Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

14 World Bank. GNI (current US$): World Bank national accounts data and OECD national accounts data files. https://data.worldbank.org/indicator/NY.GNP.MKTP.CD (accessed Nov 25, 2020).
15 Greenburg J. Under Donald Trump, key CDC US staff in China fell to 0. *Poitifact*, May 21, 2020. https://www.politifact.com/factchecks/2020/may/21/joe-biden/under-donald-trump-key-cdc-us-staff-china-fell-0/ (accessed Nov 25, 2020).
16 Commission on a Global Health Risk Framework for the Future, National Academy of Medicine, Secretariat. The neglected dimension of global security: a framework to counter infectious disease crises. Washington, DC: National Academies Press, 2016.
17 Médecins Sans Frontières. MSF supports India and South Africa ask to waive COVID-19 patent rights. Oct 7, 2020. https://www.msf.org/msf-supports-india-and-south-africa-ask-waive-coronavirus-drug-patent-rights (accessed Nov 26, 2020).
18 WHO. Climate change. 2020. https://www.who.int/health-topics/climate-change#tab=tab_1 (accessed Nov 25, 2020).
19 Mastrangelo D. Biden pledges to rejoin Paris Climate Agreement on day one of presidency. *The Hill*, Nov 5, 2020. https://thehill.com/homenews/524591-biden-pledges-to-rejoin-paris-climate-agreement-on-day-one-of-presidency (accessed Nov 26, 2020).

The COVID-19 vaccines rush: participatory community engagement matters more than ever

Published **Online** December 10, 2020 https://doi.org/10.1016/S0140-6736(20)32642-8

The announcement of effective and safe vaccines for COVID-19 has been greeted with enthusiasm. Discussions continue about the ethical challenges of ensuring fair access to COVID-19 vaccines within and across countries, and which groups should be prioritised.[1,2] There are concerns about equity in access to COVID-19 vaccines. Estimates as of Dec 2, 2020, suggest direct purchase agreements have allowed high-income countries to secure nearly 4 billion confirmed COVID-19 vaccine doses, compared with 2·7 billion secured by upper and lower middle-income countries.[3] Without such agreements, low-income countries would probably have to rely on COVAX, which would achieve only 20% vaccination coverage.[3] States such as the UK, Russia, and Germany have promised or begun rapid access to vaccines, some early this month.[4]

While COVID-19 vaccines bring potential hope for a return to some kind of normality, vaccine-based protection is contingent on sufficient population coverage and requires effective governance, organisational, and logistical measures within a wider COVID-19 control strategy that includes continued surveillance and appropriate countermeasures.[5] In this new phase of the COVID-19 response, successful vaccine roll-out will only be achieved by ensuring effective community engagement, building local vaccine acceptability and confidence, and overcoming cultural, socioeconomic, and political barriers[6] that lead to mistrust and hinder uptake of vaccines.

From the outset it is important to distinguish between people wholly opposed to vaccination (anti-vaxxers) and individuals with limited or inaccurate health information or who have genuine concerns and questions about any given vaccine, its safety, and the extent to which it is being deployed in their interests before accepting it (vaccine hesitancy).[7] In conflating and problematising the spectrum of those who do not accept vaccination, authorities might further erode trust and confidence, thereby exacerbating rather than resolving the factors underlying vaccine hesitancy. COVID-19 vaccines arrive as the social contract between some governments and their populations is being eroded[8] and when many people, especially those in vulnerable groups, have little confidence that their government will protect them. In the UK, for example, a parliamentary report highlighted that more than 60% of Black people do not believe that their health is protected by the National Health Service to the same extent as White people.[9]

Globally, the COVID-19 pandemic has further marginalised historically oppressed and excluded groups, including people with disabilities and growing numbers living in precarity.[10] These groups have suffered disproportionate economic and health consequences, and have been largely excluded from social protection and resources needed to minimise their contracting the virus. The widespread impacts of the pandemic have illuminated the structural violence embedded in society.[11] Now these communities are being asked to trust the same structures that have contributed to their experiences of discrimination, abuse, trauma, and marginalisation in order to access vaccines and to benefit the wider population.

Given such realities, it is instructive to reflect on the complex history of mass drug administration (MDA) and vertical immunisation programmes globally, which remind us that there are no magic bullets. For example, Sudan's Blue Nile Health Project (1980–90), a programme

