South African Thoracic Society position statement on asthma in children, adolescents and adults

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It is estimated that 10% of the global population has asthma. Low- and middle-income countries typically struggle to provide affordable asthma care, including access to combination (inhaled corticosteroid (ICS)-long-acting beta-2-agonist) inhalers currently recommended internationally as standard of care. In South Africa (SA), a study found higher asthma prevalence among children in affluent areas compared with those from less affluent backgrounds. Asthma mortality is increasing in Africa and Southeast Asia compared with declines in high-income countries. This mortality crisis stems from inadequate care strategies, reliance on reliever therapy, and patient non-adherence. Overuse of and over-reliance on short-acting beta-2-agonist (SABA) inhalers worsen outcomes, with severe morbidity related to asthma. Limited access to and use of ICS-based controller therapy worsen outcomes. The carbon footprint of inhalers and proposed changes in propellants to those with lower global warming potential due to be phased in by 2030 may further limit treatment availability in the near future. To combat these challenges, the SA Asthma Action Group has been formed, bringing together healthcare professionals, funders and government representatives to improve asthma management. The strategic plan of this group is to address SABA overuse, contribute to guidelines, and enhance accessibility to essential medications while engaging with pharmaceutical companies to ensure affordable access to high-quality asthma treatments.

Keywords. Asthma, affordability, controllers, planetary health, costs.

Afr J Thorac Crit Care Med 2026;32(1):4339. https://doi.org/10.7196/AJTCCM.2026.v32i1.4339

Asthma is the most common non-communicable disease in children, affecting 1 in 10, and the second most common in adults globally. In South African (SA) adolescents, the prevalence of asthma symptoms in cross-sectional population surveys is between 13.6% and 20.1%.[1,2] Despite this condition being so common, there are still considerable gaps with regard to the diagnosis and management of asthma in SA. To address these challenges, it is critical that there is a comprehensive approach involving key stakeholders.

Methods

In this position statement, we will address the challenges and potential solutions proposed at a multi-stakeholder meeting including the South African Thoracic Society (SATS), healthcare funders, pharmacist representative groups, and the South African National Department of Health.

Global burden of asthma

The Global Asthma Network (GAN Phase I) conducted a study to determine the global burden of asthma in ~450 000 individuals (adults, adolescents (13 - 14 years) and children (6 - 7 years)) from 63 centres in 25 countries.[3] Asthma was more prevalent in high-income and upper middle-income countries (HICs/UMICs) compared with low- to middle-income and low-income countries (LMICs/LICs).[4,5] The prevalence of current wheeze in children was 8.4%, 6.7% for asthma ever, and 47.4% for severe asthma in HICs compared with 3.6%, 4.0% and 38.3%, respectively, in LICs/LMICs. In HICs, 11.7% of adolescents v. 8.0% in LICs/LMICs had a current wheeze, 8.8% v. 7.6% ever had asthma, and 47.9% v. 53.3% had severe asthma.[4] Concerningly, in all age groups, <8% had the diagnosis of asthma medically confirmed.[6] The prevalence of asthma in adults was 8.4% in HICs v. 3.6% in LICs/LMICs, 4.7% v. 3.6% for asthma ever, and 42% v. 36% for severe asthma.[5]

Burden of asthma in South Africa

The GAN Phase I study conducted in SA found that the prevalence of asthma in SA adolescents in Cape Town was stable at 20% as compared with the International Study of Asthma and Allergies in Children (ISAAC) Phase III.[2] This figure was higher than that reported in a GAN Phase I cohort in Durban, where the prevalence was 13.6%.[1]

Of importance, socioeconomic status may play a role in asthma risk. In the study in Durban, attendance at either a fee-paying (implying higher income) or non-fee-paying school (implying lower income) was used as a surrogate for socioeconomic status. The prevalence of asthma symptoms in fee-paying schools was significantly higher than that in non-fee-paying schools, for all levels of asthma severity.[1]

Diagnosis of asthma

In the Durban GAN study,[1] the prevalence of doctor-diagnosed asthma was significantly higher among learners attending fee-paying schools compared with those at non-fee-paying schools (11.1% v. 4.9%, respectively; p=0.001). Access to asthma inhaler medication within the preceding 12 months was also markedly greater among participants from fee-paying schools (89.1% v. 10.9%; p<0.001).

