

The association between short-acting β 2-agonist over-prescription, and patient-reported acquisition and use on asthma control and exacerbations: data from Australia



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Improving Asthma Outcomes in Australia Research Group

OPCRDA

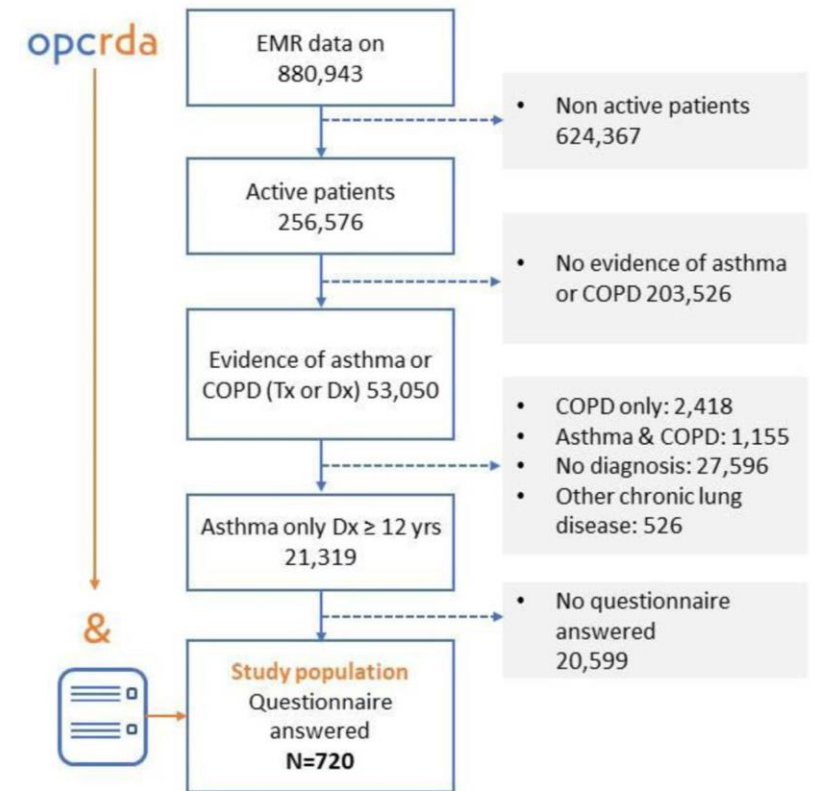
Optimum Patient Care Research Database Australia

Rationale

- Overuse (three or more) of blue reliever inhalers (short-acting β_2 -agonists, SABAs) is associated with worse asthma outcomes globally, highlighted in the paper by Price et al., 'Short-acting β_2 -agonist prescription patterns for asthma management in the SABINA III primary care cohort'¹
- In Australia SABAs are available both over the counter (OTC) and by prescription with automated repeat authorization. This ease of access may impact SABA use in the Australian population.

Methods

- Cross-sectional study², using data derived from primary care electronic medical records (EMRs) and patient completed questionnaires within Optimum Patient Care Research Database Australia (OPCRDA)³
- 720 individuals aged ≥ 12 years living in Australia with an asthma diagnosis in their EMRs and receiving asthma therapy were included.
- The annual number of SABA inhalers authorised on prescription, acquired OTC and self-reported, and the association with self-reported exacerbations and asthma control were investigated.



1. Price D, et al, Short-acting β_2 -agonist prescription patterns for asthma management in the SABINA III primary care cohort. NPJ Prim Care Respir Med. 2022;32:37

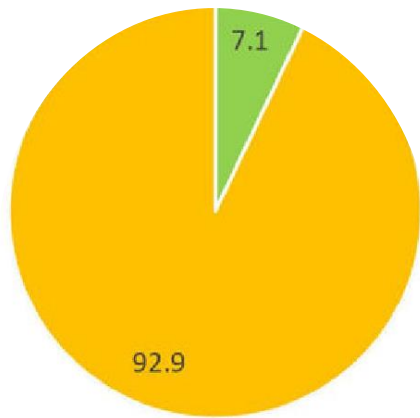
2. Eric Bateman et al, Short-acting β_2 -agonist prescriptions are associated with poor clinical outcomes of asthma: the multi-country, cross-sectional SABINA III study, Eur Respir J 2021; 0: 2101402

