an observation that could not be readily explained by the authors.

Benefits of ESETT are its double-blind design and the inclusion of valproate. However, the study did not include infants younger than 2 years, which probably reflects concerns of the potential hepatotoxicity of the drug in this age group.

ESETT has a few limitations. The first limitation is the subjective nature of assessing seizure cessation in the absence of electroencephalography, a feature shared by EcLiPSE and ConSEPT. This measure reflects real life and also clinical practice and acumen in an emergency situation. Another potential limitation is the conjoint nature of the primary outcome, clinically apparent seizure and improving consciousness. Such an endpoint might have influenced the primary efficacy outcome, which has been acknowledged by the authors. Additionally, unlike in EcLiPSE and ConSEPT, a seizure is assumed to be a convulsive seizure, which was not made explicit in their results.

The ESETT team concluded that levetiracetam, fosphenytoin, or valproate could be used as the firstchoice, second-line treatment,7 which mirrors the conclusions of EcLiPSE and ConSEPT (levetiracetam or phenytoin). The ConSEPT team have taken a further leap of faith, and largely into the unknown, suggesting that clinicians should consider the sequential use of levetiracetam and phenytoin (in any order) before progressing to third-line management of rapid sequence induction with anaesthesia.9 The inclusion of valproate in a three-drug sequence would inevitably extend the duration of status epilepticus and risk irreversible neurological sequelae. A more rational first step would be a meta-analysis of these and other relevant randomised controlled trials. 10,111 Such an analysis would subsequently inform a multidisciplinary debate between, and output from, general paediatricians and paediatric specialists in emergency medicine, neurology, anaesthetics, and intensive care.

ESETT has substantially improved the evidence base in the second-line management of paediatric convulsive status epilepticus. The collective results of these three trials now demand careful interpretation and application of the evidence.

I declare no competing interests

Richard E Appleton richardappleton55@hotmail.co.uk

The Roald Dahl Neurophysiology Department, Alder Hey Children's Health Park, Liverpool, L12 2AP, UK

- 1 Chin RF, Neville BG, Peckham C, Bedford H, Wade A, Scott RC. Incidence, cause, and short-term outcome of convulsive status epilepticus in childhood: prospective population-based study. Lancet 2006; 368: 222-29.
- 2 McTague A, Martland T, Appleton R. Drug management for acute tonicclonic convulsions including convulsive status epilepticus in children. Cochrane Database Syst Rev 2018; 1: CD001905.
- 3 Samuels M, Wieteska S. Advanced paediatric life support: a practical approach to emergencies, 6th edn. John Wiley & Sons, 2019.
- 4 Epilepsies: diagnosis and management. Clinical guideline [CG137]. National Institute for Health and Care Excellence (NICE). https://www.nice.org.uk/guidance/cg137 (accessed March 8, 2020).
- 5 Glauser T, Shinnar S, Gloss D, et al. Evidence-based guideline: treatment of convulsive status epilepticus in children and adults: report of the Guideline Committee of the American Epilepsy Society. Epilepsy Curr 2016; 16: 48-61.
- 6 Kapur J, Elm J, Chamberlain JM, et al. Randomized trial of three anticonvulsant medications for status epilepticus. N Engl J Med 2019; 381: 2103–13.
- 7 Chamberlain JM, Kapur J, Shinnar S, et al. Efficacy of levetiracetam, fosphenytoin, and valproate for established status epilepticus by age group (ESETT): a double-blind, responsive-adaptive, randomised controlled trial. Lancet 2020; published online March 20. https://doi.org/10.1016/ S0140-6736(20)30611-5.
- 8 Lyttle MD, Rainford NEA, Gamble C, et al. Levetiracetam versus phenytoin for second-line treatment of paediatric convulsive status epilepticus (EcLiPSE): a multicentre, open-label, randomised trial. *Lancet* 2019; 393: 2125–34.
- 9 Dalziel SR, Borland ML, Furyk J, et al. Levetiracetam versus phenytoin for second-line treatment of convulsive status epilepticus in children (ConSEPT): an open-label, multicentre, randomised controlled trial. Lancet 2019; 393: 2135–45.
- 10 Senthil Kumar CS, Selvakumar P, Kowsik M. Randomized controlled trial of levetiracetam versus fosphenytoin for convulsive status epilepticus in children. Int J Pediatr Res 2018; 5: 237-42.
- 11 Singh K, Aggarwal A, Faridi MMA, Sharma S. IV levetiracetam versus IV phenytoin in childhood seizures: A randomized controlled trial.
 J Pediatr Neurosci 2018; 13: 158–64.