Treatment paradigm

Prior to 2018, the Global Initiative for Asthma (GINA) recommended inhaled corticosteroids (ICS) as maintenance treatment, with a short-acting beta-2-agonist (SABA) to be used as a reliever as needed.[7] The GINA strategy recommends ICS/formoterol as an anti-inflammatory reliever (AIR) for milder forms of asthma (steps 1 and 2) and maintenance and reliever therapy (MART) for moderate to severe asthma (steps 3 - 5). ICS/formoterol use is associated with a 55% reduction in acute exacerbations and a 65% reduction in emergency department visits and hospitalisations.[8,9] The GAN Phase I data in adolescents found that combination inhalers were available to 45 of 46 participants (97.8%) from fee-paying schools, compared with only one participant from a non-fee-paying school (p=0.033).[1] The SATS revised its asthma management guidelines to align with the GINA recommendations, acknowledging alternative approaches to asthma therapy. However, it also recognises that in SA, the majority of patients are managed at primary care level, where the use of separate inhalers containing ICS and SABAs remains the standard of care, as outlined in the national Essential Medicines List (EML).[10]

While ICS are highly effective in managing asthma, adherence to corticosteroid treatment is nonetheless a problem, with 51 - 79% of patients being adherent to treatment in randomised controlled trials, compared with 27 - 76% in pragmatic or real-world studies.[11-17] Globally, use of ICS is typically low, with <50% of study participants (range 12.9 - 51.9%),[6] including 44.8% of all those reporting severe asthma symptoms, and 60.1% of adolescents.[6] In SA, a survey of patients with asthma attending general practice found low adherence rates, with 45% of asthmatics stopping their controller medications when feeling well.[18]

The SABINA study, which analysed medical prescription data, showed that globally 38% of patients received ≥3 SABA canisters and 18% ≥10 SABA canisters annually, compared with 75% and 57%, respectively, in SA patients.[19] Both specialists and general practitioners were found to be overprescribing SABAs, despite evidence indicating that well-controlled patients should require no more than two canisters per year. Approximately one-third of specialists had discontinued SABA prescribing altogether. For patients with mild asthma, only 26.3% of specialist physicians and 1.5% of general practitioners prescribed treatment in accordance with current guideline recommendations.[19]

Health economic costs

Estimates of the economic burden of asthma are available for some HICs. Asthma costs are both direct, including hospitalisation and treatment costs, and indirect, including lost schooling and work hours.[20] The total cost of the disease has been estimated at GBP6 billion in the UK (~ZAR143 billion, 2023 exchange rates).[21]

The World Bank estimates calculated that low-dose ICS medications are the most cost-effective intervention, followed by low-dose ICS plus long-acting beta-2-agonists (LABAs).[22]

Across LMICs, SABAs are the most widely available and affordable inhaled asthma medications, typically costing 1 - 4 days' wages.[23] In contrast, ICS and combination ICS plus LABAs were less accessible and substantially more expensive, requiring 2 - 7 and at least 6 days' wages, respectively. Country-specific data showed limited ICS availability and poor affordability in Nigeria, moderate availability but high costs in Uganda, and minimal availability in The Gambia.[24,25] Notably, ICS/formoterol (200/6 µg) was reported to be both available and affordable only in SA.[26]

Planetary health and access to therapy

There are potential challenges to the availability of current inhaled medications and delivery devices for asthma management. Fluorinated propellants in asthma delivery devices are powerful greenhouse gases with a higher global warming potential than CO_2.[27] Per- and poly-fluorinated substances (PFAs), which are used as fluoropolymer coatings, persist in the environment and can be harmful to humans.[28] Alternatives to current pressurised metered-dose inhaler (pMDI) propellants under development will come at a higher cost and are likely to be more available in HICs.[27] Dry powder inhalers (DPIs) have a significantly lower carbon footprint than pMDIs.[29] Certain countries, such as the UK, have declared an intention to switch to DPIs.[27,30] Although DPIs are available in SA, most private funders do not reimburse for these. Generic producers of asthma medications may be unable to source these alternatives, and may no longer be producing them by 2030,[27] putting patients with asthma in LMICs such as SA at risk of supply issues.

