

Metropolitan air pollution and the upper and lower airway

Chronic rhinosinusitis and asthma outpatient burden

Ecological cohort

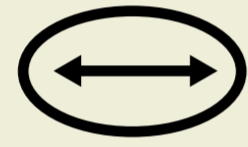


US Metropolitan statistical areas (MSAs)

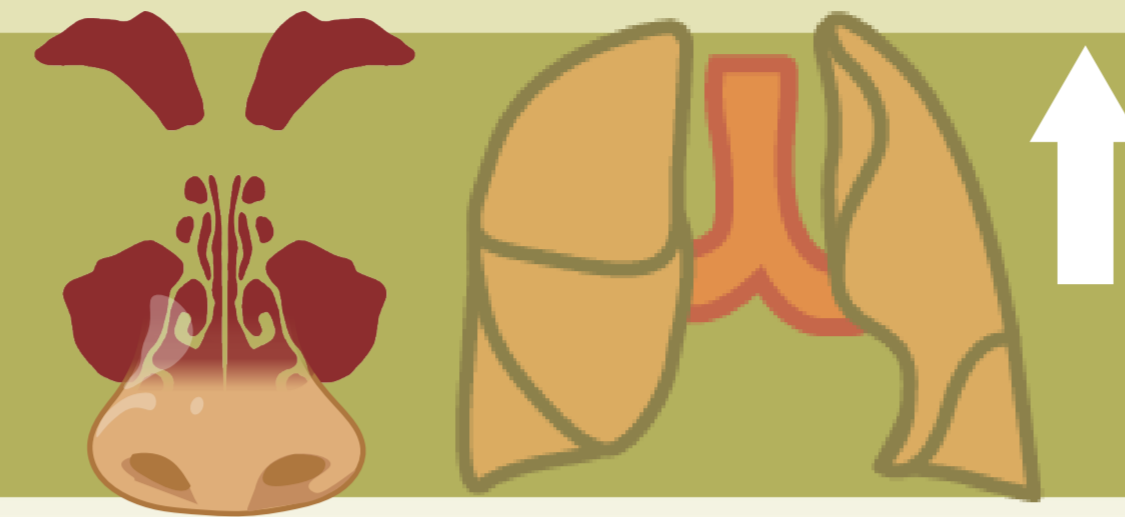
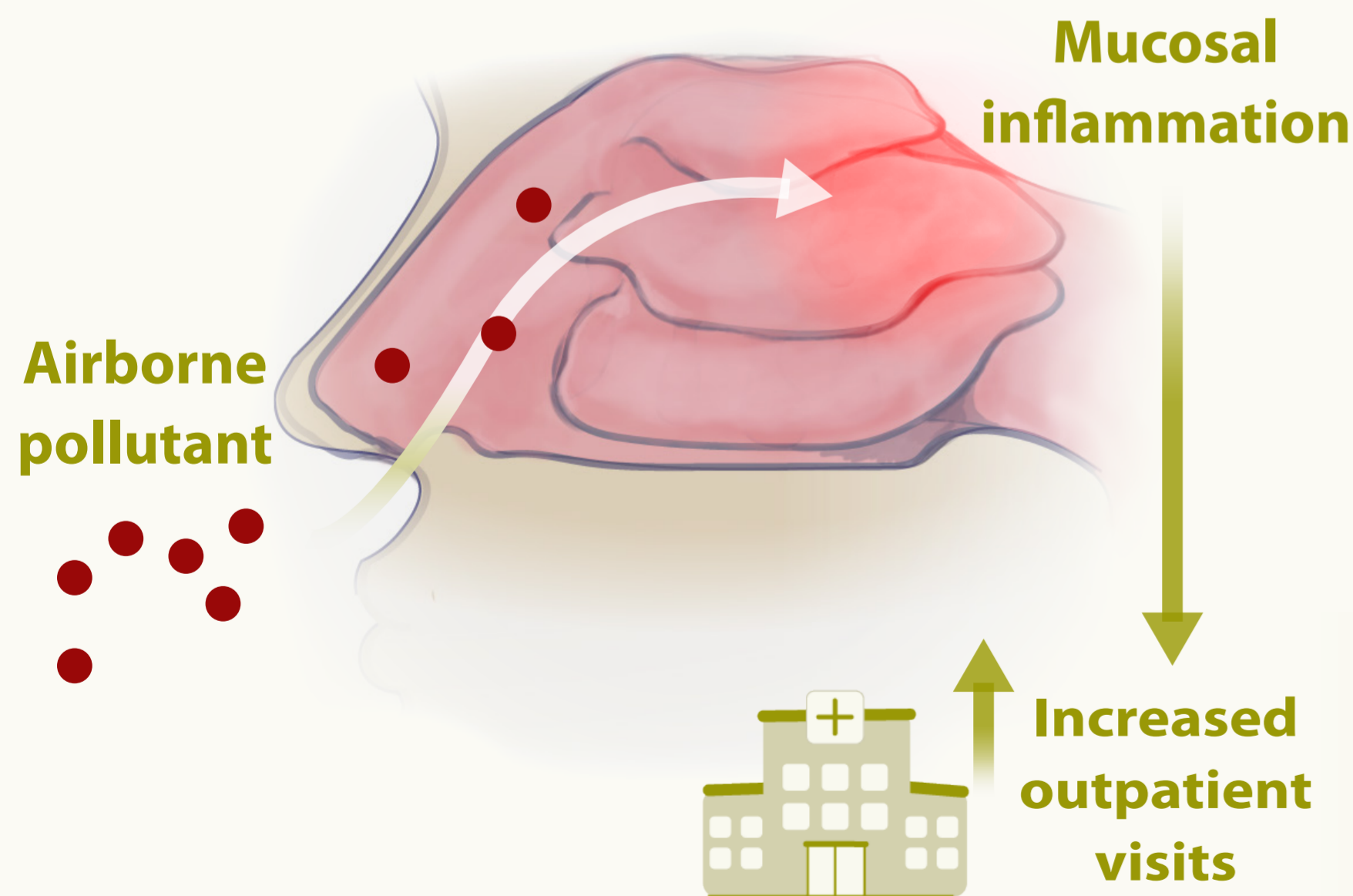