National UK programme of community health workers for COVID-19 response



The coronavirus disease 2019 (COVID-19) pandemic threatens to kill large numbers of people in the UK and to place unprecedented demands on the National Health Service (NHS). The case fatality rate is increased in older people and those with pre-existing disease and

is reported to be about 20% in people with COVID-19 who are older than 80 years, although this does not take into account the under-reporting of mildly affected cases. There are about 8.8 million people aged 70 years or older in the UK and many others with health conditions

Published Online March 24, 2020 https://doi.org/10.1016/ S0140-6736(20)30735-2



that increase their vulnerability to COVID-19. In the face of the rapid spread of severe acute respiratory syndrome coronavirus 2, older people and other vulnerable groups are being asked to self-isolate for a considerable time to reduce the risks of infection, with potential adverse effects on physical and mental health.

We propose a large-scale emergency programme to train community health workers (CHWs) to support people in their homes, initially the most vulnerable but with potential to provide a long-term model of care in the UK. Experience from Brazil, Pakistan, Ethiopia, and other nations shows how a coordinated community workforce can provide effective health and social care support at scale.2-4 To respond to the COVID-19 pandemic, we suggest that CHWs would be young people, aged 18-30 years, in whom the likelihood of serious consequences from COVID-19 is currently deemed low. This demographic is increasingly likely to have been exposed to COVID-19 and therefore have acquired immunity. Large-scale unemployment as a consequence of the economic impact of this pandemic makes this a group potentially in need of employment opportunities. Despite the UK Government's enormous package of benefits designed to retain people in employment, substantial job losses are likely. Furthermore, up to 30000 medical and physician associate students could be involved who cannot participate in usual clinical placements, possibly until September, 2020, because clinical attachments are being suspended.

In Brazil, CHWs are trained over 4–6 weeks to deliver a wide range of health promotion activities. This model suggests that a 1–2 week basic training programme on COVID-19 and on public health surveillance could provide core skills and knowledge, particularly when combined with ongoing training and supervision. Online courses are available from some academic institutions on COVID-19 and emergency measures to accredit and certificate these courses to agreed standards could be implemented. Recruitment and training could be overseen by Health Education England, commissioned from a higher education provider or devolved to an organisation such as Public Health England.

CHWs could undertake regular review of vulnerable people at home in person or virtually, depending on need, and when patients become ill CHWs could undertake simple assessment of the need for more advanced care, reporting to other members of the primary care team, including to the COVID-19 Health Management Team that

is being commissioned. CHWs would need to be provided with personal protective and other equipment and trained to follow protocols to assess temperature, blood pressure, and, with the provision of portable pulse oximeters, early detection of severe illness, thus collecting data for clinical and epidemiological purposes. Similar protocols are already in place and used by CHWs in diverse settings eg, as part of the Integrated Management of Newborn and Childhood Illness.⁵ Additionally, home visits for vulnerable people would allow CHWs to assess whether individuals have adequate supplies of food and medicines for longterm conditions, are aware of basic hygiene precautions, and whether they have mental health problems. In future, CHWs might be involved in COVID-19 community testing and possibly supporting vaccine trials. Over time, CHWs might also contribute to the management of long-term conditions through monitoring physical and mental health, and reviewing availability and use of medicines.

Entry criteria could include occupations that provide basic training in first aid or assessing medical emergencies, such as flight attendants, or registration on a health professional training programme. Although final year medical students might shortly be deployed in acute hospital settings, other senior medical students could be trained to provide supervision of CHWs. They could be overseen by public health trainees and ultimately by qualified public health professionals in a pyramidal structure, in collaboration with general practitioners and practice pharmacists. Virtual chat rooms could be used for working out solutions to common problems and virtual mentorship.

The clinical students could work as volunteers in return for accreditation of valuable experiential learning in community health. This approach would meet a gap in UK undergraduate experience and might become a long-term feature of medical education.⁶ For a future scaled workforce, there will be financial implications, but the costs should be affordable. On the basis of the Brazilian CHW model, estimates of the cost of a scaled CHW workforce in England suggest this could amount to about £2·2 billion per annum for 100 000 CHWs.⁷ Such an amount is a small proportion of the existing NHS budget that is projected to increase in the coming years.⁸

Some would argue that it is too risky to put CHWs with only limited training in contact with vulnerable members of society. However, there are risks associated with prolonged

For more on COVID-19 Health Management Team see https://www.england.nhs.uk/ coronavirus/primary-care/ unmonitored isolation, from the effects of COVID-19, as well as loneliness and mental health deterioration. The risks of using CHWs in this way could be reduced by supervision, with independent monitoring and evaluative research to identify problems early and correct them. The CHWs could visit in pairs to reduce the risks.

