The Use of Artificial Intelligence in the New Normal Era of the COVID-19 Pandemic in the Health Service Sector (CP-06)

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Background
Indonesia is currently experiencing Coronavirus Disease-19 (COVID-19) pandemic which affects all sectors of life, therefore Indonesia is starting to prepare for New Normal era, including in health care sector. COVID-19, Severe Acute Respiratory Syndrome-CoV-2 (SARS-CoV 2) was previously known as novel Coronavirus Disease-19 (nCoV-19), where World Health Organization (WHO) declared it as a global pandemic in March 2020. New Normal era is an era of coexistence with COVID-19 resulting in new habits that were rarely or never practiced before. One practice that can be applied in health care sector is to use Artificial Intelligence (AI) to treat COVID-19 patients to prevent casualties for health workers. Health care providers are prone to contract aerosol and droplet transmission while treating patients, resulting in cytokine storm, acute respiratory distress syndrome (ARDS), and acute lung injury (ALI), which leads to death.

Objectives
This study aims to provide a literature review of information about the relationship of COVID-19 and the use of Artificial Intelligence in the health service.

Methods
The method I use is a systematic literature review search based on several strategies, such as keyword searches and database selection that will be in the download. These articles and downloads are based on journal sources and e-books that related to COVID-19, Artificial Intelligence (AI), and New Normal era.

Results
Several virus types that cause respiratory tract infection are influenza viruses, rhinovirus, coronavirus, respiratory syncytial viruses (RSVs), and parainfluenza virus. SARS-CoV 2 is a part of coronavirus family and is similar to two types of diseases that broke out in 2002 and in 2012, therefore based on the correlation between the two types of viruses, the similarity level between SARS-CoV2 and SARS-CoV was 88% (derived from the same chart), while the similarity level with MERS-CoV was 50%. The three types of viruses (SARS-CoV 1, MERS-CoV, and SARS-CoV 2) originate from Bat Corona virus group, with the difference being that SARS-CoV 1 and SARS-CoV 2 are in one tree from Bat Coronavirus BM48-31, while MERS-CoV is on another tree from Bat coronavirus HKUS-1. Based on the phylogenetic tree of virus analysis in Figure 1, COVID-19 is a mutated form of both the SARS-CoV and MERS CoV viruses. AI is intelligence that can be added to a system and might be regulated to a scientific context, and that context is different from natural intelligence in humans. AI subjects relate to a computational model that can think and act rationally, which might be a copycat system with human cognitive functions and is related to human mind, such as learning and solving problems. The concept of AI is a combination of science concept and technological developments, one of which is to overcome COVID-19 pandemic during a certain period and cause global panic. The scope of AI use might be in the form of COVID-19 data accumulation analysis (through CORD-19 dataset, COVID-19 cases data, COVID-19 cases data and analysis in hospitals), prediction of SARS-CoV 2 immunogenic section to find COVID-19 vaccine blueprint, prediction, prevention, warning of hazards, diagnosis and treatment of COVID-19, and social control on COVID-19. The reason for using AI is to minimize direct or indirect contact with COVID-19 patients, therefore reducing or preventing transmission risk to health workers. AI can also be used as an early diagnostic tool, considering that in a confirmed patient or PDP, pneumonia already occurs which gives more risk for health workers to examine the patients, because close contact between health workers and patients might occur. This procedure might be replaced by AI which might be programmed to replace the role of health workers to diagnose and perform lung photographs. AI can also be used to find candidates for COVID-19 vaccine blueprint because AI is able to determine COVID-19 antigenic side.

Conclusion
COVID-19 pandemic affects all aspects of life, especially health care sector, therefore AI use is important to prevent the deaths of health workers because of this pandemic.

References