JOINT LEARNING NETWORK
For Universal Health Coverage

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Joint Learning Network's Learning Exchange on *Patient Pathways and Pandemics: COVID-19 and Beyond*

Final Report

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Workstream 2: Aceso Global

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Workstream 3: Praava Health

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The Community of Practice (COP) supporting Malaysia's improvement and expansion of telemedicine for primary health care (PHC), referred to as e-Consultations, represents a potential model for future implementation-oriented JLN engagements. The Malaysia team, with the support and accompaniment of country participants (CPs) and technical facilitation teams (TFTs), successfully implemented key activities along three technical thematic areas despite of the limitations they faced in the midst of an ongoing global pandemic with unpredictable surges. The duration of the COP was 11 months, from February 2021 to January 2022.

The main features of the joint-learning model consisted of: the selection of an implementer country (Malaysia); adoption of an advisory and coaching-based learning approach in which TFTs and CPs assisted the Malaysian teams understand and solve practical issues related to implementation; use of regular but short virtual COP meetings; division of activities and outputs into "implementation planning" and "implementation accompaniment" phases; quantitative measurement of results, and development of a user-friendly e-library of relevant knowledge resources. Based on the technical results, several insightful policy implications came to the fore that can inform future e-Consultation scale-up and improvement efforts in Malaysia and globally. A number of lessons emerged from COP experience than can guide the design of future JLN implementation-oriented engagements.

I. Introduction

At the conclusion of the Joint Learning Network's Learning Exchange on *Patient Pathways and Pandemics: COVID-19 and Beyond*, (July - December 2020), participants identified digital health solutions as an area for follow-up work in the context of a Community of Practice (COP). The focus was on implementing and scaling up ambulatory telemedicine, referred to herein as e-Consultations, to care for COVID-19 and non-COVID-19 patients at the primary health care (PHC) level. The topic was refined to launch the COP on *Scaling e-Consultations*, the scope of which sought to address the following question:

> *What is needed, from a detailed, nuts and bolts perspective to scale-up and expand e-Consultations for different functions (triage, referrals, home care), different populations (urban, rural,) different conditions (COVID, but more focused on non-COVID, including NCDs), and different providers (CHWs, nurses, physicians)?*

The learning model used in the COP to foster practical learning in this area involved accompanying an implementation process in an "early adopter" or "implementer" country (Malaysia) along three technical areas referred to as Workstreams (described in next section). After their participation in the Learning Exchange[1] (July – December 2020), Malaysia volunteered to be an implementing country for the COP (February-December 2021). The Malaysians had previously launched an e-Consultation initiative during the pandemic but wanted to improve and expand it further and test its effectiveness with non-COVID conditions, especially non-communicable diseases (NCDs). COP workshops focused on supporting the

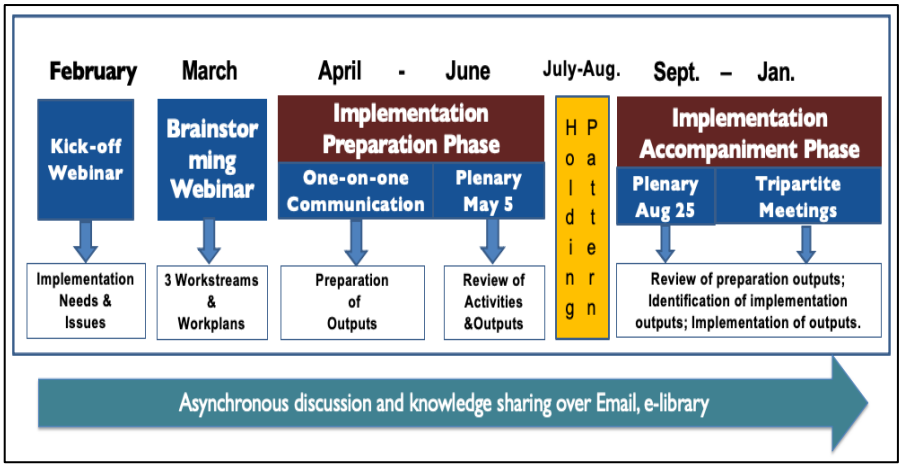
[1] Not all country participants (CPs) carried over from the Learning Exchange to the COP. An opt-in survey was sent out at the end of the Learning Exchange for countries to express interest in joining the COP.

practical, implementation-oriented case of Malaysia, but with the intention of this learning benefitting all COP participants. Broadly, the objectives of the COP included:

- Accompanying and supporting the Malaysia team as it planned, implemented, and monitored the improvement and expansion of e-Consultations for COVID and non-COVID conditions.
- Sharing experiences and learning that can apply to the contexts of participating countries.

More specifically, the COP worked with the Malaysians to plan implementation of high priority activities, address emerging implementation challenges and bottlenecks, and devising adjustments to overcome the same. The COP consisted of two phases – the Implementation Preparation Phase and the Implementation Accompaniment Phase (see Figure A). The two phases included one-on-one meetings (between TFTs and Malaysian teams), direct communication through email and WhatsApp groups, plenary sessions, and tripartite meetings. A number of Country Participants (CPs) who had participated in the Learning Exchange maintained engagement throughout the COP and were present for meetings other than during the one-on-one sessions, which were between technical facilitators (TFs) and the Malaysian teams. Additionally, it is important to note that COP activities were delayed during the months of July – August due to a COVID surge in Malaysia.

Figure A. Community of Practice (COP) Timeline, 2021



This report is structured as follows. Initially, we outline the main objectives of the COP and technical content of each of the three technical "workstreams." The following section centers on the virtual engagement approaches used in the context of a remote COP. Next, we detail the tangible outputs of each workstream, followed by an assessment of quantitative results of each workstream emerging from implementation by the Malaysian teams. The report then reviews policy implications related to results of implementation and lessons learned that emerged from the shared learning experience of implementation-oriented COP.

II. COP: Objectives and Technical Content

During the early brainstorming and planning sessions (February—April 2021) the objectives and technical content of the COP were agreed and established by all participants (Malaysian teams, TFTs and CPs). The Malaysian team presented the gaps and limitations of e-Consultation services, which they tested in a limited number of PHC "pilot" clinics during the early days of the pandemic. They also expressed concern about the lack of evidence on e-Consultation services in part because monitoring and evaluation (M&E)

did not receive sufficient emphasis. For example, they had yet to monitor or collect data on the "pilot" clinics to inform potential scale-up.

For the Malaysians, one of the main objectives for expanding e-Consultation services was to reduce congestion in health clinics, which negatively impacted patient access to COVID and non-COVID services. However, other objectives included: changing current mindsets (of providers and patients) on e-Consultations (known as "virtual clinics" in the Malaysian context), optimizing telephone use for e-Consultations, informing policy makers and regulators on the benefits of e-Consultations, understanding the needs of target groups which were underserved due to the pandemic (e.g., patients with NCDs), and strengthening M&E processes, at least as they relate to e-Consultations. Following the final brainstorming workshop in March 2021, the COP opted to focus on three thematic areas (known henceforth as "workstreams") that could support the achievement of the objectives and for which TFTs and CPs had capacity to provide technical inputs and promote shared learning. Each workstream matched a TFT with a separate Malaysian team, while CPs opted to participate in one or more workstreams. A short description of each workstream follows.

