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.

Surgically removing fetal tissue from the uterus following maternal demise from Ebola virus disease (occasionally termed post-mortem caesarean) might pose a risk of transmission to contacts and should be strongly discouraged. Burial ceremonies, such as those that engage in the practice of separating fetal tissue from the uterus following maternal demise, are culturally important in some communities. WHO suggests that principles on how to have safe and dignified burials be adapted to consider pregnant women who have died from Ebola virus disease, with careful consideration for cultural and religious values.

Breastfeeding should be stopped if acute Ebola virus disease is suspected or confirmed in a lactating woman or in a breastfeeding child. The child should be separated from the breastfeeding woman and provided an age-appropriate breastmilk substitute as needed. Children who are exposed to breastmilk should be considered contacts. We have already presented further details on Ebola virus disease and breastfeeding and conditional exceptions when breastfeeding can be continued.[6]

Pregnant and breastfeeding women in affected areas should be offered vaccination with the prequalified, live, replicating recombinant vesicular stomatitis virus-Zaire Ebola virus-envelope glycoprotein vaccine (known as rVSV-ZEBOV-GP or Ervebo) during an active outbreak of Zaire ebolavirus, in the context of rigorous research or in accordance with a compassionate use protocol. Vaccination should occur with informed consent and in compliance with good clinical practice.

Given the high maternal and perinatal mortality associated with acute Ebola virus disease and the high vaccine efficacy, Ervebo should be offered to pregnant and breastfeeding women. Data should be collected on pregnancy outcomes and adverse events, and safety and efficacy data should be periodically evaluated to inform subsequent recommendations.

These recommendations are to be included in Ebola epidemic preparedness and response. Target audiences include policy makers, health-care providers, and emer

gency response teams. The complete guideline further outlines considerations for implementation, including how obstetric care can be provided safely in an Ebola treatment centre. The guidelines also include research questions that highlight the remaining evidence gaps related to pregnant and breastfeeding women with Ebola.

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See Online for appendix

1 WHO. WHO handbook for guideline development. 2nd edition. 2014. https://apps.who.int/iris/bitstream/handle/10665/75146/9789241548441_eng.pdf;jsessionid=03F4EE252E1DD12A097A3EF593DC9331?sequence=1 (accessed Aug 20, 2018).
2 Foeller ME, Carvalho Ribeiro do Valle C, Foeller TM, Oladapo OT, Roos E, Thorson AE. Pregnancy and breastfeeding in the context of Ebola: a systematic review. *Lancet Infect Dis* 2020; published online May 6. https://doi.org/10.1016/S1473-3099(20)30194-8.
3 WHO. Guidelines for the management of pregnant and breastfeeding women in the context of Ebola virus disease. 2020. https://www.who.int/reproductivehealth/publications/ebola-pregnant-and-breastfeeding-women/en/ (accessed May 1, 2020).
4 WHO. Notes for the record: consultation on monitored emergency use of unregistered and investigational interventions (MEURI) for Ebola virus disease (EVD). https://www.who.int/ebola/drc-2018/notes-for-the-record-meuri-ebola.pdf (accessed Sept 2, 2019).
5 Mulangu S, Dodd LE, Davey RT Jr, et al. A randomized, controlled trial of Ebola virus disease therapeutics. *N Engl J Med* 2019; **381:** 2293–303.
6 Thorson AE, Foeller M, Rayco-Solon P, Prinzo ZW, Souza JP, Peña-Rosas JP. Ebola virus disease and breastfeeding. *Lancet* 2020; **395:** 491.

The UK hibernated pandemic influenza research portfolio: triggered for COVID-19

In response to delays in research for 2009 influenza A/H1N1, in 2012 the National Institute for Health Research (NIHR), a UK funder, funded a portfolio of nine projects.[1] These projects were put on standby in a maintenance-only state awaiting activation in the event of new influenza pandemic. The portfolio covered key pathways of health care, including surveillance, primary prevention, triage, and clinical management. In 2018, a request was made by NIHR to adapt these projects to include new and emerging infectious diseases. All projects were able to be repurposed and eight have now been activated in response to the coronavirus disease 2019 (COVID-19) pandemic.

