Vaccines and Global Health: The Week in Review
28 March 2020 :: Number 544
Center for Vaccine Ethics & Policy (CVEP)

This weekly digest targets news, events, announcements, articles and research in the vaccine and global health ethics and policy space and is aggregated from key governmental, NGO, international organization and industry sources, key peer-reviewed journals, and other media channels. This summary proceeds from the broad base of themes and issues monitored by the Center for Vaccine Ethics & Policy in its work: it is not intended to be exhaustive in its coverage.

Vaccines and Global Health: The Week in Review is also posted in pdf form and as a set of blog posts at https://centerforvaccineethicsandpolicy.net. This blog allows full-text searching of over 8,000 entries.

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WHO: Guiding principles for immunization activities during the COVID-19 pandemic
Interim guidance - 26 March 2020

**As the COVID-19 pandemic evolves, this document and accompanying FAQ will be revised as necessary.**

Due to the global circulation of the virus causing COVID-19 and the current pandemic, there is risk of disruption to routine immunization activities due to both COVID-19 related burden on the health system and decreased demand for vaccination because of physical distancing requirements or community reluctance. Disruption of immunization services, even for brief periods, will result in increased numbers of susceptible individuals and raise the likelihood of outbreak-prone vaccine preventable diseases (VPDs) such as measles. Such VPD outbreaks may result in increased morbidity and mortality predominantly in young infants and other vulnerable groups, which can cause greater burden on health systems already strained by the COVID-19 response. The high potential for VPD outbreaks makes it imperative for countries to maintain continuity of immunization services wherever services can be conducted under safe conditions. Prior disease outbreaks and humanitarian emergencies have underscored the importance of maintaining essential health services such as immunization, and effectively engaging communities in planning and service delivery. Yet the complexity and global reach of the COVID-19 response with respect to mandatory physical distancing (also referred to as social distancing) and economic impact on households is unprecedented for public health.

This document provides guiding principles and considerations to support countries in their decision-making regarding provision of immunization services during the COVID-19 pandemic and is endorsed by the WHO’s Strategic Advisory Group of Experts on Immunization. It is complemented by a range of WHO technical materials on response and mitigation measures for COVID-19. Each country will need to make individual risk assessments based on the local dynamics of COVID-19 transmission, immunization and health system characteristics, and current VPD epidemiology in their setting.

**Guiding Principles**

1. Immunization is a core health service that should be prioritized for the prevention of communicable diseases and safeguarded for continuity during the COVID-19 pandemic, where feasible. Immunization delivery strategies may need to be adapted and should be conducted under safe conditions, without undue harm to health workers, caregivers and the community.

2. VPD surveillance should be maintained and reinforced to enable early detection and management of VPD cases, and where feasible, contribute to surveillance of COVID-19.

3. National authorities will need to continuously monitor the dynamics of COVID-19 in their country or region. National Immunization Technical Advisory Groups (NITAGs) have an
important role in providing advice with respect to the maintenance, adaptation, suspension and/or reinstatement of immunization services.

4. If provision of immunization services is negatively impacted by COVID-19, countries will need to design strategies for catch-up vaccination for the period post COVID-19 outbreak and make plans which anticipate a gradual recovery. Implementation of catch-up will require strategies to track and follow-up with individuals who missed vaccinations, assess immunity gaps, and re-establish community demand. Innovation and creativity will be required.

5. Based on the current understanding of transmission of the COVID-19 virus and recommendations for physical distancing, mass vaccination campaigns should be temporarily suspended. Countries should monitor and re-evaluate at regular intervals the necessity for delaying mass vaccination campaigns.

6. The conduct of outbreak response mass vaccination campaigns will require a careful risk-benefit analysis on a case-by-case basis, assessing risks of a delayed response against the risks associated with an immediate response, both in terms of morbidity and mortality for the VPD and the potential impact of further transmission of the COVID-19 virus.

7. Where feasible, influenza vaccination of health workers, older adults, and pregnant women is advised.

**Considerations for Routine Immunization and VPD Surveillance**

:: The decision to maintain immunization services will be influenced by local mandates for physical distancing and guided by health system context, the local burden of VPDs, the status and anticipated status of local COVID-19 transmission (classified as no cases, sporadic, clusters, or community transmission), and factors such as population demographics and migration patterns.

:: Where health system capacity is intact and essential health services are operational (e.g., adequate human resources, adequate vaccine supply), fixed site immunization services and VPD surveillance should be executed while maintaining physical distancing measures and appropriate infection control precautions, equipped with the necessary supplies for those precautions.

:: The appropriateness of implementing alternative strategies (e.g. outreach or mobile services), as well as activities requiring community interaction for VPD surveillance, must be assessed in the local context and should be adapted to ensure the safety of the health workers and community. Innovative methods for vaccination delivery should be explored to optimize service delivery.

:: Where the provision of limited services is feasible, immunization of vulnerable populations at increased risk of morbidity and mortality due to VPDs should be prioritized for vaccination against outbreak-prone diseases such as measles, polio, diphtheria and yellow fever.

**Considerations for Mass Vaccination Campaigns**

:: Based on the current understanding of the transmission modes of the COVID-19 virus and the recommended prevention measures of physical distancing, it is advised to temporarily suspend the conduct of mass vaccination campaigns due to the increased risk of promoting
community circulation. Countries should monitor and re-evaluate at regular intervals the necessity for the delay of mass vaccination campaigns.

:: Under circumstances of a VPD outbreak, the decision to conduct outbreak response mass vaccination campaigns will require a risk-benefit assessment on a case by case basis and must factor in the health system’s capacity to effectively conduct a safe and high-quality mass campaign in the context of the COVID-19 pandemic. The assessment should evaluate the risks of a delayed response against the risks associated with an immediate response, both in terms of morbidity and mortality for the VPD and the potential impact of further transmission of the COVID-19 virus.

:: Should an outbreak response vaccination campaign be pursued, stringent measures are required to uphold standard and COVID-19 infection prevention and control, adequately handle injection waste, protect health workers and safeguard the public.

:: Should an outbreak response vaccination campaign be delayed, a periodic assessment based on local VPD morbidity and mortality, as well as regional and international epidemiology will be required to evaluate risk of further delay.

**Consideration for Re-establi**shing Immunization Services

:: In circumstances where immunization services must be diminished or suspended, countries should reinstate and reinvigorate immunization services at the earliest opportunity to close immunity gaps, once reduced local transmission of the COVID-19 virus permits primary health care services to resume.

:: If resources for catch-up are limited, catch-up immunization activities should place priority on outbreak-prone VPDs such as measles, polio, diphtheria, and yellow fever.

:: Countries should implement effective communication strategies and engage with communities to allay concerns, enhance community linkages and re-establish community demand for vaccination.

2 http://www.jogh.org/documents/issue201802/jogh-08-020601.htm
The COVID-19 pandemic response requires worldwide solidarity and an urgent global effort. The Global Polio Eradication Initiative (GPEI), with thousands of polio workers, and an extensive laboratory and surveillance network, is positioned and ready to ensure that our resources are used by countries in their preparedness and response. The COVID-19 emergency means that many aspects of the polio eradication programme will be—and in some areas are already--substantially affected.

In light of these considerations, the Polio Oversight Board (POB) of GPEI recommends:

1. **All polio eradication country programmes prioritize support for the response to COVID-19.** Specifically, for the next 4-6 months, GPEI assets (technical expertise, surveillance and community networks, and logistics capacity) at all levels (global, regional, national, and local levels) should be made available to support the global response to COVID-19. GPEI staff supporting COVID-19 front line activities, must be provided with the necessary training, materials, equipment and logistics to do so safely. Additionally, if required, GPEI financial management systems could be used to support the channelling of COVID-19 funding for the pandemic response.

2. **Critical functions related to Polio Acute Flaccid Paralysis and Environmental Surveillance should remain a priority** and governments should do all they can to ensure they continue, to closely monitor the circulation of wild and vaccine-derived polioviruses. As much as possible, these surveillance activities should be paired with COVID-19 surveillance and data systems upgraded to support this expanded portfolio of work. To facilitate this work, the provision of personal protective equipment for surveillance officers should be prioritized.

3. **All polio activities which come in contradiction to global guidance on physical distancing, such as house-to-house or other immunization activities using oral or injectable vaccines**, should be suspended to avoid placing communities and frontline workers at unnecessary risk, and facilitate rapid and effective COVID-19 response in countries. Specifically,

   a. **All preventive polio campaigns should be postponed until the second half of 2020.**

   b. **Endemic countries, and non-endemic countries planning to conduct outbreak responses campaigns, should postpone all campaigns (mOPV2, bOPV) until June 1, 2020 and then reevaluate based on the status of the COVID-19 pandemic.** Any country wishing to proceed with polio vaccination campaigns should only implement such
campaigns after a thorough assessment of risk of COVID-19 transmission among frontline workers and communities and potential impact on immunization programs. Vaccines currently approved for preventative SIAs and outbreak response will be shipped, unless a country has decided to postpone that campaign. New vaccine requests will be considered on a case-by-case basis.

4. Efforts to obtain an Emergency Use Listing recommendation for novel Oral Polio Vaccine type 2 (nOPV2), must continue at full speed. The preparation for nOPV2 roll-out, across the range of technical, communications, policy and manufacturing activities should also continue. Engagement with countries around initial use of nOPV2 will continue, as appropriate to their specific COVID-19 situation, with the goal of deploying nOPV2 for outbreak response during the second half of 2020.

5. While halting important polio eradication activities is necessary, it will result in increased spread of disease and number of children paralyzed by wild and circulating vaccine-derived polioviruses. This will require a scale up of polio eradication efforts once the COVID-19 situation has stabilized. Without compromising support to the COVID-19 response, country programmes should take the opportunity during the pause in vaccination campaigns to improve other elements of the program such as strategic planning and performance management processes. Finally, GPEI and country programmes must develop a comprehensive set of context-specific strategies and a plan for resumption of operations. 

This guidance and the timelines will be reviewed by the Strategy Committee on a bi-weekly schedule given the rapidly changing situation with COVID-19.

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Statement

Statement by UNICEF Executive Director Henrietta Fore on the disruption of immunization and basic health services due to the COVID-19 pandemic

NEW YORK, 26 March 2020: "Around the world, the COVID-19 pandemic is overstretching health services as health workers are diverted to support the response.

"Physical distancing is leading parents to make the difficult decision to defer routine immunization.

"Medical goods are in short supply and supply chains are under historic strain due to transport disruptions. Flight cancellations and trade restrictions by countries have severely constrained access to essential medicines, including vaccines.

"As the pandemic progresses, critical life-saving services, including immunization, will likely be disrupted, especially in Africa, Asia and the Middle East where they are sorely needed.

"At the greatest risk are children from the poorest families in countries affected by conflicts and natural disasters.
"We are particularly concerned about countries that are battling measles, cholera or polio outbreaks while responding to COVID-19 cases, such as Afghanistan, the Democratic Republic of Congo, Somalia, the Philippines, Syria and South Sudan. Not only would such outbreaks tax already stretched health services, they could also lead to additional loss of lives and suffering. At a time like this, these countries can ill-afford to face additional outbreaks of vaccine-preventable diseases.

"The message is clear: We must not allow lifesaving health interventions to fall victim to our efforts to address COVID-19.

"UNICEF is committed to supporting basic health care and immunization needs in the worst affected countries, and to doing so in a way that limits the risk of COVID-19 transmission. We are working hard to ensure adequate vaccine supplies are available in countries that need them. We are in close communication with global vaccine suppliers to ensure production is not disrupted and supply is managed in the best possible manner under these difficult circumstances. We are also providing greater support to governments to continue the supply of vaccines during this pandemic.

"In the days to come, governments may have to temporarily postpone preventive mass vaccination campaigns in many places to ensure that the delivery of immunization services does not contribute to COVID-19 spread, and to follow recommendations on physical distancing. "UNICEF strongly recommends that all governments begin rigorous planning now to intensify immunization activities once the COVID -19 pandemic is under control. These vaccination activities must focus on children who will miss vaccine doses during this period of interruption and prioritize the poorest and most vulnerable children. To successfully roll-out vaccines against COVID -19 when they become available, we need to ensure that our immunization programmes remain robust and can reach those that will need these vaccines the most.

"Immunization remains a life-saving health intervention. As the world's biggest buyer and supplier of vaccines, UNICEF will continue to play a pivotal role in supporting governments’ current and future immunization efforts.”