2007-2020

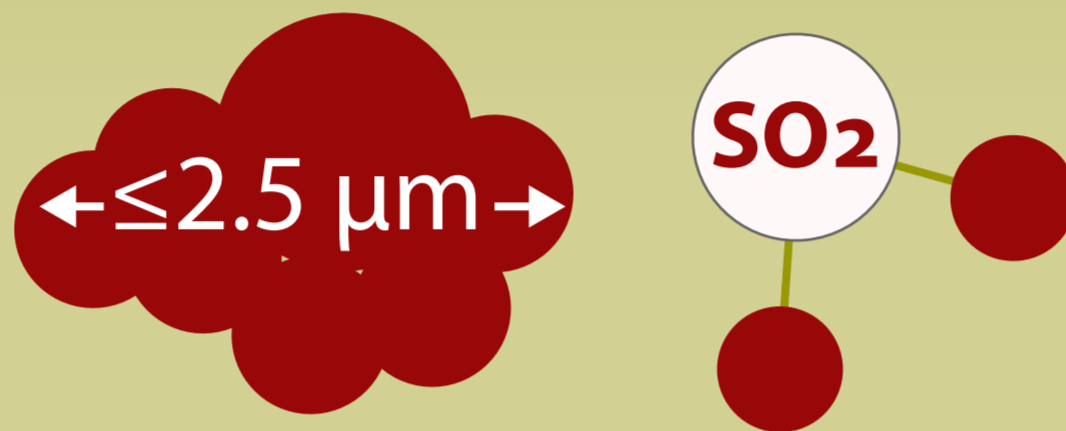
Outpatient claims (MarketScan)



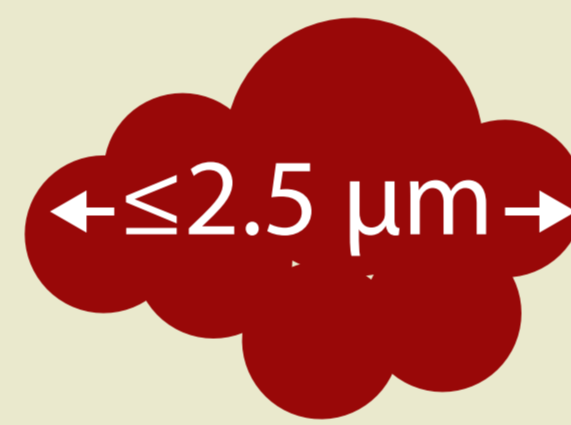
Environmental data (EPA)