3. Price, D. et al, The Association Between Short-Acting β_2 -Agonist Over-Prescription, and Patient-Reported Acquisition and Use on Asthma Control and Exacerbations: Data from Australia. Adv Ther (2024). <https://doi.org/10.1007/s12325-023-02746-0>

4. Patient-completed questionnaire data collected through Optimum Patient Care Australia's (OPCA) primary care clinical audits delivered as part of quality improvement: (<https://optimumpatientcare.org.au/asthma/>)

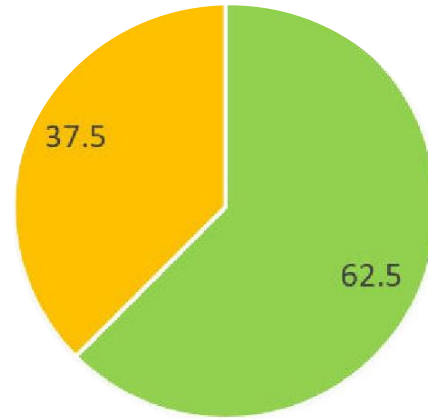
Overuse of SABA affecting over 90% of patients

SABA prescriptions



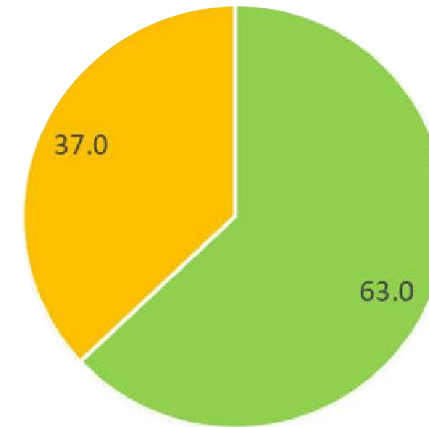
92.9% of patients over prescribed SABA (≥3 inhalers)