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Science
27 March 2020 Vol 367, Issue 6485
http://www.sciencemag.org/current.dtl

Editorial
COVID-19 needs a Manhattan Project
By Seth Berkley

There is an unprecedented race to develop a vaccine against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). With at least 44 vaccines in early-stage development, what outcome can we expect? Will the first vaccine to cross the finish line be the safest and most effective? Or will it be the most well-funded vaccines that first become available, or perhaps those using vaccine technologies with the fewest regulatory hurdles? The answer could be a vaccine that ticks all these boxes. If we want to maximize the chances for success, however,
and have enough doses to end the coronavirus disease 2019 (COVID-19) pandemic, current piecemeal efforts won’t be enough. If ever there was a case for a coordinated global vaccine development effort using a “big science” approach, it is now.

There is a strong track record for publicly funded, large-scale scientific endeavors that bring together global expertise and resources toward a common goal. The Manhattan Project brought about nuclear weapons quickly (although with terrible implications for humanity) through an approach that led to countless changes in how scientists from many countries work together. The Human Genome Project and CERN (the European Organization for Nuclear Research) engaged scientists from around the world to drive basic research from their home labs through local and virtual teamwork. Taking this big, coordinated approach to developing a SARS-CoV-2 vaccine will not only potentially save hundreds of thousands of lives, but will also help the world be better prepared for the next pandemic.

An initiative of this scale won’t be easy. Extraordinary sharing of information and resources will be critical, including data on the virus, the various vaccine candidates, vaccine adjuvants, cell lines, and manufacturing advances. Allowing different efforts to follow their own leads during the early stages will take advantage of healthy competition that is vital to the scientific endeavor. We must then decide which vaccine candidates warrant further exploration purely on the basis of scientific merit. This will require drawing on work already supported by many government agencies, independent organizations like the Coalition for Epidemic Preparedness Innovations, and pharmaceutical and biotech companies to ensure that no potentially important candidate vaccines are missed. Only then can we start to narrow in on those candidates to be advanced through all clinical trial phases. This shortlist also needs to be based on which candidates can be developed, approved, and manufactured most efficiently.

Trials need to be carried out in parallel, not sequentially, using adaptive trial designs, optimized for speed and tested in different populations—rich and developing countries, from children to the elderly—so that we can ultimately protect everyone. Because the virus is spreading quickly, testing will be needed in communities where we can get answers fast—that means running trials anywhere in the world, not just in preset testing locations. Working with regulators early in the process will increase the likelihood of rapid approvals, and then once approved, a coordinated effort will ensure that sufficient quantities are available to all who need the vaccine, not just to the highest bidder.

All of this will require substantial funding, which is the big ask of big science. Late-stage clinical trials are not cheap, nor is vaccine manufacturing. Although new modular manufacturing methods may speed up the process and cut costs, a single vaccine facility can cost half a billion dollars. Distribution comes at a cost, too. So, to guarantee sufficient production of SARS-CoV-2 vaccines, incentives are needed to engage manufacturers for large-scale capacity. As for dissemination, those organizations with experience in global vaccine distribution, like Gavi, will be at the ready.

Ideally, this effort would be led by a team with a scientific advisory mechanism of the highest quality that could operate under the auspices of the World Health Organization (WHO), for example. But none of this will be possible without political will and a global commitment from leaders of the G7 and G20 countries and multilateral organizations, like the WHO and the World
Bank. A pandemic of this magnitude, affecting so many lives, livelihoods, and economies, demands this.

In many ways, COVID-19 is more like the Manhattan Project than other big science efforts, not just because it involves the application of science and not just in terms of scale, but because it is a global security issue. In the race to develop a SARS-CoV-2 vaccine, everyone must win.

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**IFPMA Backgrounder - COVID-19**

27 March 2020

[Excerpts]

**Vaccine development**

While vaccines and small molecule treatments are approved through different regulatory pathways and their development programs vary, they generally both must complete three phases of clinical trials. However, there are differences in the data required to show the safety of vaccines and the size of clinical trials for vaccines relative to small molecules.

Experts are hoping it will take as little as 12 to 18 months before there is a vaccine available. This is a best-case estimate that assumes one or two of the first few vaccines that enter development will be successful. Typically, only approximately one in ten experimental vaccines make it all the way through to regulatory approval. Therefore, the more companies taking different approaches to find a vaccine, the more “shots on goal” and significantly greater chances of success.

**CEPI and GSK** will collaborate to help the global effort to develop a vaccine for the novel coronavirus. GSK announced it would partner with the Chinese biotech company Clover Biopharmaceuticals. Under the partnership, GSK will provide Clover with its proprietary adjuvants – compounds that enhance the effectiveness of vaccines. By mid-March, GSK expanded their collaborations and is now working with five partner companies and research groups across the world, including in the USA and China.

**Johnson & Johnson** expanded its collaboration with the Biomedical Advanced Research and Development Authority (BARDA), part of U.S. Department of Health & Human Services (HHS), and established a new collaboration with Beth Israel Deaconess Medical Center (BIDMC), to accelerate development of a potential novel coronavirus vaccine.

**Pfizer and BioNTech** have entered into a partnership to jointly develop BioNTech’s mRNA-based vaccine candidate BNT162 to prevent COVID-19 infection. The collaboration aims to accelerate global development of BNT162, which is expected to enter clinical testing by the end of April 2020.

**Sanofi** announced a collaboration with the Biomedical Advanced Research and Development Authority (BARDA), part of the U.S. Department of Health and Human Services (HHS), to advance a novel COVID-19 vaccine candidate. Work is underway to leverage previous development of a SARS vaccine candidate using Sanofi’s recombinant DNA technology. Sanofi is also coordinating with the Coalition for Epidemic Preparedness Innovations (CEPI) and sharing its vaccine R&D experience and expertise to advance vaccine solutions.
:: **Sanofi and U.S. company Translate Bio** announced plans to collaborate on developing a vaccine to treat the coronavirus. The companies said Translate Bio would work on discovering, designing, and manufacturing a number of SARS-CoV-2 vaccine candidates, while Sanofi would provide its expertise in the field of vaccines and support from its research networks...

**Treatment development**

As of March 2020, there are at least: 14 companies with a medicine in early phase research, 4 companies with a medicine in Phase I of development and 3 in Phase II, and one company has a medicine in Phase III trials. Listed below is a snapshot of the different areas of research focused on finding a new treatment”

:: **AbbVie** announced it is partnering with global authorities to determine the effectiveness of HIV drugs in treating COVID-19. AbbVie is supporting clinical studies and basic research with lopinavir/ritonavir, working closely with European health authorities and the U.S. Food and Drug Administration (FDA), Centers for Disease Control and Prevention, National Institutes of Health and the Biomedical Advanced Research and Development Authority to coordinate these efforts.

:: **AstraZeneca’s** Research and Development (R&D) teams have also been working expeditiously to identify monoclonal antibodies to progress towards clinical trial evaluation as a treatment to prevent COVID-19. More than 50 virology, immunology, respiratory, and protein engineering experts across research, clinical, regulatory, and manufacturing are placing the highest priority on developing a treatment to minimise the global impact of the disease.

:: **Eli Lilly and AbCellera** (Canadian biotech firm) have entered into an agreement to co-develop antibody products for the treatment and prevention of COVID-19. The collaboration will leverage AbCellera’s rapid pandemic response platform, developed under the DARPA Pandemic Prevention Platform (P3) Program, and Lilly’s global capabilities for rapid development, manufacturing and distribution of therapeutic antibodies.

:: **EFPIA** is working with the Innovative Medicines Initiative (IMI) on potential actions to support collaborative research programs in order to fast-track the development of therapeutics.

:: **Gilead** has initiated two Phase 3 clinical trials of remdesivir in countries with high prevalence of COVID-19. The company is also supporting two Phase 3 trials in China and a global Phase 2 trial led by the U.S. National Institute of Allergy and Infectious Diseases. Gilead donated drug and provided scientific input for these studies. Gilead has provided remdesivir to physicians for compassionate use to treat several hundred severely ill patients with confirmed COVID-19, and has accelerated manufacturing of remdesivir at risk, in anticipation of potential future supply needs.

:: **GSK** is entering into the new collaborative research effort, the COVID-19 Therapeutics Accelerator. The aim of the Accelerator is to bring pharmaceutical companies and expert academic institutions into coordinated research programs, with the aim of bringing the most promising molecules forward that could be used to treat cases of COVID-19. GSK will contribute by making available compounds from its libraries for screening for activity against COVID-19. In addition, GSK is evaluating its marketed pharmaceutical products and medicines in development to determine if any could be used beyond their current indications in response to the pandemic. Further, GSK is evaluating options to make available specialised laboratory space to help in research and testing of COVID-19.

:: **Johnson & Johnson**, in partnership with the Rega Institute for Medical Research, University of Leuven (Belgium), are working to identify existing or new compounds with antiviral activity against COVID-19 that could contribute to providing immediate relief to the current outbreak.

:: **Merck**, as part of the global effort to investigate potential therapeutics for COVID-19 and their support of independent research, recently donated a supply of interferon beta-1a (Rebif®)
to the French Institut National de la Santé et de la Recherche Médicale (INSERM) following a request for use in a clinical trial. To date, Merck’s interferon beta-1a is not approved by any regulatory authority for the treatment of COVID-19 or for use as an antiviral agent.

:: **Novartis** announced that it has entered new collaborative research efforts such as the COVID-19 Therapeutics Accelerator, coordinated by the Bill & Melinda Gates Foundation, Wellcome, and Mastercard, as well as a COVID-19 directed partnership organized by the Innovative Medicines Initiative. Novartis is contributing by making available several compounds from its libraries that are considered suitable for in vitro antiviral testing. In addition, the company is rapidly evaluating other existing products to see if any could be utilized beyond their approved indications in response to the pandemic.

:: **Pfizer** announced that it completed a preliminary assessment of certain antiviral compounds that were previously in development and that inhibited the replication of coronaviruses similar to the one causing COVID-19 in cultured cells. Pfizer is engaging with a third party to screen these compounds under an accelerated timeline and expects to have the results back by the end of March.

:: **Pfizer** also outlined a detailed 5-point action plan to battle COVID-19. The plan includes a commitment to sharing its clinical development and regulatory expertise to support other smaller biotech companies that are screening compounds or existing therapies for activity against the virus causing COVID-19.

:: **Regeneron Pharmaceuticals** announced an expanded agreement with the U.S. Department of Health and Human Services (HHS) to develop new treatments combating the novel coronavirus.

:: **Regeneron Pharmaceuticals and Sanofi SA** started a clinical program evaluating Kevzara, originally a drug to treat arthritis, in patients hospitalized with severe COVID-19. Kevzara is a fully-human monoclonal antibody that inhibits the interleukin-6 (IL-6) pathway by binding and blocking the IL-6 receptor. IL-6 may play a role in driving the overactive inflammatory response in the lungs of patients who are severely or critically ill with COVID-19 infection.

:: **Roche’s Actemra** was approved by China on March 5 to treat Covid-19 patients with lung complications. Roche has donated nearly $2m-worth of Actemra to China to help the country manage the COVID-19 outbreak”. Actemra has been on the European market since 2010 for treatment of several kinds of arthritis.

:: **Roche** announced that they are working with the Food & Drug Administration (FDA) to initiate a Phase III clinical trial to evaluate the safety and efficacy of Actemra in hospitalised adult patients with severe COVID-19 pneumonia. This is the first global study of Actemra in this setting and is expected to begin enrolling as soon as possible in early April with a target of approximately 330 patients globally, including the US.

:: **Takeda** announced that it is initiating the development of a drug to treat people infected with the novel coronavirus. The experimental drug would be derived from the blood of coronavirus patients who have recovered from the respiratory disease. In parallel, Takeda is also exploring whether currently marketed and pipeline products may be an effective treatment option for infected patients...

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**Life Sciences Companies Commit Expertise and Assets to the Fight Against COVID-19 Pandemic Alongside Bill & Melinda Gates Foundation**
Collaboration to address product development and scale-up challenges posed by the current pandemic

SEATTLE, March 25, 2020 – Today, a consortium of life sciences companies announced an important collaboration to accelerate the development, manufacture, and delivery of vaccines, diagnostics, and treatments for COVID-19. The life sciences industry brings a range of assets, resources, and expertise needed to identify effective and scalable solutions to the pandemic, which is affecting billions worldwide. The impact on health systems, economies, and livelihoods is profound, and an effective response requires an unprecedented collaboration across governments, academia, the private sector, and the philanthropic community.

As co-chair of a consortium life science companies headquartered across three continents, Vas Narasimhan, chief executive officer of Novartis, said, “We feel a deep shared responsibility to see if there are specific areas where collaboration across the life sciences industry and the Bill & Melinda Gates Foundation can accelerate solutions to this pandemic. In addition to the individual contributions companies are already making, collective action is critical to ensure any promising studies into vaccines, drugs, and diagnostics are quickly scaled to people around the world who are affected by this pandemic.”

