SHINE a health integration team | Bristol Health Partners

No. 2 Anti-idling near schools

Top line: Localised education and promotion programmes to discourage idling by parent/carers close to schools has limited impact in terms of improvements in air quality. City-wide or national-wide banning of idling combined with fear of fines, and environmental awareness appear to be most effective.

Air pollution has a huge negative impact on society, and idling engines are a contributor to air pollution. During idling, petrol vehicles emit a minimum amount of nitrogen oxides (NO_x) and negligible particulate matter (PM). However, generally a large amount of carbon monoxide and hydrocarbons (HC) are produced from vehicles. Petrol vehicles consume far more fuel at an hourly rate than their diesel counterparts during idling. Higher NOx and comparatively larger PM are produced by diesel vehicles than petrol vehicles on average during idling.[1]

Previous attempts to address vehicle idling through public education have had some success. For example, a campaign targeting idling in school parking lots in one Canadian suburb resulted in a 34% decline in the number of vehicles observed idling while waiting, and a decrease in the average amount of time spent idling from 3.7 to 2.5 minutes.[2] The long term effectiveness is unknown. If rolled out nationally, however, there would be significant air quality and Greenhouse Gas emissions (GHG) reductions. Other research has found that anti-idling campaigns are effective in reducing PM2.5 and carbon and particle number concentrations at schools with significant amounts of passenger cars and buses.[3, 4] Short-term campaigns, however, mean that effects of messages decay within weeks of campaigns ending. This is a risk where there is no enforcement or longer term programme.

The Taiwanese government adopted an idling reduction policy in 2011 to curb GHG emissions from motorized vehicles.[5] The policy states that parked vehicles, excluding those waiting at red lights, shall turn off their engines after 3 minutes. Evidence found that the most important factor influencing minimal acceptable time before switching off the engine, after fear of being fined, was environmental perceptions. This suggests that any vehicle idling reduction policy can be supplemented by strengthening the public's environmental perceptions of the impact of vehicle idling, fuel savings and overall vehicle efficiency. Such factors significantly lower minimal acceptable time before switching off the engine.

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[1] Shancita, I., et al 2014. A review on idling reduction strategies to improve fuel economy and reduce exhaust emissions of transport vehicles, *Energy Conservation & Management*, 88: 794-807.

[2] Carrico, A., et al, 2009. Costly myths: An analysis of idling beliefs and behaviour in personal motor vehicles, *Energy Policy*, 37(8): 2881-2888.

[3] Ryan, et al. 2013. The impact of an anti-idling campaign on outdoor air quality at four urban schools, *Environmental Science: Processes and Impacts,* 15: 2030-2037.

[4] Ryan, P. et al 2013.

[5] Jou., R-C., Wu, Y-C., Liu, J-L., 2014. Minimum acceptable time for turning off idling engines: Evidence from Taiwan, *Transport Research Part D: Transport & Environment*, 30: 62-71.