New opportunities for air pollution and health education: launching an OpenWHO online course for health workers

Background document

Panel discussion:
What challenges and opportunities for air pollution education of the health workforce?

Facilitator: Mr Mohamed Eissa, Liaison Officer for Public Health, International Federation of Medical Students’ Associations

The Community Household Air Pollution Prevention Programme (CHAP-PP):
strengthening Community Health Workers’ education in Kenya

Discussant: TBC, CLEAN-Air(Africa) Health Systems Strengthening Lead

In 2019 experts from the University of Liverpool, led by Prof Nigel Bruce under the NIHR CLEAN-Air(Africa) Global Health Research Group, were tasked by the Ministry of Health in Kenya to develop a household air pollution (HAP) prevention programme for community health workers (CHWs) as part of revisions being undertaken to the CHWs curricula for Universal Health Coverage.

Drawing on 20 years of research evidence by the Group on household air pollution, associated burden of disease and public health prevention strategies and working in collaboration with international partners (including the University of Plymouth), the Community Household Air Pollution Prevention Programme (CHAP-PP) was developed. CHAP-PP includes a 152-page training manual structured into 4 distinct Units (Household Energy Use, Household Air Pollution and Health Impacts, Primary and Secondary Prevention of HAP and safety and Measurement of HAP and household energy and health indicator surveillance). It also includes a set of job aids (illustrations, photograph, videos, maps, and a cost comparison tool) that trainees are given to facilitate messaging to households on prevention of HAP.

After comprehensive piloting in a number of urban and rural communities, the Kenyan Ministry of Health ratified CHAP-PP to be implemented as part of the revision of the CHW curricula.

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integrated into the national training curricula for CHWs as a distinct technical module (Module 14) with prioritisation for full national rollout across the country to address the HAP disease burden in the country. Module 14 had a national launch in Nairobi in November 2020 with immediate rollout of a train the trainer programme for 17 of Kenya’s 47 counties. Monitoring and evaluation of this early rollout showed some immediate impact including households transitioning to clean cooking with Liquified Petroleum Gas (LPG) after identification of potential carbon monoxide poisoning from use of charcoal. In addition, process evaluation showed significant gain in knowledge and a high level of satisfaction with the training delivered. Since this time the Kenyan Ministry of Health has successfully trained 2500 CHWs across all 47 counties as train-of-trainers to facilitate full national rollout to Kenya’s Community Health Promoter workforce (n=130,000). CLEAN-Air(Africa) (University of Liverpool and KEMRI) is currently working with the Office of the First Lady of the Republic of Kenya and the Kenyan Ministry of Health to facilitate this national rollout and to capture impact through careful monitoring and evaluation. This is being supported by digital innovation in training delivery through partnership with the625: TeachBox - pioneers in the creation of offline digital training for health practitioners in low- and middle-income countries. CHAP-PP is currently being introduced in Uganda, Rwanda and Cameroon with support from the Ministries of Health.

Air pollution data in children’s clinical records: a GOSH experience in London

**Discussant:** Dr Mark Hayden, Greet Ormond Street Hospital (GOSH), London, the United Kingdom

In 2021 a London coroner criticised medical and nursing staff for failing to adequately inform Ella Adoo Kissi Debra’s mother, Rosamund, of the risks from the air pollution that had contributed to her daughter’s death. In 2022 Chris Whitty, in his Chief Medical Officer report on air pollution recommended that; “the training of healthcare staff should include the health effects of air pollution and how to minimise these, including communication with patients”.

Air pollution was rarely included in clinical education before the coroner’s criticism. Upskilling clinicians is a significant task. We decided to embed such training within our electronic medical record (EMR) attached to an alert which displays for children living in areas with levels of PM$_{2.5}$ and NO$_2$ greater than 2021 WHO recommendations.

We conducted a pre-launch survey of staff and patients views on air pollution and measured how often it was recorded as a problem in the patients’ chart. The flow diagram explains how we embedded the data and training into our EMR (Epic). Watch video of innovation here.
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Only 15% of our staff would be comfortable discussing air pollution, but 75% of families would like this to happen. None of our patients had an ICD-10 code for air pollution charted prior to the intervention in November 2022. We will assess impact at one year. Already our innovation is being replicated at five large London teaching hospitals and we have had interest from several others including one in Europe.