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See Online for appendix

For the RECOVERY trial website see www.recoverytrial.net

The Flu Telephone Survey Template study (FluTEST; ISRCTN40930724) is the first study to be activated and is a survey of public knowledge, attitudes, and behaviour that has been assessing the effect of official communications on behaviour change in the community (appendix pp 1–4). The Early estimation of pandemic influenza Antiviral and Vaccine Effectiveness (EAVE; ISRCTN55398410) study uses a community and national laboratory dataset to link primary care data with serological, hospital, and mortality outcome data. This study is to be expanded (EAVEII) with data from 5 million patients in addition to new datasets including hospital ePrescribing and intensive care unit data. Risk factors for infection and severe morbidity and mortality and potential therapy and vaccine effectiveness and safety are also to be explored as part of the study. The Pandemic Influenza Community Assessment Tools study (FLU-CATS; ISRCTN87130712) runs each winter influenza season to engage in real-time refinement and validation of criteria in primary care to aid hospital referral. FLU-CATS has been adapted to gather data from patients with suspected COVID-19, including data from telephone consultations. The International Severe Acute Respiratory and emerging Infection Consortium (ISARIC) WHO Clinical Characterisation Protocol for emerging infections UK (CCP-UK; ISRCTN66726260) study facilitates the collection of standardised clinical data and samples on patients who have been admitted to hospital with suspected or confirmed COVID-19. Funded by the UK Medical Research Council (MRC) and NIHR, 30 885 patients have been recruited to CCP-UK (as of May 6, 2020) and samples are being distributed to academic collaborators, commercial entities, Public Heath England (PHE), and the National Institute for Biological Standards and Controls.[2] Data from CCP-UK is supporting the Scientific Pandemic Influenza Modelling Committee (SPI-M) and the Scientific Advisory Group for Emergencies (SAGE). The PAndemic INFLuenza Triage in the Emergency Department (PAINTED; ISRCTN56149622) study, which aimed to identify the most accurate triage method to predict severe illness among patients attending the emergency department with suspected pandemic influenza, has become the Pandemic Respiratory Infection Emergency System Triage (PRIEST; ISRCTN28342533) study, reflecting expansion to include all pandemic respiratory infections and the involvement of the ambulance service, alongside the emergency department, in deciding who needs admission to hospital. The UK Obstetric Surveillance System (UKOSS) pregnancy study, which aimed to collect existing data on pregnant and postpartum women admitted to hospital with influenza infection, has been activated, with no alterations to the study other than a change to collection of data on COVID-19. The dexamethasone arm of RECOVERY (ISRCTN50189673) is effectively an adaptation of the Multi-centre Adjuvant Steroids in Adults with Pandemic Influenza (ASAP; ISRCTN72331452) trial. The first patient was recruited to the RECOVERY trial within 2 weeks of WHO characterising the COVID-19 outbreak as a pandemic (on March 11, 2020). The Real-time Modelling of a Pandemic Influenza Outbreak (RTM) study was activated before the COVID-19 pandemic, creating real-time models to predict the impact of seasonal influenza.[3] The model has been adapted to COVID-19 and has been assisting SAGE through SPI-M. In February 2020, decisions on the strategy for epidemic containment were guided by simulation of possible scenarios and the model is now being used to estimate the incidence of new COVID-19 cases and to predict the number of community deaths by age group and UK National Health Service NHS region. Outputs from the model inform PHE regional resource planning and, through SPI-M, support decisions on the relaxation of physical distancing measures. The population-level susceptibility, severity and spread of pandemic influenza study (PIPS; ISRCTN80214280) has not been activated because The Health Survey for England has temporarily paused field work due to physical distancing measures, which has made the timely collection of specimens for serology not possible at this time.

