Such effects are of increased significance to people with asthma given aspects of the disease that contribute to a baseline status that includes chronic airway inflammation and greater airway responsiveness than people without asthma (ISA, section 3.1.5). For example, due to the latter characteristic, O_3 exposure of a magnitude that increases airway responsiveness may put such people at potential increased risk for prolonged bronchoconstriction in response to asthma triggers (ISA, p. IS-22; 2013 ISA, section 6.2.9; 2006 AQCD, section 8.4.2). Further, children are the age group most likely to be outdoors at activity levels corresponding to those that have been associated with respiratory effects in the human exposure studies (as recognized below in sections II.B.2 and II.C). The increased significance of effects in people with asthma and risk of increased exposure for children is illustrated by the epidemiologic findings of positive associations between O_3 exposure and asthma-related ED visits and hospital admissions for children with asthma. Thus, the evidence indicates O_3 exposure to increase the risk of asthma exacerbation, and associated outcomes, in children with asthma.

With regard to an increased susceptibility to infectious diseases, the experimental animal evidence continues to indicate, as described in the 2013 ISA and past AQCDs, the potential for O_3 exposures to increase susceptibility to infectious diseases through effects on defense mechanisms of the respiratory tract (ISA, section 3.1.7.3; 2013 ISA, section 6.2.5). The evidence base regarding respiratory infections and associated effects has been augmented in this review by a number of epidemiologic studies reporting positive associations between short-term O_3 concentrations and emergency department visits for a variety of respiratory infection endpoints (ISA, Appendix 3, section 3.1.7).

Although the long-term exposure conditions that may contribute to further respiratory effects are less well understood, the conclusion based on the current evidence base remains that

Commented [A1]: NIEHS notes ozone pollution exposure may be an important risk factor that increases susceptibility to and severity of infectious diseases, including COVID-19. Studies suggest ground level ozone may serve as a virus incubator, facilitating airborne transmission of COVID-19 (Zoran et al. 2020). Air pollution mitigation, including ground level ozone, may be important for reducing the transmission of COVID-19.

Zoran et al. Assessing the relationship between ground levels of ozone (O3) and nitrogen dioxide (NO2) with coronavirus (COVID-19) in Milan, Italy. 2020. Sci Total Environ.