



Covid 19- lesson - Preparedness, online surveillance, prevention, and timely coordinated joint response for Emerging infectious diseases

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Abstract

Epidemic/pandemics affect us all. This teach us about essential importance of health, access to health as essential human right and sustainable healthcare infrastructures as prerequisite of any economic progress and rethink better model to face them. It remains us also fragilized environment, links with animal health and interlinks between long term lasting climate changes with its consequences to health directly but also indirectly to all economies and societal impact.

The policies needed to ensure that future vaccines for SARS-Cov-2, the virus that causes COVID-19, and treatments but also for any upcoming pandemic and list of diseases can be made widely available. We need to look into vaccine and drug candidates in the current R&D pipeline and there is more than ever a need for international cooperation to focus on key issues like incentivising R&D, building largescale manufacturing capacity and managing intellectual property rights. The costs of EIDs (emerging infectious diseases) are vast, in both human and economic terms. As well as the devastating death toll and disruption to societies, COVID-19 could cost the global economy \$4.1 trillion, or almost 5% of global gross domestic product. Even small epidemics can cause tremendous economic disruption and heavy societal consequences. Vaccines are one of our most powerful tools in the fight to outsmart epidemics. The development of vaccines can help save lives, protect societies, and re-stabilise economies but there is a need to increase awareness and provide tangible examples from past (ex. Polio, BCG, Rotavirus vaccine) and explanation not only dedicated to healthcare personnel.

CEPI partnered with various representants - Academia and Foundations (a consortium led by Institute Pasteur), Governments, Welcome Trust, NIH, Regulators, IMI(Innovative medicine initiative), ,BARDA (Biomedical advanced research and development authority/DTRA- Defense Threat reduction agency , EC (European commission), WHO, Biotech and Industry (Clover, Moderna Inc., Novavax Inc., University of Oxford and AstraZeneca, and Inovio ,CSL Queenslan- (University of Queensland's "molecular clamp") in order to identify immunogen targets) and more, CMOs(contract manufacturing organisations), WHO, GHIF(Global health investment fond), GAVI(Global Alliance for Vaccines

and Immunisation) , UNICEF, PAHO (Pan American Health Organization),World Bank), MSF(Médecins sans frontiers), PDPs(Product Development Partnerships), GLOPID-R (Global Research Collaboration for Infectious Disease Preparedness) etc.

The establishment of the ACT Accelerator is a watershed moment in the world coming together to develop a global exit strategy from the COVID19 pandemic (COVAX/WHO) But it is essential to continue to work on other necessary vaccines upfront including new partners particularly from southern hemisphere (BRICS countries) and this direction was launched as well by CEPI.

India—CEPI, the Coalition for Epidemic Preparedness Innovations, in collaboration with Ind-CEPI, has announced a new partnering agreement with a consortium comprising Bharat Biotech (BBIL) and the International Vaccine Institute (IVI) to advance the development of a Chikungunya vaccine. This award is supported by the European Union's (EU's) Horizon 2020 programme through an existing framework partnership agreement with CEPI. Alongside this historic moment was the announcement of a European Union-led worldwide pledging marathon to raise an initial €7.5 billion to end this pandemic, in May 2020 with additional tools to support consequences and also dedicated to humanitarian help (natural catastrophes etc).

As the COVID-19 pandemic shows, in a world characterised by increasing population density, human mobility, and ecological change, emerging infectious diseases (EIDs) pose a real and growing threat to global health security. Only online surveillance, early (timely) and effective rapid response supported by robust, interconnected healthcare structures, real time and timely response, system incorporating civic societies linking different platforms or technologies might avoid unwanted consequences. Many smaller countries like New Zealand reacted timely and very effectively. This is about joint effort and strengthening of cooperation between local structures, at national, regional and global level with rapid, early detection of signal, sharing of scientific research and medical observations. This accompanied by fostered response



in protection and prevention of transmission, diagnostic, treatment, and surveillance with knowledge gained previously and using smartly new technologies seems effective and accountable. Strengthening of local and national laboratory surveillance able to rapidly analyse pathogen with sustainable country health infrastructures and skilled sufficient staff to absorb not only pandemics but other infectious and tropical diseases and those non transmissible ones - cancer, diabetes, maternal and child protection including immunization maintenance, nutrition/immunity, with partnership from governmental, private, public sector and strong support of civic local societies interconnected with other states in regions (considering variability of population and country capacities) seems a solution to prevent heavy sanitary, human, economic, societal consequences.

