

## Two simple ways for governments to clear the air for children



In 2004, the UK ratified the WHO Framework Convention on Tobacco Control, which commits member states to provide protection from indoor exposure to tobacco smoke in public places. Around this time some UK politicians were sceptical of proposals to comprehensively ban smoking in public places.<sup>1</sup> Nevertheless, the devolved administration in Scotland moved ahead of the rest of the UK to implement a smoke-free public places law in 2006. These were significant steps, but the health burden of second-hand smoke exposure in private spaces—especially for children in domestic settings—remains a concern.

Steve Turner and colleagues<sup>2</sup> in *The Lancet Public Health* provide an examination of the effects of the Scottish 2006 smoke-free law and a nationwide campaign launched 8 years later to encourage parents and caregivers to stop smoking inside the home. The findings suggest that public information interventions like the 2014 Take it Right Outside (TiRO) campaign can reduce adverse health outcomes related to second-hand smoke. The authors used a robust quasi-experimental design to analyse national data recorded over a period of 19 years. They assessed the effects of the 2006 smoke-free law and the 2014 TiRO campaign on monthly incidences of emergency hospital admissions in children aged 0–15 years, for respiratory conditions associated with second-hand smoke exposure. Stratification by age and area-level deprivation allowed consideration of potentially differential effects.

The paper advances earlier work in several ways. Although the smoke-free law had previously been shown to be effective in reducing hospital admissions for childhood asthma,<sup>3</sup> the current study indicates that this effect might have been sustained up to 8 years later—although other tobacco control measures over this period might also have contributed. For children aged 0–15 years, the slope for admissions for asthma decreased relative to the underlying trend (–0.45% [–0.73 to –0.18],  $p=0.0012$ ) in the years after the 2006 legislation. In addition, the smoke-free law was associated with decreased child admissions for lower respiratory tract infection (–0.39% [–0.72 to –0.05],  $p=0.024$ ). Importantly, the effect on asthma admissions was largest among children

in deprived neighbourhoods (for children from the most deprived communities, –0.49% [–0.87 to –0.11],  $p=0.011$ ; and from intermediate deprived communities, –0.70% [–1.17 to –0.23],  $p=0.0043$ ), indicating a pro-equity effect that is in line with work in England on the effect of smoke-free legislation on paediatric respiratory tract infection.<sup>4</sup> The TiRO campaign was associated with a decrease in asthma admissions only in children younger than age 5 years (–0.48% [–0.85 to –0.12],  $p=0.0096$ ), which is plausible as they are likely to spend the most time in the home. Previous evaluation of a TV advertising campaign promoting smoke-free homes in England found that the campaign increased the proportion of homes that were smoke-free,<sup>5</sup> and the current study suggests that effects can extend to significant health improvements among young children. However, evidence from controlled trials is clear in showing that smoke-free homes reduce tobacco smoke exposure but do not fully eliminate it.<sup>6</sup> Given known links between even minor levels of tobacco exposure and negative health outcomes,<sup>7</sup> policies such as TiRO are clearly an important step, but cessation of smoking among caregivers is the preferable ultimate goal.

Despite overwhelming evidence that fully comprehensive smoke-free laws are an effective measure for improving population health, including child health outcomes,<sup>3</sup> most of the global population is not covered by such laws. In 2019, only 62 countries, harbouring 22% of the global population, had enacted comprehensive smoke-free legislation.<sup>8</sup> The evidence base has a comparative scarcity of studies on the effect of smoke-free legislation from low-income and middle income countries, which have the greatest burden of tobacco-related ill-health. This situation is now changing; for example, research in Brazil has shown important early-life health gains from moving from partial to comprehensive laws.<sup>9</sup> Although WHO defines eight public places that should be covered by smoke-free laws, the existence of legislation is variable across these. For example, 140 countries have legislation that regulates smoking in educational facilities apart from universities, but smoke-free laws are only in place for pubs and bars in 78 countries. Some positive actions have been seen in several jurisdictions, such as Sweden

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and New York City (NY, USA), where policies have been extended beyond enclosed workplaces and public places to cover outdoor spaces such as playgrounds. Other countries have extended bans to private spaces; in 2015, the UK introduced a ban on smoking in cars carrying anyone aged younger than 18 years, which has been found to reduce second-hand smoke exposure among children.<sup>10</sup>

The study by Turner and colleagues adds to a growing body of quasi-experimental evidence on the effect of governmental policies to protect children from tobacco smoke. With some exceptions, the evidence is concentrated in high-income settings, and further studies are needed to substantiate generalisability to low-income and middle-income settings. The benefits from both smoke-free laws and educational campaigns are known to extend to serious health outcomes. The need remains for policy actions to move more countries towards fully comprehensive smoke-free laws, and for policy makers to use the full range of possible activities to protect children from the adverse health impacts of tobacco smoke exposure.

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