Trials of existing drugs, diagnostic tests, compounds, and investigational vaccines have begun across the globe to identify interventions that could slow or end the pandemic. Products that demonstrate efficacy will require clinical study, scale up of manufacturing, and distribution if proven effective. The life sciences industry has extensive experience in managing these processes for products that reach billions of people every day.

“We know that the private sector is where the technical skills and know-how regarding discovery, clinical trials, and commercialization sit,” said Mark Suzman, chief executive officer of the Bill & Melinda Gates Foundation. “We look to harness that knowledge and experience—combining it where possible—to connect with national regulators and the World Health Organization to see if we can help flatten the curve of this epidemic and make sure the results reach everyone around the world, particularly those at highest risk and the poorest.”

Following a conference call with Gates Foundation leadership earlier this month, companies are working to identify concrete actions that will accelerate treatments, vaccines, and diagnostics to the field. As a first step, 15 companies have agreed to share their proprietary libraries of molecular compounds that already have some degree of safety and activity data with the COVID-19 Therapeutics Accelerator—launched by the Gates Foundation, Wellcome, and Mastercard two weeks ago—to quickly screen them for potential use against COVID-19. Successful hits would move rapidly into in vivo trials in as little as two months.

“This is an encouraging start in a critical area, because if any of these compounds are shown to be effective against COVID-19, it dramatically accelerates the path to product approval and scale up,” said Suzman. “While each of the consortium's partners will also be pursuing independent efforts with national governments and others, we are optimistic that this unprecedented collaboration will provide a platform for a fundamentally different kind of partnership to help address this global health emergency.”
Companies participating in the collaboration include BD, bioMérieux, Boehringer Ingelheim, Bristol-Myers Squibb, Eisai, Eli Lilly, Gilead, GSK, Johnson & Johnson, Merck (known as MSD outside the U.S. and Canada), Merck KGaA, Novartis, Pfizer, and Sanofi.

EMERGENCIES

Coronavirus [COVID-19]
Public Health Emergency of International Concern (PHEIC)

Editor’s Note:
We certainly recognize the velocity of global developments in the COVID-19 pandemic. While we have concentrated the most current key reports just below, COVID-19 announcements, analysis and commentary will be found throughout this issue, in all sections.

Beyond the considerable continuing coverage in the global general media:
:: Daily WHO situation reports here: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports

Situation report - 67. [WHO]
Novel Coronavirus (COVID-19)
27 March 2020

[Situations]
SITUATION IN NUMBERS
Globally
509 164 confirmed (46 484)
23 335 deaths (2501)

Western Pacific Region
100 018 confirmed (960)
3567 deaths (27)

European Region
286 697 confirmed (36 414)
16 105 deaths (2155)

South-East Asia Region
2932 confirmed (396)
105 deaths (26)

Eastern Mediterranean Region
35 249 confirmed (2807)
2336 deaths (174)

**Region of the Americas**
81 137 confirmed (5425)
1176 deaths (111)

**African Region**
2419 confirmed (482)
39 deaths (8)

**WHO RISK ASSESSMENT**
**Global Level – Very High**

**HIGHLIGHTS**
:: Two new countries/territories/areas from the Region of the Americas [2] have reported cases of COVID-19.
:: The total global number of COVID-19 cases has surpassed 500 000.
:: Addressing the Extraordinary Summit on COVID-19, the WHO Director-General called on G20 leaders to fight, unite, and ignite against COVID-19.
:: WHO concluded the technical support mission to Egypt on 25 March 2020. More information can be found on the Eastern Mediterranean Regional Office site.
:: OpenWHO celebrates 1 million enrollments today. Seventy percent of the total enrollments are on COVID-19 resources, reflecting the critical role the platform is playing in supporting the response to the pandemic. On 25 March, a new course was launched describing how to design and operate treatment centres for the COVID-19 pandemic. COVID-19 resources are hosted on two learning channels: one for courses in official WHO languages and a second for courses in additional national languages.
:: The number of countries implementing additional health measures that significantly interfere with international traffic has increased since the declaration of COVID-19 as a public health emergency of international concern. The United Nations World Tourism Organization launched a Crisis Committee to review the impact of the outbreak on the aviation, shipping and tourism sectors and propose innovative solutions for recovery.

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**Emergencies**

**Ebola – DRC+**
*Public Health Emergency of International Concern (PHEIC)*

**Ebola Outbreak in DRC 85: 24 March 2020**
[Excerpts]
Situation Update

No new cases of Ebola virus disease (EVD) have been reported since 17 February 2020. The last person confirmed to have Ebola was discharged from an Ebola Treatment Centre on 3 March 2020 after recovering and testing negative for the virus twice. The last 46 contacts finished their follow-up period on 9 March 2020. These developments are significant milestones in this outbreak. There is, however, still a high risk of re-emergence of EVD, and it is critical to maintain response activities to rapidly detect and respond to any new cases, and to continue ongoing support and health monitoring operations for EVD survivors – as outlined in the WHO recommended criteria for declaring the end of the EVD outbreak.

Extensive surveillance, pathogen detection, and clinical management activities in previously affected areas continue, including alert validation, rapid diagnosis of suspected cases, and building of partnerships with community members to strengthen investigation of potential community EVD deaths...

...Conclusion

Given the challenges related to continued insecurity and population displacement in previous hotspots, limited access to some affected communities, and potential shortages of resources required to carry out response activities, there remains a high risk of re-emergence of the virus in the period leading up to the declaration of the end of the outbreak, as well as for several months following that declaration. In order to mitigate the risk of re-emergence, it is essential to maintain surveillance and rapid response capacities, prioritize survivor care, and maintain cooperative relationships with survivors’ associations.

Emergencies

POLIO

Public Health Emergency of International Concern (PHEIC)

Polio this week as of 25 March 2020

:: The COVID-19 emergency means that many aspects of the polio eradication programme will be affected. In light of the situation, the Polio Oversight Board (POB) has come up with a set of recommendations for polio eradicators...[See Milestones above for detail]

Summary of new viruses this week (AFP cases and ES positives):

:: Afghanistan: four WPV1 positive environmental samples
:: Pakistan: two WPV1 cases and six WPV1 positive environmental samples
:: Central African Republic: one cVDPV2 positive environmental sample
:: Angola: two cVDPV2 cases
:: Cameroon: one cVDPV2 case and three cVDPV2 positive environmental samples
:: Chad: five cVDPV2 cases and two cVDPV2 positive environmental samples
:: Côte d’Ivoire: two cVDPV2 positive environmental sample
:: Ethiopia: three cVDPV2 cases
:: Malaysia: one cVDPV1 case
:: Ghana: two cVDPV2 positive environmental samples
WHO Grade 3 Emergencies [to 28 Mar 2020]

Democratic Republic of the Congo
::: Ebola Outbreak in DRC 85: 24 March 2020
[See Ebola above for detail]

Mozambique floods
::: World Health Organization: Five cases of COVID-19 confirmed in Mozambique 26 March 2020

Nigeria - No new digest announcements identified
Somalia - No new digest announcements identified
South Sudan - No new digest announcements identified
Syrian Arab Republic - No new digest announcements identified
Yemen - No new digest announcements identified

WHO Grade 2 Emergencies [to 28 Mar 2020]

Niger
::: Niger : Table ronde des PTF pour le financement du plan global de réponse à la pandé... 26 mars 2020

Afghanistan - No new digest announcements identified
Angola - No new digest announcements identified
Burkina Faso [in French] - No new digest announcements identified
Burundi - No new digest announcements identified
Cameroon - No new digest announcements identified
Central African Republic - No new digest announcements identified
Ethiopia - No new digest announcements identified
HIV in Pakistan - No new digest announcements identified
Iran - No new digest announcements identified
Iraq - No new digest announcements identified
Libya - No new digest announcements identified
Malawi - No new digest announcements identified
Measles in Europe - No new digest announcements identified
MERS-CoV - No new digest announcements identified
Myanmar - No new digest announcements identified
occupied Palestinian territory - No new digest announcements identified
Sudan - No new digest announcements identified
Ukraine - No new digest announcements identified
Zimbabwe - No new digest announcements identified

WHO Grade 1 Emergencies [to 28 Mar 2020]

Chad - No new digest announcements identified
Djibouti - No new digest announcements identified
Kenya - No new digest announcements identified
Mali - No new digest announcements identified
Namibia - viral hepatitis - No new digest announcements identified
Tanzania - No new digest announcements identified

UN OCHA – L3 Emergencies
The UN and its humanitarian partners are currently responding to three 'L3' emergencies. This is the global humanitarian system’s classification for the response to the most severe, large-scale humanitarian crises.

Syrian Arab Republic
:: Recent Developments in Northwest Syria - Situation Report No. 11 - As of 27 March 2020
:: Syrian Arab Republic: COVID-19 Update No. 03 - 25 March 2020

UN OCHA – Corporate Emergencies
When the USG/ERC declares a Corporate Emergency Response, all OCHA offices, branches and sections provide their full support to response activities both at HQ and in the field.
CYCLONE IDAI and Kenneth - No new digest announcements identified
EBOLA OUTBREAK IN THE DRC - No new digest announcements identified

WHO & Regional Offices [to 28 Mar 2020]
26 March 2020  News release
WHO Director-General calls on G20 to Fight, Unite, and Ignite against COVID-19

25 March 2020  News release
How to budget for COVID-19 response?

24 March 2020  News release
New WHO recommendations to prevent tuberculosis aim to save millions of lives

23 March 2020  News release
Pass the message: Five steps to kicking out coronavirus

Preferred Product Characteristics of Monoclonal Antibodies for Passive Immunization against Respiratory Syncytial Virus (RSV)pdf, 206kb
26 March 2020
Leveraging Vaccines to Reduce Antibiotic Use and Prevent Antimicrobial Resistance: An action framework
25 March 2020
Annex to Immunization Agenda 2030

Weekly Epidemiological Record, 27 March 2020, vol. 95, 13 (pp. 117–132)
:: Antigenic and genetic characteristics of zoonotic influenza A viruses and development of candidate vaccine viruses for pandemic preparedness
:: Performance of acute flaccid paralysis (AFP) surveillance and incidence of poliomyelitis, 2020

WHO Regional Offices
Selected Press Releases, Announcements
WHO African Region AFRO
No new digest content identified.

WHO Region of the Americas PAHO
:: La OMS lleva la información de la COVID-19 a millones a través de WhatsApp, ahora en español (03/27/2020)
:: Similarities and differences – COVID-19 and influenza (03/26/2020)

WHO South-East Asia Region SEARO
No new digest content identified.

WHO European Region EURO
:: Mental health and psychological resilience during the COVID-19 pandemic 27-03-2020
:: Food and nutrition tips during self-quarantine 27-03-2020
:: Physical and mental health key to resilience during COVID-19 pandemic 26-03-2020
:: How to stay physically active during COVID-19 self-quarantine 25-03-2020
:: Reduction in tuberculosis cases but Europe on course to miss eradication target 24-03-2020

WHO Eastern Mediterranean Region EMRO
:: Statement by the Regional Director Dr Ahmed Al-Mandhari on COVID-19 in the Eastern Mediterranean Region
   27 March 2020, Cairo, Egypt – 21 out of 22 countries in the Eastern Mediterranean region are now reporting cases of COVID-19, including new reports of 5 confirmed cases in Syria and one confirmed case Libya. The past weeks have seen some of the most developed health systems in the world struggle with their response to COVID-19.
:: WHO delegation concludes COVID-19 technical mission to Egypt 26 March 2020
:: WHO, Saudi Arabia join forces to fight COVID-19 nationally, regionally and globally 25 March 2020

**WHO Western Pacific Region**

*No new digest content identified.*

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**CDC/ACIP** [to 28 Mar 2020]

http://www.cdc.gov/media/index.html

https://www.cdc.gov/vaccines/acip/index.html

**Latest News Releases**

**CDC Statement on COVID-19 Apple App**

Friday, March 27, 2020

Today, Apple Inc. — in partnership with the White House Coronavirus Task Force and the U.S. Department of Health and Human Services, including the Centers for Disease Control and Prevention (CDC) — released an app and website that guides Americans through a series of questions about their health and exposure to determine if they should seek care for COVID-19 symptoms. The tool provides CDC recommendations on next steps including guidance on social distancing and self-isolating, how to closely monitor symptoms, recommendations on testing, and when to contact a medical provider.

This launch is a direct response to President Trump’s call for an all-of-America approach and will help Americans heed CDC guidelines and self-isolate to limit COVID-19 transmission.

Users can download the free app from Apple’s App Store external icon or access the tool online at www.apple.com/covid19 external icon. Everyone has a role to play as we work together to stop the spread of COVID-19. The latest recommendations can be found at www.coronavirus.gov external icon.

