

Summary

Primary care systems in many fragile and low income settings have traditionally been oriented towards communicable diseases and maternal and child health. Few health workers and facility managers have been trained and supported to address what is now a growing burden of non-communicable diseases.

In Sierra Leone and Nigeria, we adapted and piloted a set of tools to fill this gap. The tools included desk-guides, training materials, treatment cards, and health education materials,

Feasibility studies found that the tools were able to improve NCD management at primary level in these two settings, and should inform national roll-out.

Important factors for success included working closely with local and national technical working groups during adaptation to increase ownership; using skill-based training, with cascading to lower level staff; and ongoing mentoring of health staff during roll-out,

Next steps should include national scale up, and incorporating materials in pre-service training of community health staff, alongside addressing wider systemic blockages, such as shortages of NCD drugs.

Strengthening NCD services at primary care level: lessons from RUHF projects in Sierra Leone and Nigeria

NIHR Research Unit on Health in Situations of Fragility (RUHF)

The National Institute for Health Research (NIHR) RUHF seeks to identify sources of resilience within formal health systems and local community processes to facilitate effective provision for health priorities – particularly mental health and non-communicable diseases (NCDs) – in situations of fragility.

To this end, the Global Health Institute at the American University of Beirut (AUB), has joined with the Institute for Global

Health and Development, Queen Margaret University (QMU), and the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone, in a research programme initially funded between 2017 and 2021.

RUHF supports the Ministry of Public Health and key stakeholders to effectively address the non-communicable disease needs in places such as Sierra Leone and Nigeria.

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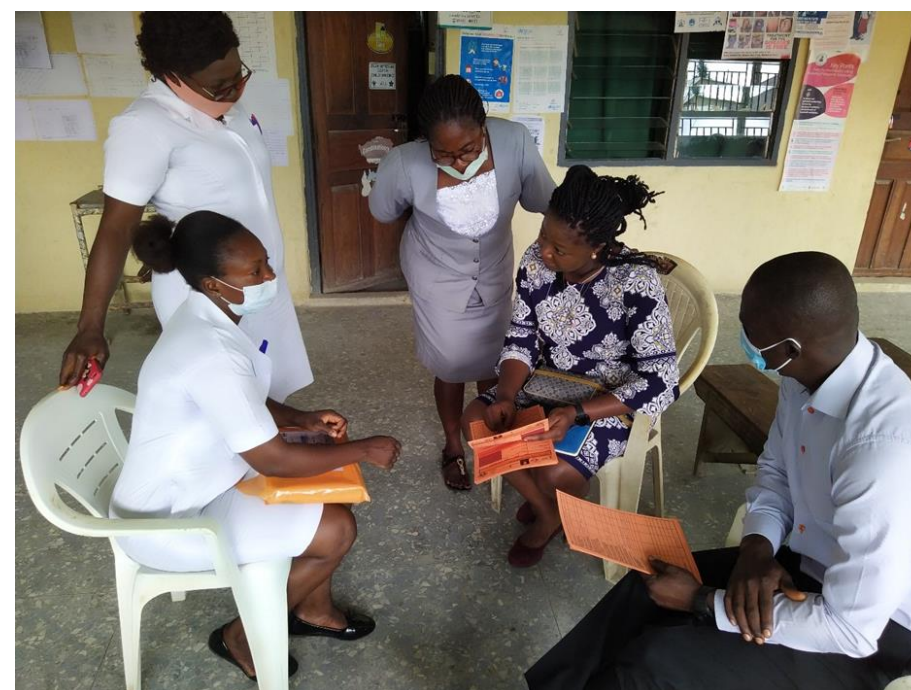


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Background: the challenge

Non-communicable diseases (NCDs), including heart disease, stroke, cancer, diabetes and chronic lung disease, contribute to almost 70% of all deaths worldwide. Almost 75% of all NCD deaths, and 82% of the 16 million people with premature death, occur in low- and middle-income countries (LMICs).

The World Health Organisation (WHO) has proposed a framework for integrating NCD prevention into primary health care through a Package of Essential Non-communicable Disease Interventions for Primary Health Care (WHO PEN) in Low-resource Settings with a set of cost-effective priority interventions for poor-resource settings.