Workstream 1: Optimizing e-Consultations and e-Referrals

The objective of Workstream 1 was to support a team of PHC/MOH officials and clinic directors to launch an e-Consultation pilot to improve access for patients with chronic conditions. The idea of the pilot was to test inputs (see below) and practices in a more standardized way that would affect the effectiveness and satisfaction of e-Consultations among providers and clients and inform policy makers regarding lessons learned for future scale-up. The pilot also involved the introduction of an M&E component. The TFT supporting the Malaysia MOH team (including MOH officials and clinic directors) was the Cambridge Health Alliance[2] (CHA).[3] The workstream centered its effort on preparing and implementing the following outputs (inputs for the pilot)[4] to support preparation and implementation of the pilot: (i) standardized e-Consultations guidelines for providers, (ii) a "hybrid" model combining phone and in-person consultations; and (iii) indicators and corresponding "short-form" instrument to monitor implementation of (i) and (ii). Implementation took place in 4 pilot PHC clinics in November and December 2021 (See Annex D, Table D1 for clinic names and locations). The major activities for this workstream included:

- Walkthrough of existing e-Consultation guidelines and workflows, with a focus on the acceptability and applicability to the Malaysian context.
- Identification of gaps and limitations in the Malaysian guidelines and workflows.
- Assistance in revising provider guidelines and workflows.
- Co-production of hybrid model.
- Co-production of indicators and monitoring instrument.

[2] Cambridge Health Alliance (CHA) is a healthcare provider in Massachusetts. CHA offers services including primary care, specialty care, and mental health/substance use services.
[3] Aceso Global supported the M&E component of the implementation process.
[4] These were COP outputs but were in effect inputs for the Malaysian pilot.

- Testing of hybrid model and guidelines in 4 pilot clinics, including application of monitoring instrument.

Workstream 2: Monitoring and Evaluation (M&E)

The objective was to support a Malaysian MOH/PHC team to develop and implement an M&E plan to monitor ongoing e-Consultation efforts. The MOH already launched a "proof of concept" pilot in five PHC clinics, known as "virtual clinics," during the early days of the pandemic (in mid-2019). This pilot was extended to an additional 35 PHC clinics in mid-2020. In part because of the rapid rollout and experimental nature of the intervention, anecdotal information suggested that implementation varied across the sites. Nevertheless, the pilot represented an important learning opportunity. The MOH sought to secure data from providers and clients on results, perspectives and lessons learned in part to inform future expansion policies (tentatively planned for over 260 PHC clinics). A secondary objective that emerged during the COP was to contribute to building M&E capacity to foster evidence-based decision making. The TFT supporting the Malaysia MOH team (including MOH and NIH officials) was Aceso Global. Outputs included: M&E framework, indicators, and instruments which were co-produced by the COP. Three instruments were developed and tested, each directed at different target groups: (i) clinic directors, (ii) medical providers of e-Consultations, and (iii) medical patients who received e-Consultations. The instrument was applied to respondents in the 40 virtual clinics in December 2021. The main activities for this workstream included:

- Development of a logical framework for M&E with outputs and outcomes.
- Planning M&E for e-Consultation expansion, including indicators and instrument preparation.
- Testing of instruments in 40 clinics.

Workstream 3: Roll-out of a Technology-enabled COVID-19 Platform

The objective was to support a Malaysian MOH team consisting of PHC and IT officials in their roll-out of a home monitoring and remote management system for COVID-19 patients as part of the e-Consultations expansion initiative. The TFT supporting the Malaysia MOH team was Praava Health[5]. Workstream 3 outputs co-produced and implemented by the Malaysian team with the support of the TFTs and CPs included a video describing how to use a blood-oximeter and infographics that describe breathing exercises for at-home COVID patients. These were uploaded to the MOH's *MySejahtera* digital platform. In part due to the urgency of uploading the aforementioned items as COVID-19 surged in Malaysia, Workstream 3 developed and implemented the outputs during the Implementation Preparation Phase (by August 2021 - see Figure A). As such, Workstream 3 did not participate in the Implementation Accompaniment Phase. The main activities for this workstream included:

[5] Praava Health runs a network of urban wellness centers in Bangladesh offering primary care and full in-house diagnostic services.

- Assessment and review of existing technology-enabled systems for home monitoring and remote management of COVID-19 patients.
- Review of the feasibility of the technology in the Malaysian context.
- Identification of gaps in informational resources available on Malaysian digital platforms, including recommendations to improve the same.
- Implementation of video and infographics to support tele-health in Malaysia through the MOH's *MySejahtera* digital platform.

III. Virtual Engagement Approach

The nature of engagements varied throughout the COP as in-flight adjustments emerged based on trends, monitoring of what worked (and did not work) and shifting Malaysian priorities. For example, the COP turned to 1-hour long meetings instead of 90 minutes to foster more effective (and efficient) engagement, especially given the time difference. Additionally, given the shorter meeting length, the COP opted for bi-weekly and at times weekly meetings with an end-goal of maintaining engagement. This was especially the case after a long delay period due to a surge in the pandemic (see Figure A). Further information on meeting dates is available in Annex A. The remainder of this section discusses the different types of virtual sessions employed by the COP.

Plenary Sessions: The COP held two separate plenary sessions during the implementation preparation phase. Plenary Sessions included all three workstreams, both TFTs and Malaysian team, as well as CPs. The sessions consisted of presentations by both TFTs and Malaysian teams on progress and next steps for their workstreams. Country Participants engaged in discussion by offering their own experience, thoughts and insights on the work performed by the Malaysian Team. The plenary sessions bracketed the one-one-meetings in the sense that they informed all participants of workstream progress and problems.

One-on-One Meetings: These meetings consisted of TFTs and the Malaysian team and took place during the implementation preparation phase. One-one-one meetings were workstream specific and consisted of check-ins by the Malaysian teams. Additional to the virtual sessions, the workstreams also remained in constant communication through email and WhatsApp groups. These communications often resulted in TFTs sharing additional resources or information to aid the Malaysian teams. All documents were uploaded into an e-library (see next section).

Tripartite Meetings: During the Implementation Accompaniment Phase, the COP turned to "tripartite" meetings consisting of the three constituent groups of the COP: TFTs, Malaysian team members, and CPs (who opted to participate) for each workstream.[6] Importantly, this approach emerged based on lessons from the Implementation Preparation Phase and the use of one-on-one meetings and plenary sessions. The COP felt that this latter approach did not take full advantage of the CP experience and led to catching up by the same during the plenaries. The tripartite meetings consisted of implementation updates and requests for assistance by the Malaysian Teams and benefitted from guidance from both CPs (based on

[6] Recall that the COP ran only two workstreams (1 and 2) in the implementation accompaniment phase.

experience and knowledge) and TFTs. Tripartite meetings convened on a semi-weekly basis. Such regular meetings enabled rapid brainstorming, modification, and collaboration among workstream participants. These meetings effectively supported Malaysia's implementation experience, as they continued to adapt to in-flight challenges.

Attendance: Attendance varied across meetings and throughout the timeline of the COP. Plenary sessions consisted of all TFTs, CPs and Malaysian teams and were well attended. One-one-one meetings consisted of TFTs and Malaysian teams (by workstream). Finally, tripartite meetings consisted of TFTs, Malaysian teams and CPs who opted in to their workstreams of interest. General attendance was tracked for the Plenary Sessions. A document containing general attendance and registration of Plenary Sessions can be found here. However, for the one-on-one meetings and tripartite meetings attendance was noted, but not recorded. Due to the nature of the COP, TFTs and Malaysian teams were always present during the sessions. However, the COP did experience a slight fall off in CP attendance in the Implementation Accompaniment phase from 5 to 2-3 regular participants. This may have been related to long duration of the COP (one year), increase in responsibilities in home country due to the pandemic and possible meeting fatigue.

