

## COVID-19: A Serious Warning for Emergency Health Innovation

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COroNaVIrus Disease 2019 (COVID-19), has been first recognized in China in late 2019 but it has been very soon spread all over the world as a global pandemic crisis.<sup>1</sup> From November 2019 until June 2020, around 6 million people have been recognized to be suffered by COVID-19; some of them died unfortunately, some of them recovered happily, and so many of them are still under treatments.<sup>2</sup> Although it is supposed that COVID-19 has been caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), but the available treatments are not still sufficient enough for employing neither therapeutics nor prevention processes.<sup>3</sup> Very much common symptoms like fever, cough, fatigue, shortness of breath, and loss of smell and taste could be the symptoms of either COVID-19 or so many other immunological diseases; therefore, diagnosis is also a big problem in this case.<sup>4</sup> The virus is rapidly spread among people of close contact during their mindless breathing; therefore, the people are advised not to gather in close contact or they have to wear protecting respiratory masks. So many types of advisory and consulting messages have been established how to be safe against COVID-19, but the pandemic crisis has not been yet controlled. The researchers of life sciences all around the world have been spending their efforts on finding the vaccine for prevention or a suitable drug for therapeutic medication of this serious problem announcing their achievements inside publications and progress news to increase the knowledge of this area, but still unsuccessful to solve the problem.<sup>5-7</sup> This trend means than the conventional science, research and technology is not sufficient any more for dealing with the crises of nowadays life, as

COVID-19 could STOP the regular life of the world. Therefore, COVID-19 is almost a serious warning for emergency health innovation, to find all the required materials as soon as possible in the time of such global crises. Predicting 3D structures of available viruses and providing the banks of such structure-activity achievements in addition to progress in precision medicine could help to have such innovations in emergency cases. Moreover, employing novel engineering approaches such as machine learning of artificial intelligence and *in silico* science and engineering could accelerate the time to reach better achievements.<sup>8-10</sup> This is actually the real era of convergence in science and engineering to save the life health and quality, in which the new expression of NBICA (Nanotechnology, Biotechnology, Informatics, Cognitive science, and Artificial intelligence) is indeed implying for the emergency of health innovation for the global crises such COVID-19.<sup>11</sup> Precision medicine, which is almost a combination of all aspects of science and engineering, could play a dominant role for personalizing the employed therapeutic and prevention mechanisms for each individual person.<sup>12</sup> Furthermore, it could carefully predict the probable statistics of victims of health crisis in the specified societies to actually create the future plans in such cases. It is about health system, but mathematics and computer science are very much important in addition to conventional requirements of biology and genetics. Moreover, several other branches of science and engineering are required, but they are not still enough, because the social science could help in cognitive aspects of humans. It could be seen that the era of COVID-19 is

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almost the era of NBICA convergence of novel achievements of late 20<sup>th</sup> and early 21<sup>st</sup> centuries in science, research, technology and society. So, despite the expertise and specific major of research, let's think

how to deal with the global health crises such as COVID-19 and notice its serious warning of emergency health innovations employing the NBICA convergence approaches.

## References

1. Guo YR, Cao QD, Hong ZS, Tan YY, Chen SD, Jin HJ, Tan KS, Wang DY, Yan Y. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak—an update on the status. *Mil. Med. Res.* 2020;7:1-10.
2. Worldometers.info. Dover, Delaware, U.S.A. Publishing Date: 1 June, 2020.
3. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. *Int. J. Antimicrob. Agent.* 2020:105924.
4. Tang YW, Schmitz JE, Persing DH, Stratton CW. Laboratory diagnosis of COVID-19: Current issues and challenges. *J. Clin. Microbiol.* 2020;58: in press.
5. Harismah K, Mirzaei M. Favipiravir: Structural analysis and activity against COVID-19. *Adv. J. Chem. B* 2020;2:55-60.
6. Mirzaei M, Harismah K, Da'i M, Salarrezaei E, Roshandel Z. Screening efficacy of available HIV protease inhibitors on COVID-19 protease. *J. Mil. Med.* 2020;22:100-107
7. Mehta P, McAuley DF, Brown M, Sanchez E, Tattersall RS, Manson JJ. COVID-19: consider cytokine storm syndromes and immunosuppression. *Lancet* 2020;395:1033-1034.
8. Mirzaei M. Science and engineering in silico. *Adv. J. Sci. Eng.* 2020;1:1-2.
9. Mirzaei, M. Lab-in-Silico insights. *Adv. J. Chem. B* 2020;2:1-2.
10. Mirzaei, M. Drug discovery: a non-expiring process. *Adv. J. Chem. B* 2020;2:46-47.
11. Khushf G. The ethics of NBIC convergence. *J. Med. Phil.* 2007;32:185-196.
12. Collins FS, Varmus H. A new initiative on precision medicine. *New Engl. J. Med.* 2015;372:793-795.

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