As the first point of contact with health services, primary-health-care (PHC) facilities are recognised as the most appropriate places for patient screening and early disease detection, continuous care provision for uncomplicated patients and referral of patients to specialists. Prevention and high-quality patient management are essential components in the control of NCDs such as hypertension and diabetes.

However, many countries, especially in fragile settings, struggle to establish and support effective systems for preventing and managing NCDs through primary care.

In this brief we describe work done in Sierra Leone and Nigeria supported by the NIHR funded RUHF project to support more effective primary care systems for NCDs.

The contexts

Sierra Leone

While Sierra Leone is facing a high communicable disease burden, NCDs and its associated conditions represent an increasingly significant burden.

WHO estimated that the percentage of deaths attributable to NCDs in Sierra Leone was 18% in 2008 and this increased to 26% in 2012, with cardiovascular diseases accounting for 9%. The WHO further estimated that around 30% of adult men and women had raised blood pressure respectively, while 4.8% of the adults had raised blood glucose in 2014.

Other risk factors of NCDs are also common: about 33% of men and 6.2% of women over 15 years smoked every day, and nearly 10% and 30% of adults were obese and overweight respectively.

Despite the increasing NCD burden, a RUHF review of health system readiness for NCDs identified that NCD control receives very limited resources, with no NCD budget line, although both national and district stakeholders are increasingly aware of the importance of NCD control (Witter et al. 2020).

High financial barriers for users, lack of access to quality-assured drugs and high recourse to private and informal care seeking were also noted. NCDs were mainly being addressed at the tertiary care level, and patients often present at this level with complications of their uncontrolled disease.

Providers have received some training on NCDs during their pre-service training but there had been no national guidelines or desk guides for NCD management at primary care level. This was highlighted by national stakeholders as an important and feasible area for engagement.

Nigeria

NCDs are estimated to account for 29% of all deaths¹ with the probability of dying prematurely from NCDs in Nigeria being put at 20% by the WHO. It is projected that by 2030, NCDs will be the leading cause of morbidity and mortality in Nigeria. This rise in NCDs has been attributed to rapid urbanisation, and westernisation of lifestyle and dietary habits.

Prior to this project there were no consultation guides, training or systematic provision of care for NCDs, although there have been some specific donor agency projects and sites recently focusing on conditions such as hypertension.

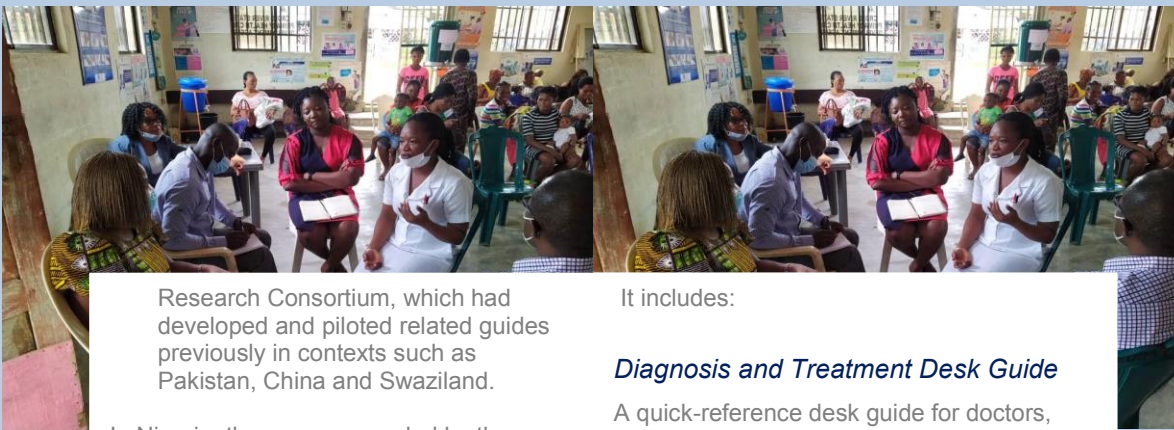
The partnership

The intervention was a partnership by a number of local and international organisations.

