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16. Abstract Global pandemics and seasonal epidemics have significant economic and health impacts, yet there remain contradictory views on transmission routes and gaps in the evidence-based knowledge on the mechanistic dynamics related to respiratory disease. In preparation for the next pandemic, the US CDC, the Canadian National Research Council, the US FAA's Office of Aerospace Medicine and Boeing have been in a multi-year collaboration to develop a systematic and holistic framework that examines the routes for disease transmission and the associate risk of exposure and infection, with this framework being adaptable to multiple pathogens and settings. This presentation will include field data, modelling and literature reviews for transmission dynamics across differing viruses. We present novel considerations to variables such as vaccine efficacy pertaining to immune status versus shedding, cumulative dosing effects, diagnostics testing applicability for infectious status versus viral remnants, as well as the physics of viral transfer via fomite, human-to-human touch and aerosol versus droplet. Such variables will also be related to the associated complex dynamics of human behaviour and the excretion/entry route of a specific disease.		
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