**CDC Statement on Self-Quarantine Guidance for Greater New York City Transportation and Delivery Workers**

Thursday, March 26, 2020

When we issued the self-quarantining guidance for greater New York City residents leaving this area, it was out of an abundance of caution to help protect U.S. areas with lower levels of COVID-19 spread. In line with our recommendations for other essential critical infrastructure workers, this guidance does not apply to critical transportation and delivery workers who are desperately needed for New York residents to continue their daily lives and respond to the COVID-19 outbreak.

Truck drivers and other people driving into the city to deliver needed supplies should stay in their vehicles as much as possible as supplies are loaded and unloaded, avoid being within 6 feet of others as much as possible when they exit their vehicles, and move to electronic receipts if possible. If these drivers need to spend the night in the greater New York City area, they should stay in their hotel rooms or sleeper cab, when available, to the extent possible and continue to practice social distancing. Drivers who take these precautions should not need to self-quarantine when they leave the greater New York area, unless self-quarantine is recommended by state or local officials for all residents in the areas where they live.

Truck drivers and other workers who obtain or deliver needed supplies who live in the greater New York area may continue to work both within and outside of the greater New York area but
should stay at home and practice social distancing according to instructions of state and local officials when they are not working. While they are working either within or outside of the greater New York area, they should stay in their vehicles as much as possible, avoid being within 6 feet of others as much as possible when they exit their vehicles, and move to electronic receipts if possible.

We continue to recommend that all people take precautions to stay safe and keep others safe, including washing their hands regularly, staying home when sick, covering coughs and sneezes, and maintaining distance from others.

It remains our guidance that residents who were recently in the affected areas of New York, out of an abundance of caution, should self-quarantine for 14 days.

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**Africa CDC**  [to 28 Mar 2020]
http://www.africacdc.org/
*News*
Jack Ma and Alibaba Foundations Donate COVID-19 Medical Equipment to African Union Member States
22 March 2020

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**China CDC**
http://www.chinacdc.cn/en/
*No new digest content identified.*

**National Health Commission of the People's Republic of China**
http://en.nhc.gov.cn/
*News*
Xi chairs politburo meeting to consolidate gains in outbreak response and economic resurgence
2020-03-28

General Secretary Xi Jinping chaired a meeting of the Political Bureau of the Central Committee of the Communist Party of China on March 27 to assess response to the COVID-19 outbreak and state of the economy in and beyond China and to discuss further plans to both defeat the virus and ensure economic and social development.

Reviewing significant developments in outbreak control and economic performance at home and broad, the Political Bureau underscored that the accelerating spread of COVID-19 outside China has seriously impacted the global economy and trade. It is also making it harder to prevent the importation of cases and putting greater strains on economic growth and particularly the restoration of industrial chains in China...

**March 28: Daily briefing on novel coronavirus cases in China**
2020-03-28

On March 27, 31 provincial-level regions on the Chinese mainland as well as the Xinjiang Production and Construction Corps reported 54 new cases of confirmed infections (all are imported cases), 29 new cases of suspected infections, and 3 deaths (all in Hubei province). 383 patients were released from hospital after being cured. 758 people who had had close
contact with infected patients were freed from medical observation. Serious cases decreased by 113.

**China puts major restrictions on inbound air travel**
2020-03-28
China was compelled to temporarily suspend entry into the country of foreign passport holders with valid visas or residence permits in order to deal with the spread of COVID-19, Foreign Ministry spokesman Geng Shuang said on March 27.
"We also took into account the practices of many other countries," Geng said at a regular news conference in Beijing.
He said China will stay in close touch with all parties and properly handle personnel exchanges with the rest of the world.
The suspension, announced on March 26, will take effect on March 28, and will also apply to the entry of foreign nationals holding Asia-Pacific Economic Cooperation business travel cards...

**Wuhan risk level lowered as outbreak intercepted**
2020-03-28

**Specialists from China, US share COVID-19 knowledge**
2020-03-28

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**Announcements**

**Paul G. Allen Frontiers Group**  [to 28 Mar 2020]
*Press Release*
*No new digest content identified.*

**BMGF - Gates Foundation**  [to 28 Mar 2020]
http://www.gatesfoundation.org/Media-Center/Press-Releases
MARCH 25, 2020
**Life Sciences Companies Commit Expertise and Assets to the Fight Against COVID-19 Pandemic Alongside Bill & Melinda Gates Foundation**
Collaboration to address product development and scale-up challenges posed by the current pandemic

MARCH 24, 2020
**Bill & Melinda Gates Foundation Shares Details for Greater Seattle Area Coronavirus Response Grants**
Grants include support for vulnerable communities and public information campaign

**Bill & Melinda Gates Medical Research Institute**  [to 28 Mar 2020]
https://www.gatesmri.org/
The Bill & Melinda Gates Medical Research Institute is a non-profit biotech organization. Our mission is to develop products to fight malaria, tuberculosis, and diarrheal diseases—three major causes of mortality, poverty, and inequality in developing countries. The world has unprecedented scientific tools at its disposal; now is the time to use them to save the lives of the world’s poorest people.

No new digest content identified.

**CARB-X** [to 28 Mar 2020]
https://carb-x.org/

CARB-X is a non-profit public-private partnership dedicated to accelerating antibacterial research to tackle the global rising threat of drug-resistant bacteria.

No new digest content identified.

**CEPI – Coalition for Epidemic Preparedness Innovations** [to 28 Mar 2020]
http://cepi.net/

Latest News

**UK boosts support for CEPI to spur COVID-19 vaccine development**
26 Mar 2020

UK Prime Minister, Boris Johnson, announced today a £210 million (US$270 million) boost in funding for CEPI. The announcement followed a virtual conference with G20 leaders and acknowledged the coalition’s recent global call for $2 billion to progress COVID-19 vaccines through to manufacture.

**Clinton Health Access Initiative, Inc. (CHAI)** [to 28 Mar 2020]
https://clintonhealthaccess.org/

News & Press Releases

No new digest content identified.

**EDCTP** [to 28 Mar 2020]
http://www.edctp.org/

The European & Developing Countries Clinical Trials Partnership (EDCTP) aims to accelerate the development of new or improved drugs, vaccines, microbicides and diagnostics against HIV/AIDS, tuberculosis and malaria as well as other poverty-related and neglected infectious diseases in sub-Saharan Africa, with a focus on phase II and III clinical trials.

Latest news

24 March 2020

**Total EDCTP investment in TB research & development rises to € 228 million**

On World TB Day 2020, the COVID-19 pandemic is a stark reminder of the global impact and burden of infectious diseases on individual and public health, society and national economies. Since 1997, the World Health Organisation (WHO) has reported on...

**Emory Vaccine Center** [to 28 Mar 2020]
http://www.vaccines.emory.edu/
No new digest content identified.

**European Medicines Agency** [to 28 Mar 2020]
News & Press Releases
Press release: EMA advises continued use of medicines for hypertension, heart or kidney disease during COVID-19 pandemic
Last updated: 27/03/2020

News: Meeting highlights from the Committee for Medicinal Products for Human Use (CHMP) 23-26 March 2020
CHMP, Last updated: 27/03/2020

Press release: Global regulators map out data requirements for phase 1 COVID-19 vaccine trials
Last updated: 24/03/2020

Press release: COVID-19: Beware of falsified medicines from unregistered websites
Last updated: 24/03/2020

**European Vaccine Initiative** [to 28 Mar 2020]
http://www.euvaccine.eu/news-events
Latest News
No new digest content identified.

**FDA** [to 28 Mar 2020]
https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/default.htm
Press Announcements
March 27, 2020 - Coronavirus (COVID-19) Update: Daily Roundup March 27, 2020

March 27, 2020 - Coronavirus (COVID-19) Update: FDA takes action to help increase U.S. supply of ventilators and respirators for protection of health care workers, patients

March 26, 2020 - Coronavirus (COVID-19) Update: Daily Roundup March 26, 2020

March 26, 2020 - FDA Continues to Support Transparency and Collaboration in Drug Approval Process as the Clinical Data Summary Pilot Concludes


March 24, 2020 - Coronavirus (COVID-19) Update: Daily Roundup, March 24, 2020

March 24, 2020 - Coronavirus (COVID-19) Update: FDA takes action to increase U.S. supplies through instructions for PPE and device manufacturers
**March 24, 2020 - Coronavirus (COVID-19) Update: FDA Helps Facilitate Veterinary Telemedicine During Pandemic**

**March 22, 2020 - Coronavirus (COVID-19) Update: FDA provides update on patient access to certain REMS drugs during COVID-19 public health emergency**

**March 22, 2020 - Coronavirus (COVID-19) Update: FDA Continues to Facilitate Access to Crucial Medical Products, Including Ventilators**

**Fondation Merieux** [to 28 Mar 2020]
http://www.fondation-merieux.org/
*News, Events*
No new digest content identified.

**Gavi** [to 28 Mar 2020]
https://www.gavi.org/
*Top Stories*
26 March 2020
**Gavi applauds G20 Leaders' commitment to supporting the global effort against COVID-19**

26 March 2020
**What is herd immunity?**

26 March 2020
**How do we stop the spread of a pandemic in a slum?**

**GHIT Fund** [to 28 Mar 2020]
https://www.ghitfund.org/newsroom/press
GHIT was set up in 2012 with the aim of developing new tools to tackle infectious diseases that
No new digest content identified.

**Global Fund** [to 28 Mar 2020]
*News & Stories*
*Voices*
**Re-thinking Global Health Security**
27 March 2020

*Sourcing & Management of Health Products*
**COVID-19 Impact on Supply Chain Logistics: Assessment and Recommendations**
27 March 2020
News
Japan Secures $476 million Contribution to the Global Fund
27 March 2020

Funding Model
First Funding Requests Submitted in the 2020-2022 Funding Cycle
26 March 2020

Voices
When Finance Fails: Why Economists Didn’t See a Coronavirus Collapse Coming
25 March 2020

Voices
Fighting Tuberculosis: Lessons for COVID-19
23 March 2020

Updates
Global Fund Supports Countries in Response to COVID-19
23 March 2020

Hilleman Laboratories  [to 28 Mar 2020]
http://www.hillemanlabs.org/
No new digest content identified.

Human Vaccines Project  [to 28 Mar 2020]
http://www.humanvaccinesproject.org/media/press-releases/
Press Releases
No new digest content identified.

IAVI  [to 28 Mar 2020]
https://www.iavi.org/newsroom
Press Releases
No new digest content identified.

International Coalition of Medicines Regulatory Authorities [ICMRA]
Selected Statements, Press Releases, Research
Global regulatory workshop on COVID-19 vaccine development (March 2020)
Global regulators have published a report today presenting the outcomes of a workshop on COVID-19 vaccine development that was convened under the umbrella of the International Coalition of Medicines Regulatory Authorities (ICMRA).

The meeting report provides an overview of regulatory considerations related to COVID-19 vaccine development and data required for regulatory decision-making on two key points:
Pre-clinical data required to support proceeding to first-in-human clinical trials with investigational medicinal products; and

The need to address the known theoretical risk that vaccines against COVID-19 enhance the disease prior to starting first-in-human clinical trials.

All participants in the meeting acknowledged the urgency of conducting first-in-human clinical trials with COVID-19 vaccine candidates. The conclusions set out how regulatory authorities around the globe intend to strike the balance between rapid development of vaccines and the need to generate enough robust data to enable decision-making.

The meeting also aimed to encourage exchange of information about the global efforts towards developing new vaccines against COVID-19 through an open dialogue between medicines regulatory authorities around the globe.

About the workshop
The regulatory workshop was held virtually in the context of the ongoing COVID-19 pandemic. It brought together delegates from 17 different countries, representing more than 20 medicines regulatory authorities globally, as well as experts from the World Health Organization and the European Commission, to share their views on the development of vaccines against COVID-19. The meeting was co-chaired by EMA and the US Food and Drug Administration (FDA).

International Generic and Biosimilar Medicines Association [IGBA]
https://www.igbamedicines.org/
News
COVID-19 / Urgent call to governments - Air freight must reopen for critical medicines and supplies for their manufacture (March 2020)

The International Generic and Biosimilar medicines Association (IGBA), which represents global manufacturers of generic and biosimilar medicines, today requested urgent action by governments and pharmaceutical supply chain stakeholders to reopen air freight routes and ensure patients around the globe can continue to have access to the medicines they need during the COVID-19 pandemic.

COVID-19: Critical to keep the supply chain of essential medicines manufacturing operating at full capacity (March 2020)

IGBA, the International Generic and Biosimilar medicines Association (IGBA), representing global manufacturers of generic and biosimilar medicines, today calls upon the global policy leaders and governments to do everything in their power to keep the manufacturing operations and the supply chain of essential medicines operating at full capacity. This will allow our companies to continue to produce much needed critical medicines. While we support the need to protect healthcare workers and to provide hospitals with essential materials, putting unreasonable restrictions on exports of essential medical supplies or medicines will do more harm than good at this time of urgent need.