GINA recommends that healthcare professionals assess the inhaler options available to patients, considering factors such as the patient's ability to use the device correctly, the likelihood of satisfaction with its use, and the inhaler's environmental impact.[31] Central to the process is shared decision-making with the patient or parent/caregiver.

Mortality

Developments in asthma treatment globally are a success story, with an annual decline in global mortality of 3.4% per annum[32] and intensive care unit admissions for asthma becoming progressively rarer. Health trends in SA have improved between 1990 and 2019,[32] but with a Gini index of >60[33] between 2011 and 2018, disparities in healthcare delivery and access remain a challenge. SA had the

second highest mortality globally due to asthma despite the gains with reduced mortality from 2001 to 2005.[34] The numbers of people with years lived with disability due to asthma increased dramatically between 2007 and 2019.[32]

Over-reliance on SABAs increases mortality.[35,36] Prior to a severe acute exacerbation, patients increasingly use SABAs, delaying rather than mitigating the onset of severe attacks and therefore delaying seeking medical care, with two-thirds of asthma deaths occurring at home.[37]

Towards solutions for asthma care

An international consortium of stakeholders has proposed a comprehensive, multisectoral action plan for the global management of asthma. Key components include enhancing public and professional awareness, standardising and disseminating evidence-based clinical guidelines, ensuring equitable access to and affordability of essential inhaled therapies, promoting the dissemination of best practices, and advocating for a World Health Assembly Resolution to strengthen healthcare access for individuals with asthma and chronic obstructive pulmonary disease.[38] The GAN has led the development of clinical standards for LMICs for the diagnosis and management of asthma, recognising the challenges and gaps in these countries.[39]

The Forum of International Respiratory Societies has made significant progress in requesting national departments of health to support a resolution addressing respiratory communicable diseases care at the 77th World Health Assembly in May 2025, among other recommendations (Table 1).[40]

Discussion

Tangible and actionable solutions to improve asthma outcomes include a trans-disciplinary approach with multiple stakeholders required to improve asthma outcomes, including guidelines, adherence enhancement strategies, and policy interventions.

Table 1. Recommendations of the Forum of International Respiratory Societies[40]

- National departments of health to support a resolution at the 77th World Health Assembly
- Revision of the World Health Organization package of essential non-communicable disease guidelines
- Facilitate dissemination and implementation of the revised guidelines
- Instigate successful interventions that have improved access to other essential medicines, including prequalification
- Bulk purchasing of asthma medications at a negotiated price
- Support development of high-quality generic combination inhalers
- Support the roll-out of training in asthma diagnosis and management, especially in low- to middle-income countries
- Support an appropriately staged transition to environmentally friendly inhalation devices to ensure continued improved access to effective care for all patients
- Alert governments to the likely change in availability of medications, ensuring the inclusion of rapid-onset beta-adrenergic agonist/inhaled corticosteroid inhaler combinations

Medications

Systemic barriers in SA contribute to the inappropriate overprescription of SABAs, driven by limited over-the-counter access in the public sector and informal medication sharing. Although ICS/formoterol combinations are more available than in other sub-Saharan African regions, many symptomatic patients remain undertreated. There is an urgent need to revise asthma management strategies, including limiting SABA use, promoting AIR and MART, and improving access to ICS/LABA combinations. Regulatory measures, clinician education, centralised patient databases, and environmental considerations – such as transitioning to DPIs – are essential to optimise asthma care. Updated guidelines must address vulnerable populations, including pregnant women and children, and incorporate emerging data on treatment gaps.

