Primary Care Practice Series:

Catalysing Change Through Learning

Primary Care International

WHO NCD kits as an entry point to training in emergencies:

a model for reducing morbidity and mortality during extreme weather events and amongst displaced populations

Credit for photo: Mr.Glendon Holder of Ministry of Health of St Vincent and the Grenadines

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About the Primary Care Practice series

The aim of this series is to capture learning from PCI projects that can be accessible to all, inform future application and generate debate on the wider application of PCI-trialled intervention models. It supports delivery of one of PCI's strategic goals: to promote low-cost intervention models for primary healthcare strengthening through testing of innovative approaches and dissemination of learning. The series provides a platform to showcase the transformative power of strong, integrated primary healthcare.

The series is supported by a multi-disciplinary Editorial Panel.

About PCI and other organisations involved in the project

Primary Care International

Primary Care International (PCI) is an agile social enterprise committed to strengthening primary healthcare globally. Founded in 2014 by leading British medical education provider Red Whale, PCI now partners with major global health organisations in Africa, Asia, the Caribbean, and the Middle East. Employing a tested peer-to-peer approach, we work with our colleagues and partners around the world to build confidence and capacity, co-creating innovative, practical solutions to the endemic challenges facing healthcare systems in diverse settings globally. With a firm belief in compassionate, person-centred healthcare, PCI occupies a unique position, bringing deep clinical and systems expertise to integrated primary healthcare.

World Health Organization

The World Health Organization (WHO) leads and champions global efforts to achieve better health for all. They bring together 194 countries and work on the frontlines in 150+ locations to confront the biggest health challenges of our time and measurably advance the well-being of the world's people. The development of global guidelines ensuring the appropriate use of evidence represents one of the core functions of WHO. Guidelines are subject to a rigorous quality assurance process that helps to ensure that each and every published guideline is trustworthy, impactful and meets the highest international standards.

Pan American Health Organization

The Pan American Health Organization (PAHO) wears two institutional hats: it is the specialised health agency of the Inter-American System and also serves as Regional Office for the Americas of the World Health Organization (WHO). It works with countries throughout the region to improve and protect people's health. PAHO engages in technical cooperation with its member countries to fight communicable and noncommunicable diseases and their causes, to strengthen health systems, and to respond to emergencies and disasters. The development of guidelines ensuring the appropriate use of evidence represents one of the core functions of WHO/PAHO.

Abbreviations and Acronyms

EMRO	WHO Eastern Mediterranean Regional Office
MoH	Ministry of Health, Wellness and Environment, Saint Vincent and the Grenadines
NCD	Non-communicable disease
NCDK	WHO NCD Kit
PAHO	Pan-American Health Organisation
PEN WHO	Package of Essential Noncommunicable Disease Interventions ("PEN")
PCI	Primary Care International
PLNCD	People living with NCDs
SVG	Saint Vincent and the Grenadines
UNHCR	United Nations High Commissioner for Refugees
WHO	World Health Organization

Executive Summary

The WHO non-communicable diseases kit (NCDK) is part of an initiative to improve management of patients living with NCDs in emergency settings, particularly those characterised by displaced populations. This is particularly critical for low- and middle-income countries where 86% of deaths are NCD-related (WHO, 2022a).

Effective use of the NCDK depends on healthcare workers level of knowledge, skills and familiarity of the kit contents and there is a critical role for training the workforce to make the best use of the kits.

A PAHO-led study found that the NCDKs would be feasible and acceptable for use in the Caribbean region to address the needs of people living with NCDs (PLNCDs) after disasters such as extreme weather events (Razzaghi et al., 2019). As PCI had been involved in piloting training on use of the kits with WHO, in the Eastern Mediterranean Region, PCI was approached by PAHO.

This dialogue was fast-tracked following a volcanic eruption in Saint Vincent and the Grenadines (SVG), in the Caribbean, that resulted in the displacement of nearly 20,000 people and caused significant disruption to the healthcare system, which was already under pressure due to COVID-19.