IV. COP Outputs

The COP produced a number of outputs that are available in an e-Library of resources originally created for *Learning Exchange* on *Patient Pathways and Pandemics: COVID-19 and Beyond.* This e-library includes recordings, third-party resources, videos, presentations, website links, relevant articles, guidelines, and other documents prepared or shared by the Malaysia teams, TFTs and CPs. They were often the subject of discussions and "walk-throughs" during the COP sessions. We have updated the e-library on a regular basis. Annex B contains a detailed output report. Short descriptions of key documents with web links follows.

Workstream 1: Outputs developed with support of Cambridge Health Alliance (TFT) and CPs

- Telehealth guidelines developed by the Malaysia team including hybrid model design and personnel training plans. The TFT and CPs supported the development of this document through the sharing of information, guidelines, and experiences. The document includes scope of services (NCDs, communicable disease, MCH), workflows, checklists, roles, and responsibilities, etc. Download Here.
- Telehealth Services Pilot Testing for Non-communicable diseases in Public Primary Care Clinics in Report developed by the Malaysia team. This document includes pilot study objectives, methodology, results, and lessons learned from the previously mentioned implemented pilot. Download here.
- Short-form version of the survey instrument above developed by the Malaysian (workstream 1) team to monitor implementation in 4 pilot clinics.[7] Download Here.

[7] This short instrument resulted from a collaboration between Malaysian teams participating in Workstreams 1 and 2 with the support of the TFT (Aceso Global).

Workstream 2: Outputs developed with support of Aceso Global (TFT) and CPs

- M&E Framework that outlines the different e-Consultation implementation stages with a focus on monitoring processes, outputs and results. Download Here.
- Long-form version of the survey instrument. This generic instrument can serve as a reference for countries looking to monitor virtual consultations. Download Here.
- Indicators that accompany the generic long-form version instrument mentioned above. These include inputs, activities/process, outputs, Outcomes. Download Here.
- A subset of indicators selected by the Malaysian team and linked to the long-form instrument applied in the 40 clinics. The indicators include utilization rates, volume of services, patient satisfaction, provider satisfaction, support for implementation, session outcomes, and defaulter rates. Download Here.
- Preliminary report by Malaysian team, outlining major findings of survey applied in 40 pilot clinics. Download Here.

Workstream 3: Outputs developed with the support of Praava Health (TFT)[8]

- Infographic describing how to use a pulse oximeter at-home by COVID-19 patients was developed and made available on Mysejahtera. Download Here.
- Video showing step-by-step how to use an oximeter for at-home patients with COVID wa developed and uploaded on Mysejahtera. Access Here.
- Video on breathing exercises for at home COVID-19 patients developed and uploaded on Mysejahtera. Access Here.

V. Implementation Results

This section focuses on the results achieved by the three COP workstreams. It centers on activities of the "Implementation Accompaniment" phase in which implementation of planned activities took place.[9] Results are presented by workstream.

Workstream 1: Optimizing e-Consultations and e-Referrals

In this workstream, implementation consisted of testing a hybrid model and standardized e-Consultation guidelines in four government-operated PHC clinics. The hybrid model consisted of telephone-based and in-person consultations. Although considered in the original proposal by the Malaysian team, video-based e-Consultations were not included due to bandwidth and infrastructure limitations. The MOH recruited medical directors of the four PHC clinics, who were incorporated into the Malaysian team. These directors worked with the TFTs and CPs (i.e., tripartite meetings) to fine-tune processes, workflows and clinical and technology guidelines (developed during the implementation preparation phase) and prepare a short

[8] CPs did not participate in the development of these outputs.
[9] It is important to note that workstream 3 had concluded during the implementation preparation phase, having developed and deployed infographics and informational videos.

form monitoring instrument and corresponding indicators. Broadly, the pilot sought to test feasibility of telephone-based e-Consultation processes, and provider guidelines and workflows to inform future e-Consultation scale-up (and improvement) policies. Specific pilot objectives included gauging: (i) teleconsultation service eligibility rate among patients with non-communicable diseases (NCDs) attending PHC clinics;[10] (ii) acceptance rate among patients eligible for e-Consultations; (iii) completion rates among patients recruited for e-Consultations; and (iv) client and provider satisfaction with e-Consultation services.

The pilot was conducted between November 15, 2021 and December 17, 2021 at the clinic sites: two on Borneo Island (Kota Samarahan Health Clinic and Tanah Puteh Health Clinic) and two in Peninsular Malaysia (Seremban 2 Health Clinic and Kelana Jaya Health Clinic). Patients who were scheduled for non-communicable disease (NCD) follow-up visits, and had previously agreed to participate in teleconsultation services once they were deemed eligible[11] for e-Consultations (see decision tree in Figure C1 in Annex C). The COP also designed pathway for doctors to follow through the consultation (see Figure C2 in Annex C). Each patient and healthcare professional completed a satisfaction survey through either a phone interview or an online survey.

A total of 3,328 patients were scheduled for NCD follow-up visits in the four sites following eligibility screening, but only 40 percent (902) were eligible for e-Consultations (see Figure B). 32.5 percent (1,081 patients) were uncontactable due to inactive phone numbers registered in the electronic medical records or did not respond after two call attempts. Of the remaining 2,247 patients, 60 percent (1,355) were not eligible for teleconsultation services for the following reasons (see Figure C): uncontrolled NCDs requiring in-person medical consultation, laboratory work done on the day of physical consultations, or did not possess blood pressure and/or glucometer devices for home monitoring.

Figure B. Factors Related to Uncontactable Patients (n=1081)

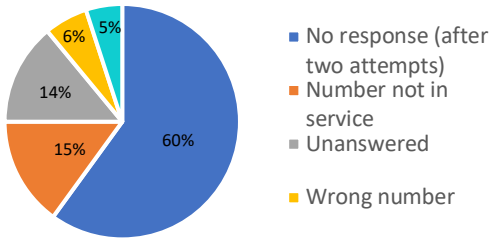
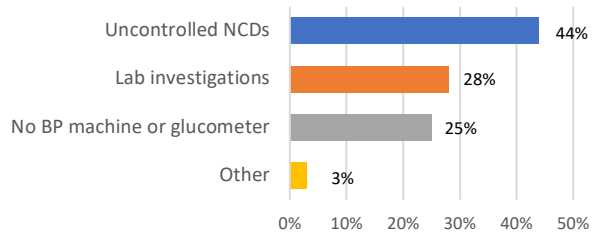


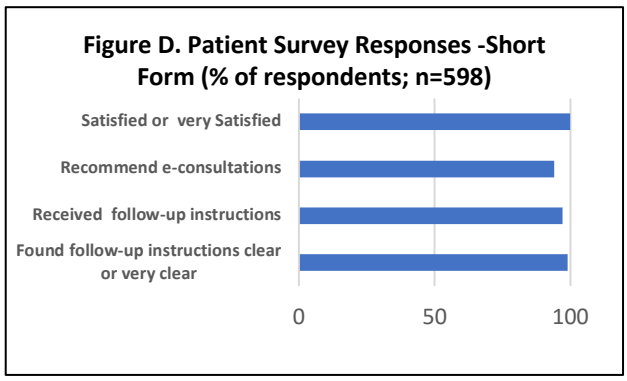
Figure C. Reasons for Virtual Clinic Ineligibility (n=1355)

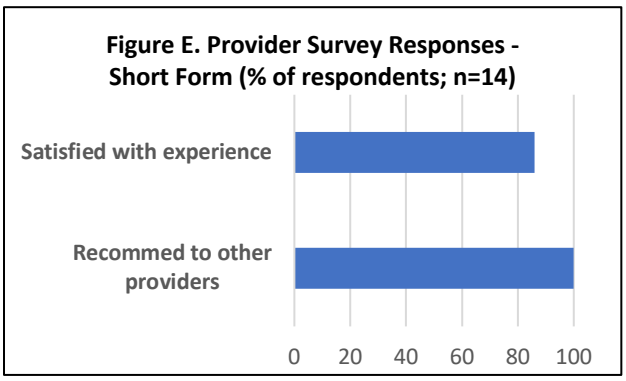


[10] The Malaysians were concerned about the pandemic-induced drop-off in consultations by persons with chronic conditions.