There is a significant knowledge gap regarding air pollution and its impacts at our hospital. We present a novel and easily replicable intervention that displays useful patient specific data and resources at the point of need to clinicians and facilitates their advocacy to councils and politicians who control the power and resources to clean the air our patients breathe.

Using air pollution low-cost sensors to educate Community Health Workers in Brazil

**Discussant:** Dr Enrique Barros, World Organization of Family Doctors (WONCA), Brazil

**Porto Alegre and Santa Maria do Herval, Brazil**

**Activities**

- Citizen science development and installation of five low-cost PM2·5 sensors in four community health clinics and a university.
- Development of an app and analysis for communicating air pollution.
- Community raffle acquisition of two low-cost sensors for the two community health clinics in this town of 6000.
- Training of family doctors and communities through the primary care clinics and community health workers.
- Creation of the Brazilian MOOC on planetary health, later translated into English for a wider audience.
- Creation of a non-governmental organisation to stop coal mining in Porto Alegre.
- Preparation of an article about air pollution and clinical recommendations for family doctors for the Brazilian Journal of Family Medicine (review phase).

**Lessons learned by the trainers**

- Family doctors are eager for evidence-based information on air pollution.
- Evidence-informed practice can influence policy making.
- Education is one of the best ways for health professionals and communities to change planetary health paradigms.
- Communication, both focused on health professionals (like specialised podcasts or articles) and on the wider community through mass media is important for spreading the message and sensitising communities.
Clean air advocacy actions and education among medical students and secondary school children in Cameroon

Discussant: Mr Elvis Achiri Ndikum, Co-Founder and President at Global Youth Strategy (GYS) on Air Pollution and Climate Health, Cameroon

Following an air pollution and health train the trainer programme for healthcare professionals by the World Organization of Family Doctors (WONCA) in 2019, the training in Cameroon was represented by experts from two cities: the political capital Yaoundé and economic capital Douala. The training with medical students was possible thanks to different engagements with stakeholders including high schools, universities and collaborators based in Cameroon.

In November 2019, 6 months after the training, the Association for the Promotion of Youth Leadership, Advocacy and Volunteerism Cameroon (APYLAV) led advocacy visits towards the Ministry of Public Health. The outcome was a collaboration letter between the Ministry of Public Health and the Association for the Promotion of Youth Leadership, Advocacy and Volunteerism Cameroon (APYLAV). Given that engaging with different health facilities including medical institutions yet to acknowledge air pollution as a serious risk for health was a huge challenge, this collaboration facilitated engagements with diverse stakeholders as it had as objective to support health promotion and prevention of diseases by raising awareness on environmental health with focus on air pollution and air quality among youths.

The trainings by the Association for the Promotion of Youth Leadership, Advocacy and Volunteerism Cameroon (APYLAV) had as target medical students and secondary school children. The strategy to mainstream air health in the educational program of secondary, high school and universities was very important. The education of medical student’s air health needs to be encouraged earlier. APYLAV Cameroon has trained over 1500 students during diverse activities including Un International Day of Clean for Blue Skies, 7th September with the European Lung Foundation Healthy Lungs for Life grant, UN “General Comment Number 26” consultation and advocacy with the Global Action Plan, UK Freedom to Breathe campaign within two high schools from 2020 to 2022, preparing many for medical studies.

APYLAV Cameroon with support from the CLEAN-Air (Africa) project has trained over 500 medical students within the faculty of health sciences of the university of Yaounde I, the University of Douala and the Université des Montagnes, Bangangté. Given that over 65% of Cameroon households still use firewood for energy indoors to cook even in major cities, it was important for medical students to understand the concept of “making the clean available” and “making the available clean”. Parents should be advised to switch to cleaner
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sources of energy to protect health, but if not affordable, they can stay outside during cooking indoors or transfer their cooking outdoors to reduce pollution on health.

The medical students were encouraged to serve as advocates given the trust on them by patients and policymakers. Thanks to different global and in country engagements youths from Cameroon and over 20 countries have now created the Global Youth Strategy (GYS) on Air Pollution and Climate Health acknowledged by the Cameroon government as a full organization in November 2022 with the global objective of reducing the burden of pollution on the health of youths. The GYS was invited on 25th May, 2023 to speak at the 76th World Health Assembly’s side event “Breathing Life with Clean Air Action: Civil Society Drives Change” hosted by the Geneva Graduate Institute and co-sponsored by Clean Air Fund, Health Policy Watch and the Climate and Clean Air Coalition.