In Sierra Leone, this included:

- The Ministry of Health and Sanitation (MoHS), through its NCD directorate, which provided overall leadership, also of the national technical working group (TWG)
- The District Health Management Team (DHMT) in Bombali District, which led the district TWG to adapt and pilot the tools
- The Royal College of General Practice (RCGP), working with Volunteer Service Overseas (VSO), which supported three volunteer General Practitioners (GPs) to work on this package
- The National Institute for Health Research (NIHR)-funded Research Unit for Health in Fragility (RUHF) project, led by Queen Margaret University, Edinburgh, working in partnership with the College of Medicine and Allied Health Sciences (COMAHS) at the University of Sierra Leone to support and document the intervention.

This included engaging expertise from the University of Leeds Communicable Diseases/Health Services Delivery



Research Consortium, which had developed and piloted related guides previously in contexts such as Pakistan, China and Swaziland.

In Nigeria, the process was led by the Federal Ministry of Health Nigeria, NCD Division, and by the MoH in Cross River State in the south east of Nigeria.

The materials were developed and adapted through COMDIS-Health Service Delivery (HSD) and Nigeria partner, the Foundation for Healthcare Innovation and Development (FHIND). RUHF supported the further adaptation to online materials and to test an online training modality in 20 PHC facilities.

National training was also supported by WHO, the World Diabetes Fund (WDF) and JHPIEGO. InStrat Global Health Solutions collaborated on the app-based training module.

The package

The NCD Care Package of the MoHS/NCD directorate is a suite of practical, user-friendly guides and tools that have been adapted and adopted by the MoHS for the country context.

It is aimed at generalist doctors, nurses, community health officers (CHO) and other multi-purpose health workers working in health centres and general hospital outpatient departments.

It includes:

Diagnosis and Treatment Desk Guide

A quick-reference desk guide for doctors, nurses and other qualified clinicians, which includes information on how to identify, screen/test, refer as applicable and provide follow-up care for non-complicated NCD patients.

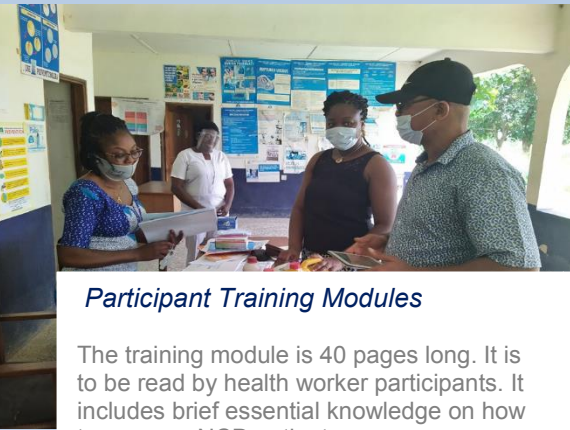
Lifestyle and Health Education Desk Guide

A quick-reference desk guide aimed at nurses or other health educators, which contains information to help change the behaviours and key lifestyle risk factors of adults with or at risk of NCDs.

The guide also contains information on treatment support, including adherence to clinic appointments and taking medications properly.

Facilitator Guide to Deliver NCD Training

This guide is for the facilitators to support training on the use of the NCD desk guide, treatment cards and other tools during routine practice in a health centre. It avoids lectures, and uses adult learning techniques to develop consultation, decision and communication skills.



Participant Training Modules

The training module is 40 pages long. It is to be read by health worker participants. It includes brief essential knowledge on how to manage NCD patients.

The training uses a participatory approach, including exercises and case study role-plays of different diseases and consultation stages.

Treatment card

The treatment record is for the initial and review consultations with patients with common NCDs, such as CVD, hypertension and diabetes.

The card column 1 has the required record in brief, and other columns are for recording and tracking progress in important indicators such as blood pressure and glucose. There is a worked example of the MoHS card.