IFFIm
http://www.iffim.org/
Press Releases
Jessica Pulay joins IFFIm Board of Directors
19 Mar 2020
Finance executive brings deep experience of public and private sector funding

London, 19 March 2020 – Jessica Pulay has been appointed to the Board of Directors of IFFIm, the International Finance Facility for Immunisation, and will serve a three-year term effective 1 April 2020.

IFRC [to 28 Mar 2020]
Selected Press Releases, Announcements

Global
International Red Cross and Red Crescent Movement appeals for 800 million Swiss francs to assist world’s most vulnerable people in fight against COVID-19

Geneva, 26 March 2020 — The International Red Cross and Red Crescent Movement on Thursday launched a revised emergency appeal for 800 million Swiss francs (823 million US dollars) to help the world’s most vulnerable communities halt the spread of COVID ...

IVAC [to 28 Mar 2020]
https://www.jhsph.edu/research/centers-and-institutes/ivac/index.html
Updates
No new digest content identified.

IVI [to 28 Mar 2020]
http://www.ivi.int/
Selected IVI News & Announcements
No new digest content identified.

JEE Alliance [to 28 Mar 2020]
https://www.jeealliance.org/
Selected News and Events
No new digest content identified.

MSF/Médecins Sans Frontières [to 28 Mar 2020]
http://www.msf.org/
Latest [Selected Announcements]

Coronavirus disease COVID-19
MSF calls for no patents or profiteering on COVID-19 drugs and vaccines

Press Release 27 Mar 2020
Geneva/New York — Médecins Sans Frontières (MSF) has called for no patents or profiteering on drugs, tests, or vaccines used for the COVID-19 pandemic, and for governments to prepare to suspend and override patents and take other measures, such as price controls, to ensure availability, reduce prices and save more lives.
Already, Canada, Chile, Ecuador and Germany have taken steps to make it easier to override patents by issuing 'compulsory licences' for COVID-19 medicines, vaccines and other medical
tools. Similarly, the government of Israel issued a compulsory licence for patents on a medicine they were investigating for use for COVID-19...

_Syria_

_MSF provides relief items and adapts response for COVID-19..._
Project Update 27 Mar 2020

_Coronavirus disease COVID-19_

_Preparation is key to cope with the COVID-19 pandemic in Côte d'Iv..._
Project Update 27 Mar 2020

_Coronavirus disease COVID-19_

_US must include asylum seekers in COVID-19 response, ra..._
Press Release 27 Mar 2020

_Coronavirus disease COVID-19_

_MSF steps up COVID-19 response with activities in Spain_
Project Update 25 Mar 2020

_Coronavirus disease COVID-19_

_MSF “deeply surprised” that Iranian authorities put a stop to our COVID-19 Response_
Statement 25 Mar 2020

_DRC Ebola outbreaks_

_How the Ebola response failed the people of DRC_
Opinion 24 Mar 2020

_Tuberculosis_

_Between war and fragile health systems, tackling TB in Sudan and Sou..._
Voices from the Field 24 Mar 2020

_Coronavirus disease COVID-19_

_COVID-19: Avoiding a ‘second tragedy’ for those with TB_
Project Update 23 Mar 2020

_Coronavirus disease COVID-19_

_MSF sends hospital and medical team to treat COVID-19 patients in..._
Project Update 22 Mar 2020

_National Vaccine Program Office - U.S. HHS [to 28 Mar 2020]_
https://www.hhs.gov/vaccines/about/index.html

_NVAC 2020 Meetings_

_June 9-10, 2020 NVAC Meeting_
_September 23-24, 2020 Meeting (Virtual)
The National Library of Medicine expands access to coronavirus literature through PubMed Central
March 25, 2020 — PubMed Central is a digital archive of peer-reviewed biomedical and life sciences literature, with access to nearly 6 million full-text journal articles.

COVID-19 workers get training to protect their own health
March 23, 2020 — Special NIH program has trained workers through multiple national health emergencies.

Sabin Vaccine Institute [to 28 Mar 2020]
http://www.sabin.org/updates/pressreleases
Statements and Press Releases
Responding to COVID-19 – A Statement by the Sabin Vaccine Institute
Friday, March 27, 2020

UNAIDS [to 28 Mar 2020]
http://www.unaids.org/en
Selected Press Releases/Reports/Statements
27 March 2020
Strengthening services for violence against women and HIV in Indonesia

26 March 2020
Community members are driving the AIDS response in northern Myanmar

25 March 2020
Innovative and people-empowered approaches to end TB deaths

Thai hospitals to provide three- to six-month supplies of antiretroviral therapy

24 March 2020
Talking about a revolution

The volunteer driver in Wuhan

23 March 2020
Tuberculosis—good progress, but not enough
Mining, drugs and conflict are stretching the AIDS response in northern Myanmar

UNICEF [to 28 Mar 2020]
https://www.unicef.org/media/press-releases

Press release

Despite challenges, UNICEF continues to ship vital supplies to affected countries amid soaring number of COVID-19 cases
27/03/2020

Press release

UNICEF scales up support in 145 countries to keep children learning, as COVID-19 forces majority of schools worldwide to close
25/03/2020

Statement

Statement by UNICEF Executive Director Henrietta Fore on the disruption of immunization and basic health services due to the COVID-19 pandemic
25/03/2020

Press release

Global Partnership for Education announces US $8.8 million in funding to help UNICEF with COVID-19 response
25/03/2020

Press release

A global approach is the only way to fight COVID-19, the UN says as it launch humanitarians response plan
25/03/2020

Statement

UN launches global humanitarian response plan to COVID-19 pandemic
Remarks by UNICEF Executive Director Henrietta Fore (check against delivery)
25/03/2020

Statement

Interruption to key water station in the northeast of Syria puts 460,000 people at risk as efforts ramp up to prevent the spread of Coronavirus disease
Statement from UNICEF Representative in Syria, Fran Equiza
23/03/2020

Press release

COVID-19: More than 95 per cent of children are out of school in Latin America and the Caribbean
23/03/2020
Vaccination Acceptance Research Network (VARN)  [to 28 Mar 2020]
https://vaccineacceptance.org/news.html#header1-2r
Announcements
No new digest content identified.

Vaccine Confidence Project  [to 28 Mar 2020]
http://www.vaccineconfidence.org/
Latest News & Archive
No new digest content identified.

Vaccine Education Center – Children’s Hospital of Philadelphia  [to 28 Mar 2020]
http://www.chop.edu/centers-programs/vaccine-education-center
Coronavirus Updates
Frequently Asked Questions about Coronavirus Disease 2019 (COVID-19)
Last Updated: March 19, 2020
Get some fast facts about the coronavirus from CHOP and the CDC. The CDC will provide updated information as it becomes available.

Wellcome Trust  [to 28 Mar 2020]
https://wellcome.ac.uk/news
Opinion | 27 March 2020
A new way of developing vaccines for COVID-19 could help the world to prepare for future outbreaks  [RNA vaccine development ]
Charlie Weller. Head of Vaccines Programme, Wellcome

The Wistar Institute  [to 28 Mar 2020]
Press Releases
No new digest content identified.

WFPHA: World Federation of Public Health Associations  [to 28 Mar 2020]
https://www.wfpha.org/
Latest News
No new digest content identified.

World Organisation for Animal Health (OIE)  [to 28 Mar 2020]
Press Releases
No new digest content identified.
BIO  [to 28 Mar 2020]
Press Releases
BIO Summit Accelerates Collaboration Between Government & Industry Leaders in Fight Against Covid-19
March 25, 2020
The Biotechnology Innovation Organization (BIO) this week hosted a productive virtual summit intended to foster collaboration among key government agencies and biopharmaceutical innovators with one goal: eradicating Covid-19. The two-day virtual event helped companies working on treatments, diagnostics and vaccines come together to discuss challenges and opportunities with government officials and other stakeholders.
...Company leaders repeatedly expressed the need for speed of action on the part of government agencies to help accelerate the development of new diagnostics, treatments and vaccines. Also, as the discussions over two days unfolded, a number of key areas of concern emerged:
:: The need for innovative and flexible partnerships between industry, government and academia to quickly move the science through the development and regulatory processes;
:: The importance of determining how to best scale up manufacturing capacity when a new diagnostic, therapy or vaccine is available;
:: The urgency in securing funding for agencies and other partners to get resources where they are needed as soon as they are available; and
:: A desire to work with the FDA to establish guidelines for the development of point-of-care diagnostics.
... “Through the collaboration this virtual summit has helped foster,” said Greenwood, “I’m confident we will eradicate this deadly pandemic and be better prepared for the next one.”
To watch the opening plenary session of the virtual summit, click here.
To learn more about how the industry is responding to Covid-19, click here.
To see Jim Greenwood’s comments following the summit, click here.
[See COVID-19 for detail]

PhRMA  [to 28 Mar 2020]
http://www.phrma.org/

Selected Press Releases, Statements

**America’s Biopharmaceutical Companies are Supporting Italy During the Coronavirus Crisis**
March 25, 2020

America’s biopharmaceutical companies stand with everyone affected by the coronavirus throughout Italy, and especially the patients and their loved ones, as well as the health care professionals and scientists fighting on the front lines...

Within Italy, biopharmaceutical companies are donating medicine, supplies and other expertise.

Specific company examples include:
:: Bristol-Myers Squibb contributed $1 million to the Red Cross in the Lombardy Region of Italy and donated face masks to local health care facilities.
:: Gilead has initiated two clinical trials in patients who have been infected with COVID-19 to determine the safety and efficacy of remdesivir as a potential treatment for the coronavirus.
:: The Lilly Italia Foundation is donating €1 million of insulin produced by Eli Lilly and Company.
:: Pfizer’s affiliate is donating €2.5 million worth of medicines and vaccines that can be used in the prevention and management of COVID-19 in impacted regions. Pfizer is also dedicating resources to ensure safe and timely home delivery of essential medicines for patients with life threatening and rare diseases, such as hemophilia.
:: Bayer is supporting hospitals in Lombardy, Italy, with a donation of €1 million that is helping procure urgently-needed equipment for intensive care units in hospitals with the greatest needs.
:: Novartis donated €1 million to the National Civil Protection in Campania, Italy.
:: Novo Nordisk offered direct financial support to hospitals most affected by the crisis. The company also set up an internal fundraising whereby the amount collected via the donations of employees will be doubled by the company and donated to the Italian Civil Protection Department. Additionally, Novo Nordisk sponsored an awareness campaign to provide basic information to the Italian elderly population on how they should respond during the coronavirus crisis and how to protect themselves against misinformation and fraud.
:: Sanofi is donating to support the National Civil Protection for the management of this emergency. The company also invited all employees in Italy to donate one hour or more of their work on a voluntary basis. Sanofi also donated €600,000. Additionally, Sanofi is ready to donate 200 thousand hydroxychloroquine-based treatments to the National Healthcare System, for Italian hospitals that will request them to treat patients with complications from COVID-19. In total, the company’s donations equal more than €2 million...

* * * * *

**Journal Watch**

*Vaccines and Global Health: The Week in Review* continues its weekly scanning of key peer-reviewed journals to identify and cite articles, commentary and editorials, books reviews and
other content supporting our focus on vaccine ethics and policy. Journal Watch is not intended to be exhaustive, but indicative of themes and issues the Center is actively tracking. We selectively provide full text of some editorial and comment articles that are specifically relevant to our work. Successful access to some of the links provided may require subscription or other access arrangement unique to the publisher.

