

Transport Emission Inventories and Medical Exposure Modeling: A Missing Link for Urban Health

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Abstract : The adverse effects of air pollution on public health are an increasingly vital problem in planning for urban regions in many parts of the world. The issue is addressed from various angles and by distinct disciplines in research. Epidemiological studies model the relative increase of numerous diseases in response to an increment of different forms of air pollution. A significant share of air pollution in urban regions is related to transport emissions that are often measured and stored in emission inventories. Though, most approaches in transport planning, engineering, and operational design of transport activities are restricted to general emission limits for specific air pollutants and do not consider more nuanced exposure models. We conduct an extensive literature review on exposure models and emission inventories used to study the health impact of transport emissions. Furthermore, we review methods applied in both domains and use emission inventory data of transportation hubs such as ports, airports, and urban traffic for an in-depth analysis of public health impacts deploying medical exposure models. The results reveal specific urban health risks related to transport emissions that may improve urban planning for environmental health by providing insights in actual health effects instead of only referring to general emission limits.

Keywords : emission inventories, exposure models, transport emissions, urban health

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