[11] Patients were determined to be "eligible" for virtual clinics by the following set of criteria: (i) have treatment or follow-up appointments; (ii) have satisfactory NCD control targets; (iii) have telecommunication devices with a stable telecommunication network - for example, telephones/smartphones/laptop/desktop; (iv) telephone number given must be contactable during telehealth consultation (patient's phone number/ family member/friend's number); (v) have home monitoring devices, including glucometer and blood pressure machine and able to utilize these devices for self-monitoring; (vi) understand Malay or English; (vii) have consented to telehealth consultations

The response rate for the client satisfaction survey was 76 percent (598 patients). All respondents were very satisfied (72 percent) or satisfied (28 percent) with e-consultation services (see Figure D). None reported being unsatisfied. The vast majority of patients (97 percent) reported receiving instructions by the healthcare provider, including information on follow-up medication, laboratory and imaging appointments, or clinical procedures requiring in-patient visits. Additionally, nearly all (99.8 percent) stated that the instructions given over the phone were either clear or very clear. Overall, 94 percent of the patients would recommend or strongly recommend e-Consultation services for clinical follow-up. Turning to provider responses, all (n=14 physicians) who participated in the pilot completed the provider satisfaction survey. The majority (86 percent) reporting that they were satisfied with the e-Consultations (see Figure E), and all would recommend or strongly recommend teleconsultation to other healthcare providers. The highly favorable provider responses may relate to the training, including the provision of guidelines and workflows, which were co-produced through the COP. Compared the findings from the original 40 clinics surveyed in Workstream 2 (see below), the development of guidelines and workflows, which were included in provider training, probably contributed to higher provider satisfaction ratings and improved e-Consultations services.





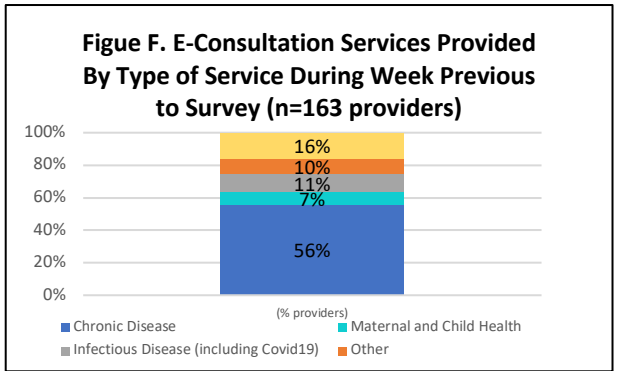
Workstream 2: Monitoring and Evaluation (M&E)

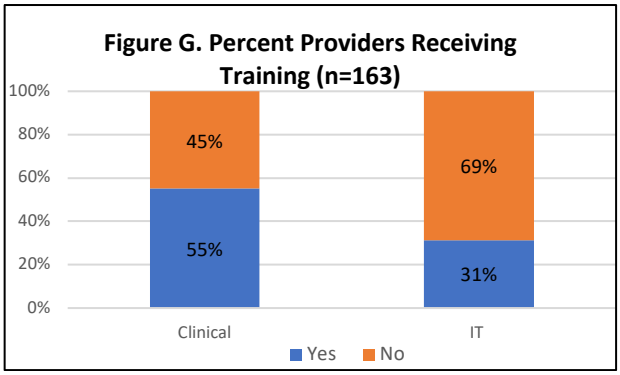
Workstream 2 developed and applied instruments to monitor the ongoing implementation of e-Consultations in the 40 original "pilot" PHC clinics.[12] Each instrument designed for three different groups: (i) clinic directors (40 of 56 responded), (ii) medical providers of e-Consultations (163 of 240 responded), and (iii) patients who received e-Consultations (153 of 445 responded). Surveys were administered to participating clinics via GOOGLEFORMS, compiled into EXCEL. Surveys were deployed from December 15, 2021, through January 14, 2022.[13]

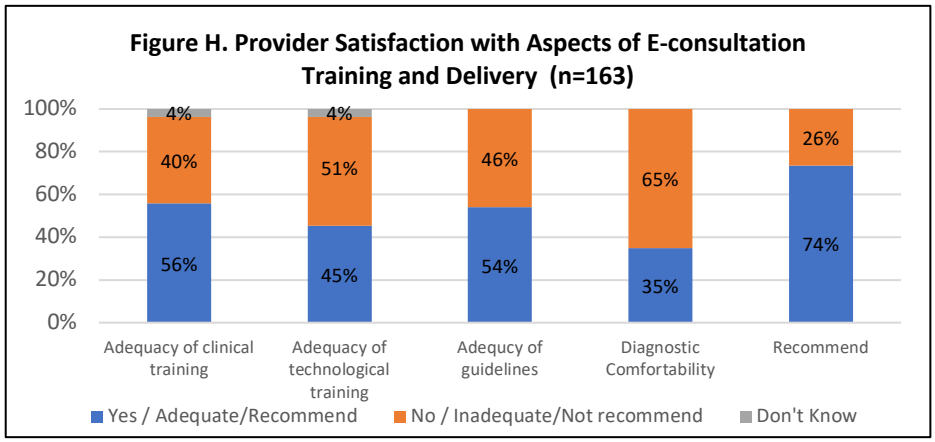
The remainder of this subsection highlights the salient findings from the survey. e-Consultations in the survey clinics mainly were provided for NCDs followed by MCH (Figure F). All e-Consultations were for previously registered patients for follow-up care. Most providers report not receiving technological

[12] These "pilot clinics" participated in the early launch of virtual clinics (e-Consultations) in Malaysia. Response rate was 68 percent for providers (163/240) and 34 percent for clients (153/445). Response rate for clinic administrators was not reported.
[13] Due to severe flooding in near a number of clinic sites, survey application was delayed by two weeks.

training (69 percent), and 45 percent did not receive clinical training for e-Consultations (Figure G). They may relate to the absence of training guidelines or manuals specific to conducting e-Consultations. Providers were instructed to use existing clinical guidelines for in-person visits. The lack of manuals and training specific to e-Consultations may have contributed to the relatively low provider ratings of clinical and technology-related training and clinical guidelines (Figure H). Less than 5 percent of respondents expressed satisfaction with technologies used for conduct e-Consultations (not displayed in figures). While the virtual clinics were only used for follow-up care (i.e., pre-diagnosed patients), and looking to the future, only 35 percent would feel comfortable making diagnoses via e-Consultations (Figure H). Nevertheless, this response raises questions regarding providers' clinical and technological preparedness to address *new* concerns or emerging co-morbidities of existing patients through e-Consultations. Despite their concerns regarding training and guidelines, 74 percent of providers would recommend e-Consultations to patients.