Education and adherence

SA can prevent asthma mortality in private and public healthcare settings, but poor compliance may be due to poor communication by clinicians, or patients may be steroid phobic. Patient education has not progressed in over 40 years. A new paradigm for ensuring compliance is needed, similar to directly observed therapy, short course (DOTS) for tuberculosis. Adherence is not linked to particular social determinants, but if patients view asthma as a high-risk condition, they are more likely to be adherent.

Unregulated access to SABA inhalers represents a global challenge in asthma management. Australia, with one of highest SABA prescription rates, has increasing asthma mortality. A single prescription permits a patient to access two inhalers per month for 6 months, but there are no data on whether these inhalers are used solely by the patient. Patients should be educated regarding the limited therapeutic role of SABAs, which are primarily indicated for acute symptom relief rather than long-term control. Proposed interventions include reclassifying SABA inhalers to prescription-only status and implementing pharmacy-level monitoring systems to track usage patterns. These measures may contribute to improved pharmacovigilance and promote adherence to guideline-directed therapy. Inhalers with an electronic chip specifically designed for the patient using the inhaler could address community usage.

There are concerns with withdrawing access to SABAs, but options such as a clear label could be added on the inhaler box stating that the SABA is for temporary relief only and if the SABA inhaler is being used above a certain frequency (>1 canister per month, for example), the patient should consult a doctor. The message to healthcare practitioners and healthcare managers must communicate clearly that SABA inhalers treat bronchospasm, not the underlying airway inflammation.

Affordability of asthma care

National healthcare austerity measures continue to affect the affordability of asthma treatment in SA. Reducing costs related to morbidity, mortality and treatment failure could be achieved by simplifying asthma management guidelines to improve adherence. Establishing an Asthma Action Group could facilitate drug price negotiations when medications are unaffordable and support policy advocacy by clarifying the true prevalence of asthma to inform updates to Prescribed Minimum Benefits (PMBs). Integrating asthma