	Local level (boroughs, towns, villages)	Regional level (municipalities, regions, counties)	National level
Primary aim	Establish community COVID-19 vaccine task forces	Coordinate and facilitate actions of local COVID-19 vaccine task forces	Coordinate and release funding; coordinate and deliver national messaging
Key actors	Community leaders across multiple categories (eg, faith groups, ethnic or cultural identities, teachers, family networks, expert patient groups); third-sector organisations working locally (eg, youth organisations, NGOs); and general practice and community clinics	Regional and public health hospital trusts or consortiums Primary health-care networks	Departments and ministries linked to: health, local government, community, and civil society
Responsibilities	Map networks of relationships, trust, and social power; identify at-risk groups; map local influencers; identify trusted communication channels; define content for locally meaningful communication campaigns and make available in diverse formats; and work with regional public health and community services to implement and monitor vaccination programmes phased by priority groups, enabling locally driven expertise and processes	Work with local community leaders to implement locally defined communication strategies; develop and strengthen regional networks to access resources for at-risk groups to enable uptake; share information and experience that is transferable across other regional settings; and provide data monitoring and logistical support, liaising with local trusts and service sectors to ensure easy access to local communities and resources are targeting the right groups effectively	Provide funding and infrastructure support to allow joined up working across related systems and structures to enable a systems-wide approach to vaccine uptake; fund and deliver wide-scale multiple platform mass media of positive and routine experiences of diverse individuals, families, and communities receiving the vaccine
Mechanisms for delivery	Focus group discussions, community codesign forums, online surveys, direct outreach (online, telephone, face to face), peer-to-peer engagements, social media campaign	Wide-ranging large and small public forums (including online delivery); production of educational materials; coordinate delivery of vaccines; set up knowledge fairs, where community leaders and local health coordinators can exchange perspectives; establish new paid posts to maintain community involvement at local level	Micro grants to community task forces and community groups (including young people) to promote vaccines and vaccination programmes in meaningful ways

Table: **A pathway to enabling community engagement in COVID-19 response and vaccine roll-out**

designed to control malaria, schistosomiasis, and other diseases via MDA and other ecological methods, had limited success; in some cases, transmission rates were higher after the campaign had ended than before it.[12] Uptake of immunisation programmes, such as human papillomavirus and measles, mumps, and rubella vaccines, has been influenced by wide-reaching historical socioeconomic inequalities within countries like the UK and across other communities of difference.[13] In Nigeria, polio eradication campaigns in 2003 were slowed down due to valid concerns about the motives of sponsors, inadequate testing, and consent procedures, and unsatisfactory engagement with local knowledge about health and illness.[14] Efforts for Nigeria's polio eradication campaigns were eventually turned around through widespread community dialogues, which helped to foster social learning, establish equity, and generate and restore trust and participation in the programme.[14] Examples of successful immunisation campaigns, such as India's polio eradication efforts and rubella in the Americas, are rooted in wide-scale social mobilisation and systems strengthening.[15,16] A modelling study suggests that weaknesses in implementation of a wide-scale COVID-19 vaccination strategy will reduce the efficacy of the vaccine as reported in clinical trials and underlines the need for investment to promote public confidence in vaccines and maintain other COVID-19 mitigation measures.[17]

The public is not a homogeneous entity. It is complex, composed of individuals, families, and other groups shaped by contexts, experiences, and desires in a constellation of communities with different patterns of health literacy, values, and expectations.[18] A top–down, one-size-fits-all approach has derailed countless well meaning global health solutions, and in the context of vaccine implementation risks leaving many groups behind, again. Policy makers need to understand this diversity and adopt comprehensive local approaches that give communities a voice, and the necessary resources to put ideas into action. Such community-led strategies can ensure diverse local voices are heard, map local concerns and alliances, and codesign programmes to maximise vaccine uptake from the ground up.

Policy makers must accelerate dialogue and support the development of community networks, leveraging

and supporting existing local channels that influence decision making, such as community and faith leaders, teachers, sports and youth clubs, and online communities and networks. In this way, the public health community can gain deeper understandings of intersecting local challenges and opportunities, while establishing trust with communities and building effective communication and public health messaging. Such efforts must be paired with investment in structures that enable people to contribute to this process, including global financing to ensure low-income countries can implement similar schemes. Participatory community engagement is cost-effective, increases uptake of vaccines, and substantially reduces healthcare resources needed to achieve high vaccination coverage.[19]

We outline recommendations to achieve meaningful engagement with diverse communities in preparation for the COVID-19 vaccines roll-out (table). This proposed bottom–up approach devolves the power of design and implementation of communication strategies to local actors, supported by evidence syntheses, enabling them to mobilise local expertise that can engage with and shift attitudes on vaccines and wider government handling of the COVID-19 pandemic.

Mistakes now risk cementing mistrust in the ability of science and governments to manage the pandemic. Listening to those who have the most at stake will pave the way for much needed change and widespread engagement with and support for COVID-19 vaccination campaigns.

MM is a member of Independent SAGE. SR is a member of Independent SAGE, participates in the Independent Scientific Pandemic Insights Group on Behaviours (SPI-B), the Behavioural Science Advisory Group to the UK Scientific Advisory Group for Emergencies (SAGE), and participates in the advisory group to the Chief Medical Officer of the Scottish Government on COVID-19. RB is supported by project funding from the Berlin University Alliance (112_PreEP_Corona). KAY is Coordinator of the African Union-ASRIC Afro Centric Working Group on COVID-19 Response. RAB, RHO, TG, DG, GK, AGF, AO, and JMM-M declare no competing interests.