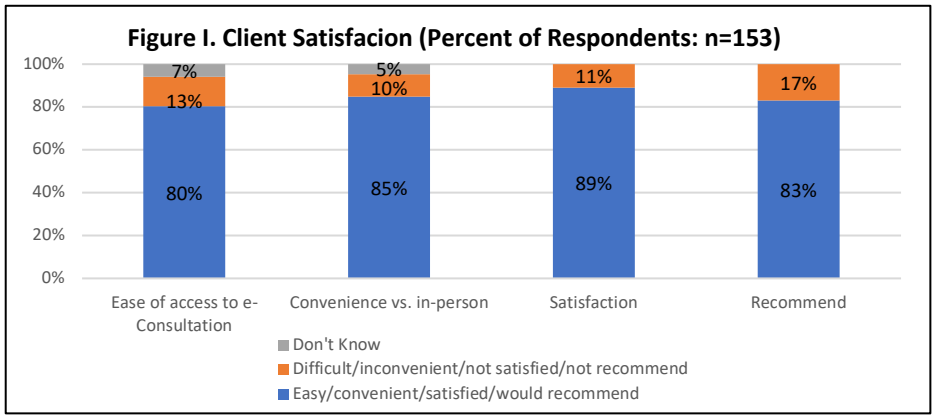






In contrast to provider responses, 82 and 68 percent of clinic administrators reported that providers received clinical and technological training respectively (not shown in figures). As mentioned above, this suggests variation in the roll-out of the pilot with some clinics receiving training while others did not. Interestingly, during the week prior to the survey two-thirds of administrators reported that their clinic had to cancel e-Consultations and 44 percent reported one or more client no-shows for their e-appointments.

Finally, clients voiced a high level of satisfaction with their e-Consultation experience than providers (Figure I). A high proportion of respondents expressed satisfaction with the e-Consultation service (89 percent), ease of technological access (80 percent) and convenience compared to in-person consultations (85 percent). Significantly, 83 percent of respondents would recommend e-Consultation services to patients.



Workstream 3: Roll-out of a Technology-enabled COVID-19 Platform

The COP supported the Malaysia team to improve the health information component of country's eHealth app, MySejahtera. MySejahtera is an existing technological platform developed by the Malaysian MOH for the dissemination of health information to the public, and has been in us throughout the COVID-19 pandemic. It allows users to track their health status, assist in locating treatment facilities, and support the government in managing COVID outbreaks. Through engagement and discussions with TFT (Praava Health), the Malaysian team adapted and uploaded relevant and existing videos and infographic from the MOH website to MySejahtera app. Short videos on "Breathing Exercises for COVID-19 Patients" (see Figure J below) and the "How to Use a Pulse Oximeter" together with an infographic on using a pulse oximeter (see Figure K), was now available on MySejahtera. The videos and infographic brought health information to the fingertips of millions of Malaysians. Between September 2021 and December 2021, the two videos garnered 13,038,115 views. The MOH considers these informational media tools crucial for improving the effectiveness of patients' self-care with the aim of improving their health outcomes.

Figure J. Video: Breathing Exercises for COVID Patients

Figure K. Infographic: How to Use a Pulse Oximeter

Source: MySejahtera, Malaysia Ministry of Health

VI. Policy Implications

Data from the survey from the two groups of clinics under Workstreams 1 and 2 show that these pilots were successful in terms of meeting their stated goals particularly for patient access and satisfaction. Likewise, as measured by the number of views on the MySejahtera app, the videos developed under Workstream 3 were hugely popular. Based on the workstreams' results, several policy implications come to the fore that can inform future e-Consultation scale-up and improvement efforts in Malaysia and globally.

First, the guidelines and workflows developed with the support of the COP under Workstream 1 and used to train the providers in the four pilot clinics contributed to higher levels of satisfaction by providers and possibly more uniform implementation of e-Consultations, compared to the original 40 clinics under Workstream 2. As mentioned, Malaysia rapidly launched virtual clinics as a "proof-of-concept" pilot in 40 PHC clinics in response to the onslaught of the pandemic. While there is divergence in the findings between providers and administrators, e-Consultation roll-out appeared to vary across the clinic sites. This is understandable, and welcomed in terms of a learning opportunity, given the proof-of-concept nature of the pilot. Over two-thirds of providers reported not receiving IT training and nearly half reported not receiving clinical training. Conversely, a high majority of administrators reported that such training was provided. In addition, 46 percent of providers considered available clinical guidelines – which were not updated for e-Consultations - inadequate. These shortcomings may have contributed to moderately lower ratings in terms of recommending e-Consultations among providers staffing the 40 clinics (74 percent) compared to their counterparts in the four pilot clinics (100 percent). Nevertheless, despite the differences in the ratings across the two surveys, the findings suggest that primary care providers do support the virtual clinics, at least for follow-up care. In sum, the findings imply that development of e-Consultation clinical and technological guidelines and workflows, which can shape the content for provider training, can make a difference in terms of fostering higher provider satisfaction with e-consultations, and ultimately, more standardized virtual service delivery.

Second, patient satisfaction ratings across the two groups of clinics were more aligned. Clients expressed high satisfaction with e-Consultation services in both the four pilot clinics (100 percent) and 40 original clinics (83 percent). This suggests that from a patient perspective, engagement with providers through e-Consultations is welcomed especially in light in pandemic-driven restrictions on and concerns about in-person consultations. The findings suggest that expansion of e-consultations will be well-received by clients.

Third, several policy implications emerged from the e-consultation pilot intervention in the four PHC clinics. The hybrid model, combining telephone and in-person consultations, appears robust for the Malaysian context. Initially, the Malaysian team considered that telemedicine should be video-based, but many rural clients do not have access to computers, smartphones or sufficient bandwidth. Planners should consider this hybrid model in future e-consultation expansion programs especially in rural areas. Patient registries at PHC clinics need to be updated particularly for patients with chronic conditions. Providers in the four pilot clinics were unable to contact nearly one-third of patients under NCD management, mainly due to inactive phone numbers.[14] Any e-Consultation expansion effort should be preceded by reviewing and updating patient contact information. Finally, one of the criteria for accessing e-Consultations in the four pilot clinics was the use of home monitoring devices (i.e., blood pressure cuffs and glucometers) for NCD management. The data suggest that many patients do not possess these devices. Any future scale-up would need to arrange for distribution of devices of NCD management for home monitoring.

Fourth, the high number of views of the videos and infographics registered on the national health app, *MySejahtera,* suggests high demand for similar educational materials. The MOH can consider developing videos and infographics related to NCD management, which would complement NCD-related e-Consultations.

Finally, comments made by Malaysian team members participating in Workstreams 1 and 2 point to an unanticipated effect with policy implications beyond e-Consultations. Through their engagement with TFTs and CPs on the development and application of monitoring instruments for e-Consultation services, Malaysian teams became deeply appreciative of the importance of measuring relevant information on results and implementation processes of projects and programs as a means to foster evidence-based policy making. They recognized that M&E needed strengthening within the MOH and welcomed the COP's technical approach of developing an M&E framework and plan, guiding questions, indicators, and instruments. In short, the COP contributed to broader organizational learning through improving knowledge and understanding of M&E.