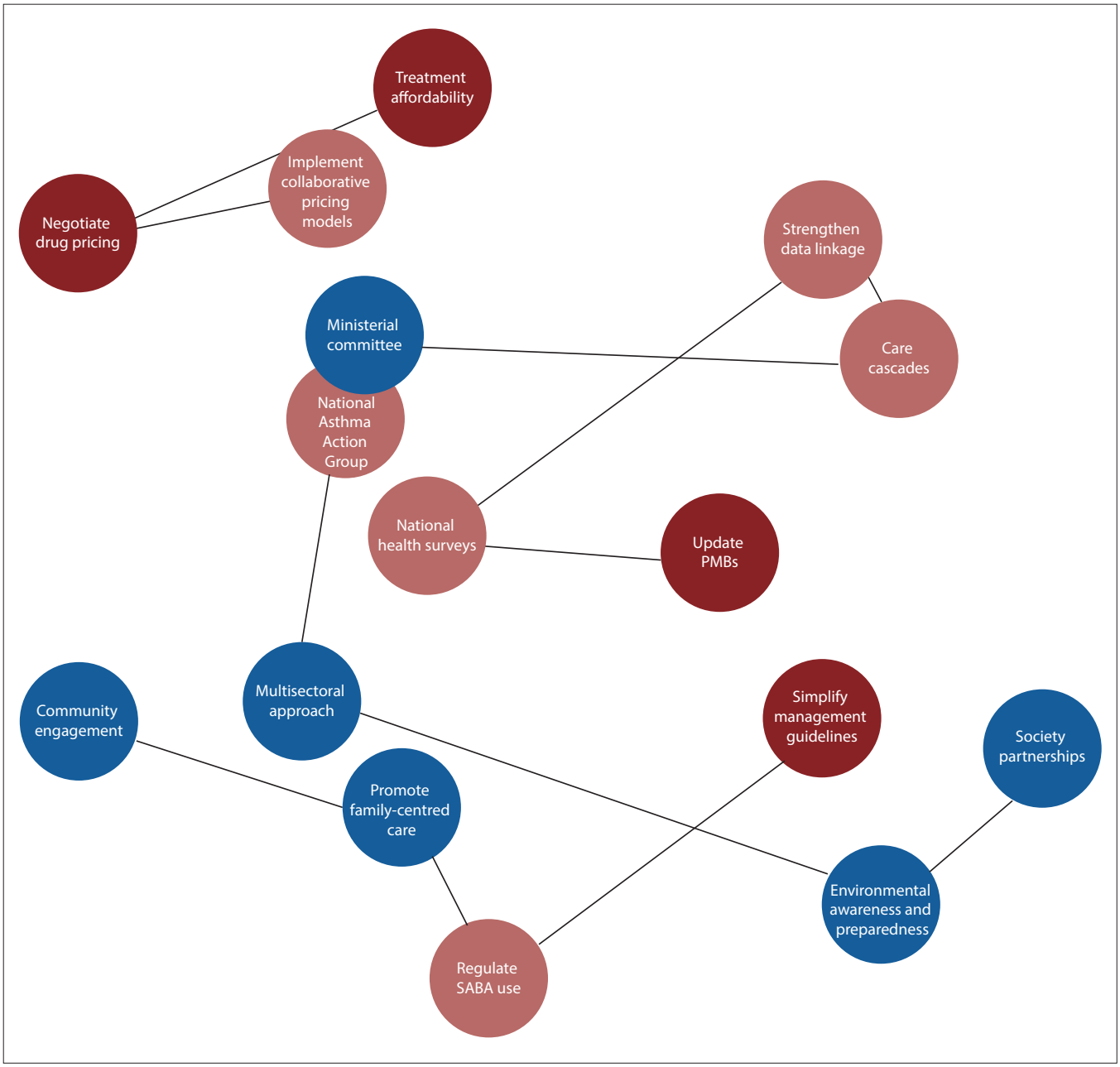

Fig. 1. Strategic priority approaches for national asthma management. (PMBs = Prescribed Minimum Benefits; SABA = short-acting beta-2-agonist.)

symptom questions into national health surveys and improving data linkage between hospitalisations and medication use would strengthen health system planning. Developing care cascades – tracking diagnosis, linkage to care, retention, treatment appropriateness, and control – would enable funders to conduct cost-benefit analyses and optimise resource allocation.

Leveraging existing health funding data through non-concurrent cohort analyses could provide insights into real-world treatment outcomes and cost-effectiveness. Comparing outcomes among patients using ICS/formoterol v. those managed with a SABA alone could demonstrate the economic and clinical benefits of combination therapy, particularly given evidence of an up to 50% reduction in exacerbations with ICS/formoterol use. Collaborative pricing strategies involving funders, the pharmaceutical industry, and government – such as therapeutic reference pricing and price adjustments based on median daily wages – could enhance access to affordable controller therapies. As affordability is central to the EML, improving access to effective preventive treatment is likely to be more cost-efficient in the long term. Regulatory adjustments to reduce barriers to ICS/formoterol access, such as down-scheduling combination therapies and up-scheduling SABAs, may further enhance adherence and rational prescribing.

Medical audits represent a valuable tool for optimising asthma management by enabling the assessment of treatment appropriateness and the collection of data on consultation frequency, patient registries, and lung function tracking.

