

Analysis of COVID-19 transmission in the hospital isolation room with different ventilation configurations

DAO THI HUYEN, 김교선<sup>1,†</sup>

Kangwon National University; <sup>1</sup>강원대학교

(kkyoseon@kangwon.ac.kr<sup>†</sup>)

The world is facing the COVID-19 pandemic and to control the spread of COVID-19 in health care facilities is a serious concern to patients, staff, and hospital visitors. Ventilation effectiveness in the isolation room where patients are tested and treated plays a significant role in minimizing the spread of virus and the risk of infection in the hospital. In this study, computational fluid dynamics simulation with Eulerian-Lagrangian model is used to investigate the effects of different exhaust configurations inside the isolation room on transport and diffusion of droplets that carry the virus generated by infected patients. A typical hospital isolation room consists of a bed for patient and uses an air flow rate of 15 air changes per hour. The exhaust air pressure is at -5.5 Pa in gauge to maintain the negative pressure inside the room. The results suggest that the exhaust vent should be kept near infectious patient.