

Table

Table 1 – Relationship of aerosol generation with different breathing maneuvers³

Researcher (year)	Findings
Duguid (1945)	4-14 times more droplet production during loud counting as compared to normal breathing
Loudon and Roberts (1967)	49% of the particles remained airborne 30 minutes after coughing vs 6% after normal talking
Papineni and Rosenthal (1997)	Generation of <1µm particles/L (83.2 during coughing vs 12.5 during normal breathing) and >1µm particles/L (13.4 during coughing vs 1.9 during normal breathing)
Morawska et al (2009)	Exhaled particles/L of 0.5-20 µm increases with force and time of breathing effort – normal breath (98), cough (678), voiced 'aah' (1088)
Johnson and Morawska (2009)	Tripling of particle emission with increasing expiratory flow from 0.2 L/s to 0.8 L/s
Schwarz et al (2010)	Decreasing expiratory flow produces lesser and smaller particles
Almstrand et al (2010)	Generated particles increase during deeper inhalation – 1300 n/L from FRC, 2500 n/L from CP and 8500 n/L from RV
Fabian et al (2011)	10-70 times increased concentration of exhaled particles when exhaling to RV as compared to normal tidal breathing
Larsson et al (2017)	Increased mass of exhaled particles during Forced exhalation (150%) and cough (640%) maneuvers compared to breathing at normal flow rates

µm – micrometer, L – Liter, s – second, n – number, FRC – Functional residual capacity, CP – closing point, RV – residual volume,