Health education leaflet: How to live a healthy life

This leaflet is for health workers/ educators, and can be given to all patients diagnosed with pre-diabetes, diabetes, hypertension and CVD, as well as those who are at high risk of CVD. It offers user-friendly advice on how patients and family members can improve their health through a healthy diet, physical activity, limiting alcohol and stopping smoking.



Lessons

1. Adaptation using TWGs under the Ministry of Health is key

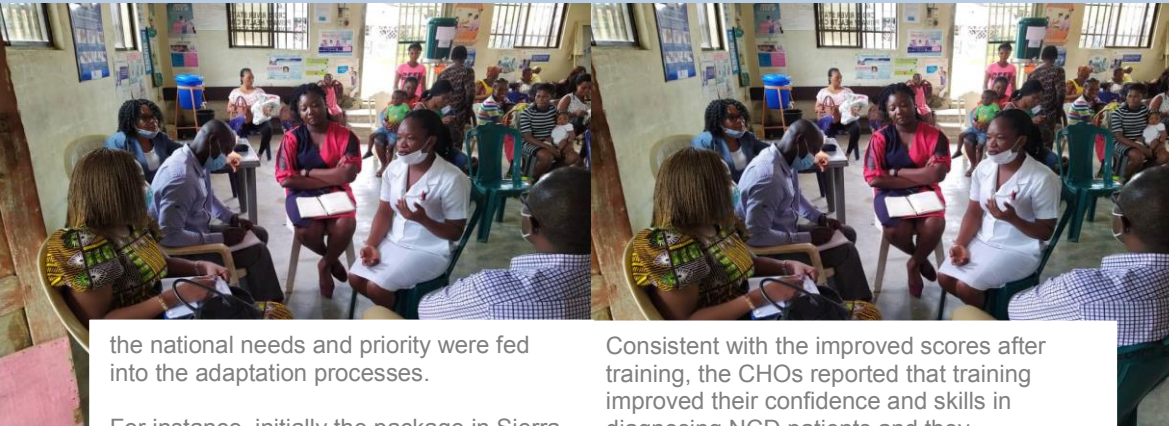
In both settings, TWGs were established at local and national level to guide the adaptation of materials to the local context and to lead the process of training and implementation, led by the Ministry of Health but also involving development partners and NCD experts.

This not only ensured fit for context, local terminology and health system organisation and resources of materials but also increased ownership.

Our interviews with the participants suggested that TWGs allowed for a lot of learning within the group and developed members' knowledge and confidence in NCDs significantly. The process guided major adaptations to make the materials more applicable to CHOs and their background knowledge and low resource setting and made it locally owned.

The local TWG members met after the first time each module had been taught and they trained other groups as facilitators under this module.

The local TWG kept regular interactions and communication with the national TWG, which included the NCD Directorate of MoHS and tertiary hospital NCD experts, NGOs operational at the district level so that



the national needs and priority were fed into the adaptation processes.

For instance, initially the package in Sierra Leone was only targeted at CHOs, but at the request of the NCD Directorate, the materials were also adapted for the lower cadres of health staff such as state enrolled community health nurses (SECHN), community health assistants (CHAs) and maternal and child health (MCH) aides.

The national TWG experts and NCD practitioners reviewed the materials and a roundtable meeting was held to discuss and agree on the materials before the approval by MoHS. The adaptation process lasted for eight months between April and December 2018 in Sierra Leone.

2. Delivery of training must focus on cascading and practically transferable learning

In Sierra Leone, the three full day modules focused on communication skills, diagnosis and management of hypertension and diabetes, and the half day module included epilepsy and depression, with a short session on cascading knowledge to other PHU staff (Table 1).

A core of trained CHOs were then supported to deliver the training to PHU staff. The pre/post tests indicate that the training improved the knowledge of hypertension and diabetes among CHOs and other PHU staff.

Consistent with the improved scores after training, the CHOs reported that training improved their confidence and skills in diagnosing NCD patients and they demonstrated some knowledge of hypertension and diabetes diagnosis.

All health workers interviewed showed some awareness of the importance of lifestyle advice for those suffering from hypertension and knowledge of how to treat patients with NCDs, including how to deliver lifestyle advice, indicating this aspect of the intervention had been effective.