SABA purchased OTC



SABA over acquired (≥3 inhalers) OTC by 37.5% of patients

Self-reported SABA use

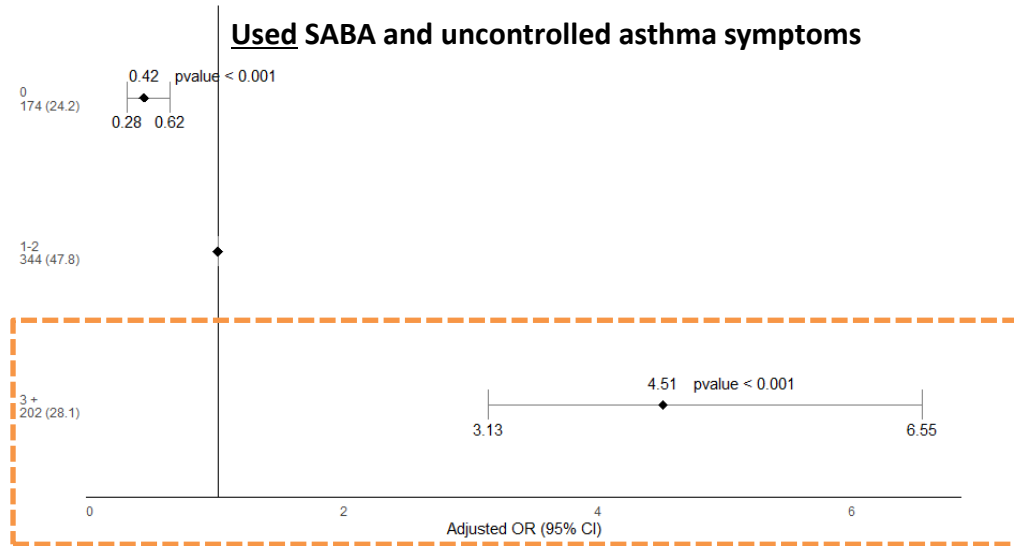


SABA over-used (≥3 inhalers) by 37.0% of patients

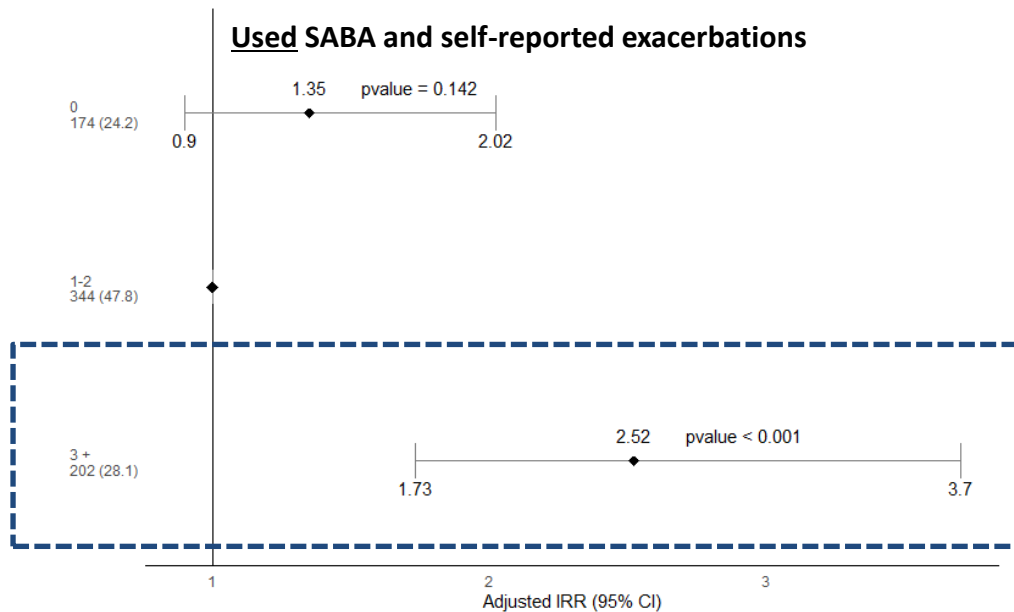
% of patients with the following SABA use patterns, according to source (Rx or OTC) and self reported use:

- <3 canisters of SABA per year
- ≥3 canisters of SABA per year

SABA overuse associated with four times increase in uncontrolled asthma symptoms And doubled incidence of severe exacerbations



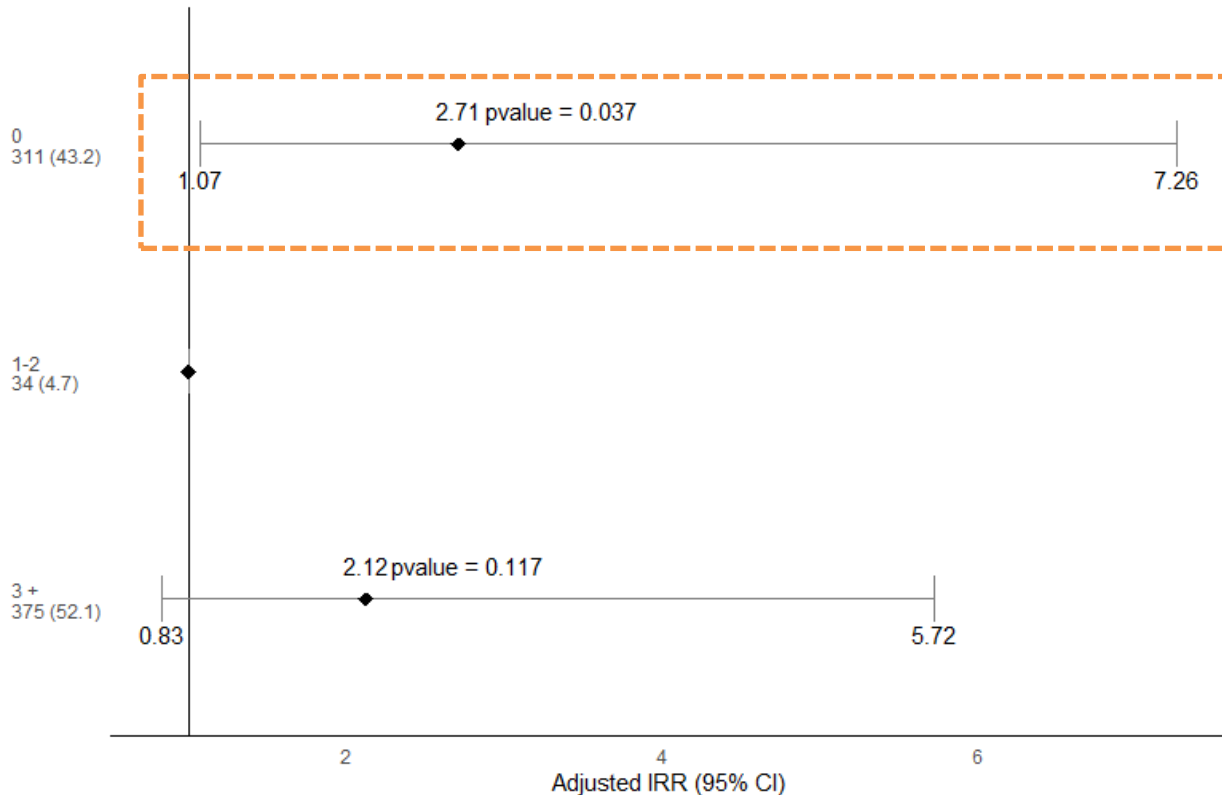
Individuals who self-reported using ≥ 3 SABA inhalers/year **over four times more likely to have uncontrolled asthma symptoms** (OR 4.51; 95% CI 3.13-6.55; $p < 0.001$) than those who used 1-2 inhalers annually



