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- Enebo LB, Berthelsen KK, Kankam M, et al. Safety, tolerability, pharmacokinetics, and pharmacodynamics of concomitant administration of multiple doses of cagrilintide with semaglutide 2.4 mg for weight management: a randomised, controlled, phase 1b trial. Lancet 2021; published online April 22. https://doi.org/10.1016/S0140-6736(21)00845-X.
- Kalyani RR. Glucose-lowering drugs to reduce cardiovascular risk in type 2 diabetes. N Engl J Med 2021; 384: 1248-60.
- Ryan DH. Semaglutide for obesity: four STEPs forward, but more to come. Lancet Diabetes Endocrinol 2021; 9: 252-54.
- Fletcher MM, Keov P, Truong TT, et al. AM833 is a novel agonist of calcitonin family G protein-coupled receptors: pharmacological comparison to six selective and non-selective agonists. J Pharmacol Exp Ther 2021; published online March 16. https://doi.org/10.1124/jpet.121.000567.
- Mathiesen DS, Lund A, Vilsbøll T, Knop FK, Bagger JI. Amylin and calcitonin: potential therapeutic strategies to reduce body weight and liver fat Front Endocrinol (Lausanne) 2021; 11: 617400.

COVID-19 vaccines for the European region: an unprecedented (() challenge





Almost 4 months have passed since the first COVID-19 vaccines became available in the European region of WHO. As vaccination programmes roll-out across the region, at a time when COVID-19 cases are increasing in some European countries,1 it is a good time to consider the challenges ahead and what can be done to address them. There have been questions about the speed with which COVID-19 vaccines were authorised for use in Europe, about the timetable for supplying vaccines to some countries in the region, and about the safety of COVID-19 vaccines in some countries. These issues are being addressed by relevant authorities, including national regulators, the European Medicines Agency, and WHO, concluding that the benefits of COVID-19 vaccines far outweigh any possible risks.^{2,3} However, these questions should not overshadow some remarkable successes, including the speed of development and deployment of a portfolio of COVID-19 vaccines and the rapid roll-out in some countries, such as Israel and the UK.^{4,5} Encouraging signs of reductions in severe illness and COVID-19 deaths in these countries show what can be expected as COVID-19 vaccination coverage increases across the region.^{6,7} On March 10, 2021, Moldova was the first country in the European region to receive a delivery from the COVAX Facility, a partnership between WHO, the Coalition for Epidemic Preparedness Innovations, Gavi, The Vaccine Alliance, and UNICEF. Four other countries in the European region (Georgia, Albania, Uzbekistan, and Tajikistan) have since received vaccines from the COVAX Facility. However, there is still much work to be done.

A commitment of WHO's European Programme of Work is to "leave no-one behind", which is especially important in the COVID-19 vaccine roll-out. The effectiveness of the available vaccines, shown in clinical trials^{9,10} and now in real-world data, 11 provides reassurance that immunised

individuals are likely to obtain protection, especially against severe disease or death. There is reassuring evidence that COVID-19 vaccines reduce transmission and thus extend protection to people around those who have been vaccinated.¹² However, even greater benefits arise if the threshold is reached for population immunity. What uptake of vaccination is needed to achieve population immunity is unclear, given uncertainties about the emergence of new SARS-CoV-2 variants¹³ and the duration of immunity, but it is likely to be high.

Attention needs to be given to people who have the opportunity to become vaccinated but decline to do so. Left unaddressed, vaccination hesitancy will make it difficult to achieve population immunity. Fortunately, there are some indications that vaccine hesitancy has declined since COVID-19 vaccines became available.14 However, this is a rapidly changing situation and there is continuing concern about vaccine hesitancy in some countries in the region and some communities within them. Consequently, there is no room for complacency and it is important that all countries monitor the messages that jeopardise vaccine acceptance which are circulating within their countries, especially those spread on social media, and take action to counter them with strong but succinct refutations and use of positive stories that resonate with their audiences.15

Another crucial concern is reducing inequalities in vaccine uptake. Researchers in the UK have documented how people who live in socially and economically disadvantaged areas, and especially members of some minority ethnic populations, are less likely to be vaccinated for a combination of reasons that include barriers to access and mistrust in authorities.16 However, only a few countries, such as the UK and Norway, 17 are systematically collecting data



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that can reveal ethnic disparities in vaccine uptake. If inequalities in COVID-19 vaccine coverage are effectively invisible, it can be difficult for policy makers to take effective measures to tackle them. WHO has placed inequalities high on its agenda for many years, informed by analyses on the social determinants of health.¹⁸ WHO will continue to support sharing of good practice on this complex issue.