People might resist or be reluctant to be visited by CHWs, and they could opt out of home visits at any time, but experience with CHWs in Brazil in the past 30 years suggests this would happen rarely. In Brazil, 250 000 CHWs provide a much needed and relied upon service. CHWs in Brazil have been established for many years, are well integrated into their communities, and provide a wide range of health and social care support activities to each of the 100–150 households that they are responsible for. Therefore, in Brazil, additional roles for preventing the spread of and supporting those infected with COVID-19 or in self-isolation could be integrated into the work of CHWs. Much can be learned from countries with successful experiences of radical, large-scale workforce interventions.

It could be argued that this is an unrealistic proposal and that adapting the existing system or training so many people is too challenging. However, current health and social care systems in the UK are under extreme pressure and could become overwhelmed. In a time of fear, isolation, and growing health inequalities, 10 use of CHWs for the COVID-19 response would boost social coherence and fill gaps that have begun to emerge between health and social care and in-person and virtual access to health care. Our proposal for CHWs would produce a large cadre of people with an understanding of basic epidemiological and public health concepts11 who could challenge scientific misinformation and explain the rationale for specific health policies and interventions to the public. This approach would also help build a new generation of leaders who can help tackle the complex challenges of our age.

EFdB is Chair of the Working Party on the Environment of the World Organization of Family Doctors. MJH is a non-executive director of Primary Care International. MJH is supported in part by the NW London National Institute for Health Research (NIHR) Applied Research Collaboration. Imperial College London is grateful for support from the NW London NIHR Applied Research Collaboration and the Imperial NIHR Biomedical Research Centre. The views expressed in this Comment are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care. We declare no other competing interests.

Andy Haines, Enrique Falceto de Barros, Anita Berlin, David L Heymann, *Matthew J Harris m.harris@imperial.ac.uk

Centre on Climate Change and Planetary Health, London School of Hygiene & Tropical Medicine, London, UK (AH); Universidade de Caxias do Sul, Caxias do Sul, Brazil (EFdB); Primary Care Education and Community-Based Medical Education, Barts & The London School of Medicine & Dentistry, Queen Mary University of London, London, UK (AB); Infectious Disease Epidemiology, London School of Hygiene & Tropical Medicine, London, UK (DLH); and Department of Primary Care and Public Health, Imperial College London, London W6 8RP, UK (MJH)

- 1 WHO. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). Feb 16-24, 2020. https://www.who.int/docs/default-source/ coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf (accessed March 20, 2020).
- 2 Harris M, Haines A. The potential contribution of community health workers to improving health outcomes in UK primary care. J Roy Soc Med 2012; 105: 330–35.
- 3 Earth Institute. One million community health workers: technical taskforce report. New York: Columbia University Press, 2013. http://1millionhealthworkers.org/files/2013/01/1mCHW_ TechnicalTaskForceReport.pdf (accessed March 20, 2020).
- 4 Macinko J, Harris M. Brazil's family health strategy: delivering community based primary care in a universal system. N Engl J Med 2015; 372: 2177–81.
- 5 Costello AM, Dalglish SL on behalf of the Strategic Review Study Team. Towards a grand convergence for child survival and health: a strategic review of options for the future building on lessons learnt from IMNCI. Geneva: World Health Organization, 2016.
- 6 Gillam S, Rodrigues V, Myles P. Public health education in UK medical schools—towards consensus. J Public Health (Oxf) 2016; 38: 522–25.
- 7 Hayhoe B, Cowling V, Pillutla V, Garg P, Majeed A, Harris M. Integrating community health workers in primary care: a solution to the workforce crisis. J Roy Soc Med 2018; 111: 453–61.
- 8 UK Government. Budget 2020: what you need to know. 2020. https://www.gov.uk/government/news/budget-2020-what-you-need-to-know (accessed March 20, 2020).
- 9 Skopec M, Issa H, Harris M. Delivering cost effective healthcare through reverse innovation. BMJ 2019; 397: I6205.
- Marmot M, Allen J, Boyce T, Goldblatt P, Morrison J. Health equity in England: the Marmot Review 10 years on. London: Institute of Health Equity, 2020. https://www.health.org.uk/publications/reports/themarmot-review-10-years-on (accessed March 20, 2020).
- 11 Fine P, Haines A, Goldacre B. Epidemiology—a science for the people. Lancet 2013; 381: 1249–52.

Centring sexual and reproductive health and justice in the global COVID-19 response



Global responses to the coronavirus disease 2019 (COVID-19) pandemic are converging with pervasive, existing sexual and reproductive health and justice inequities to disproportionately impact the health,

wellbeing, and economic stability of women, girls, and vulnerable populations. People whose human rights are least protected are likely to experience unique difficulties from COVID-19.¹ Women, girls, and marginalised