Ending the reign of short-acting β_2-agonists in Australia?

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Background: Overuse of short-acting β_2-agonist (SABA) inhalers to manage asthma is associated with increased risk of adverse outcomes. Over the counter (OTC) SABA availability and automated practitioner provision of up to 12 inhalers/prescription has created the perfect storm for potential SABA overuse in Australia.

Aim: To investigate the relationship of readily accessible SABA (OTC and prescription) on self-reported asthma outcomes in the Australian population.

Methods: Data from electronic medical records (EMR) and questionnaires from patients ≥12 years-old were extracted from the Optimum Patient Care Research Database Australia. The annual number of SABA inhalers prescribed (EMR data) and used (self-reported) was quantified, and the impact of overuse (≥3 inhalers/yr) on self-reported exacerbations and asthma control assessed.

Results: Of the 720 patients included the potential for SABA overuse (evidenced by EMR data) occurred in 52.8% of cases and was self-reported by 28.1% of patients. Those who self-reported use of 3-5 SABA inhalers/yr experienced 2.07 times (95% CI 1.34-3.23; $p<0.001$) as many exacerbations and were 3.53 times (95% CI 2.32-5.41; $p<0.001$) more likely to have poorly controlled asthma than those who reported using 1-2 canisters (Table 1).

Conclusions: In an environment with ready access to SABA, self-reported overuse is associated with poor asthma outcomes. Removal of the x5 repeats default setting for SABA prescriptions and limiting OTC accessibility, along with pharmacist review and patient education may address excessive SABA use in Australia.

Table 1: Prescribed and self-reported SABA use is associated with poor asthma outcomes: data from Australia (n=720)					
SABA cannisters annually	SABA cannisters prescribed (EMR data*), n (%)	Self-reported **exacerbations** (IRR, 95% CI, p-value)	Self-reported SABA use (acquired OTC or on prescription), n (%)	Self-reported **exacerbations** (IRR, 95% CI, p value)	Self-reported **GINA uncontrolled** (OR, 95% CI, p value)
0	311 (43.2)	2.73 (1.08-7.27) p=0.04	174 (24.2)	1.33 (0.89-1.99) p=0.16	0.41 (0.27-0.62) p<0.001
1-2	29 (4.0)	1.00	344 (47.8)	1.00	1.00
3-5	12 (1.7)	3.06 (0.54-20.50) p=0.21	117 (16.3)	2.07 (1.34-3.23) p<0.001	3.53 (2.32-5.41) p<0.001
6-9	10 (1.4)	5.77 (1.66-22.19) p=0.01	39 (5.4)	3.56 (1.83-7.29) p<0.001	3.88 (1.97-7.78) p<0.001
10+	358 (49.7)	1.98 (0.78-5.30) p=0.15	46 (6.4)	3.06 (1.71-5.71) p<0.001	12.58 (6.06-28.30) P<0.001
Total overuse	**380 (52.8)**		**202 (28.1)**		
CI: confidence interval; EMR: electronic medical record; OR: odds ratio; IRR: Incidence Rate Ratio; OTC: over the counter; SABA: short-acting β_2-agonist. OR reference = 1-2 SABA cannisters/year. *EMR data only captures SABA prescriptions not the number of inhalers dispensed.					

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