Solidarity is important not only within countries but also among them in the Pan-European region. Although there has been a focus on the challenges of vaccine hesitancy and COVID-19 vaccine supply and coordination in some of the wealthier countries in the region, we must not overlook similar and different difficulties elsewhere. Armenia, Bosnia and Herzegovina, Kyrgyzstan, and Turkmenistan have received small donations of COVID-19 vaccines. Albania is vaccinating people crossing the border from Kosovo, which has not yet begun its own vaccination programme, and will donate 500 doses of COVID-19 vaccines for health workers in Kosovo.19 Similarly, Serbia is donating vaccines to its neighbours, including North Macedonia,20 and Romania has donated to Moldova.21 Uzbekistan, Tajikistan, and Georgia only began to receive COVID-19 vaccines supplies in March, 2021. In the region's disputed territories, such as the South Caucasus, there are particular challenges with COVID-19 vaccine supply and coordination.22 WHO staff are working with member states and partners to find country-specific and subregion-specific solutions to these difficulties.

The logistics of delivering vaccination to the intended groups is complex. Many things need to be in place, including accurate population registers, systems to identify groups with low uptake, adequate numbers of vaccinators, with removal of restrictive rules on who can administer vaccines that remain in some countries, and well functioning logistics systems for vaccines deployment.²³ WHO is providing technical advice in situations where vaccination and associated logistics and management systems are weak, including support for effective vaccine safety surveillance systems and measures to build public trust.

A sustainable, integrated, multisectoral response will be key to overcoming these challenges in the long term. The work of the WHO Regional Office for Europe will be informed by a Pan-European Commission on Health and Sustainable Development, chaired by former Italian Prime Minister Mario Monti, that will

report in September, 2021. In an interim statement,²⁴ published in March, 2021, the Commission highlighted several priorities. One is to address the challenges that arise at the intersection of human, animal, and environmental health, known as One Health. Two others are to improve our ability to anticipate and respond to emerging health threats, learning from entities such the Intergovernmental Panel on Climate Change, and to establish a Pan-European Centre for Disease Prevention and Control. There is much still to be done to ensure that no one will be left behind in the unprecedented efforts to vaccinate the people of Europe.

HK is WHO Regional Director for Europe, WHO Regional Office for Europe. MM is an adviser to the WHO Regional Director for Europe and is a Commissioner in the Pan-European Commission on Health and Sustainable Development and Chair of its Scientific Advisory Board. We declare no other competing interests.

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- 1 WHO. WHO Coronavirus (COVID-19) Dashboard. 2021. https://covid19. who.int/ (accessed March 23, 2021).
- 2 European Medicines Agency. COVID-19 Vaccine AstraZeneca: benefits still outweigh the risks despite possible link to rare blood clots with low blood platelets. 2021. https://www.ema.europa.eu/en/news/covid-19-vaccineastrazeneca-benefits-still-outweigh-risks-despite-possible-link-rare-bloodclots (accessed March 18, 2021).
- 3 WHO. WHO statement on AstraZeneca COVID-19 vaccine safety signals. March 17, 2021. https://www.who.int/news/item/17-03-2021-who-statement-on-astrazeneca-covid-19-vaccine-safety-signals (accessed March 23, 2021).
- 4 Rosen B, Waitzberg R, Israeli A. Israel's rapid rollout of vaccinations for COVID-19. Isr J Health Policy Res 2021; 10: 6.
- 5 Baraniuk C. Covid-19: how the UK vaccine rollout delivered success, so far. BMJ 2021; **372**: n421.
- 6 Rossman H, Shilo S, Meir T, Gorfine M, Shalit U, Segal E. Patterns of COVID-19 pandemic dynamics following deployment of a broad national immunization program. medRxiv 2021; published online Feb 9. https://doi.org/10.1101/2021.02.08.21251325 (preprint).
- 7 Bernal JL, Andrews N, Gower C, et al. Early effectiveness of COVID-19 vaccination with BNT162b2 mRNA vaccine and ChAdOx1 adenovirus vector vaccine on symptomatic disease, hospitalisations and mortality in older adults in England. medRxiv 2021: published online March 2. https://doi.org/10.1101/2021.03.01.21252652 (preprint).
- 8 WHO Regional Office for Europe. European Programme of Work (2020–2025)—"United Action for Better Health in Europe". 2020. https://www.euro.who.int/en/health-topics/health-policy/european-programme-of-work/about-the-european-programme-of-work/european-programme-of-work-20202025-united-action-for-better-health-in-europe2 (accessed March 18, 2021).
- 9 Voysey M, Clemens SAC, Madhi SA, et al. Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK. Lancet 2021; 397: 99–111.
- 10 Polack FP, Thomas SJ, Kitchin N, et al. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine. N Engl J Med 2020; 383: 2603–15.
- 11 Dagan N, Barda N, Kepten E, et al. BNT162b2 mRNA Covid-19 vaccine in a nationwide mass vaccination setting. N Engl J Med 2021; published online Feb 24. https://doi.org/10.1056/NEJMoa2101765.