PAHO contracted PCI to rapidly design and deliver a remote live training programme to health workers in SVG, on use of the WHO NCD kits, building on PCI's experience of training on the kits in Afghanistan and Gaziantep. PAHO purchased, stored and distributed the kits and co-ordinated with the Ministry of Health (MoH) SVG to identify personnel to be trained and supported the training and the evaluation. The MoH ensured that the kits were distributed and available for use and that participants were selected and provided time for training. The training was facilitated through a series of remote live workshops delivered over a 5-day period, followed by two refresher workshops, two months later. Participants' high ratings of confidence levels suggests that the training did achieve the desired aim of strengthening clinicians understanding of how to make best use of the NCDKs.

While reactive training can offer an important boost in knowledge, skills and confidence during an acute emergency, it comes at a time when healthcare workers are overburdened and dealing with multiple priorities. Developing a package of blended training that uses an online platform, such as the PCI Academy and that can be used pro-actively or as an annual refresher training would allow the training to be offered at scale in a planned manner that anticipates extreme weather events and prepares healthcare workers to respond effectively and make best use of the NCDKs. The inclusion of a Training of Trainer component (either remotely or face to face) for identified 'NCD Champions' would ensure that learning is replicated and shared more widely, ensuring a sustainable approach.

A vital part in the success of this approach is ensuring that the NCDKs are already in place and available to participants before the training takes place. This will involve further pre-positioning of NCDKs across the region.

Introduction

The NCDK is part of an initiative to improve the management of patients living with NCDs in emergency settings, developed by the World Health Organization (WHO) as a recommendation from the WHO 'Global Action Plan for the Prevention and Control of Noncommunicable Diseases'. The NCDK contains essential medicines and medical devices for the management of hypertension and cardiac conditions, diabetes, chronic respiratory diseases and, with a separate module, mental health and neurological conditions in emergency/crisis-prone areas (WHO, 2022b). This is particularly critical for low- and middle-income countries where 86% of deaths are NCD-related.

The NCD kit includes five modules: medicines for NCD treatment, a cold chain for insulin storage, supplies and renewables, equipment, and a glucometer module with glucose monitoring supplies. Each kit contains enough medication to treat 10,000 people for three months and can be deployed at various locations such as mobile clinics, primary health centres, and field hospitals.

The NCDK provides a useful entry point to capacity building for NCD care in emergencies, particularly those characterised by displaced populations. However, the kit alone is not enough. Its use will depend on the level of knowledge, skills and familiarity of the kit contents with the health workforce in primary care. This will vary depending on the setting, and there is a critical role for training the workforce to make the best use of the kits. During an emergency, existing systems in place and experienced clinicians may face additional challenges, specific to displaced populations, such as:

- How to ensure consistency of care if individuals cannot access their usual health facility
- How to access a patient's medical history if they are displaced and without any medical records
- Mitigation measures for the disruption such as exploring how healthcare workers such as pharmacists, nurses and doctors can work together to safely offer longer prescriptions and how to safely switch from one medication to another if the usual medication is not available
- How to counsel and manage expectations if a patient needs to switch to a generic version or different brand of their regular medication

The kits were first piloted in the WHO Eastern Mediterranean Region Office (EMRO) in 2018, selected due to the high prevalence of NCDs and humanitarian needs in the region. As part of the pilot, WHO EMRO contracted PCI to conduct face-to-face trainings for remote clinical team supervisors in Gaziantep (Turkiye, for North-West Syria) and Kabul (Afghanistan) on the contents of the kits and how to use them.

In early 2021, PCI participated in the WHO's regional expert consultative meeting as part of a review of the NCD kit deployment in the EMRO region. This was an opportunity to share lessons learned from training on the use of the kits, such as the critical importance of understanding the local context and that the success of any training depends on leadership, aligning expectations and joint planning.