Our national portfolio of hibernated pandemic studies is illustrating the value of the UK's clinical research system and the potential for rapid research, and the clinical and public health response to the COVID-19 pandemic. The fact that most studies have been activated, and are going well, shows that this model is an optimal way of using hibernating research studies to prepare and then rapidly respond to pandemic and emerging infections.

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1 Simpson CR, Beever D, Challen K, et al. The UK's pandemic influenza research portfolio: a model for future research on emerging infections. *Lancet Infect Dis* 2019; **19:** 295–300.
2 Semple MG. ISARIC/WHO clinical characterisation protocol for severe emerging infections. NHS Health Rsearch Authority, 2013. https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/isaricwho-clinical-characterisation-protocol-for-severe-emerging-infections/ (accessed May 5, 2020).
3 Birrell PJ, Zhang XS, Corbella A, et al. Forecasting the 2017/2018 seasonal influenza epidemic in England using multiple dynamic transmission models: a case study. *BMC Public Health* 2020; **20:** 486.

A future vaccination campaign against COVID-19 at risk of vaccine hesitancy and politicisation

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Just a few weeks ago, more than half of the world's population was on lockdown to limit the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Scientists are racing against time to provide a proven treatment. Beyond the current outbreak, in the longer term, the development of vaccines against SARS-CoV-2 and their global access are a priority to end the pandemic.[1] However, the success of this strategy relies on people's acceptability of immunisation: what if people do not want the shot? This question is not rhetorical; many experts have warned against a worldwide decline in public trust in immunisation and the rise of vaccine hesitancy during the past decade, especially in whole Europe and in France.[2,3] Early results from a survey done in late March in France suggests that this distrust is likely to become an issue when the vaccine will be made available.

We did an online survey in a representative sample of the French population aged 18 years and older 10 days after the nationwide lockdown was introduced (March 27–29). We found that 26% of respondents stated that, if a vaccine against SARS-CoV-2 becomes available, they would not use it. It might come as a surprise given the situation a few weeks ago: the whole population was confined as the outbreak had not yet reached its peak, and media were flooded with daily death tolls and the saturation of intensive care wards. The social profile of reluctant responders is even more worrying: this attitude was more prevalent among low-income people (37%), who are generally more exposed to infectious diseases,[4] among young women (aged 18–35 years; 36%), who play a crucial role regarding childhood vaccination,[5] and among people aged older than 75 years (22%), who are probably at an increased risk for severe illness from COVID-19. Our data also suggest that the political views of respondents play an important part in their attitude. Participants' acceptation of a vaccine against SARS-CoV-2 strongly

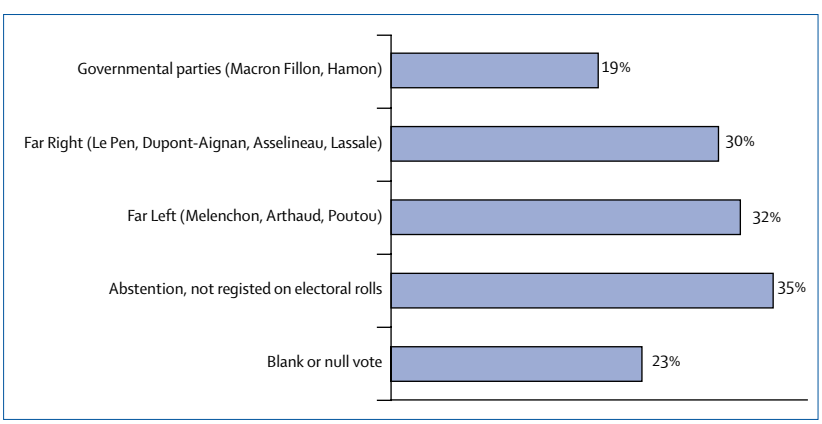

Figure: **The French public's intention to refuse vaccination against COVID-19 according to their vote at the first round of the 2017 presidential election, March 27–29, COCONEL Survey (n=1012)**