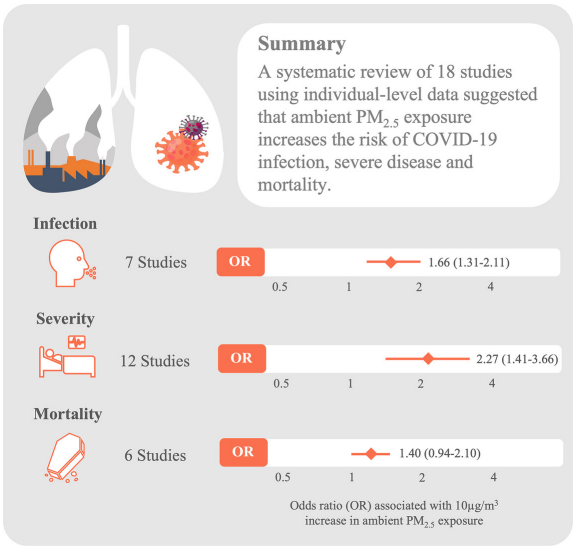
- Chen, Z., Huang, B. Z., Sidell, M. A., Chow, T., Eckel, S. P., Pavlovic, N., Martinez, M. P., Lurmann, F., Thomas, D. C., Gilliland, F. D., & Xiang, A. H. (2021). Near-roadway air pollution associated with COVID-19 severity and mortality – Multiethnic cohort study in Southern California. *Environment International*, *157*, 106862. https://doi.org/10.1016/j.envint.2021.106862
    - **Main findings**: Data from this multiethnic cohort suggested that near roadway air pollution, particularly non-freeway exposure in Southern California, may be associated with increased risk of COVID-19 severity and mortality among COVID-19 infected patients.
    - **Methods**: retrospective cohort study. Used hospital records to identify patients who had tested positive for covid and address to determine NRAP exposure.
    - **Classification of near-roadway exposure**: The CALINE4 model (Benson, 1989) then estimates NRAP using the concentrations of NOx at each latitude and longitude for freeway and non-freeway roads using traffic emissions (California Air Resources Board, 2017) (calculated within a 5-km buffer of the residence).

- Lipsitt, J., Chan-Golston, A. M., Liu, J., Su, J., Zhu, Y., & Jerrett, M. (2021). Spatial analysis of COVID-19 and traffic-related air pollution in Los Angeles. *Environment International*, *153*, 106531. https://doi.org/10.1016/j.envint.2021.106531
    - **Main findings**: Found annual NO2 to be associated with COVID-19 incidence and mortality in Los Angeles County neighborhoods while adjusting for numerous confounders.
    - **Methods:** used NO2 raster and compared to total number of covid cases using hospital records. Controlled for smoking, obesity, diabetes, and hypertension.
    - **Classification of near roadway exposure**: none, areas were classified by neighborhood. Neighborhood NO2 concentrations were modeled in relation to incident case rate (cases/population), mortality rate (deaths/population), and case-fatality rate (deaths/cases).

- Sheppard, N., Carroll, M., Gao, C., & Lane, T. (2023). Particulate matter air pollution and COVID-19 infection, severity, and mortality: A systematic review and meta-analysis. *Science of The Total Environment*, *880*, 163272. https://doi.org/10.1016/j.scitotenv.2023.163272
    - Systematic Review Article
    - Useful graphical abstract



- Jerrett, M., Nau, C. L., Young, D. R., Butler, R. K., Batteate, C. M., Padilla, A., Tartof, S. Y., Su, J., Burnett, R. T., & Kleeman, M. J. (2023). Air pollution and the sequelae of COVID-19 patients: A multistate analysis. *Environmental Research*, 116814. https://doi.org/10.1016/j.envres.2023.116814
    - **Main findings**: PM2.5 and ozone were significantly associated with transitions to more severe states while in hospital and to death after discharge from hospital. NO2 had weaker effects but displayed some elevated risks.
    - **Methods**: Used hospital records of covid positive cases hospitalized within 21 days of positive test and NO2 data from ArcGIS
    - **Classification of near roadway exposure**: none, used 3D reactive chemical transport model.

- Veronesi, G., Matteis, S. D., Calori, G., Pepe, N., & Ferrario, M. M. (2022). Long-term exposure to air pollution and COVID-19 incidence: A prospective study of residents in the city of Varese, Northern Italy. *Occupational and Environmental Medicine*, *79*(3), 192–199. https://doi.org/10.1136/oemed-2021-107833
    - **Main findings:** Italy study showing that long-term exposure to low levels of air pollutants, especially PM2.5, increased the incidence of COVID-19.
    - **Methods**: Compared location of covid positive cases to levels of PM, NOx, and Ozone.
    - **Classification of near roadway exposure:** none, used chemical transport model.

- Dettori, M., Deiana, G., Balletto, G., Borruso, G., Murgante, B., Arghittu, A., Azara, A., & Castiglia, P. (2021). Air pollutants and risk of death due to COVID-19 in Italy. *Environmental Research*, *192*, 110459. https://doi.org/10.1016/j.envres.2020.110459
    - **Main findings**: Another analysis showing there is a correlation between PM10 and Covid-19 mortality in Italy.
    - **Methods**: Compared covid incidence and mortality to average measures of several pollutants by province.

    - **Classification of near roadway exposure:** none, used average yearly values of pollutants by province.

- Coker, E. S., Cavalli, L., Fabrizi, E., Guastella, G., Lippo, E., Parisi, M. L., Pontarollo, N., Rizzati, M., Varacca, A., & Vergalli, S. (2020). The Effects of Air Pollution on COVID-19 Related Mortality in Northern Italy. *Environmental and Resource Economics*, *76*(4), 611–634. https://doi.org/10.1007/s10640-020-00486-1
    - **Main findings:** Study suggests a positive association of ambient PM2.5 concentration on excess mortality in Northern Italy related to the COVID-19 epidemic. Estimates suggest that a one-unit increase in PM2.5 concentration (μg/m3) is associated with a 9% (95% confidence interval: 6–12%) increase in COVID-19 related mortality.

- Solimini, A., Filipponi, F., Fegatelli, D. A., Caputo, B., De Marco, C. M., Spagnoli, A., & Vestri, A. R. (2021). A global association between Covid-19 cases and airborne particulate matter at regional level. *Scientific Reports*, *11*(1), Article 1. https://doi.org/10.1038/s41598-021-85751-z
    - **Main findings:** Study found an association between Covid-19 cases and air pollution suggestive of a possible causal link among particulate matter levels and incidence of COVID-19.

- Benmarhnia, T. (2020). Linkages Between Air Pollution and the Health Burden From COVID-19: Methodological Challenges and Opportunities. *American Journal of Epidemiology*, *189*(11), 1238–1243. https://doi.org/10.1093/aje/kwaa148
    - **Main findings:** This paper looks at potential causal links between covid and pollution and then explores different methodological approaches and their limitations.