Many various approaches were adopted during Covid 19 crisis but coordinated action with help to strengthen regional capacities, to provide technical or any kind of support to contain pandemics and accountable action national and regional strategies (preparedness against pathogen X as initially CEPI was created for) for accessible price (GAVI but various mechanism which showed to work previously before Covid 19 – southern hemisphere representativeness with many countries acquired long term experience in research, manufacturing, delivery, distribution vaccines and treatment considering a social responsibility for those who are not able to do so..) Another point is as noted, very clear communication to population to mitigate impact on most vulnerable (schooling) and avoid economic collapse which we have seen even before Covid 19 came.

Similarly, to continue to work on source leading to pandemics given environmental, climate changes and close rapport with animals and perturbed natural chains having impact on health but key sectors like agriculture, access to water, sanitation. Many women showed instrumental role combining ability to manage crisis and protect people and their nations which as role of government along with justice and alleviating impact on most vulnerables. This means also stronger integration of young talents, genders, various skills with stronger representation from developed and emerging countries and work jointly with current structures within new model of governance which doesn't exclude civic society during crisis neither in post recovery period and fundamental reforms. Virology knowledge (even learning from previous SRAS, MERS) show be crucial part of public health and a discipline in addition to genetics, immunology, epidemiology, entomology, anthropology, "climatology" complete and enrich our human knowledge and effective rapid response. Genome sequencing and antibody testing (measurement of viral load) is applied in many

countries. This in addition to sufficient sensitivity and specificity and time turnaround to control infections is important. Single test given complexity host pathogen interaction seems not enough. Immune response (discussed and openly proposed establishment of "immune passport") might slightly remain the approach of Sweden which differs from the rest of European countries.

Any nation cannot face necessary changes and reforms which Covid -19 simply mirrored alone. Hence tightening links instead of dividing and avoid nationalism seems to have longer term beneficial effects globally. Women must play given experience more essential role in managing crisis, health but global governance as we seen and learn from now and past.

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- Microbes, Immunity and Metabolism, Institute Pasteur Paris, 2017
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- Rotterdam R&D, immunity and microbiome presentation

Biography

French Medical professional specialized in infectious diseases, internal medicine covering various therapeutic axes, certified in Immunology and Pediatric, MBA vaccinology and years of active clinical practice in Internal medicine, Infectious and tropical diseases. Certified in Health and diplomacy (Geneve) Lived multi-country medical "field" experience in Southeast Asia (India in particular), West/Central/East Europe. Speaking French, English, Russian, Italian, Czech, Slovak with notion of Mandarin. Over 15 years of experience in senior position in various industry companies in research and development for European and USA for large and complex international programs and therapeutic areas for adults and children including infectious and tropical diseases, vaccines and preparedness/surveillance but more. Active member of World alliance against antibiotic resistance (Administrative board) and French immunology society (SFI) administrative board and several international academic societies (focus on innovation of R&D reflecting immunology and genetic variability, role of immunologic approach for treatment and diagnostic, tackle problem of resistance for antimicrobials (TB including),



antiparasitic, antivirals etc. using multiple approach and linking multiple partners in concept of One health.

Member of advisory Health concern (India) and think tank group in order to attract attention to role of immunology, personalized and preventive medicine and accurate diagnostic and global cooperation in this area. Years of expertise to work globally within Europe, USA but recently more focused on BRICS - Asia Pacific in particular as an Medical advisor bringing new innovative concepts alive and getting them endorsed/partnered.

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