Individuals who self-reported using ≥ 3 SABA inhalers/year experienced more than **twice as many self-reported severe exacerbations** (IRR 2.52; 95% CI 1.73-3.70; $p < 0.001$)

Zero SABA prescriptions a red flag: potential OTC acquisition

Authorised SABA and self-reported exacerbations



- Individuals prescribed zero SABA inhalers/year experienced 2.71 times (95% CI 1.07-7.26; p=0.037) more self-reported severe exacerbations than those prescribed 1-2 inhalers.



Why were zero SABA prescriptions a problem?

- Found more likely to:
 - Purchase SABA OTC
 - When doing so acquire ≥3 inhalers annually (44.7% vs 13.0%), than those prescribed zero SABA inhalers and who experienced 0 exacerbations

Price, D. et al, The Association Between Short-Acting β2-Agonist Over-Prescription, and Patient-Reported Acquisition and Use on Asthma Control and Exacerbations: Data from Australia. Adv Ther (2024).

<https://doi.org/10.1007/s12325-023-02746-0>

Data are adjusted for age, gender, education level, smoking status, AAH treatment intensity, health insurance, BMI and number of comorbidities.

CI: confidence interval; IRR: incident rate ratio; OTC: Over the counter

Over acquisition of SABA OTC associated with significant increase in severe exacerbations and likelihood of having uncontrolled asthma

Number of SABA cannisters acquired OTC/yr for patients with 0 SABA inhalers authorized on prescription	Number of patients (%)	Self-reported severe exacerbations, IRR (95% CI), p-value	Self-reported uncontrolled asthma*, OR (95% CI), p-value
0	86 (29.8)	0.79 (0.42, 1.49), p=0.467	0.33 (0.17, 0.62) P<0.001
1-2	130 (45)	1.00	1.00
≥3	73 (25.3)	3.05 (1.63, 5.71) P=0.001	4.75 (2.61, 8.80) P<0.001

Individuals who **reported acquiring ≥3 SABA inhalers/year OTC** (and who had 0 SABA inhalers authorized on prescription; n=73/289, 25.3%) experienced **3.05 more self-reported severe exacerbations (95% CI, p<0.001)** and were **4.75 times (95% CI 2.61,8.80; p<0.001) more likely to have uncontrolled asthma**, than those who acquired 1-2 inhalers

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* assessed using GINA control criteria

CI: confidence interval; IRR: Incidence rate ratio; OR: odds ratio; OTC: over the counter; SABA: short-acting β2-agonist

- **SABA overuse associated with twice as many severe asthma exacerbations and four times increase in uncontrolled asthma symptoms**, compared to use of 1-2 annually
- Of major concern, **over the counter overuse is often hidden from GPs**
- **Potential for SABA overuse is very high** (affecting over 90% of patients). **Easy access to inhalers without medical review by both automated repeat authorization and OTC acquisition may be contributing** to the problem of overuse and requires urgent review