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| **Significant carbon savings associated with the reuse of metered dose inhalers in lung function laboratories** |
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| **Introduction/Aim:** Metered dose inhalers (MDIs) are important devices for delivering inhaled medications, however have an outsized carbon footprint due to their propellant gas. Many short-acting beta-agonist inhalers in Australia contain HFA-134a, which has a global warming potential over 1000-fold higher than carbon dioxide. We identified MDI use within lung function laboratories as a potentially significant and modifiable source of MDI consumption and determined the volume and pattern of MDI use within Australian laboratories.**Method:** The forty-five accredited Australian lung function laboratories were invited to participate in an online survey asking about volume of testing, volume of MDI use, and whether MDI canisters were reused between patients. We estimated the carbon dioxide equivalent (CO2e) of the propellant from one salbutamol MDI to be 26kg, based on previously published data.1**Results:** Thirty-eight laboratories completed the survey. The median annual number of bronchodilator response (BDR) tests was 2077 (interquartile range [IQR] 1109 – 3717). Only two (5.3%) laboratories did not routinely reuse MDI canisters between patients. Thirty-two laboratories reported their volume of MDI use, ranging from 15 to 5100 canisters (median 50, IQR 31.75 – 62.75). Corrected for testing volume, the number of MDI canisters per 100 BDR tests ranged from 0.94 to 98.5. Converted to a carbon footprint, this equated to between 24.4kg and 2561kg CO2e per 100 BDR tests.**Conclusion:** Most lung function testing laboratories in Australia reuse MDI canisters between patients, however a few laboratories used MDIs once only, which led to a greater than 100-fold difference in MDI consumption. For a laboratory performing around 2000 BDR tests annually, the decision to reuse MDIs can lead to carbon savings of over 50,000kg CO2e per year, similar to driving around Australia in a petrol car more than 16 times.**References:**1. Janson et al, Thorax, 2020; 75(1):82-4.**Key words**: carbon footprint, metered dose inhaler, bronchodilator response, spirometry |