If you would like to suggest other journal titles to include in this service, please contact David Curry at: david.r.curry@centerforvaccineethicsandpolicy.org

**American Journal of Infection Control**
http://www.ajicjournal.org/current
[Reviewed earlier]

**American Journal of Preventive Medicine**
April 2020 Volume 58, Issue 4, p473-612
http://www.ajpmonline.org/current

*Research Articles*

**Pneumococcal Vaccination in Adults Aged ≥65 Years: Cost-Effectiveness and Health Impact in U.S. Populations**
Angela R. Wateska, Mary Patricia Nowalk, Chyongchiou J. Lin, Lee H. Harrison, William Schaffner, Richard K. Zimmerman, Kenneth J. Smith
p487–495
Published online: January 27, 2020

**American Journal of Public Health**
April 2020 110(4)
http://ajph.aphapublications.org/toc/ajph/current

*MIGRATION*

**Influenza Vaccination and Migration at the US Southern Border**
Immigration, Immunization/Vaccines, Infections, Health Policy, Other Infections
Alia Sunderji, Katherine Narvaez Mena, Jonathan Winickoff, Judy Melinek and Joshua Sharfstein
110(4), pp. 466–467

*VACCINES*

**Vaccination Achievements of Cuba Versus the United States Exposed by the 2019 Measles Epidemic**
Government, Immunization/Vaccines, Prevention, Public Health Practice, Health Service Delivery
Paul C. Erwin, Nivaldo Linares-Pérez and Vicente Verez-Bencomo
110(4), pp. 467–469

*ETHICS*

**Public Health Code of Ethics: Deliberative Decision-Making and Reflective Practice**
Human Rights, Public Health Practice, Health Policy, Public Health Workers, Ethics, Health Professionals
Lisa M. Lee, Selena E. Ortiz, Greg Pavela and Bruce Jennings
MEASLES

Measles Outbreak in Minnesota (2017): Roles of an Immunization Information System
Maureen Leeds, Miriam Halstead Muscoplat, Sydney Kuramoto and Margaret Roddy
110(4), pp. 527–529

American Journal of Tropical Medicine and Hygiene
Volume 102, Issue 3, March 2020
http://www.ajtmh.org/content/journals/14761645/102/3
[Reviewed earlier]

Annals of Internal Medicine
17 March 2020 Vol: 172, Issue 6
http://annals.org/aim/issue
[Reviewed earlier]

Artificial Intelligence – An International Journal
Volume 281  April 2020
[Reviewed earlier]

BMC Cost Effectiveness and Resource Allocation
http://resource-allocation.biomedcentral.com/
(Accessed 28 Mar 2020)
[No new digest content identified]

BMJ Global Health
March 2020 - Volume 5 - 2
https://gh.bmj.com/content/5/2
[Reviewed earlier]

BMC Health Services Research
http://www.biomedcentral.com/bmchealthservres/content
(Accessed 28 Mar 2020)
[No new digest content identified]

BMC Infectious Diseases
http://www.biomedcentral.com/bmcinfectdis/content
Measles and mumps outbreaks in Lebanon: trends and links
Lebanon has experienced several measles and mumps outbreaks in the past 20 years. In this article, a case-based surveillance of both measles and mumps outbreaks in Lebanon was carried out in an attempt to outli...
Authors: Talal El Zarif, Mohamed Faisal Kassir, Nazih Bizri, Ghida Kassir, Umayya Musharrafieh and Abdul Rahman Bizri
Citation: BMC Infectious Diseases 2020 20:244
Content type: Research article
Published on: 26 March 2020

BMC Medical Ethics
http://www.biomedcentral.com/bmcmedethics/content
(Accessed 28 Mar 2020)
[No new digest content identified]

BMC Medicine
http://www.biomedcentral.com/bmcmed/content
(Accessed 28 Mar 2020)
[No new digest content identified]

BMC Pregnancy and Childbirth
http://www.biomedcentral.com/bmcpregnancychildbirth/content
(Accessed 28 Mar 2020)
[No new digest content identified]

BMC Public Health
http://bmcpublichealth.biomedcentral.com/articles
(Accessed 28 Mar 2020)
What have we learnt from measles outbreaks in 3 English cities? A qualitative exploration of factors influencing vaccination uptake in Romanian and Roma Romanian communities
Since 2016, large scale measles outbreaks have heavily affected countries across Europe. In England, laboratory confirmed measles cases increased almost four-fold between 2017 and 2018, from 259 to 966 cases.
Authors: Sadie Bell, Vanessa Saliba, Mary Ramsay and Sandra Mounier-Jack
Citation: BMC Public Health 2020 20:381
Content type: Research article
Published on: 23 March 2020

BMC Research Notes
http://www.biomedcentral.com/bmcresearchnotes/content
(Accessed 28 Mar 2020)
[No new digest content identified]

**BMJ Open**  
February 2020 - Volume 10 - 3  
[Reviewed earlier]

**Bulletin of the World Health Organization**  
Volume 98, Number 3, March 2020, 149-228  
[Reviewed earlier]

**Child Care, Health and Development**  
Volume 46, Issue 2  Pages: 155-248  March 2020  
[Reviewed earlier]

**Clinical Therapeutics**  
[Reviewed earlier]

**Clinical Trials**  
Volume 17 Issue 1, February 2020  
[Reviewed earlier]

**Conflict and Health**  
[Accessed 28 Mar 2020]  
[No new digest content identified]

**Contemporary Clinical Trials**  
Volume 90   March 2020  
[Reviewed earlier]

**The CRISPR Journal**  
Volume 3, Issue 1 / February 2020  
[Reviewed earlier]
Current Genetic Medicine Reports
Volume 8, Issue 1, March 2020
https://link.springer.com/journal/40142/8/1
[Reviewed earlier]

Current Opinion in Infectious Diseases
April 2020 - Volume 33 - Issue 2
https://journals.lww.com/co-infectiousdiseases/pages/currenttoc.aspx
[Reviewed earlier]

Developing World Bioethics
Volume 20, Issue 1 Pages: 1-60 March 2020
https://onlinelibrary.wiley.com/toc/14718847/current
[Reviewed earlier]

Development in Practice
Volume 30, Issue 1, 2020
http://www.tandfonline.com/toc/cdip20/current
[Reviewed earlier]

Disaster Medicine and Public Health Preparedness
Volume 14 - Issue 1 - February 2020
https://www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/latest-issue
[Reviewed earlier]

Disasters
Volume 44, Issue 2 Pages: 233-432 April 2020
https://onlinelibrary.wiley.com/toc/14677717/current
[Reviewed earlier]

EMBO Reports
Volume 21 Issue 3 4 March 2020
https://www.embopress.org/toc/14693178/current
[Reviewed earlier]

Emerging Infectious Diseases
Volume 26, Number 3—March 2020
http://wwwnc.cdc.gov/eid/
[Reviewed earlier]

**Epidemics**  
Volume 30  March 2020  
https://www.sciencedirect.com/journal/epidemics/vol/30/suppl/C  
[Reviewed earlier]

**Epidemiology and Infection**  
Volume 148 - 2020  
https://www.cambridge.org/core/journals/epidemiology-and-infection/latest-issue  
[Reviewed earlier]

**Ethics & Human Research**  
Volume 42, Issue 2  Pages: 1-33  March–April 2020  
https://onlinelibrary.wiley.com/toc/25782363/current  
*Incidental Findings :: Data Sharing N-of-1 Trials :: Deception*  
[Reviewed earlier]

**The European Journal of Public Health**  
Volume 30, Issue 1, February 2020  
https://academic.oup.com/eurpub/issue/30/1  
[Reviewed earlier]

**Gates Open Research**  
https://gatesopenresearch.org/browse/articles  
[Accessed 28 Mar 2020]  
[No new digest content identified]

**Genome Medicine**  
https://genomemedicine.biomedcentral.com/articles  
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**Global Health Action**  
Volume 12, 2019  Issue 1  
https://www.tandfonline.com/toc/zgha20/12/sup1?nav=tocList  
[Reviewed earlier]

**Global Health: Science and Practice (GHSP)**  
Vol. 7, No. 4  December 23, 2019
Global Public Health
Volume 15, 2020  Issue 4
http://www.tandfonline.com/toc/rgph20/current
[Reviewed earlier]

Globalization and Health
http://www.globalizationandhealth.com/
[Accessed 28 Mar 2020]
[No new digest content identified]

Health Affairs
Vol. 39, No. 3  March 2020
https://www.healthaffairs.org/toc/hlthaff/current
*The Affordable Care Act Turns 10*
[New issue; No digest content identified]

Health and Human Rights
Volume 21, Issue 2, December 2019
[Reviewed earlier]

Health Economics, Policy and Law
Volume 15 - Issue 2 - April 2020
https://www.cambridge.org/core/journals/health-economics-policy-and-law/latest-issue
[Reviewed earlier]

Health Policy and Planning
Volume 35, Issue 2, March 2020
https://academic.oup.com/heapol/issue/35/2
[New issue; No digest content identified]

Health Research Policy and Systems
http://www.health-policy-systems.com/content
[Accessed 28 Mar 2020]
[No new digest content identified]

Human Gene Therapy
Responding to Ebola in the Democratic Republic of Congo
by Humanitarian Practice Network
This edition of Humanitarian Exchange, co-edited with Anne Harmer, focuses on the response to the Ebola outbreak in the Democratic Republic of Congo (DRC). Although at the time of publication the outbreak appeared to have ended, over its course it claimed 2,200 lives, with more than 3,300 infected, making this the world’s second largest outbreak ever.

In the lead article, Natalie Roberts reflects on the extent to which humanitarian actors have applied learning from the outbreak in West Africa in 2014–2016. Richard Kojan and colleagues report on the NGO ALIMA’s flexible, patient-centred approach to reducing mortality, Marcela Ascuntar reflects on lessons learned from community feedback and Bernard Balibuno, Emanuel Mbuna Badjonga and Howard Mollett highlight the crucial role faith-based organisations have played in the response. In their article, Theresa Jones, Noé Kasali and Olivia Tulloch outline the work of the Bethesda counselling centre in Beni, which provides support to grieving families. Reflecting on findings from a recent assessment by Translators without Borders, Ellie Kemp describes the challenges involved in providing clear and accessible information on Ebola and the response, and Sung Joon Park and colleagues explain how humane care and treatment can help increase trust and confidence in the response. Stephen Mugamba and his co-authors highlight the importance of community involvement in Ebola research, and Gillian McKay and her co-authors examine the impact of the Ebola outbreak and response on sexual and reproductive health services.

Stacey Mearns, Kiryn Lanning and Michelle Gayer present an Ebola Readiness Roadmap to support NGOs in preparing for an outbreak, while Edward Kumakech, Maurice Sadlier, Aidan Sinnott and Dan Irvine report on a Gap Analysis tool looking at the communication, community engagement and compliance tracking activities that need to be in place before an Ebola vaccine is deployed. Emanuele Bruni and colleagues describe the development of a new monitoring and evaluation framework for strategic response planning. The edition ends with an article by Adelicia Fairbanks, who argues for an acceptance strategy in the DRC to improve security and access for responding agencies.
Published online: 22 Oct 2019

Review

**Precision immunization: a new trend in human vaccination**
Siyue Jia, Jingxin Li, Yuanbao Liu & Fengcai Zhu
Pages: 513-522
Published online: 29 Jan 2020

Article

**Immunogenicity and safety of a dengue vaccine given as a booster in Singapore: a randomized Phase II, placebo-controlled trial evaluating its effects 5–6 years after completion of the primary series**
Juliana Park, Sophia Archuleta, May-Lin Helen Oh, Lynette Pei-Chi Shek, Jing Jin, Matthew Bonaparte, Carina Fargo & Alain Bouckenooghe
Pages: 523-529
Published online: 05 Nov 2019

Article

**Review of the status and challenges associated with increasing influenza vaccination coverage among pregnant women in China**
Suizan Zhou, Carolyn M. Greene, Ying Song, Ran Zhang, Lance E. Rodewald, Luzhao Feng & Alexander J. Millman
Pages: 602-611
Published online: 07 Oct 2019

Article

**Infant vaccination against malaria in Mozambique and in Togo: mapping parents’ willingness to get their children vaccinated**
Germano Vera Cruz, Amélie Humeau, Lonzozou Kpanake, Paul Clay Sorum & Etienne Mullet
Pages: 539-547
Published online: 18 Oct 2019

Article

**Estimating population immunity to poliovirus in Jordan’s high-risk areas**
Noha H. Farag, Kathleen Wannemuehler, William Weldon, Ali Arbaji, Adel Belbaisi, Najwa Khuri-Bulos, Derek Ehrhardt, Mohammad Ratib Surour, Nabil Sabri ElhajQasem & Mohammad Mousa Al-Abdallat
Pages: 548-553
Published online: 05 Nov 2019

Review

**Computational tools for modern vaccine development**
Sunita, Andaleeb Sajid, Yogendra Singh & Pratyoosh Shukla
Pages: 723-735
Published online: 18 Dec 2019

**Infectious Agents and Cancer**
Infectious Diseases of Poverty
http://www.idpjournal.com/content
[Accessed 28 Mar 2020]
[No new digest content identified]

International Health
Volume 12, Issue 2, March 2020
https://academic.oup.com/inthealth/issue/12/2
[Reviewed earlier]

International Journal of Community Medicine and Public Health
Vol 7, No 3 (2020) March 2020
https://www.ijcmph.com/index.php/ijcmph/issue/view/60
[Reviewed earlier]

International Journal of Epidemiology
Volume 48, Issue 6, December 2019
https://academic.oup.com/ije/issue/48/6
[Reviewed earlier]

International Journal of Human Rights in Healthcare
Volume 12 Issue 5
https://www.emerald.com/insight/publication/issn/2056-4902/vol/12/iss/5
[Reviewed earlier]

International Journal of Infectious Diseases
March 2020 Volume 92, p1-272
https://www.ijidonline.com/issue/S1201-9712(20)X0002-6
[Reviewed earlier]

JAMA
March 24/31, 2020, Vol 323, No. 12, Pages 1111-1216
http://jama.jamanetwork.com/issue.aspx
Viewpoint
Preparation for Possible Sustained Transmission of 2019 Novel Coronavirus - Lessons From Previous Epidemics
David L. Swerdlow, MD; Lyn Finelli, DrPH, MS
This Viewpoint discusses the concepts of transmissibility and severity as the critical factors that determine the extent of an epidemic, drawing on the previous pandemic of influenza A(H1N1) and epidemics of SARS and MERS to consider what the scope, morbidity, and mortality of the 2019 novel coronavirus (2019-nCoV) epidemic might be.