VII. Lessons from an Implementation-Oriented COP

This section provides guidance to future JLN COPs focusing on implementation. We try to complement the lessons highlighted in the accompanying "evaluation report" prepared by an external consultant

[14] Similar data from the original 40 clinics were not available at the time of this writing.

commissioned by the JLN with the support of the Aceso Global team. This evaluation focused on assessing the joint learning model and engagement processes based on surveys and key informant interviews of three COP stakeholder groups: Malaysian team members, TFTs and CPs. From a TFT and coordination perspectives, we aim to provide some overarching reflections on running and sustaining an implementation-oriented COP.

Managing the balancing act: Similar to more traditional JLN initiatives, the COP co-produced a number of outputs that can be adapted to different country contexts (see section IV above). However, what was noteworthy about this COP was the on-the-ground application of a subset of the outputs in a single implementer country. What is the nature of CP engagement in an implementation-oriented initiative in which the focus centers on a single country? The COP adapted an advisory engagement model in which CPs and TFTs worked seamlessly to support each Malaysian team drawing on their collective knowledge and experience. Maintaining implementation-oriented momentum of three Malaysian teams while sustaining CP engagement during the 10+-month duration of the COP required considerable effort and coordination. Clearly, COP success would be gauged in terms of effective implementation by the Malaysians. However, JLN culture infers that another measure of success is the shared learning of CPs and their use of outputs in their countries. While interviews with CPs do suggest learning on their part (see evaluation report), we did not attempt to support or assess how CPs were applying the learnings in their country contexts. This would have required more time and resources than available. Future implementation-oriented COPs may want to consider activities to support CP application of lessons from implementation.

Understanding the nature of implementation: As evidenced in the broader implementation literature, implementation processes are often messy, rarely linear and usually take longer than anticipated. Plans and next steps agreed at any point may shift, be delayed, or both. This was the case in our COP. For example, in close consultation with Malaysian counterparts, the COP did set the objectives and workplans for each workstream early on. However, as the COVID-19 pandemic took its course and priorities changed, the Malaysians requested adjustments such as: (i) moving forward quickly with the development of videos and infographics and thereby narrowing the scope of Workstream 3; (ii) eliminating the e-referral component under workstream 1; (iii) adding an instrument for clinic administrators under workstream 2; and (iv) delaying all activities for a two-month period due to a COVID surge. This situation had two consequences. First, for the CPs, who had their own in-country work responsibilities, shifting priorities and delays may had led to loss of interest or fatigue, reducing their participation particularly towards the conclusion of the COP. However, fatigue may also be related to the virtual nature of the COP and the high number of meetings. Second, additional coordination and longer TFT engagement raised costs. In sum, emerging problems, needs, and unanticipated delays come with the implementation territory. Future COPs need to build contingencies into workplans and budgets to adopt to inevitable in-flight adjustments, while considering a feasible level of engagement for CPs.

Embracing a coaching approach to facilitation: Generating horizontal interaction among TFTs, CPs and the Malaysian teams contributed to effective engagement especially under the often-stressful conditions of implementation (and a pandemic). As a group, TFTs had considerable technical know-how (e.g., hard

skills) and experience in the content areas. However, all made an effort to avoid a hierarchical, expert-led, technical assistance approach to addressing requests and issues voiced by the Malaysians. Rather, they sought to adapt a coaching approach drawing on their deep 'soft skill' experience (e.g., mentoring, communication, relationship building, etc.). In other words, they aimed to guide the Malaysian teams to use and adjust their own content and process expertise to solve problems and move forward. In a sense, they created a safe space for Malaysian team members to ask questions, seek advice and express a need for knowledge. Rather than belittle or raise doubt about proposals and plans presented by Malaysian teams, they offered alternatives to consider. TFTs were also quick to note errors they themselves had committed during their rollout of e-Consultations. Importantly, this modus operandi was quickly noted and adapted by the CPs. Recruiting TFTs with both the hard and soft skills to foment effective facilitation through coaching cannot be underestimated.

Recognizing the importance of participant continuity and capacity: During the initial brainstorming sessions, the Malaysians identified a number of thematic areas in which they sought COP support. While some were eventually dropped, the high priority thematic areas were consolidated into three workstreams (see section II). The MOH/PHC, assigned teams who were paired with a TFT for each workstream. While the TFTs remained unchanged and there was some rotation of Malaysian personnel, it is noteworthy that at least one Malaysian team member in each workstream continued throughout the duration of the COP. This continuity (i.e., technical facilitation and Malaysian teams) was critical to workstream performance. Nevertheless, despite a high level of commitment to the workstream objectives and activities, Malaysian teams sometimes struggled to maintain steady engagement with the COP vis-à-vis their daily workloads and shifting pandemic-related demands. For example, in Workstream 3 upon implementing rapidly implemented two items of the workplan (videos and infographics), the Malaysian team decided to discontinue further work in part due to other demands. In addition, the Workstream 2 team originally consisted of evaluation professionals from the Malaysian National Institute of Health. These staff discontinued participation in the early days of the COP, resulting in delayed responses to agreed activities. In hindsight, the COP may have taken on too many tasks in light of local capacity, demands of implementation and shifting pandemic-related priorities. A narrower technical focus, perhaps involving only two workstreams, may have been a better fit given this situation.

Fostering easy access to relevant information: Having a structured and user-friendly e-library of relevant knowledge resources contributed to the effective running of the COP. The TFTs and CPs co-developed a targeted e-library to address the informational needs emerging from the planning and implementation of activities of each workstream. The goal was to create an easily accessible space where resources (internal or external) would be widely available to COP participants, and ultimately, JLN members. Throughout the duration of the COP, all participants utilized the e-library to reference global and internal COP resources pertaining to the implementation and scaling of e-consultations.

After some trial and error, the team built an easily navigable "Wiki-style" e-library using the *Notion* platform, which served two purposes. First, it was a technical resource center containing journal articles, working papers, handbooks, provider and patient guidelines, videos, blogs etc. on ambulatory telemedicine tools and experiences around the world. Sections focused on available documentation of

global experiences related to the planning and launching Covid-19 and non-Covid-19 telemedicine services with an emphasis on the nuts-and-bolts of clinical and technological design and application in primary care, community and home-based settings. Resources were researched and submitted by the TFTs and CPs, and the Aceso Global team organized and uploaded them to the e-library. Second, the e-library was a depository for CoP participants to access presentations, recordings and resources shared by TFTs, country participants and the implementer teams. The *CoP activities* sections included slides, recordings and outputs as well as specific items shared by the Malaysian implementer teams participating in each workstream.

Given that the e-library was continuously updated, one lesson learned was to conduct walkthroughs and remind country participants how to access and navigate the platform from a user perspective. This allowed the implementer teams to access the necessary materials for their work in real-time. Aceso Global continues to upload information on ambulatory telemedicine experiences.

VIII. Conclusion

The Community of Practice supporting Malaysia represents a model for future implementation-style JLN engagements. The Malaysia team, with the help of CPs and TFTs, achieved implementation of key activities in each workstreams despite of the limitations they faced in the midst of an ongoing global pandemic with unpredictable surges. The advisory approach worked but with certain drawbacks in terms of CPs application in their country contexts. All participants expressed high interest to engage through in-person encounters to complement virtual meetings, suggesting a hybrid model offers an alternative best-case scenario for fostering an efficient and effective implementation process. There is an opportunity for countries to learn from the COP by accessing general guiding documents through the COP e-Library. The COP will continue to monitor policies to scale-up e-Consultations based on the lessons and results of COP-supported implementation activities in Malaysia.