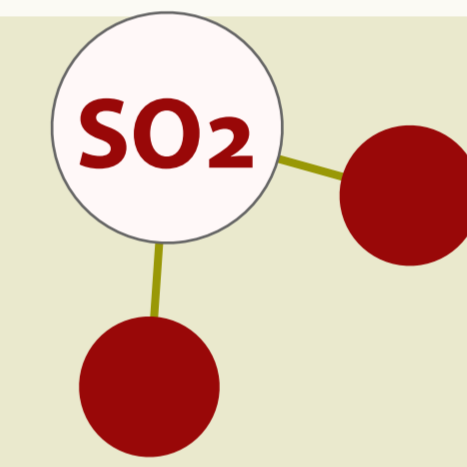
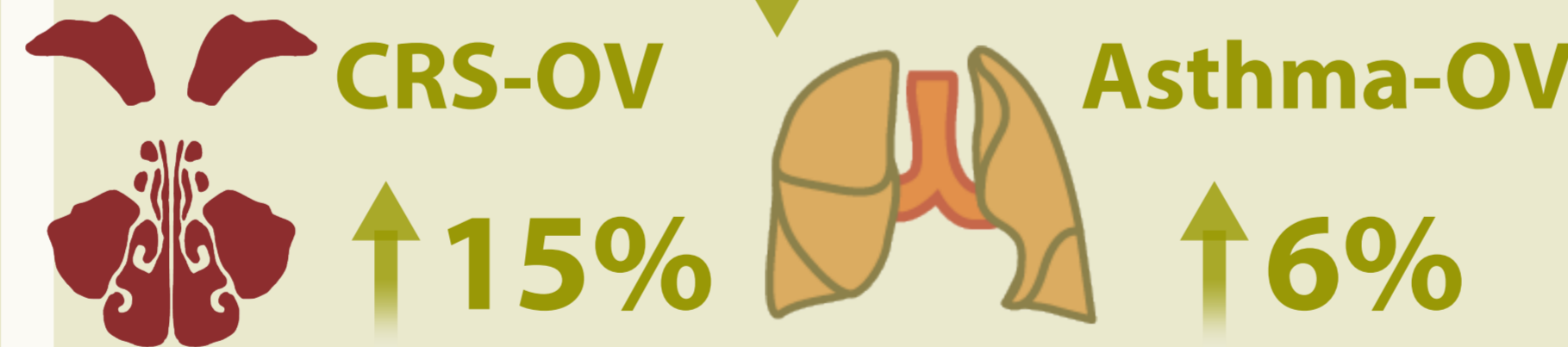
Higher levels of all EPA-monitored pollutants predicted increased CRS-OV and asthma-OV



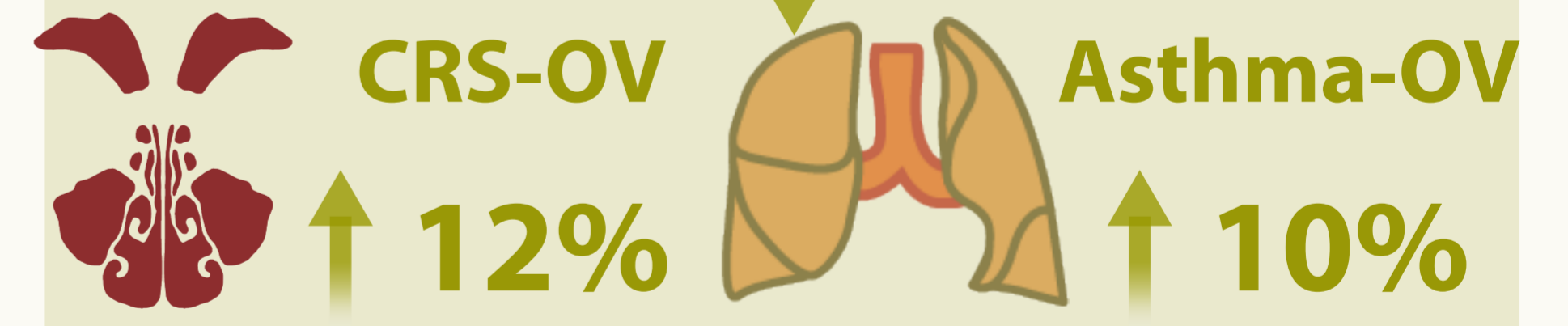
SO₂ + PM_{2.5} remained independently predictive when adjusted for co-pollutant levels



Each standard deviation increase



Each standard deviation increase



PM_{2.5} and SO₂ independently and synergistically increase CRS and asthma outpatient burden, with greater effects in CRS, supporting an expanded regulatory focus on upper-airway disease