Audio Interview: COVID-19 Update From China

US Emergency Legal Responses to Novel Coronavirus - Balancing Public Health and Civil Liberties
Lawrence O. Gostin, JD; James G. Hodge Jr, JD, LLM
This Viewpoint discusses the policy and legal ramifications of the national public health emergency declared by the US government in response to the coronavirus disease 2019 (COVID-19) outbreak, and examines the lawfulness of quarantine and other compulsory measures.

Enhancing Private Sector Health System Preparedness for 21st-Century Health Threats - Foundational Principles From a National Academies Initiative
Donald M. Berwick, MD; Kenneth Shine, MD
This Viewpoint summarizes recommendations made by National Academies of Sciences, Engineering, and Medicine (NASEM) experts to address the US health system’s preparedness for major threats, highlighting 5 principles to help regions prepare for specific threats as a prelude to partnerships that would facilitate more comprehensive national preparedness.

JAMA Pediatrics
March 2020, Vol 174, No. 3, Pages 226-308
http://archpedi.jamanetwork.com/issue.aspx
[Reviewed earlier]

JBI Database of Systematic Review and Implementation Reports
March 2020 - Volume 18 - Issue 3
https://journals.lww.com/jbisrir/Pages/currenttoc.aspx
[Reviewed earlier]

Journal of Adolescent Health
https://www.jahonline.org/issue/S1054-139X(20)X0002-4
[Reviewed earlier]

Journal of Artificial Intelligence Research
Vol. 67 (2020)
https://www.jair.org/index.php/jair
[Reviewed earlier]

**Journal of Community Health**  
Volume 45, Issue 2, April 2020  
https://link.springer.com/journal/10900/45/2  
[Reviewed earlier]

**Journal of Development Economics**  
Volume 143  March 2020  
[Reviewed earlier]

**Journal of Empirical Research on Human Research Ethics**  
Volume 15 Issue 1-2, February-April 2020  
http://journals.sagepub.com/toc/jre/current  
*Special Issue: Ethical Issues in Social Media Research*  
[Reviewed earlier]

**Journal of Epidemiology & Community Health**  
March 2020 - Volume 74 - 3  
https://jech.bmj.com/content/74/3  
[Reviewed earlier]

**Journal of Evidence-Based Medicine**  
Volume 13, Issue 1  Pages: 1-88  February 2020  
https://onlinelibrary.wiley.com/toc/17565391/current  
[Reviewed earlier]

**Journal of Global Ethics**  
Volume 15, Issue 3, 2019  
http://www.tandfonline.com/toc/rjge20/current  
*Special Issue: Global Justice and Childhood*  
[Reviewed earlier]

**Journal of Health Care for the Poor and Underserved (JHCPU)**  
Volume 31, Number 1, February 2020  
https://muse.jhu.edu/journal/278  
*Table of Contents*  
[Reviewed earlier]
Journal of Immigrant and Minority Health
Volume 22, Issue 2, April 2020
https://link.springer.com/journal/10903/22/2
[Reviewed earlier]

Journal of Immigrant & Refugee Studies
Volume 18, 2020 Issue 2
https://www.tandfonline.com/toc/wimm20/current
[New issue; no digest content identified]

Journal of Infectious Diseases
Volume 221, Issue 5, 1 March 2020
https://academic.oup.com/jid/issue/221/5
Editor's Choice
Ebola: Basic and Social Science, Public Health, and Policy at the Crossroads
Giuseppe Ippolito, Francesco Vairo
J Infect Dis, Volume 221, Issue 5, 1 March 2020, Pages 687–689,
https://doi.org/10.1093/infdis/jiz108

Editor's Choice
The Costs of Drugs in Infectious Diseases: Branded, Generics, and Why We Should Care
Sydney Costantini, Rochelle P Walensky
J Infect Dis, Volume 221, Issue 5, 1 March 2020, Pages 690–696,
https://doi.org/10.1093/infdis/jiz066

Long-term Immunogenicity of Measles Vaccine: An Italian Retrospective Cohort Study
Francesco Paolo Bianchi, Pasquale Stefanizzi, Sara De Nitto, Angela Maria Vittoria Larocca, Cinzia Germinario...
J Infect Dis, Volume 221, Issue 5, 1 March 2020, Pages 721–728,
https://doi.org/10.1093/infdis/jiz508

Journal of Medical Ethics
March 2020 - Volume 46 - 3
http://jme.bmj.com/content/current
[Reviewed earlier]

Journal of Patient-Centered Research and Reviews
Volume 7, Issue 1 (2020)
https://digitalrepository.aurorahealthcare.org/jpcrr/
[Reviewed earlier]
Public reporting on pharmaceutical industry-led access programs: alignment with the WHO medicine programs evaluation checklist

There has been increased demand for greater public accountability and transparency of private sector-led global health partnership programs. This study critically reviews and pilot tests the World Health Organization (WHO) medicine program checklist as a framework for public reporting and assessing of programs.

Authors: Chukwuemeka A. Umeh, Peter C. Rockers, Richard Laing, Ovi Wagh and Veronika J. Wirtz

Content type: Research

26 March 2020
The Lancet

Mar 28, 2020  Volume 395  Number 10229  p1011-1088, e54-e61
https://www.thelancet.com/journals/lancet/issue/current

Editorial

COVID-19: learning from experience

The Lancet
Over the past 2 weeks, the coronavirus disease 2019 (COVID-19) pandemic has marched relentlessly westward. On March 13, WHO said that Europe was now the centre of the pandemic. A few days later, deaths in Italy surpassed those in China. Iran and Spain had also reported over 1000 deaths as of March 23, and many other European countries and the USA reported increasing numbers of cases, heralding an imminent wave of fatalities. Following the sweep of COVID-19 is a series of dramatic containment measures that reflect the scale of the threat posed by the pandemic. Lockdowns that seemed draconian when instigated in Wuhan only 2 months ago are now becoming commonplace. However, many countries are still not following WHO's clear recommendations on containment (widespread testing, quarantine of cases, contact tracing, and social distancing) and have instead implemented haphazard measures, with some attempting only to suppress deaths by shielding the elderly and those with certain health conditions.

The initial slow response in countries such as the UK, the USA, and Sweden now looks increasingly poorly judged. As leaders scramble to acquire diagnostic tests, personal protective equipment, and ventilators for overwhelmed hospitals, there is a growing sense of anger. The patchwork of harmful initial reactions from many leaders, from denial and misplaced optimism, to passive acceptance of large-scale deaths, was justified by words such as unprecedented. But this belies the damage wrought by SARS, Middle East respiratory syndrome, Ebola virus, Zika virus, the 2009 H1N1 influenza pandemic, and a widespread acceptance among scientists that a pandemic would one day occur. Hong Kong and South Korea were tested by these previous emerging infections, leaving them better able to scale up testing and contact tracing.

Globally, many people are afraid, angry, uncertain, and without confidence in their national leadership. But alongside these dark sentiments, images of solidarity have emerged. Health workers have shown an incredible commitment to their communities and responded with compassion and resolve to tackle the virus despite challenging and sometimes dangerous conditions. Neighbours have organised to support vulnerable people; businesses and national governments have stepped up to provide support for those who need it and strengthen social security and health services. The pandemic has also brought examples of international
solidarity, with the sharing of resources, information, and expertise from countries further ahead in the epidemic, or with better results in controlling the spread. China's experience will be crucial to understanding how to lift restrictions safely.

Inevitably, the next wave of infections will hit Africa and Latin America. The Africa CDC has reported cases in 41 countries; Brazil, Mexico, and Peru have all reported hundreds or thousands of cases. Most African or Latin American countries have only tens or hundreds of ventilators, and many health facilities do not have even basic therapies such as oxygen. Fragile health-care systems would soon be overwhelmed should infection spread widely. People living in poor, overcrowded, urban areas are especially vulnerable; many do not have basic sanitation, could not self-isolate, and have no paid sick leave or social security. In response to the threat, WHO has launched the COVID-19 Solidarity Response Fund, which has raised more than US$70 million, and some regional organisations have taken strong proactive action, sharing information and receiving donations of testing kits and medical supplies. Many national governments have responded swiftly, but many are yet to take the threat of COVID-19 seriously—eg, ignoring WHO's recommendation on avoiding mass gatherings. Brazil's President Jair Bolsonaro has been strongly criticised by health experts and faces an intensifying public backlash for what is seen as his weak response.

Alongside the deep distress felt as many countries experience a peak in cases or brace for it, there is also a growing understanding about the importance of the collective and community. Europe and the USA have shown that putting off preparation, in either the hope of containment elsewhere or a mood of fatality, is not effective. It is imperative that the global community takes advantage of this spirit of cooperation to avoid repeating this error in more vulnerable countries. WHO has provided consistent, clear, and evidence-based recommendations; communicated effectively; and navigated difficult political situations shrewdly. The world is not lacking effective global leadership. The central role played by WHO in coordinating the global response must continue, and countries and donors need to support WHO in these efforts.

Comment

Offline: COVID-19 and the NHS—"a national scandal"
Richard Horton

Articles

Investigation of three clusters of COVID-19 in Singapore: implications for surveillance and response measures
Rachael Pung, et al

Health security capacities in the context of COVID-19 outbreak: an analysis of International Health Regulations annual report data from 182 countries
Nirmal Kandel, et al

Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study
Fei Zhou, et al

Seminar

Middle East respiratory syndrome
Ziad A Memish, Stanley Perlman, Maria D Van Kerkhove, Alimuddin Zumla

**The Lancet Child & Adolescent Health**  
Apr 2020 Volume 4 Number 4 p251-340, e7-e9  
https://www.thelancet.com/journals/lanchi/issue/current  
[Reviewed earlier]

**Lancet Digital Health**  
Mar 2020 Volume 2 Number 3 e102-e148  
https://www.thelancet.com/journals/landig/issue/current  
[Reviewed earlier]

**Lancet Global Health**  
Mar 2020 Volume 8 Number 3 e305 -e450  
http://www.thelancet.com/journals/langlo/issue/current  
[Reviewed earlier]

**Lancet Infectious Diseases**  
Mar 2020 Volume 20 Number 3 p261-382, e27-e49  
http://www.thelancet.com/journals/laninf/issue/current  
[Reviewed earlier]

**Lancet Public Health**  
Mar 2020 Volume 5 Number 3 e127-e176  
https://www.thelancet.com/journals/lanpub/issue/current  
[Reviewed earlier]

**Lancet Respiratory Medicine**  
Mar 2020 Volume 8 Number 3 p217-320, e8-e13  
http://www.thelancet.com/journals/lanres/issue/current  
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**Maternal and Child Health Journal**  
Volume 24, Issue 3, March 2020  
https://link.springer.com/journal/10995/24/3  
[Reviewed earlier]

**Medical Decision Making (MDM)**  
Volume 40 Issue 2, February 2020  
http://mdm.sagepub.com/content/current
Perspective

Defining the Epidemiology of Covid-19 — Studies Needed
Marc Lipsitch, D.Phil., David L. Swerdlow, M.D., and Lyn Finelli, Dr.P.H.

Original Articles

Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus—Infected Pneumonia
Qun Li, et al

Pediatrics
Vol. 145, Issue 3  1 Mar 2020
https://pediatrics.aappublications.org/
[Reviewed earlier]

Pharmaceutics
Volume 12, Issue 3 (March 2020)
https://www.mdpi.com/1999-4923/12/3
[Reviewed earlier]

PharmacoEconomics
Volume 38, Issue 3, March 2020
https://link.springer.com/journal/40273/38/3
[Reviewed earlier]

PLoS Genetics
https://journals.plos.org/plosgenetics/
(Accessed 28 Mar 2020)
[No new digest content identified]

PLoS Medicine
http://www.plosmedicine.org/
(Accessed 28 Mar 2020)
[No new digest content identified]

PLoS Neglected Tropical Diseases
http://www.plosntds.org/
(Accessed 28 Mar 2020)
Editorial
Central Latin America: Two decades of challenges in neglected tropical disease control
A multi-state model analysis of the time from ethical approval to publication of clinical research studies

Anette Blümle, Tobias Haag, James Balmford, Gerta Rücker, Martin Schumacher, Nadine Binder

Research Article | published 27 Mar 2020 PLOS ONE
https://doi.org/10.1371/journal.pone.0230797

Abstract

Background

Results of medical research should be made publicly available in a timely manner to enable patients and health professionals to make informed decisions about health issues. We aimed to apply a multi-state model to analyze the overall time needed to publish study results, and to examine predictors of the timing of transitions within the research process from study initiation through completion/discontinuation to eventual publication.