In a "soft" closure event for the COP,[15] it is noteworthy that MOH's Deputy Director of Health mentioned a number of follow-up activities and policies drawing on the results of the COP. Building on Workstream 1, the MOH is adapting and expanding the hybrid model (telephone and in-person) to rural areas starting with Sarawak State in northwest Borneo Island. Based on the results and lessons learned from the development and application of an e-consultation monitoring instrument in the 40 "original virtual" clinics under Workstream 2, the MOH plans to expand e-consultation services to additional 240 PHC clinics. Finally, given the success of the health promotion infographics and videos developed under Workstream 3, the MOH is planning to develop similar media to support home management of NCDs in support of NCD-focused e-consultations. The JLN is keen to track these plans for follow up as a potential impact case study.

[15] April 4, 2022. The event was held on April 4, 2022. Attendees included Dr. Chong Chee Kheong, Deputy Director General of Health, Malaysian team members, TFTs, country participants and representatives of the JLN Network Management Team and the Bill & Melinda Gates Foundation.

Annex A. Meeting Dates

Table A1. COP Session Dates

Meeting	Date
Brainstorming Session	March 4th, 2021
Workstream 1 Meetings	March 31st, 2021 & April 5th, 2021
Workstream 2 Meetings	April 15th, 2021 & April 21st, 2021
Workstream 3 Meetings	April 1st, 2021 & April 8th, 2021
One-on-one Meetings	April – June 2021
1st Plenary Session	May 5th, 2021
2nd Plenary Session	August 25th, 2021
Tripartite Meetings	September – January 2021
Closing Session	April 4th, 2022

Annex B. Final Outputs Report

Introduction

The COP, *Scaling e-Consultations*, focuses on implementing and scaling up e-Consultations to care for COVID-19 and non-COVID-19 patients at the primary health care (PHC) level. The final products reported herein were co-developed during the execution of the COP between February and December 2021.

The Malaysia Teams and the Technical Facilitators (TFTs) produced outputs included in this document.[16] These outputs also benefitted from contribution by the county participants.[17] The outputs are presented by COP workstream. All products listed below are available in our e-Library of resources produced for *Learning Exchange* on *Patient Pathways and Pandemics: COVID-19 and Beyond.*[18]

Workstream 1 Outputs

This section contains final outputs related to Workstream 1 of the COP – "Optimizing e-Consultations and e-Referrals." These include materials shared by the Cambridge Health Alliance (CHA) team such as guidelines, videos, presentations, website links, articles, and curated documents. They include documents culled from other medical care and academic organizations as well as a draft of Malaysia's new (e-Consultation) hybrid model guidelines and training plans.

- Curated list of documents prepared and used by a TFT, Cambridge Health Alliance (CHA) to support their own hybrid care model. This document includes information on hybrid care workflow, vital signs-lab visits, and communication guidelines. Download Here.

- CHA guidelines used for COVID Community Management. This document includes step-by-step guidelines for managing COVID patients remotely. Download Here.

- CHA handbook regarding COVID Telephonic Management. This handbook includes COVID definitions, telephone management guidelines, and triaging guidelines for nurses facing COVID patients remotely. Download Here.

- COVID Ambulatory Clinical Guidelines for Pediatric Patients. This document is designed to simplify and streamline care during the COVID-19 pandemic. They are created to assist healthcare providers in clinical decision making. Download Here.

[16] See Annex A for a list of COP participants who contributed to these outputs.
[17] The outputs identified in this report are of March, 2022.
[18] It is important to note that this e-library originally was created for the Learning Exchange (prior to the COP).

- COVID Ambulatory Clinical Guidelines for Adult Patients (including pregnant and postpartum women). This document aims to simplify and streamline care during the COVID-19 pandemic. They are created to assist healthcare providers in clinical decision making. Download Here.

- Guidelines for outpatient evaluation and management of acute illness in adults. This article includes the management of adult patients with acute COVID-19 in the outpatient setting, including elf-care advice, telehealth, and outpatient clinic management, emergency department referral, and post-hospital discharge care. Download Here.

- CHA internet site. This website includes provider information, telehealth resources, newsletters, team information, a virtual back pain clinic and telehealth how-to-guides. Access Here.[19]

- PowerPoint presentation by CHA used to inform on salient features of telemedicine to CHA providers in the early stages of the pandemic. This presentation includes definitions, guidelines, and the overall shift towards telehealth due to the pandemic. Download Here.

- Telemedicine schedule guidelines used by CHA separated by type of care to avoid bottlenecks. This document includes guidance for staff on scheduling specific conditions for telemedicine vs in-person care. Download Here.

- Center for Care Innovation website. The site compiles numerous telemedicine resources on workflows and technical issues providers must consider for telehealth care. Access Here.

- CHIRON website. The site includes language that is particularly useful to introduce patients to the new world of telemedicine. Access Here.

- CHA best practices for managing patients using telemedicine. This document includes practical advice for clinicians on managing several common medical conditions encountered in primary care, using telemedicine. Download Here.

- A series Johns Hopkins University on remote clinical evaluation of patients using telemedicine. The videos include topics such as clinical skills, training resources, guides for patients and best practices. Access Here.

- British Medical Journal *Ten Minute Consult*: how to evaluate and manage patients using telemedicine. This article covers what providers should address and how during a teleconsultation. Access Here.

[19] The links provided under 'Access Here' will lead to external websites.

- CHA's guidelines for providers on how to prepare for a teleconsultation. This tip sheet includes steps to take during a tele-visit to make a follow up in-person visit more efficient and effective. Download Here.

- Dermatology Telehealth Guide. This guide includes information for patients on how to photograph dermatologic conditions to prepare for a tele-dermatology e-Referral. Access Here.

- Telehealth Guidelines developed by the Malaysia team including, hybrid model guidelines and personnel training plans. This document was done with support of CHA (through the sharing of information, guidelines, and experiences). The document includes scope of services (NCDs, CDCs, MCHs), workflows, checklists, roles and responsibilities, ethics, and medical records. This is an ongoing document and further changes are expected. Download Here.

- Telehealth Services Pilot Testing for non-communicable diseases in Public Primary Care Clinics in Malaysia Report developed by the Malaysia team. This document includes pilot study objectives, methodology, results, and lessons learned from the previously mentioned implemented pilot. Download Here.

Workstream 2 Outputs

This section contains the final outputs related to Workstream 2 of the COP – "Monitoring and Evaluation (M&E) of Virtual Clinics." These include initial M&E frameworks developed in accordance with Malaysia priorities, Interview guides – both for general use and for a more specific (Malaysian) context. Lastly, this section also includes some key indicators developed by the Malaysia team with the support from Aceso Global.

- M&E Framework developed by Aceso Global for Malaysia's e-Consultation Expansion. The purpose of the framework is to outline the different e-Consultation implementation stages with a focus on processes and outputs/results. The Implementation Preparation Phase consisted of co-learning, co-producing and technical/experience support resulting in three focused workstreams: Hybrid Model Design, Monitor & Evaluation Plan and Online Instructional Videos and Infographics. The Implementation Accompaniment Phase, while still following the same processes, is looking to implement outputs in each workstream and analyze impact/effects of these. Download Here.

- Long-form version of the survey instrument developed by the Aceso Global and Malaysian teams with inputs from country participants. This instrument is meant to serve as a more generic and lengthier interview guide for countries looking to monitor virtual consultations. The instrument consists of three parts, which correspond to the category of respondents:

Administrative, Provider and Client instruments are included. Instruments cover activities/processes, inputs, outputs, and outcomes. Download Here.