In Nigeria, an innovative mobile health (mHealth) app and training modules were developed and tested. The app can be used on any smartphone, tablet or computer, off-line or while connected to the internet, and provides a workable and sustainable approach to supporting health workers to manage NCDs at PHC level which can be scaled up across the nation.

In Nigeria, the pre/post training evaluation scores showed a clear increase in knowledge following the online training and subsequent monitoring.

Training	In Sierra Leone, 35 CHOs were trained in group sizes of 10-20. The majority completed 4 out of 4 training modules, held on separate days and spread out over several months. 300 Midwives, SECHNs and MCH Aides were also trained in groups of 30 during a one day workshop.
	In Nigeria, the training of the 20 PHC facility nurses was through a half day face-to-face session; they were provided with the NCD deskguide and shown how to use the training app, given a hard copy of the NCD deskguide, and then the nurses completed the online training modules.
Equipment and materials	In Sierra Leone, digital BP machine, glucometer, desktop guides, education picture card, eye test and BMI charts, and treatment cards were provided to the 22 CHCs.
	In Nigeria, nurses were provided with copies of the Nigeria NCD treatment card and mercury BP machines and glucometers, where these were missing.
Mentorship	In Sierra Leone, CHO mentoring visits were made to each CHC, reviewing challenges, treatment cards, and clinical scenarios.
	In Nigeria, post training mentoring was through weekly phone calls, and monthly facility visits by the project team and at times by the Federal Ministry of Health NCD officers during 2020.

Table 1- Components of intervention to improve primary care hypertensive and diabetic management in Bombali district, Sierra Leone, and Cross River, Nigeria



3. Mentoring and feedback need to be sustained and systematized

Most CHCs in Bombali received a mentoring visit conducted by local TWG members. The intention was to develop a peer support process which would continue longer term. During the visits, mentors supported the CHOs to improve the quality of care by assessing treatment activity, identifying problems and solutions, building confidence and skills, and encouraging more screening.

Mentors completed and submitted a standard mentoring report form. CHOs agreed that the mentoring they received was very helpful. There was also a WhatsApp group to share information and advice about individual clinical cases between the CHOs and supporting VSO doctors.

From the mentoring the TWG had done, they noticed there was misdiagnosis and mistreatment of NCDs, and feedback was given during visits.

The supervision visits and treatment card review in Nigeria noted that the nurses generally had the skills to conduct the care. The treatment cards were (as in Sierra Leone) mostly hypertensive, and some diabetic, patients but not the other NCDs - even though these were included in the deskguide and training modules.

4. An adapted package can improve care and outcomes, but wider systemic barriers also need to be addressed

The intervention in Sierra Leone significantly improved the average diastolic blood pressure of hypertensive patients (n=50) three months into treatment (98 mmHg at baseline vs. 86 mmHg in Month 3, P=0.001).

However, health systems barriers typical of fragile settings, such as cost of transport and medication for patients and lack of supply of medications and treatment equipment in facilities, hindered the optimal delivery of care for hypertensive and diabetic patients.

Our interviews suggested that the numbers of patients identified with hypertension and diabetes averaged about 2 per CHC (ranges from 0-12), which is probably mainly due to low attendance rates at clinics (except by mothers and children), which was exacerbated during 2020 due to Covid-19.

CHOs stated that the desk guides were useful and health workers stated that NCD patients were being more widely diagnosed than before the intervention, marking an improvement in practice and awareness.

However, CHOs reported lack of working equipment to diagnose high blood glucose levels, and desk guides were observed in some but not all of the CHCs visited.



Patients reported that once they had been diagnosed, they did attend the CHC for follow-up. However, connected to distance to health facilities and lack of mobility, health workers and patients reported that lack of follow up was a common problem.

