

## Publication

### Associations of daily levels of PM10 and NO2 with emergency hospital admissions and mortality in Switzerland : trends and missed prevention potential over the last decade

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In most regions of the world, levels and constituents of the air pollution mixture have substantially changed over the last decades.; To evaluate if the effects of PM10 and NO2 on daily emergency hospital admissions and mortality have changed during a 10 year period in Switzerland; to retrospectively estimate prevention potential of different policy choices.; Thirteen Poisson-regression models across Switzerland were developed using daily PM10 and NO2 levels from central monitors and accounting for several temporal and seasonal confounders. Time trends of effects were evaluated with an interaction variable. Distributed lag models with 28 days exposure window were used to retrospectively predict missed prevention potential for each region.; Overall, emergency hospitalizations and mortality from any medical cause increased by 0.2% (95% Confidence Interval [95% CI]: 0.01, 0.33) and 0.2% (95% CI: -0.1, 0.6) for a 10µg/m(3) increment of PM10, and 0.7% (95% CI: 0.1, 1.3) for NO2 and mortality. Over the study period, the association between respiratory emergencies and PM10 changed by a factor of 1.017 (95% CI: 1.001, 1.034) and by a factor of 0.977 [95% CI: 0.956, 0.998] for respiratory mortality among the elderly for NO2. During the study period, abatement strategies targeting a 20% lower overall mean would have prevented four times more cases than abating days exceeding daily standards.; During the last decade, the short term effects of PM10 and NO2 on hospitalizations and mortality in Switzerland have almost not changed. More ambitious strategies of air pollutant reduction in Switzerland would have had non negligible public health benefits.

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