Methods

Using a newly developed multi-state model approach, we analysed the effect of different study-related factors on each of the transitions from study approval to eventual publication, using a data set of clinical studies approved by a German research ethics committee between 2000 and 2002.

Results

Of 917 approved studies, 806 were included in our analyses. About half of the clinical studies which began were subsequently published as full articles, and the median time from study approval to publication was 10 years. Differences across model states were apparent; several factors were predictive of the transition from study approval to completion, while funding source and collaboration were predictive of the transition from completion to publication.

Conclusions

The proposed multi-state model approach permits a more comprehensive analysis of time to publication than a simple examination of the transition from approval to publication, and thus the findings represent an advance on previous studies of this aspect of the research process.
The effects of communicating uncertainty on public trust in facts and numbers
Anne Marthe van der Bles, Sander van der Linden, Alexandra L. J. Freeman, and David J. Spiegelhalter

Significance
Does openly communicating uncertainty around facts and numbers necessarily undermine audiences' trust in the facts, or the communicators? Despite concerns among scientists, experts, and journalists, this has not been studied extensively. In four experiments and one field experiment on the BBC News website, words and numerical ranges were used to communicate uncertainty in news article-like texts. The texts included contested topics such as climate change and immigration statistics. While people's prior beliefs about topics influenced their trust in the facts, they did not influence how people responded to the uncertainty being communicated. Communicating uncertainty numerically only exerted a minor effect on trust. Knowing this should allow academics and science communicators to be more transparent about the limits of human knowledge.

Abstract
Uncertainty is inherent to our knowledge about the state of the world yet often not communicated alongside scientific facts and numbers. In the “posttruth” era where facts are increasingly contested, a common assumption is that communicating uncertainty will reduce public trust. However, a lack of systematic research makes it difficult to evaluate such claims. We conducted five experiments—including one preregistered replication with a national sample and one field experiment on the BBC News website (total n = 5,780)—to examine whether communicating epistemic uncertainty about facts across different topics (e.g., global warming, immigration), formats (verbal vs. numeric), and magnitudes (high vs. low) influences public trust. Results show that whereas people do perceive greater uncertainty when it is communicated, we observed only a small decrease in trust in numbers and trustworthiness of the source, and mostly for verbal uncertainty communication. These results could help reassure all communicators of facts and science that they can be more open and transparent about the limits of human knowledge.
Proceedings of the Royal Society B
11 March 2020  Volume 287  Issue 1922
https://royalsocietypublishing.org/toc/rspb/current
[Reviewed earlier]

Public Health
Volume 180  Pages 1-196 (March 2020)
[Reviewed earlier]

Public Health Ethics
Volume 12, Issue 3, November 2019
http://phe.oxfordjournals.org/content/current
[Reviewed earlier]

Public Health Reports
Volume 135 Issue 2, March/April 2020
https://journals.sagepub.com/toc/phrg/135/2
[Reviewed earlier]

Qualitative Health Research
Volume 30 Issue 4, March 2020
http://qhr.sagepub.com/content/current
[Reviewed earlier]

Research Ethics
Volume 15 Issue 3-4, July-October 2019
http://journals.sagepub.com/toc/reab/current
[Reviewed earlier]

Reproductive Health
http://www.reproductive-health-journal.com/content
[Accessed 28 Mar 2020]
[No new digest content identified]

Revista Panamericana de Salud Pública/Pan American Journal of Public Health (RPSP/PAJPH)
https://www.paho.org/journal/en
Latest articles
[No new digest content identified]
Risk Analysis
Volume 40, Issue 3  Pages: 439-656  March 2020
https://onlinelibrary.wiley.com/toc/15396924/current
[Reviewed earlier]

Risk Management and Healthcare Policy
[Accessed 28 Mar 2020]
[No new digest content identified]

Science
27 March 2020 Vol 367, Issue 6485
http://www.sciencemag.org/current.dtl
Editorial
COVID-19 needs a Manhattan Project
By Seth Berkley
[See Milestones above for full text]

In Depth  Infectious Diseases
Race to find COVID-19 treatments accelerates
  Kai Kupferschmidt, Jon Cohen
WHO launches megatrial to test repurposed drugs and experimental drug candidates.

Fauci’s straight talk
By Jon Cohen
Science27 Mar 2020 : 1414 Full Access
  Science interviews the director of NIAID about the coronavirus pandemic.

Science Translational Medicine
25 March 2020  Vol 12, Issue 536
https://stm.sciencemag.org/
[New issue; no digest content identified]

Social Science & Medicine
Volume 248  March 2020
[Reviewed earlier]

Systematic Reviews
https://systematicreviewsjournal.biomedcentral.com/articles
[Accessed 28 Mar 2020]
Travel Medicine and Infectious Diseases
Volume 33  January–February 2020
[Reviewed earlier]

Tropical Medicine & International Health
Volume 25, Issue 3  Pages: i-iv, 277-386  March 2020
https://onlinelibrary.wiley.com/toc/13653156/current
[Reviewed earlier]

Vaccine
Volume 38, Issue 13  Pages 2749-2888 (17 March 2020)
https://www.sciencedirect.com/journal/vaccine/vol/38/issue/12
Research article  Abstract only
'Should I vaccinate my child?' comparing the displayed stances of vaccine information retrieved from Google, Facebook and YouTube
Lucy E Elkin, Susan R.H. Pullon, Maria H. Stubbe

Research article  Abstract only
The impact of new universal child influenza programs in Australia: Vaccine coverage, effectiveness and disease epidemiology in hospitalised children in 2018
Christopher C. Blyth, Allen C. Cheng, Nigel W. Crawford, Julia E. Clark, ... Kristine K. Macartney

Research article  Abstract only
Are refugees arriving in Denmark an under-immunised group for measles? A cross-sectional serology study
Anne Mette Fløe Hvass, Marie Norredam, Morten Sodemann, Marianne Kragh Thomsen, Wejse Christian

Research article  Open access
Field challenges to measles elimination in the Democratic Republic of the Congo
R.M. Coulborn, F. Nackers, C. Bachy, K. Porten, ... I. Panunzi

Research article  Abstract only
Quality and reliability of vaccination documentation in the routine childhood immunization program in Burkina Faso: Results from a cross-sectional survey
Lassané Kaboré, Clément Z. Méda, François Sawadogo, Michèle M. Bengue, ... Edouard Betsem

Vaccines — Open Access Journal
http://www.mdpi.com/journal/vaccines
(Accessed 28 Mar 2020)
Open Access Article

Healthcare Workers’ Knowledge, Attitudes, and Practices about Vaccinations: A Cross-Sectional Study in Italy
by Concetta P. Pelullo, Giorgia Della Polla, Francesco Napolitano, Gabriella Di Giuseppe and Italo F. Angelillo
Vaccines 2020, 8(2), 148; https://doi.org/10.3390/vaccines8020148 (registering DOI) - 26 Mar 2020

Abstract
The cross-sectional study assessed the knowledge, attitudes, and practices regarding the recommended vaccinations and factors affecting such outcomes among a sample of healthcare workers (HCWs) in public hospitals in Italy. Only 14.1% knew all the recommended vaccinations for HCWs. Physicians and those who had received information about vaccinations from scientific journals, educational activities, or professional associations were more likely to have this knowledge, while those aged 36–45 were more likely to have less knowledge than those in the age group below 36 years. Only 57.3% agreed that the information received about vaccinations was reliable. Respondents who had children, who worked in pediatric/neonatal wards, who were more knowledgeable, or who did not need further information about vaccinations considered the available information to be reliable. Only 17.7% of respondents always recommended vaccinations to their patients. This behavior was more likely to occur in physicians, in HCWs, in pediatric/neonatal wards, in those who considered the information received about vaccinations reliable, and in those who considered themselves to be at high risk of transmitting an infectious disease to their patients. Health promotion programs and efforts are needed to improve the level of knowledge about vaccinations and immunization coverage among HCWs.

Value in Health
March 2020 Volume 23, Issue 3, p277-408
https://www.valueinhealthjournal.com/issue/S1098-3015(20)X0003-9
[New issue; No digest content identified]

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From Google Scholar & other sources: Selected Journal Articles, Newsletters, Dissertations, Theses, Commentary

No new digest content identified.

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Media/Policy Watch
This watch section is intended to alert readers to substantive news, analysis and opinion from the general media and selected think tanks and similar organizations on vaccines, immunization, global public health and related themes. Media Watch is not intended to be exhaustive, but indicative of themes and issues CVEP is actively tracking. This section will grow from an initial
base of newspapers, magazines and blog sources, and is segregated from *Journal Watch* above which scans the peer-reviewed journal ecology.

We acknowledge the Western/Northern bias in this initial selection of titles and invite suggestions for expanded coverage. We are conservative in our outlook in adding news sources which largely report on primary content we are already covering above. Many electronic media sources have tiered, fee-based subscription models for access. We will provide full-text where content is published without restriction, but most publications require registration and some subscription level.

**The Atlantic**
http://www.theatlantic.com/magazine/
*Accessed 28 Mar 2020*
[No new, unique, relevant content]

**BBC**
http://www.bbc.co.uk/
[No new, unique, relevant content]

**The Economist**
http://www.economist.com/
*Accessed 28 Mar 2020*
[No new, unique, relevant content]

**Financial Times**
http://www.ft.com/home/uk
*Accessed 28 Mar 2020*
[No new, unique, relevant content]

**Forbes**
http://www.forbes.com/
*Editors' Pick*
**WHO Must Push For Lower Speed Limits To Ease Pressure On Virus-Impacted Hospitals, Urge Experts**
3/28/2020
Medics and other experts are calling on the World Health Organization (WHO) to recommend that national governments should lower speed limits on their roads as a means of reducing hospital admissions during the coronavirus outbreak.
By Carlton Reid Senior Contributor

Mar 27, 2020
**AI Can Help Us Fight Infectious Diseases In A More Effective Way**
The COVID-19 pandemic has created a sense of urgency to improve current approaches for prevention and treatment of infectious diseases. Fortunately, currently available AI and data science approaches can help us fight infectious diseases in a more effective way and improve human healthcare.
By Margareta Colangelo Contributor
Ebola Should Have Immunized the United States to the Coronavirus
What Washington failed to learn from the National Security Council’s Ebola report.
Christopher Kirchhoff

Past Pandemics Exposed China’s Weaknesses
From the bubonic plague at the end of the nineteenth century to HIV/AIDS in the 1990s to SARS in 2002–3, China’s ability to contain diseases has been crucial to...
Robert Peckham

The U.S. and China Could Cooperate to Defeat the Pandemic
U.S.-Chinese antagonism could make the coronavirus pandemic worse.
Yanzhong Huang

Amid Coronavirus Spread, Host Countries Ignore Refugee Health at Their Own Peril
Refugees are particularly vulnerable to a pandemic—which is why their needs must be taken into account.
Argument | March 27, 2020,
Sanjana Ravi

The Evolution of a Coronavirus
SARS-CoV-2, which honed its viral genome for thousands of years, behaves like a monstrous mutant hybrid of all the coronaviruses that came before it.
March 27, 2020, By Carolyn Kormann

UN Health Agency Settles In for Long Fight With Virus
The World Health Organization’s emergencies chief said Friday that widespread testing for the new coronavirus is crucial and countries should not be faulted for reporting higher numbers of cases.

By The Associated Press

**Washington Post**
https://www.washingtonpost.com/
Accessed 28 Mar 2020
[No new, unique, relevant content]

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**Think Tanks et al**

**Brookings**
http://www.brookings.edu/
Accessed 28 Mar 2020
Future Development
*Awakening in the post-pandemic world*
Dennis J. Snower
Friday, March 27, 2020

*Order from Chaos*
**Now is the time to revisit the Global Health Security Agenda**
Bonnie Jenkins
Friday, March 27, 2020

**Center for Global Development** [to 28 Mar 2020]
http://www.cgdev.org/page/press-center
Selected Publications, News and Events
[No new relevant content]

**CSIS**
https://www.csis.org/
Accessed 28 Mar 2020
[No new relevant content]

**Council on Foreign Relations**
http://www.cfr.org/
Accessed 28 Mar 2020
[No new relevant content]

**Kaiser Family Foundation**
https://www.kff.org/search/?post_type=press-release
Accessed 28 Mar 2020
[No new relevant content]
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Support is also provided by a growing list of individuals who use this membership service to support their roles in public health, clinical practice, government, NGOs and other international institutions, academia and research organizations, and industry.