- Short-form version of the survey instrument above developed by the Malaysian (Workstream 1) team. This instrument was developed in accordance with the Malaysia team priorities and applies to the Malaysia context, to be deployed in pilot virtual clinics. This is an ongoing document and further changes are expected. Download Here.

- Indicators developed by the Aceso Global team. This instrument is meant to guide a monitoring and evaluation process of an e-Consultation rollout. It accompanies the generic long-form version instrument listed above. The indicators in this document include Inputs, Activities/Process, Outputs, Outcomes. Download Here.

- Indicators developed by the Malaysia team with support of the Aceso Global team. This instrument is meant to guide the monitoring and evaluation of the e-Consultation rollout in Malaysia. It accompanies the short-form version instrument listed above. The indicators in this document include Utilization rates, Volume of Services, Patient Satisfaction, Provider Satisfaction, Support for Implementation, Session Outcomes, and Defaulter Rates. This is an ongoing document and further changes are expected. Download Here.

- Preliminary report by Malaysian team, outlining major findings of survey applied in 40 pilot clinics. Download Here.

Workstream 3 Outputs

This section presents the final outputs related to Workstream 3 of the COP – "Roll out of a Technology-enabled COVID-19 Platform." These include presentations by both teams, Praava Health and Malaysia PHC team, outlining the current and future uses for their online platforms. Additionally, this section includes final outputs by the Malaysian team including infographics and videos now available on their website/platform.

- PowerPoint presentation used to by the Praava Heatlh team to introduce *Praanno by Praava Health*, a "Digital Healthcare Concierge for COVID& Chronic Care Management." This presentation includes how the app works, rollout/pilot plans, a COVID patient journey diagram, and background information about Praanno. Download Here.

- Recording of Dr. Mahesh Appannan's (Malaysia Team) presentation on MySejahtera. MySejahtera is a mobile application developed by the Government of Malaysia to facilitate contact tracing efforts in response to the COVID-19 pandemic in Malaysia. Download Here.

- Infographic describing how to use a pulse oximeter at-home by COVID-19 patients was developed and made available on Mysejahtera. Download Here.

- Video showing step-by-step how to use an oximeter for at-home patients with COVID wa developed and uploaded on Mysejahtera. Access Here.

- Video on breathing exercises for at home COVID-19 patients developed and uploaded on Mysejahtera. Access Here.

Annex C. Additional Graphics

Figure C1. Patient Eligibility for Teleconsultation

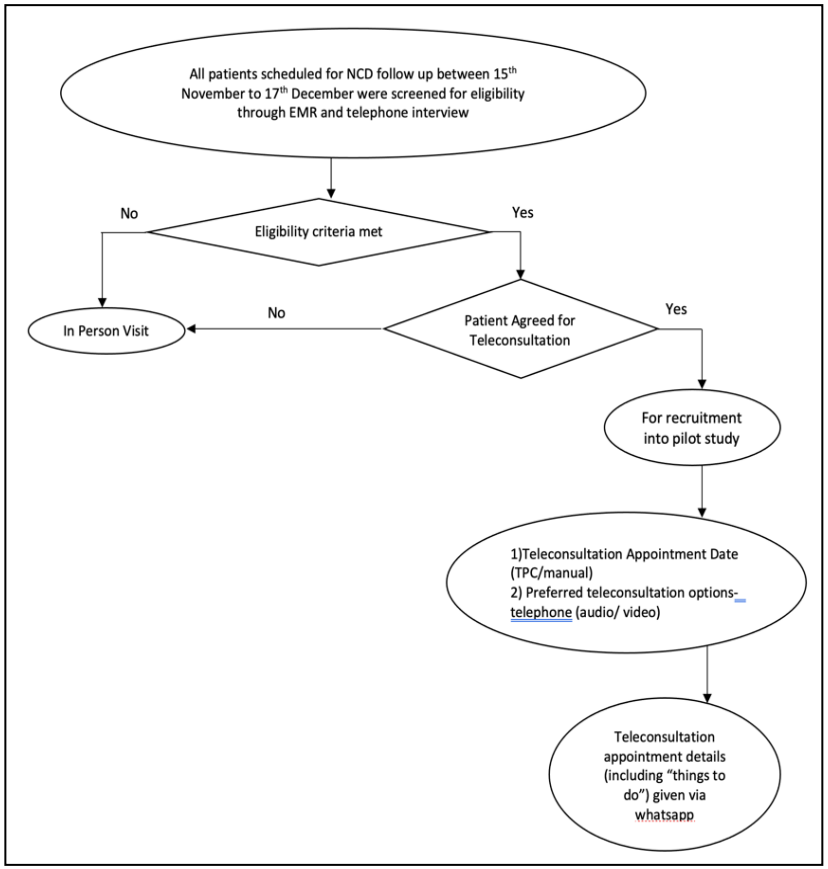
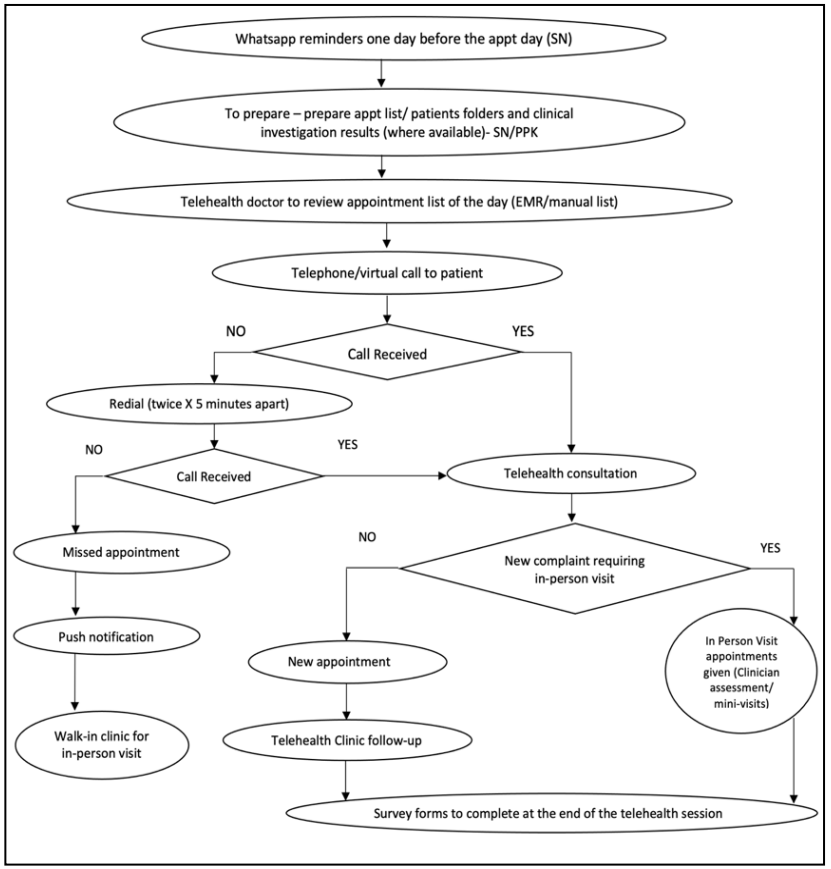


Figure C2. Telehealth Clinic Session Workflow



Annex D. Health Clinic's Names and Locations

Table D1. Workstream 1 Pilot Health Clinics

Health Clinic	Location
Kota Samarahan Health Clinic	Borneo Island
Tanah Puteh Health Clinic	Borneo Island
Kelana Jaya Health Clinic	Peninsula Malaysia
Seremban 2 Health Clinic	Peninsula Malaysia