S Afr Gen Pract. 2024;5(4):156-158
https://doi.org/10.36303/SAGP.1160

S Afr Gen Pract
ISSN 2706-9613 EISSN 2706-9621

REVIEW

Rethinking asthma management: the overuse of SABAs and updated adult treatment guidelines

C Schoeman, N Schoeman

Zuid-Afrikaans Hospital, South Africa
Corresponding author, email: *nicolene@zah.co.za*

The global overuse of short-acting β2-agonists (SABAs), like salbutamol, has prompted a need to update asthma management protocols. Excessive reliance on SABAs—defined as using more than three canisters per year (or more than twice weekly)—is now recognised as a marker of poor asthma control and is associated with significant patient risk.

In South Africa, SABA overuse is alarmingly high. The Short-Acting Beta-Agonist Use IN Asthma (SABINA) III trial found that 75% of asthma patients in South Africa are overusing SABAs, compared to the global average of 38%. Furthermore, 51% of patients have uncontrolled asthma, with only 28% achieving adequate control and 21% achieving partial control, underscoring the need for a paradigm shift in asthma care.[1]

Keywords: asthma management, overuse of SABAs, adult treatment guidelines

Risks associated with SABA overuse

The use of a short-acting β2-agonist (SABA) as standalone treatment is no longer acceptable at any severity level; this is a significant shift from previous protocols that allowed SABA alone in mild cases.[2]

Key risks associated with SABA overuse include:[3]

- Increased airway inflammation
- Higher mortality rates, even in mild asthma
- Increased frequency of exacerbations
- Higher rates of hospital admissions
- Greater use of systemic corticosteroids, such as oral prednisone

Studies have shown that each asthma-related death is preventable with appropriate management. To improve asthma outcomes, it is critical to adhere to updated guidelines that recommend combining inhaled corticosteroids (ICS) with long-acting β_2-agonists (LABA), rather than relying on SABA alone (please refer to Table I for a summary of the latest adult asthma treatment guidelines). LABA monotherapy without ICS is contraindicated due to safety concerns. This change is essential to reduce asthma-related complications and prevent unnecessary morbidity and mortality.[2]

Reasons for poor asthma control

1. **Poor adherence to ICS therapy**[2]
   About 80% of asthma patients do not take their ICS regularly, primarily because ICS does not provide the immediate relief that SABAs offer. However, ICS is critical for long-term asthma control.
2. **Incorrect inhaler technique**[4]
   Many patients use their inhalers incorrectly, leading to inadequate drug delivery and uncontrolled asthma. Improving inhaler technique is essential for effective management.

Use the checklist on page 2 to ensure quality asthma care.

The SMART approach: a simple solution

A promising solution to both adherence and inhaler technique issues is the SMART (Single Maintenance and Reliever Therapy) approach.[5] This strategy combines both a reliever (rapid-acting $beta_2$-agonist) and an ICS in a single inhaler. Patients using SMART therapy cannot overuse the reliever without simultaneously benefiting from the anti-inflammatory action of the ICS. This combination has been shown to significantly reduce asthma-related risks.

Importantly, clinical trials using a combination of budesonide and formoterol have demonstrated the following outcomes:[5]

- 55% reduction in severe exacerbations
- 64% reduction in hospitalisations

Formoterol, a rapid-acting LABA, is just as effective as SABA for quick relief when used as needed, but with the added benefit of anti-inflammatory control due to the ICS component in the combination.[6]

SMART therapy has been recognised as a gold standard for reducing asthma-related deaths, exacerbations, and hospitalisations in both moderate and severe asthma patients.[5]

Criteria for controlled asthma[2]

- Fewer than two daytime symptoms per week
- No nocturnal symptoms
- No limitations on activity

- Minimal use of reliever therapy (less than twice per week)

Table I: Summary of the latest adult asthma treatment guidelines[2]

Step	Symptoms	Preferred treatment	Alternative regimen
1	Infrequent symptoms (< 2 times/week)	Low-dose ICS-formoterol as needed	Low-dose ICS whenever SABA is used or as-needed low-dose ICS-SABA
2	Symptoms 3–5 times/week	Low-dose ICS-formoterol as needed	Low-dose ICS daily and SABA as needed **Other options** Low-dose ICS-SABA or ICS plus SABA, concomitantly administered, as needed or (less preferred) LTRA daily and SABA as needed
3	Daily symptoms or nocturnal awakening or low lung function	Low-dose ICS-formoterol as maintenance and reliever therapy	Low-dose ICS-LABA combination daily and SABA as needed **Other options** Medium-dose ICS daily and SABA or ICS-SABA as needed or Low-dose ICS plus LTRA daily and SABA or ICS-SABA as needed
4	Daily symptoms, nocturnal waking, and low lung function, or a recent acute exacerbation	Medium-dose ICS-formoterol as maintenance and reliever therapy	Medium dose ICS-LABA daily and SABA or ICS-SABA as needed **Other options** Possible add-on LAMA or switch to ICS-LAMA-LABA Possible add-on LTRA