Rochelle Ann Burgess, Richard H Osborne, Kenneth A Yongabi, Trisha Greenhalgh, Deepti Gurdasani, Gagandeep Kang, Adegoke G Falade, Anna Odone, Reinhard Busse, Jose M Martin-Moreno, Stephen Reicher, Martin McKee

r.burgess@ucl.ac.uk

UCL Institute for Global Health, London WC1N 1EH (RAB); Centre for Global Health and Equity, Swinburne University of Technology, Hawthorn, VIC, Australia (RHO); AU-ASRIC Afro-centric COVID-19 Working Group, Faculty of Health Sciences, Imo State University, Owerri, Nigeria (KAY); Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, UK (TG); William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, London, UK (DG); Division of Gastrointestinal Sciences Christian Medical College, Vellore, TN, India (GK); Department of Paediatrics, College of Medicine, University of Ibadan, Ibadan, Nigeria (AGF); Department of Public Health, Experimental and Forensic Medicine, University of Pavia, Italy (AO); Department of Health Care Management, Technical University Berlin, Germany (RB); Department of Preventive Medicine and INCLIVA, University of Valencia, Valencia, Spain (JMM-M); School of Psychology and Neuroscience, St Andrews University, Fife, UK (SR); Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, London, UK (MM)

1 Standing Committee on Vaccination (STIKO), the German Ethics Council, and the National Academy of Sciences Leopoldina. Recommendations for fair and regulated access to a COVID-19 vaccine. German Ethics Council, 2020. https://www.ethikrat.org/en/press-releases/2020/recommendations-for-fair-and-regulated-access-to-a-covid-19-vaccine/ (accessed Dec 2, 2020).

2 Ghosh J. Vaccine apartheid. Project Syndicate, Nov 16, 2020. https://www.project-syndicate.org/commentary/pfizer-vaccine-doses-claimed-by-rich-countries-weakens-covax-by-jayati-ghosh-2020-11 (accessed Dec 2, 2020).

3 Duke Global Health Innovation Center. Launch and scale speedometer. Mapping COVID-19 vaccine pre-purchases across the globe. Duke University, 2020. https://launchandscalefaster.org/covid-19 (accessed Dec 8, 2020).

4 Cameron-Chileshe J, Neville S, Parker G, Dempsey H. Matt Hancock tells NHS to prepare for Covid vaccine from December. *The Financial Times*, Nov 10, 2020.

5 Gurdasani D, Bear L, Bogaert D, et al. The UK needs a sustainable strategy for COVID-19. *Lancet* 2020; published online Nov 9. https://doi.org/10.1016/S0140-6736(20)32350-3.

6 Lazarus JV, Ratzan SC, Palayew A, et al. A global survey of potential acceptance of a COVID-19 vaccine. *Nat Med* 2020; published Oct 20. https://doi.org/10.1038/s41591-020-1124-9.

7 MacDonald NE; SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: definition, scope and determinants. *Vaccine* 2015; **33:** 4161–64.

8 The Lancet. COVID-19: remaking the social contract. *The Lancet* 2020; **395:** 1401.

9 Joint Committee on Human Rights. Black people, racism and human rights. Eleventh Report of Session 2019–21. House of Commons and the House of Lords, 2020. https://committees.parliament.uk/publications/3376/documents/32359/default/ (accessed Dec 2, 2020).

10 Johns M, Lockwood R, Longlands S, Qureshi A, Round A. State of the North 2020/21: power up, level up, rise up. IPPR North, 2020. http://www.ippr.org/research/publications/state-of-the-north-2020-21 (accessed Dec 8, 2020).

11 McClure ES, Vasudevan P, Bailey Z, Patel S, Robinson WR. Racial capitalism within public health—how occupational settings drive COVID-19 disparities. *Am J Epidemiol* 2020; **189:** 1244–53.

12 Amin M, Abubaker H. Control of schistosomiasis in the Gezira Irrigation Scheme, Sudan. *J Biosoc Sci* 2017; **49:** 83–98.

13 Roberts SA, Brabin L, Stretch R, et al. Human papillomavirus vaccination and social inequality: results from a prospective cohort study. *Epidemiol Infect* 2011; **139:** 400–05.

14 Jegede AS. What led to the Nigerian boycott of the polio vaccination campaign? *PLoS Med* 2007; **4:** e73.

15 Deutsch N, Singh P, Singh V, Curtis R, Siddique AR. Legacy of polio—use of India's social mobilization network for strengthening of the universal immunization program in India. *J Infect Dis* 2017; **216** (suppl 1)**:** S260–66.

16 Castillo-Solórzano C, Marsigli C, et al. Elimination of rubella and congenital rubella syndrome in the Americas. *J Infect Dis* 2011; **204** (suppl 2)**:** S571–78.

17 Paltiel AD, Schwartz JL, Zheng A, Walensky RP. Clinical outcomes of a COVID-19 vaccine: implementation over efficacy. *Health Aff (Millwood)* 2020; published online Nov 19. https://doi.org/10.1377/hlthaff.2020.02054.

18 Batterham RW, Hawkins M, Collins PA, Buchbinder R, Osborne RH. Health literacy: applying current concepts to improve health services and reduce health inequalities. *Public Health* 2016; **132:** 3–12.

19 NICE. Community engagement to increase childhood immunisations. 2012. https://www.nice.org.uk/sharedlearning/community-engagement-to-increase-childhood-immunisations (accessed Dec 2, 2020).