However, with NCDs globally accounting for 74% of deaths (WHO, 2022a), the relevance of the kits extends beyond conflict-prone settings. With increasing extreme weather and other adverse events due to climate change, the relevance of the NCD kits will extend to many contexts. In 2020 alone, more than 30 million people were driven from their homes as a result of climate change-related extreme weather events (IDMC, 2021). In the Philippines, which is highly prone to tropical cyclones, NCDs account for 68% of all deaths, and the probability of dying between the ages of 30 and 70 years from one of the four main NCDs is 29% (WHO and UNDP, 2019). Similarly, it is known that at least 30% of the mortality after the 2017 hurricanes Irma (United States of America) and Maria (Northeastern Caribbean) was due to poorly managed NCDs such as hypertension, diabetes, and heart disease (Issa et al., 2018). These hurricanes most significantly affected the Caribbean region which has the highest rates of premature mortality due to NCDs in the Americas (PAHO, 2016).

Building on the collaborations between WHO EMRO and PCI to use the kits to strengthen the capacity of primary healthcare workers to manage NCDs in emergencies, PCI was introduced to the Pan American Health Organisation (PAHO) who were interested in making use of the NCDKs. A PAHO-led study found that the NCDKs would be feasible and acceptable for use in the Caribbean region to address the needs of people living with NCDs (PLNCDs) after disasters.

As dialogue began, the region experienced such a disaster. In April 2021, the volcano La Soufrière erupted on Saint Vincent and the Grenadines (SVG) in the Caribbean. This resulted in the displacement of nearly 20,000 people and caused significant disruption to the healthcare system, which was already under pressure due to COVID-19. As a result, PAHO requested a fast-tracked pilot project of the NCDKs in immediate response to the disruption of care and supply chains in SVG. This was the first time PCI was responding to the health needs of a displaced population due to an extreme weather event, rather than in a conflict-setting.

About the intervention model

This paper outlines the process undertaken to rapidly design and deliver a remote live training programme to health workers in SVG on use of the NCD kits, building on PCI's experience of training on the kits in Afghanistan and Gaziantep. Given considerations around COVID-19 restrictions as well as the carbon footprint of flying, it was an opportunity to pilot running this training remotely, via Zoom, which was agreed by PAHO and the MoH.

1. Purpose of the training

The purpose of the training was to strengthen the capacity of primary health care workers (district medical officers, family nurse practitioners and pharmacists) to respond to the needs of PLNCDs in an emergency, through training on how to use the NCDKs. The aim was to support the clinicians to provide evidence-based, high-quality care for PLNCDs during a period of disruption, such as the eruption of La Soufrière.

The training focused on what was in the kits, how to use the different modules and when, and how to move between medications safely to ensure continuity of care (and uninterrupted supply of medicines) for PLNCDs during the acute phase of an emergency / or for as long as the health system was disrupted.

2. Understanding the context in SVG

Understanding the context and training requirements was crucial, especially in light of the recent volcanic eruption and impact of the COVID-19 pandemic, which had impacted some of the health personnel being trained.

Some of the clinicians were displaced themselves, and/or had relatives directly affected, and were traumatised. Like all the people in this situation, their first concerns were for their own families' needs for shelter, food, schooling, money and work. For those with chronic illness, getting a supply of medicines followed soon after. For clinicians, dealing with conditions that had become unstable as a result of breaks in treatment was a concern – especially for those with epilepsy or insulin-dependent diabetes, who could deteriorate rapidly. Clinicians were also uncertain about how to safely switch patients from their usual medication to medicines that were available – and patients needed convincing that these changes were appropriate. Managing drug supply was a major concern for pharmacists.