Abbreviations: ICS = inhaled corticosteroid, LABA = long-acting β_2-agonist, SABA = short-acting β_2-agonist, LTRA = Leukotriene Receptor Antagonist, LAMA = Long-Acting Muscarinic Antagonist

Table II: ICS dosing in adults[2]

ICS	Low dose (mcg)	Medium dose (mcg)	High dose (mcg)
Beclomethasone	200–500	> 500–1000	> 1000
Budesonide	200–400	> 400–800	> 800
Ciclesonide	80–160	> 160–320	> 320
Fluticasone Propionate	100–250	> 250–500	> 500
Mometasone Furoate	200–400	> 400	–

Checklist for ensuring quality asthma care

- ☐ **Confirm diagnosis**
  Rule out other respiratory conditions. Fixed airflow obstruction may suggest COPD or severe asthma.
- ☐ **Confirm reversibility**
  A significant improvement in FEV1 after bronchodilator use confirms asthma.
- ☐ **Ensure medication adherence**
  Poor adherence is a leading cause of uncontrolled asthma.
- ☐ **Verify inhaler technique**
  Regular training on inhaler technique improves drug delivery.
- ☐ **Monitor SABA use**
  Overuse (more than three canisters annually) indicates poor control.
- ☐ **Conduct regular reviews**
  Review asthma control and adherence every three months, or sooner if therapy adjustments were made.
- ☐ **Provide post-exacerbation care**
  A post-hospitalisation review within one week ensures appropriate recovery and adjustment.

FEV1 = Forced Expiratory Volume in 1 Second

Management of severe asthma

If a patient remains uncontrolled on maximal ICS therapy (Table II outlines ICS dosing guidelines), refer them to a specialist. Severe asthma, especially with fixed airflow obstruction or FEV1 < 80%, may qualify for biological therapy targeting Type 2 (T2) inflammation in cases of severe eosinophilic asthma (SEA).[7]

Biological therapies for SEA[7]

- Anti-IgE (omalizumab)

Abbreviations

IgE: Immunoglobulin E

IL-5: Interleukin-5

IL-5Rα: Interleukin-5 Receptor Alpha

IL-4Rα: Interleukin-4 Receptor Alpha

TSLP: Thymic Stromal Lymphopoietin

- Anti-IL-5 (mepolizumab, reslizumab)
- Anti-IL-5Rα (benralizumab)
- Anti-IL-4Rα (dupilumab)
- Anti-TSLP (tezepelumab)

Key results from biological therapies[7]

- Mepolizumab reduces exacerbations by 50% with monthly subcutaneous (s/c) injections.
- Benralizumab provides a similar effect but is administered every eight weeks.
- Dupilumab reduces exacerbations by 67% and improves lung function, also benefiting patients with atopic dermatitis, rhinosinusitis, and nasal polyps.
- Tezepelumab targets both IL-4 and IL-5 pathways, reducing exacerbations by 60–70%, improving lung function, symptoms, and quality of life. Although not yet available in South Africa, it is expected to become the drug of choice for severe eosinophilic asthma.

Conclusion

Asthma management protocols are shifting toward safer, ICS-inclusive treatments, moving away from SABA reliance to reduce exacerbations and improve control. The SMART approach and biological options for severe asthma represent significant advancements in achieving optimal asthma outcomes.

References

1. Janson C, Menzies-Gow A, Nan C, et al. SABINA: An overview of short-acting β2-agonist use in asthma in European countries. Adv Ther. 2020;37(3): 1124-1135. https://doi.org/10.1007/s12325-020-01233-0.
2. Global Initiative for Asthma (GINA). Global strategy for asthma management and prevention. 2024. Available from: https://ginasthma.org/2024-report/. Accessed: 30 October 2024.
3. Canonica GW, Paggiaro P, Blasi F, et al. Manifesto on the overuse of SABA in the management of asthma: new approaches and new strategies. Ther Adv Resp Dis. 2021. https://doi.org/10.1177/17534666211042534.
4. Usmani OS, Lavorini F, Marshall J, et al. Critical inhaler errors in asthma and COPD: a systematic review of impact on health outcomes. Journal of Thoracic Disease, 2018;19(1). https://doi.org/10.1186/s12931-017-0710-y.
5. O'Byrne PM, Bisgaard H, Godard PP, et al. Budesonide-formoterol reliever therapy in the management of asthma: a practical guide for clinicians. Am J Respir Crit Care Med. 2005;171(2):129-36. https://doi.org/10.1164/rccm.200407-884OC.
6. Park HJ, Huh JY, Lee JS, et al. Comparative efficacy of inhalers in mild-to-moderate asthma: systematic review and network meta-analysis. Sci Rep. 2022;12(1):5949.
7. https://doi.org/10.1038/s41598-022-09941-z.
8. Menzies-Gow A, Szefler SJ, Busse WWl. The Relationship of Asthma Biologics to Remission for Asthma. J Allergy Clin Immunol Pract. 2021;9(3):1090-1098.
9. https://doi.org/10.1016/j.jaip.2020.10.035.