Asthma care should also incorporate family counselling to support disease control and adherence. Active community

Table 2. Proposed short- and medium-term actions to address asthma mismanagement in South Africa

Short-term actions	Short- to medium-term actions
• Develop guidelines for asthma in pregnancy and children based on age groups • Address SABA overprescription with medical aids, and overuse with patients • Implications of inhaler switches from pMDI to DPI must be universally considered • Arrange a follow-up action group meeting with all key stakeholders • Share FIRS recommendations for WHA in 2025 with NDoH	• Create an Asthma Action Group with key stakeholders and invite co-convenors ensuring representation from both public medicine (NDoH) and private healthcare groups, recognising that it is an ongoing process • Institute parallel discussion processes with pharmaceutical firms • Review SABA scheduling and promote the inclusion of warning on SABA labels • Address ICS/formoterol strategy and costing • Propose a model and develop a care cascade for asthma • Create a central database for asthma patients for surveillance systems and for use of/access to asthma medications • Gather data on information gaps, such as overuse of NSAIDs, particularly in the South African context • Include asthma as part of DHIS by Stats SA

SABA = short-acting beta-2-agonist; pMDI = pressurised metered-dose inhaler; DPI = dry powder inhaler; FIRS = Forum of International Respiratory Societies; WHA = World Health Assembly; NDoH = National Department of Health; ICS = inhaled corticosteroid; NSAIDs = non-steroidal anti-inflammatory drugs; DHIS = District Health Information System; Stats SA = Statistics South Africa.

engagement would help drive behavioural change and facilitate the identification and implementation of practical solutions to improve asthma management.

Given the high prevalence of asthma and the burden of preventable deaths, the establishment of a ministerial committee is warranted. Furthermore, the creation of a national Asthma Action Group could enhance care delivery through collaboration among healthcare professionals, pharmacists, the pharmaceutical industry, and community stakeholders. More expensive environmentally friendly formulations will require teaching the correct use of DPIs. The European Union will phase out the current propellants in pMDIs within the next 5 years, which is highly problematic in LMICs. SA must be proactive in ensuring that this will not negatively affect asthma management, and the Asthma Action Group must work collaboratively with national bodies such as the South African Paediatric Association and the South African Pharmacy Council, and international bodies such as the Pan African Thoracic Society and GAN, to mitigate this possibility regionally (Fig. 1).

Summary of solutions

The excessive asthma mortality in SA demands immediate action. Challenges from patient education to liaising with healthcare funders exist. Reducing the price of ICS/formoterol to be comparable to salbutamol may help resolve many of the issues around affordability, availability, and optimising prescriptions. Short- and short- to medium-term actions are elaborated in Table 2.

Conclusion

Asthma poses a major public health challenge in SA, where over half of patients experience severe symptoms. Transitioning to affordable, environmentally sustainable DPIs where feasible and scaling up AIR/MART strategies are critical, yet hindered by cost and availability. Defining the economic threshold at which AIR becomes both clinically and cost-effective is essential, and collaborative efforts – such as the Asthma Action Group – are needed to advance equitable asthma care.

Data availability. Not applicable.

Declaration. RM and RNvZS are members of the editorial board.

Acknowledgements. The authors thank all the stakeholders who participated in the Asthma Summit. We would especially like to acknowledge the contribution of Prof. Eric Donn Bateman, who was a key contributor to the summit and contributed to the presentations and shaping of the summit. Microsoft Copilot was used for language editing of parts of this manuscript.

Author contributions. RM contributed to the conceptualisation, drafting, review, editing and final manuscript preparation. KM and RNvZS contributed to the drafting, review and writing of the final manuscript.

Funding. The Asthma Summit was funded by an unrestricted educational grant to the SATS by AstraZeneca. AstraZeneca did not participate in the summit, or have any influence on the content of or discussions in the summit or the publication.

Conflicts of interest. RM reports grant funding and advisory fees from AstraZeneca, MSD, Chiesi Foundation and Sanofi outside the submitted work. KM reports receiving advisory board fees from AstraZeneca outside the submitted work. RNvZS reports advisory board fees and honoraria outside the submitted work from AstraZeneca, GSK, Cipla, MSD, Roche, Kenvue, Sanofi, Macleods, Glenmark, Sanofi, Grand Johamu Pharma, Highnoon and Boehringer Ingelheim.

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Received 13 October 2025. Accepted 18 December 2025. Published 31 March 2026.