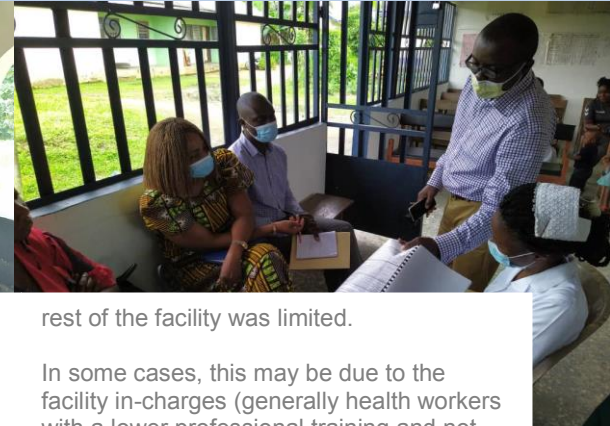
It was common that patients did not return for further treatment for NCDs due to the cost of transport or medication. Some patients did not go to their follow up appointment because they started to feel better when they start taking medication.

Several patients went to the hospital to treat acute symptoms or complications, when regular follow up at their health centres could have prevented the disability and costs involved.

In Nigeria, there were also many operational problems, including that initially only one health worker (a nurse) was trained from each PHC facility. Supervision showed that the nurse was able to put in practice what she learnt, but generally only in her own consultation room.

There was a lack of 'step down training' for the other staff. There was limited change in the facility procedures such as screening BP at the reception and patient flow for further diagnosis and treatment.

Following supervision, some facilities started using 'tickle' files for the treatment cards for improved follow-up of patients. Generally, however, the 'buy-in' from the



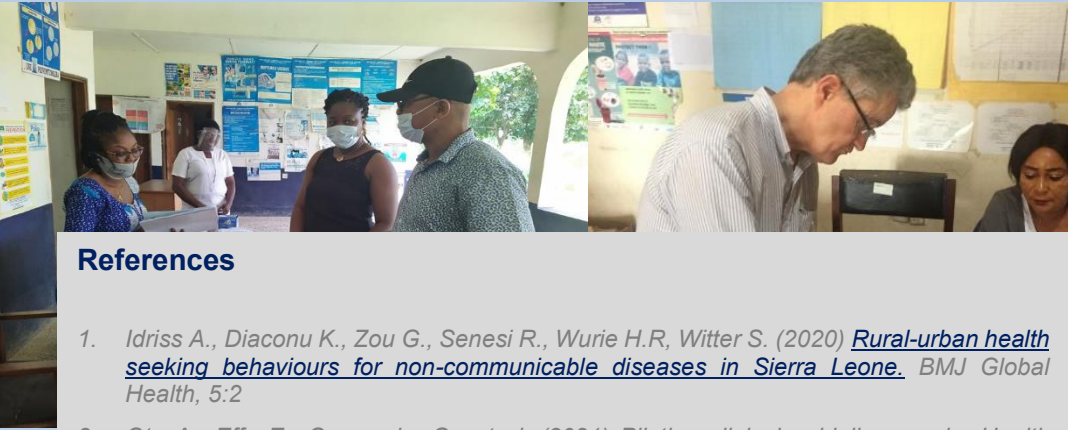
rest of the facility was limited.

In some cases, this may be due to the facility in-charges (generally health workers with a lower professional training and not included in the NCD training) not supporting the nurse receiving training. The NCD service was limited by well-known weaknesses of PHC facilities, including infrastructure, drug supply and workforce management issues.

The further scale up of the NCD package is planned for the 1,020 PHC facilities already donor funded to provide HIV antiretroviral treatment (but delayed by Covid-19).

Further scale-up is currently limited by lack of governmental and donor NCD funding. It is also limited by the professional training level of staff in most of the country.

The pilot was only conducted in the more developed south of the country, and where the PHC had a 3-year trained nurse. In most of Nigeria the PHCs do not have nurses and are mainly staffed by less trained staff such as Community Health Extension Workers (CHEWs).



Conclusion

Our study suggests the potential feasibility of the care package and mentoring system in strengthening primary care delivery of NCDs in fragile contexts.

However, the approach needs to be built into pre-service training and routine supervision to be sustained.

Key barriers in the health system and at community level also need to be addressed, including reducing financial barriers, improving equipment and medicines' supply, and raising awareness of NCD prevention and management within communities.

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Engage with the Team

