Exposure to tobacco smoke before and after a partial smoking ban in prison : indoors air quality measures

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Although exposure to secondhand smoke (SHS) is reportedly high in prison, few studies have measured this in the prison environment, and none have done so in Europe. We measured two indicators of SHS exposure (particulate matter PM10 and nicotine) in fixed locations before (2009) and after (2010) introduction of a partial smoking ban in a Swiss prison. Access to smoking cessation support was available to detainees throughout the study. Objectives To measure SHS before and after the introduction of a partial smoking ban. Methods Assessment of particulate matter PM10 (suspended microparticles of 10 ?m) and nicotine in ambient air, collected by real-time aerosol monitor and nicotine monitoring devices. Results The authors observed a significant improvement of nicotine concentrations in the air after the introduction of the smoking ban (before: 7.0 ?g/m(3), after: 2.1 ?g/m(3), difference 4.9 ?g/m(3), 95% CI for difference: 0.52 to 9.8, p=0.03) but not in particulate matter PM10 (before: 0.11 mg/m(3), after: 0.06 mg/m(3), difference 0.06 mg/m(3), 95% CI for difference of means: -0.07 to 0.19, p=0.30). Conclusions The partial smoking ban was followed by a decrease in nicotine concentrations in ambient air. These improvements can be attributed to the introduction of the smoking ban since no other policy change occurred during this period. Although this shows that concentrations of SHS decreased significantly, protection was still incomplete and further action is necessary to improve indoor air quality.

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