

Editorial

The Journey from Medical Nihilism to Pandemic Preparedness for COVID-19: A Global Health Challenge

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“Nihilism is a well-known phenomenon of attitude among the mass population with extreme skepticism believing that nothing in the world has a material existence or value. It is often times associated with extreme symptom or sign of pessimism and a radical skepticism that condemns existence.”

(Friedrich Nietzsche)

Many years after Nietzsche, Corona Virus Disease (COVID-19) has reminded us his theory in a new dimension of “Medical Nihilism”. The nations which expressed their deep doubts on the extreme destruction caused by the novel disease “COVID-19” or its existence as the lethal pandemic of the century or thought it is a disease no more lethal than seasonal flu, were soon to become the picture of the worst hit countries by the pandemic. This pandemic didn't respect any geographical boundary, gender, age or socio economical status. The most developed parts of the world have to practice lock downs, restrictions on human movements, public gatherings in order to get containment, mitigation and suppression of the disease. The COVID-19 with no vaccine, no chemoprophylaxis and no ideal therapy available yet, is continuously engulfing many precious lives and proved to be the worst nightmare for the health and economy of the world. It is a global public health emergency and evidence has established the mode of transmissions such as respiratory droplets, fomites and contact from person to person. Scientific

evidence is awaited from multicentre high budget research trials including Recovery trial, Discovery trial and Solidarity trials for better prevention, management and development of medicines. Every country, state or province has shown implementation of effective policies and guidelines to prevent manage and control this disease. The professional community and medical fraternity are continuously producing research and evidence based practices. This disease has produced solidarity among nations to share their knowledge, experiences and research to propose possible solutions to meet this challenging situation. Pandemic control in a community is dependent on the surveillance systems, preparedness and rapid response. The surveillance required is more than a traditional system but a new robust real time surveillance which enables the medical professionals to detect events of significant health problems and control the damage in time. It improves communications at all levels nationally and internationally. Real-time surveillance systems include interoperable and interconnected electronic reporting systems. These surveillance systems could work efficiently if valid and reliable testing is performed with early warning alert generations and availability of daily updated laboratory findings and reports, which should be analyzed by trained epidemiologists to give policy guidelines.

The disease modeling and forecast for outbreak after

analysis and modeling developed on mathematical models and user-friendly tools to both forecast case counts during infectious disease outbreaks and estimate the risk of infectious disease case importation/exportation, recoveries and deaths in specific geographic areas is of paramount importance. The disease modeling and forecast for outbreaks also assessed outbreak events reported on official websites by combining multiple data streams into a single probabilistic framework. Disease outbreak information is assessed with computerized big data and artificial intelligence that incorporate population density information to estimate the number of cases, transmission rates, basic reproduction rates, effective reproduction rates, recovery rates, growth rates, doubling time, infectivity rates, case fatality rates and infection fatality rates for specific outbreak events.

Disease outbreaks and epidemics can spread at any time and any place and if we are not prepared, consequences can be fatal. Effective mitigation requires that we all understand local risks and context specific problems, need based assessments, situational analysis to address the hard choices, and invest in long-term community well-being. Without mitigation actions, we jeopardize our safety, financial security and self-reliance. Global damage and consequences in terms of human health and financial regressions over many years are hard to predict but not impossible.

Herd immunity is suggested as a response to COVID-19 pandemic. For example Sweden has responded to the pandemic in ways that avoid full lockdown and implement a continuous policy of social distancing. The risk of transmission increases risk of infectivity rates, and infection fatality rates.

R_0 predicts the extent of immunization that a population requires if herd immunity is to be achieved, the spread of the infection limited, and the population protected against future infection. To

prevent sustained spread of the infection the proportion of the population that has to be immunized (P_i) has to be greater than $1 - 1/R_0$. For example, if $R_0 = 2$, immunization needs to be achieved in 50% of the population. However, if $R_0 = 4$ the proportion rises steeply, to 70%. Beyond that the rise is less steep; an increase in R_0 to 10 increases the need for immunization to 90%. R_0 of SARS-CoV-2 estimates vary widely in population of Pakistan. The mean estimate of R_0 is 3.2 (95% CI = 2.85, 3.41). The herd immunity threshold is 68% (95% CI).

King Edward Medical University has always played its role as the torch bearer of high professional standards in education and research. Amidst the challenging situation of COVID-19, King Edward Medical University demonstrated the rapid response and pandemic preparedness for COVID-19 by providing timely medical services, diagnostic and preventive services, trainings and management to health care workers. Provincial and Federal Government is given assistance by providing technical experts. Faculty members are nominated and recommended as the members of Technical Working Group (TWG), Corona Expert Advisory Group (CEAG) and a very high forum in provincial policy making the Apex Committee chaired by the Chief Minister. At federal level several presentations were made by the faculty members of King Edward Medical University to National Coordination and Operation Cell (NCOC) as technical experts for policy making about containment, mitigation and suppression of COVID-19 at the national level. Risk estimations were presented for various activities such as markets, public transport, fitness centers and parks, recreational parks, restaurants, schools, colleges, universities and phasing of opening of each place on the basis of expert opinion. Evidence based practices were provided to public and launched telemedicine, tele psychiatry and Corona Help desk to give support for home isolation and home quarantine, burial

standard operating procedures as well as preventive strategies to general public. International collaborations to manage cases of COVID-19 especially ICU/HDU care, knowledge sharing and trainings were conducted through webinars and physical participation. The delegation from China was invited to King Edward Medical University to deliver trainings to medical health care professionals and also participated in third international BRIMEA conference. Largest epidemiological study and psychiatry study on COVID-19 were conducted in Pakistan by the department of Community Medicine and the department of Psychiatry under supervision of the Vice Chancellor KEMU. More than 50 research

projects were approved and special issue of Annals of King Edward Medical University COVID-19 was launched to promote evidence based practices and to combat pandemics. Future vision is to establish the institute of infectious diseases in King Edward Medical University. It will help in surveillance of infectious diseases and pandemic preparedness for better prevention and management.

References

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