

Conflicting Priorities and Time Constraints. Many participants noted that they were doing long working hours. For example, Zeif, a general practitioner who had been practicing medicine for 11 years said,

My work schedule is quite unpredictable at the moment as I'm currently involved in COVID testing and so sometimes I work on weekends as well. Weekdays should not be an issue as long as it's after 5pm, and the same goes for weekends too. Only on rare occasions I have to work after 5pm.

Participants were not only involved in COVID-19 responses, which could be time-consuming, but they also had to deal with their health and the health of those they loved, which included COVID-19 infections. For example, Dini, a family medicine specialist told us:

My worst moment last week was [when I] had to refer [my] mom for SARI [Severe Acute Respiratory Infection] in hospital. She got admitted until today. I fall sick as well.

Another participant, Luqman, a medical officer, said her “worst moment that happened [this] past week - a close friend of mine was diagnosed as COVID-19 positive.”

As such, participants explained how they needed protected time in their workday to be slotted for Project ECHO. They also suggested minimizing the time commitment to participate in Project ECHO, which usually is two to three hours per month over a period of nine months to a year. Sri, a house officer who had been practicing medicine for 2 years explains,

I think twice a month meeting for one hour, for 9 months, is rather too much than is necessary for just these topics. I don't think I would have the time necessary to commit to such a long project, if it only relates to this very specific topic.

In fact, one participant described being unwilling to participate if the duration of the project was 9 months. Overall, participants were concerned that they would not have the adequate time to engage fully in Project ECHO and that would be a barrier to their participation.

Technology. Another common barrier described was technology. Internet connection and accessibility to stable internet was a prominent barrier that emerged from the focus groups to Project ECHO participation. Not having adequate technology spanned across home and work environments, making virtual meetings frustrating for participants. Wan, a general practitioner who had been practicing medicine for 7 years explains:

Depending on the Internet data speed, sometimes, virtual meeting can be very lagging, and some might not receive clear images or sound, making it frustrating.

These challenges were often more pronounced for participants in rural settings, making it almost impossible for video sessions that are needed for Project ECHO. Although most concerns were about internet capabilities, one participant expressed concerns for more senior staff members who, presumably due to age, would face challenges adapting to the online platform. Noura, a medical officer who had been practicing medicine for 10 years said:

Senior HCW that may not be able to adapt to technology.

Facilitators

Three main facilitators to Project ECHO emerged from the data. First, participants identified a need for increased education and found the content and format of Project ECHO appealing, which facilitated their desire to participate. Second, participants explained how their desire to participate in Project ECHO would increase, and it would be much easier for them to do so, if there was dedicated work time, asynchronized flexible programming, and incentives for participating. Third, stable internet and a well-designed application for mobile devices would increase their likelihood of participating.

Project ECHO Content and Format. Many participants described excitement for Project ECHO because it was a way to enhance their education and improve care to their patients. Having

access to specialty information along with the ability to talk with experts was a main facilitator to engagement in Project ECHO. In addition, the bonus of dialogue with others to share information and learn concepts was particularly important for some participants. For example, Jee Han, a general practitioner who had been practicing medicine for 6 years said,

I would definitely want this. It would definitely be the next big thing here in terms of knowledge sharing between clinicians/health care providers. This program would be beneficial for all healthcare givers. Instead of making several phone calls to the experts, referring clinicians can now save some valuable time in improving treatment for their patients by attending the virtual classroom. Sharing of knowledge by the experts would be easier with the tele-mentoring session, rather than having to attend physical session.

Participants noted how Project ECHO would be beneficial to patients too. Airil, a general practitioner who had been practicing medicine for 10 years told us,

Managed MSM patients and at the same time, there will be sharing of knowledge and guidance from the experts. I would certainly want to be involved in this project. Why? Sharing of knowledge will be able to provide the best of care to our patients. At the same time, existing patients will feel more at ease seeing their regular doctors instead of being referred to a new doctor.

Dedicated Time, Asynchronized Flexible Programming, and Incentives. Participants gave three possible solutions to overcome time constraint barriers to participation. Since most participants described having busy and unpredictable schedules, they identified the following facilitators to Project ECHO engagement within their current life circumstances that would increase their interest and abilities to participate: 1) dedicated work time, 2) asynchronized sessions that could be accessed at any time, and 3) incentives for participating.

For example, when asked what could make it easier for you to participate in Project ECHO, Wawa, a medical officer who had been practicing medicine for 3 years described the need for a program to be structurally supported by being provided dedicated work time as part of clinicians' job duties: "*If Project Echo was an officially sanctioned program with protected time for clinicians to attend meetings during working hours.*"

Other participants described needing a more flexible, asynchronized program, where sessions would be available at all times so they could fit them into their busy lives. Malik, a consultant who had been practicing medicine for 17 years said there should be an "*option for recorded sessions to enable refresher or viewing at an alternative time should the pre-arranged sessions not be feasible.*" Notably, participants also wanted to receive materials ahead of time to prepare for sessions.

Finally, participants identified incentives for participating as a facilitator to Project ECHO engagement. They explained how they wanted recognition for their time and effort for participating in Project ECHO, especially since "*Some might have to take out part of their working time to attend the meeting/discussion*"

(Wan, a general practitioner who had been practicing medicine for 7 years) and that “*Some token of appreciation will pull more clinicians to participate*” (Naw, a medical officer who had been practicing medicine for 4 years).