- Hall VJ, Foulkes S, Saei A, et al. Effectiveness of BNT162b2 mRNA vaccine against infection and COVID-19 vaccine coverage in healthcare workers in England, multicentre prospective cohort study (the SIREN Study). SSRN 2021; published online Feb 22. http://dx.doi.org/10.2139/ssrn.3790399
- WHO Regional Office for Europe. Redoubling public health measures needed due to COVID-19 virus variants. Feb 2, 2021. https://www.euro.who.int/en/ health-topics/health-emergencies/coronavirus-covid-19/news/news/2021/2/ redoubling-public-health-measures-needed-due-to-covid-19-virus-variants (accessed March 23, 2021).
- Hertie School. Willingness to take COVID-19 vaccines increases across Europe. 2021. https://www.hertie-school.org/en/news/detail/content/ willingness-to-take-covid-19-vaccines-increases-across-europe (accessed March 18, 2021).
- Steffens MS, Dunn AG, Wiley KE, Leask J. How organisations promoting vaccination respond to misinformation on social media: a qualitative investigation. BMC Public Health 2019: 19: 1348.
- MacKenna B, Curtis HJ, Morton CE, et al. Trends, regional variation, and clinical characteristics of COVID-19 vaccine recipients: a retrospective cohort study in 23-4 million patients using OpenSAFELY. medRxiv 2021; published online Jan 27. https://doi.org/10.1101/2021.01.25.21250356
- Cookson C. Milne R. Nations look into why coronavirus hits ethnic minorities so hard. The Financial Times, April 29, 2020.

- Marmot M, Allen J, Bell R, Bloomer E, Goldblatt P. WHO European review of social determinants of health and the health divide. Lancet 2012; 380: 1011-29.
- Reuters. Albania donates COVID-19 vaccines to Kosovo health workers. Reuters, March 20, 2021. https://www.reuters.com/article/us-healthcoronavirus-kosovo-idUSKBN2BC0NH (accessed March 22, 2021).
- Bami X, Dragojlo S. Balkan countries lacking vaccines look to neighbours for jabs. BalkanInsight, March 22, 2021. https://balkaninsight.com/2021/03/22/ balkan-countries-lacking-vaccines-look-to-neighbours-for-jabs/ (accessed March 23, 2021).
- Oroschakoff K. Romania donates COVID-19 vaccines to Moldova. Politico, Feb 27, 2021. https://www.politico.eu/article/romania-donates-covid-19vaccines-to-moldova/ (accessed March 23, 2021)
- McKee M, Atun R. Beyond borders: public-health surveillance. Lancet 2006; 367: 1224-26
- Siciliani L, Wild C, McKee M, et al. Strengthening vaccination programmes and health systems in the European Union: a framework for action, Health Policy 2020: 124: 511-18
- Pan-European Commission on Health and Sustainable Development. Rethinking policy priorities in the light of pandemics: a call to action (2021). March, 2021. https://www.euro.who.int/en/health-topics/health-policy/ european-programme-of-work/pan-european-commission-on-health-andsustainable-development/multimedia/rethinking-policy-priorities-in-thelight-of-pandemics-a-call-to-action (accessed March 18, 2021).

Structural medicine: towards an economy of care

Under the Biden-Harris administration, there is renewed attention on inequalities in the USA that have exacerbated vulnerability to the COVID-19 pandemic and manifested as racial and class disparities in morbidity, mortality, and vaccination.^{1,2} With public health now at the centre of national priorities, there is an opportunity to reverse the decades-long dismantling of US welfare systems that has weakened public health and exacerbated racial inequities.^{3,4} As the US plans for pandemic recovery, we encourage the medical community to advocate for large-scale infrastructure investments to build systems of economic and social protection that are pivotal for pandemic preparedness and public safety.5

Physicians have long known that working conditions and economic security are key determinants of health. Unfortunately, many health-care systems, especially in the USA, have been designed around reductive, monetary notions of value that are in tension with principles of prevention, justice, anti-racism, and prioritising equitable care delivery.6 The dominance of reductively biomedical and economic emphases has generally cultivated narrow visions of the health-care community's proper purview and deflected physicians' political responsibilities to prevent disease and protect patients.7 During the COVID-19 pandemic, however, characterisations of effective care as apolitical or a matter of individual ethics rather than collective organisation have become increasingly untenable.^{7,8}

Among the most consequential policies on which physicians can focus their influence are those that relate to labour protections, unemployment insurance, and housing. Political choices that shape workers' rights and income security have consequences for national infection control, global biosecurity, and related economic stability. As the pandemic has shown, neglect of this reality has severe downstream implications for the more than 2 billion people who live in poverty globally.9 In the USA, despite abundant wealth, public policy has not invested in adequate systems of economic protection and care for the country's most disadvantaged residents.

During the COVID-19 pandemic, essential workers have been publicly praised while simultaneously being treated as disposable—a reality that has deepened racial and gender inequities. Black, Asian, Indigenous, and Latinx women, for example, are over-represented among both those who have continued to work in high-risk settings and among those who have lost their jobs and endure the highest rates of unemployment. 10-12 Moreover, nearly all US states overlooked the most at-risk essential workers who, data show, are food, agricultural, transportation, facilities, and manufacturing workers, for example, not doctors¹³—in early COVID-19 vaccine distribution schedules.

The pandemic has taken advantage of a long-standing synergy-produced by policy-between structural misogyny, racism, inadequate welfare and labour protections,







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