The planning team comprised representatives of the SVG Ministry of Health, PAHO and the Emory University School of Medicine and a PCI team of four experienced family physicians. A series of virtual planning meetings were held to:

- Understand who was delivering primary care services, who was prescribing, who could prescribe, access to medications, the formulary, NCD guidelines
- Tailoring the already piloted training program to SVG -- elements that needed to be tailored based on: formulary, current management guidelines, regulations in country

The MoH SVG identified key health personnel in SVG, who were interviewed by PCI, to ensure the content and training materials were appropriate to the perceived needs of the participants.

3. Designing the training package

Based on the needs assessment, PCI created a training schedule, curriculum and customised training materials including context-specific case studies with a focus on the medicine module of the kit which is designed for the treatment of NCDs. To ensure a comprehensive understanding of NCD management, the curriculum included clinical guides covering the diagnosis and management of major NCDs i.e., hypertension, cardiovascular diseases, diabetes, chronic respiratory diseases, and mental health and epilepsy which are covered in a standalone module within the kits.

Furthermore, the training package recognised the challenges that may arise when the supply of medications becomes limited, particularly when patients had previously been taking medicines that were not available in the kits. To address this issue, the package incorporated tools and resources aimed at facilitating the smooth transition of patients from their regular medication regimen to the medications included in the kit. These tools were designed to support clinicians in assessing patients' current medication needs, identifying suitable alternatives within the available resources, and ensuring a seamless transition that prioritises patient safety and continuity of care. In addition, a streamlined formulary with information on the medications in the kit was provided to participants, with reference to the list of essential medications from the Ministry of Health (MoH) throughout the training.

The WHO Package of Essential Noncommunicable Disease Interventions ("PEN") was taken into account in the development of all of the training materials as well as the WHO Global Hearts training resource, Caribbean Public Health Agency (CARPHA) Guidelines on the Management of Diabetes and WHO Mental Health Gap Action Programme (mhGAP).

About the intervention model

4. Training format and implementation

The training format was based on a series of 5 x 2-hour remote live workshops, via Zoom, for five consecutive days as outlined in the timetable below. The workshops were interactive and designed to cover core content, enabling participants to apply the learning to their own settings. Senior PAHO representatives attended some sessions, giving credibility and emphasising the significance of the training. A local clinician also assisted with ensuring connectivity and participation.

The sessions started with a case scenario which was developed to include the common and difficult primary care challenge of managing patients with multiple pathologies. This approach was relevant for clinicians of all cadres as they could contribute to discussions from their own perspectives. Each day's training started with questions from participants on the previous day's training, which encouraged further discussion and reflection.

Live Distance Workshops on the management of Non-Communicable Diseases in Emergency Situations
St Vincent May 2021

Day 1	Day 2	Day3	Day 4	Day 5
Welcome Introduction to workshops The WHO NCD Kits and WHO guidance Principles of chronic disease management Aims of NCD management in emergencies Participants' experiences and concerns	Questions and Answers Severe hypertension Hypertension in pregnancy DIABETES • Overview of diagnosis and management • Self-care • Complications • Emergencies	Questions and Answers SEIZURES AND EPILEPSY • Diagnosis and differential diagnosis • The first seizure • Medications and their substitutions HYPOTHYROIDISM	Questions and Answers ASTHMA AND COPD Diagnosis and differential diagnosis Management of chronic disease and acute exacerbations Peak Flow Meters, Inhalers and spacers Patient education and self-care	Questions and Answers CARDIOVASCULAR DISEASE Ischaemic heart disease, Heart failure, CVA and TIAs Diagnosis Management of new and old patients Secondary prevention
Break	Break	Break	Break	Break
HYPERTENSION as a chronic disease • Presentation • Risks • Classification • Management- life style and medications Case discussions	Insulin- storage and use Type 1 diabetes Case discussions	MENTAL HEALTH • Diagnosis and management • Treatments and medications	Complex cases for discussion Training skills and training plans	Clinical records Data Collection and reporting Summary of kit medications and substitutions Feedback

On the final day, two medical officers prepared and discussed care planning for two complex case scenarios. An element of 'Training of Trainers' was included in order to support the healthworkers to cascade this training to their colleagues. All the training materials were shared with the participants after the workshops to facilitate this cascade. Training took place between 1-3 pm, as advised by the SVG MoH and participants were given protected time to attend the workshops and did not have to fit learning around other duties. The timetable and contents of the training were modified considerably as the 5 days unfolded. A temporary WhatsApp group was set up with the participants to discuss additional questions and clinical situations with the training team.