Overall, participants described the need for dedicated work time and asynchronized sessions that would allow for people with differing schedules, including unpredictable schedules, to participate. They also described monetary and non-monetary (eg, continuing education credits) ways to increase participation.

Technology

Internet. As described in the barriers section, the current internet connectivity would pose challenges to Project ECHO, and therefore, stable internet, which may need to be increased more in rural settings, would be critical. This was discussed by most participants who noted needing “*stable internet connection*” (Dini, a family medicine specialist practicing for 12 years) while others pointed to the need for “*Better internet speed and connectivity*” (Zeif, a general practitioner who had been practicing medicine for 11 years).

Pirash, a general practitioner who had been practicing medicine for 21 years further described why better internet is critical, particularly in rural settings:

Technology and digitalization in healthcare is the way forward... because it's more cost efficient, less travel time, more time to be productive. However, the internet penetration in the rural areas need to be on par with urban region or they will be left out.

Platform. Along with stable internet, participants described wanting a user-friendly platform. Rafi, a family medicine specialist who had been practicing for 13 years said,

User friendly means the system is smooth, no software bug, reliable, easy to use with any mobile devices android or apple, macbook or microsoft.

Similarly, Wawa described wanting “*An interactive platform that is not difficult to use or adapt to for teleconferencing*” while Raja, a general practitioner who had been practicing medicine for 14 years notes the importance of being able to use mobile devices:

Meeting should be arranged via online video conferences using mobile device instead of computer as everyone carries mobile device everywhere.

Discussion

Project ECHO is an important intervention that can increase confidence and knowledge base of clinicians,^{41,42} enhance performance,⁴³ is well received and liked by those who participate,⁴⁴ and is cost-effective.³² Project ECHO may be even more important during the COVID-19 pandemic because it uses tele methods which reduces the risk for COVID-19

infection. In fact, studies have found Project ECHO to be a useful platform during the pandemic.^{45–47}

Despite the efficacy, clinician participation in Project ECHO is often low.³¹ To increase participation, this study's formative work identifies barriers and facilitators to participating during the COVID-19 pandemic. Barriers identified were conflicting priorities and time constraints, which make attendance to fixed meeting times a challenge. We also identified technological issues, such as low internet bandwidth, particularly in rural areas. Investments in developing infrastructure could greatly improve one's ability to participate in Project ECHO.

These findings build on the few studies which found competing priorities and demands as well as the lack of devoted time as barriers to Project ECHO participation.^{31,48} Past research has also highlighted the lack of resources to cover clinicians' time while they participated in Project ECHO as a barrier, thus gesturing to a much-needed organizational commitment to ECHO,⁴⁹ as well as a potential need to personally incentivize participation.^{50,51} One possible solution is for collaborations to be built early on and organizations participating in Project ECHO to budget for and build into a clinician's responsibility and schedule the blocked time necessary to meaningfully participate. Project ECHO participation should also be incentivized by offering monetary incentives as well as continuing education credits.

Facilitators to Project ECHO unearthed in this study include 1) tele-mentoring and access to tailored information from experts, 2) having dedicated time for participating, 3) access to asynchronized options, 4) incentives to participate, and 5) technological capabilities such as a strong internet connection and a user-friendly platform that can be used on mobile devices.

Past research has found tele-mentoring, educational content, and access to medical experts to be facilitators to Project ECHO engagement.⁴⁹ Furthermore, wanting asynchronized sessions has been described as a potential facilitator to Project ECHO.³¹ In addition, we find that providing materials in advance, providing incentives, and ensuring stable internet and a user-friendly platform could also help facilitate engagement in ECHO. Importantly, participants noted the need for the platform to be accessible on mobile devices. Mobile devices were preferred to computers and poor Wi-Fi was often cited. Mobile devices may be a way to overcome the technology barrier of poor Wi-Fi or lack of Wi-Fi internet connection, if the cellular device has stable internet connection. Using platforms such as Zoom, which can be used on mobile devices in addition to computers, may facilitate Project ECHO implementation.

This study is not without limitations. First, we did not have participants rank barriers or facilitators in order of importance, and therefore cannot identify what was most important to any individual participant. Second, we chose an online asynchronous method to engage more participants. One reason we did this was the added workload and stress during the COVID-19 pandemic for healthcare workers. Although there are benefits of this method, such as the ability for people to engage at any time, there is a loss of the group dynamic and of the ability to identify artifacts observed during in-person focus groups. Thus, the different formats may yield different data, and

future research should explore this more. Third, we did not contact participants after data collection to share research findings and gain input. Although member checking may have been helpful, we did not have IRB approval for contact after the focus groups. Moreover, member checking may have been difficult given the repeated theme of participants being overtaxed due to the pandemic. There is also little evidence that member checking improves research findings.⁵² Finally, the findings may not be generalizable to other populations, thus future studies are needed.

In conclusion, Project ECHO is a promising intervention that can increase physicians' knowledge and skill set in specialty medicine, such as HIV care and prevention. It is especially beneficial during the COVID-19 pandemic when participants had increased time constraints and health worries. This study provides insight into barriers and facilitators to Project ECHO engagement in Malaysia. Busy work and personal schedules as well as lack of stable internet were identified as barriers to Project ECHO. However, engaging content and format, stable internet and a flexible platform for mobile devices, asynchronized flexible programming, and dedicated time and incentives for participating could help facilitate Project ECHO engagement. Interventionists in Malaysia in particular, but also in general, should consider these barriers and facilitators when developing Project ECHO as they may aid in developing a more robust program and increase participation.

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