

# The coronavirus (COVID-19) pandemic

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COVID-19 is a disease that is caused by a pathogen known as coronavirus 2 (SARS-CoV-2). Coronaviruses belong to a superfamily of viruses which infect both humans and animals. These viruses are positive-stranded RNA viruses that are enveloped and replicate in the cytoplasm. Their envelope fuses with the host cell membrane and then the nucleocapsid is delivered into the host. Spike glycoproteins mediate the virus entry into the host as a necessary stage for tropism as well as pathogenesis.

COVID-19 is known to cause respiratory problems. Common symptoms of the disease are fever, cough and tiredness, and less common and serious symptoms include shortness of breath or difficulty in breathing, aches and pains, nasal congestion, headache, conjunctivitis, sore throat, diarrhea, loss of taste or smell or a rash on skin or discoloration of fingers or toes [1]. The disease is highly contagious. Like the diagnosis of other viral infections, COVID-19 can be diagnosed using saliva, blood, and body tissue samples. The protocol for testing of the virus primarily involves RNA extraction from specimens and real-time polymerase chain reaction (RT-PCR). Currently, there is no treatment specifically approved for treating the disease. However, efforts are being made to manage symptoms as the virus continues to infect people worldwide. Efforts to obtain useful therapies and vaccines are ongoing.

Currently, the World Health Organization has declared COVID-19 as a global pandemic [1]. It affects all races, gender, and ages. However, meta-analysis of comorbidities involving COVID-19 in China suggest that among the COVID-19 patients, hypertension was prevalent in 21.1%; diabetes in 9.7%, cardiovascular disease in 8.4% and disease of the respiratory system 1.5% [2]. This trend has also been indicated in Ghana.

Thus, non-communicable diseases appear to play a major role in the severity of COVID-19 prognosis. It is worth noting that chronic diseases have several similar standard features with infectious diseases. These include the pro-inflammatory status and reduction of the innate immune response. Metabolic disorders could also result in reduced immune function by inhibiting macrophage and lymphocyte function. These factors could render people susceptible to complications of diseases.

In this issue of the Journal, Parbie et al. [3] publish their findings on human coronavirus in persons with acute respiratory infections in Ghana. They stated that until recently human coronaviruses have been associated with mild symptoms of respiratory tract infection. Nonetheless, the 2003 outbreak of acute respiratory syndrome coronavirus (SARC-CoV) and the 2012 Middle East respiratory syndrome coronavirus (MER-CoV) revealed the potential of coronaviruses to cause severe disease. The paper presents data on human coronaviruses detected between January 2013 and March 2014, thus providing a relevant reference point for coronavirus infections in Ghana.

University of Ghana Scientists sequenced genomes of the novel coronavirus (COVID-19) in fifteen (15) confirmed cases in Ghana [4]. Scientists at the Noguchi Memorial Institute for Medical Research and West African Centre for Cell Biology of Infectious Pathogens highlighted some differences between the strains from the various countries. However, all 15 genomes of the viruses resembled (>92% similarity) the reference strain isolated from Wuhan Province of China. Thus, confirming that it is the same virus we are challenged with in various countries.

More concerted research is necessary to continue monitoring the coronavirus, discover effective vaccines and other therapeutic agents to combat the disease. Public health interventions including public education must be intensified to eliminate transmission of the disease. COVID-19 must be fought from all fronts to significantly reduce the burden of the disease.

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