5. Refresher training

Unfortunately, the kits were not in place during the initial training. They arrived 2 months later. As a result of the delay, and the request of the MoH SVG to have more District Medical Officers trained in the use of kits, PCI was requested to provide two further update workshops two months later, in September 2021.

The September workshops were to refresh and update the knowledge of those participants who had attended the previous training and set an appropriate standard for those who had not attended the previous sessions.
The first workshop focused on diabetes and cardiovascular disease, including hypertension. The second workshop addressed chronic respiratory disease (asthma and chronic obstructive pulmonary disease), seizures and epilepsy, and mental health.
The workshops took the form of unfolding case scenarios during which questions were posed to participants, to which they were invited to respond through the chat box or by speaking.

The questions were designed to stimulate clinical reasoning by applying knowledge and guidelines to realistic simulated patients and provoke discussion. The contents of the NCDKs were presented again, along with a refresher on the additional PCI tools included to support the use of the medicines: the Clinical Guides, the basic formulary and the table to assist clinicians when switching patients from their usual medications to those supplied in the kit.

6. Project evaluation

At the end of the first series of workshops, PCI, with the support of PAHO and the MoH SVG, requested participants to complete an online evaluation form to understand better the relevance and usefulness of the training. In addition, PCI requested feedback from key individuals who contributed to the evolution and testing of the intervention model

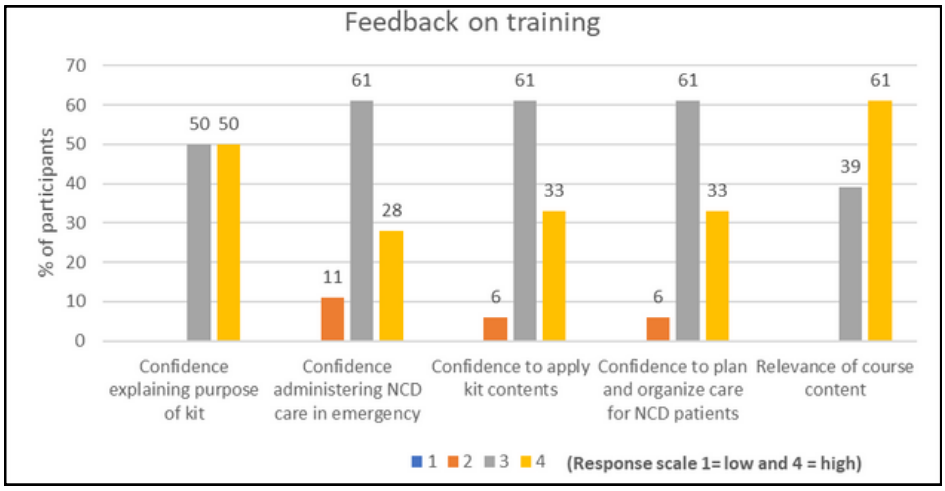
Findings

1. Attendance

The original target had been to include as many healthworkers as possible. Around 40 participants took part in the first series of workshops between the 24th of May to the 1st of June, 2021.
The participants were key clinical staff in SVG including district medical officers, family nurse practitioners and pharmacists. Their participation was consistent; on average, 25 pharmacists, 7 family nurse practitioners and 5 district medical officers were present for each workshop. The workshops began and ended on time and connectivity appeared to be satisfactory. For the second series of workshops, about 30-35 participants attended the first session and about 28-30 in the second session. PCI had the impression that the majority of the participants, perhaps more than three-quarters, had not attended the previous workshops. It was therefore assumed that many of these participants were medical officers.

2. Effectiveness of the training

The online post-course evaluation form, which was distributed to the 40 participants after the first series of workshops, was completed by 45% (18 people) of the total cohort. Despite the low completion rate of the post-course evaluation form, it was encouraging to see fairly consistent high ratings of confidence levels in understanding the purpose of the kits, use of the kits and planning NCD care, as outlined in the table below. This suggests that the training strengthened clinicians' understanding of how to best use the NCDKs.



It is very encouraging that 61 % of the participants, who completed the evaluation gave the relevance of the course the highest ranking and 39% gave it the second-highest ranking.

The feedback on levels of confidence in administering NCD care, applying the contents of the NCD Kits in practice, and planning/organising care for people with NCDs was also good, although 61% scored their confidence at 3 (on a scale of 1-4) suggests room for improvement. This could be due to a combination of factors including lack of prior familiarity with PCI guidelines in NCD management, not yet having had the chance to see and start to use the NCDKs at the time of training, the relatively short length of the training and the fact that they were accessing this learning during a period of emergency when there were many demands on their time and focus.

Participants were asked to list three changes they would make in their practice to support displaced patients and their families in the self-care of NCDs. This activity highlights that participants were able to identify specific actions that they would take as a result of the training. Below is a summary of their feedback:

- **History taking:** Participants mentioned that they would improve efforts to understand a patient's medical history and conduct a thorough evaluation of their prescribed medication in relation to the condition(s) being treated to ensure they are using them correctly.
- **Managing co-morbidities:** Some participants said they would prioritize managing multiple chronic conditions in patients with co-morbidities and work to maintain adequate control of illnesses in those with NCDs.
- **Multi-disciplinary team:** They would also recommend to the government and the ministry of health the integration of dieticians in the food preparation process for displaced individuals. They would also be more aware of the mental health of displaced patients and work in collaboration with other healthcare professionals to provide a holistic approach to their care.
- **Health education:** Some participants stated that they would focus on educating and counselling displaced patients, promoting self-care management and offering support.

In summary, based on the feedback from the evaluation, the content appeared relevant but the overall understanding of the management of NCDs could still be further improved with the provision of further learning opportunities.

Key Recommendations for Replication of the Model

Working collaboratively with key partners

Key to the success of this training was the collaboration between the key partners. PAHO co-ordinated with the Ministry of Health (MoH) SVG to identify personnel to be trained, supported the training and the evaluation and purchased, stored and distributed the NCDKs. The MoH facilitated interviews for the assessment, helped to set up the training, selected participants and provided them time for training and ensured that the NCDKs were distributed and used. PCI focused on designing and facilitating the training.

Ensure participants receive a thorough orientation and 'protected' learning time

Remote training proved to be an effective format in this context. Provisions should also be made for the best internet connectivity possible to improve participation. Learners should be provided with protected time to attend training and training should take place at a suitable time that ensures that they are not having to fit learning in around other duties. Trainers should allow at least two sessions for participants to gain confidence to interact in a live workshop.

Measuring knowledge gain and impact of the training

Due to time constraints, minimal impact measurement was undertaken in this project, however, the following approaches would be recommended for future interventions.

Ensure trainers use a standard quiz to test pre- and post-course clinical knowledge, including scales where participants can rate their confidence to conduct certain clinical activities. This should be conducted before and after training and the change from the pre to post-training quizzes, as well as the averages, can provide an indication of the improvements in clinical knowledge and confidence. Basic demographic data such as gender, professional cadre and age of participants should also be collected.

Participants should be encouraged to complete the standardised end of course evaluation as this provides valuable knowledge and insight and ensures that adjustments can be made to the training package as required. Offering a course certificate, that is issued after completion of the evaluation, could be an incentive.

Consider a longitudinal case study of a small number of participants to understand their learning journey before, during and after the training and how they have used the training and the kits.

Ensure training occurs when kits are available

A vital part in the success of this approach is ensuring that the NCDKs are already in place and available to participants before the training takes place. This will involve further pre-positioning of NCDKs across the region. A delay can be de-motivating for newly trained staff and dilute the effectiveness of the training and use of the kits in an emergency context.

The reactive training model and tailoring the training to the context

In the event that training takes place in response to an extreme weather event, or a conflict / disease outbreak or any other event that means that travel is challenging, then this reactive model of a series of short remote live workshops tailored to the specific context can be replicated. It responds to an immediate need and can be put into practice without delay. The caveat is that this is only possible if the event makes it possible to have access to a safe space for learning and internet connectivity and this is not always the case.

Fact-finding and engagement with key stakeholders, which can be undertaken remotely, is very important to ensure that the trainers have a thorough understanding of the specific context, such as foods, health care systems, health care workers roles, key stakeholders, referral systems, essential medicine lists, local guidelines and arrangements after a disaster. It allows for a greater understanding of the needs of the population and challenges faced by clinicians themselves, who may have been displaced or traumatised by the event.

It allows for contextualising of each of the major NCDs and multimorbidity practice and tailoring of the training to the context. As described below, there are, however, limitations to both the scoping and impact measurement that can be carried out in a setting where healthcare workers are operating in emergency mode.

Increasing the number and depth of topics covered in the curriculum

Broader themes on crucial topics like lowering morbidity and mortality, managing mental health, and co-morbidity with other NCDs should be part of the training content. To raise the baseline of knowledge and skill on NCDs, a thorough introduction to the systematic management of NCDs in non-emergency settings would have been a helpful foundation for the training.

Key Recommendations for Replication of the Model

Emergency preparedness, proactive training and scaling the training model

Whilst reactive training can offer an important boost in knowledge, skills and confidence during an acute emergency, it comes at a time when healthcare workers are overburdened and dealing with multiple priorities. Developing a package of blended training that can be used pro-actively or as an annual refresher training would allow the training to be offered at scale in a planned manner that anticipates extreme weather events and prepares healthcare workers to respond effectively and make the best use of the NCDK at their disposal.

This could include:

- **Self-paced interactive online digital learning** which can also be downloaded and completed offline to provide good core knowledge and skills
- **A set of live workshops (delivered remotely)** which can be run multiple times with up to 20 participants per session to discuss the learning and explore challenges with the application of learning in practice. Live workshops enable this part of the training package to be tailored to specific contexts.
- **A community of practice** to enable the sharing of learning across the different cohorts of learners, and across the islands.
- **A Training of Trainers programme** for identified 'NCD Champions' to ensure that learning is replicated and shared more widely, ensuring a sustainable approach
- **A sustainability plan** which allows local supervisors to assist with tracking performance and also tracking impact post-training.

Evaluations of PCI's training for healthcare workers in the Caring for Refugees with NCDs project (in partnership with UNHCR) show that knowledge gain in PCI's online/blended training is comparable to that of face-to-face training. Nonetheless digital learning may be new to some participants so it is important to ensure a detailed orientation is provided to those who are less familiar with it. Access to a device with available internet connectivity and protected time for learners to do the training are other important factors that need to be integrated into any online training format. The PCI Academy has an offline capability so that learners, with unreliable internet access, can download and progress through courses offline.

Conclusion

To ensure an effective response to emergencies in areas at high risk for climate-induced severe weather events and a high burden of NCDs, it is essential to consider a wider rollout of proactive training and pre-positioning of kits. Proactive training of clinicians on the use of NCDKs in advance of extreme weather events occurring would significantly enhance the ability of healthcare workers to respond quickly and effectively, minimising disruptions in the provision of care. Delivering this via a blended learning model is a highly effective way to deliver such training at scale. Developing and delivering learning in this way, can better equip clinicians to provide essential, life-saving care in emergencies.

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