Global
Asthma
Network

Purpose of the Report

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This Report by the Global Asthma Network (GAN) brings together in one document an up-to-date account on what is known about asthma, its management and where the major gaps lie.

It is intended to influence those in authority to act promptly and wisely to reduce the global burden of asthma.

Contents of the Global Asthma Report

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88 pages written by 53 authors from around the world

Foreword by Cherian Varghese, Coordinator, Management of Noncommunicable Diseases (NCDs), WHO

3 main parts:

I. Burden of Asthma
II. Management of asthma and capacity building
III. Asthma – a global priority

Asthma remains a worldwide health problem

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Globally asthma is a common chronic disease.

It affects about 339 million people worldwide.

About 1000 people die from asthma each day.

16th among the leading causes of years lived with disability (YLD).

28th among the leading causes of burden of disease, as measured by disability adjusted life years (DALYs).

Asthma remains a worldwide health problem

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Asthma continues to be a major source of global economic burden in terms of both direct and indirect costs.

Strategies to improve access and adherence to evidence-based therapies can be effective in reducing the economic burden of asthma.

Global trends in the burden of asthma are poorly documented

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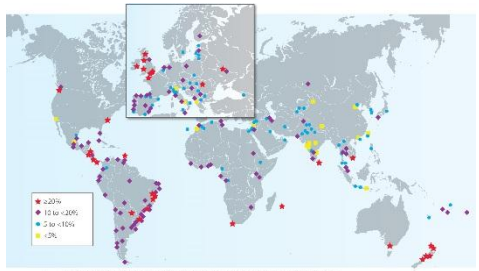
Establishing the proportion of the population who have asthma (that is, the prevalence of asthma), and comparing this prevalence between countries, requires the use of standardised measures implemented in large-scale, global surveys.

The last such surveys were about 15 years ago.

GAN is currently collecting new information on global asthma prevalence, severity, management and risk factors in children and adults.



Prevalence of asthma symptoms among 13-14 year olds (ISAAC).

Hospital admissions for asthma are poorly documented in LMICs

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Hospital admissions for asthma are an indirect indicator of the burden of more severe asthma, and the efficacy of care.

Currently, routinely collected asthma admissions information is almost entirely restricted to high-income countries, limiting the value of admission rates for surveillance of the global burden of asthma.

Asthma deaths are are poorly documented and many are preventable

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Deaths due to asthma are of serious concern because many of them are preventable.

Although asthma mortality rates have fallen in many countries over the last decade, avoidable asthma deaths are still occurring due to inappropriate management of asthma, including over-reliance on reliever medication, rather than preventer medication, and this needs to be rectified.

Inadequate access to effective treatments for asthma

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Many governments have overlooked asthma in their plans to address NCDs and have made little progress in improving access to asthma management and medicines, especially the inhaled corticosteroids crucial for the long-term control of asthma.

Effective treatments for asthma are often unavailable or unaffordable

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In many countries, essential asthma medicines are unavailable, unaffordable, or are of unreliable quality, resulting in unnecessary burden and mortality from asthma.

Patients are dying of asthma in low-income countries from lack of effective management.

Prompt action is needed from leaders (governments, development partners and technical organisations) to address this and achieve more success stories.

Asthma as a national policy issue: examples from Africa

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Country profiles from Benin, Ghana, Kenya, Nigeria, South Africa and Sudan show that asthma is a large problem.

Unmet needs should be addressed by comprehensively applying asthma Standard Case Management and improving access to affordable quality-assured essential asthma medicines.

Asthma as a national policy issue: examples from Asia and India

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Country profiles from China, India, Indonesia, Malaysia and Thailand indicate that the burden of asthma is substantial, but asthma remains underdiagnosed and undertreated.

Many asthma patients are not using inhaled corticosteroids, mainly because these medicines are either inaccessible or unaffordable.

To improve asthma care, implementation of asthma guidelines should be strengthened.

Asthma as a national policy issue: examples from Latin America

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Country profiles from Argentina, Brazil, Chile, Colombia and Mexico demonstrate important advances in asthma care.

But to improve asthma care from infancy to late adulthood there are continuing needs for:

implementation of national asthma programmes with up-to-date public registries, universal access to essential asthma medicines, and education on asthma for parents, patients and health personnel.

Asthma is a global NCD priority requiring global action

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Asthma is one of the most significant NCDs. Two of the five interventions adopted by the World Health Organization (WHO) to tackle NCDs – tobacco control, and essential medicines and technologies – will directly reduce the worldwide burden of asthma.

A third priority aimed at reducing obesity – improved diets and physical activity – is likely to be beneficial for asthma.

But more research is needed to identify interventions specific for asthma.

Asthma is a global SDG priority requiring global action

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The focus of the United Nations (UN) 2030 Strategic Development Goals on mortality alone does not capture morbidity and the imperative to reduce the worldwide burden of asthma.

Economic prosperity will be helped by correctly treating asthma, especially in LMICs.

Asthma is a global priority requiring global action for medicines

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Policies are needed to enable access to affordable, good quality health care and quality-assured asthma medicines for all people with asthma worldwide.

Patient advocacy can ensure integration of patient viewpoints into planning and policy decisions.

Asthma is a global priority requiring up-to-date global data

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Asthma monitoring needs to be ongoing and widespread. Nearly half of the world's countries have never studied the prevalence of asthma.

For many of the remainder, the latest available information on the prevalence and severity of asthma is about 15 years old.

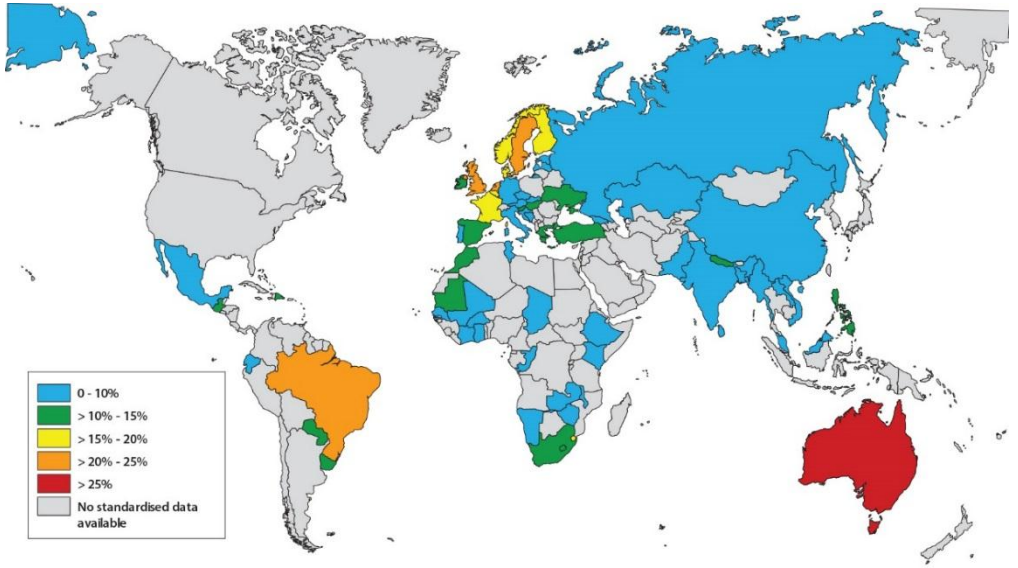

Figure 3: Prevalence of symptoms of asthma in the past 12 months among persons aged 18 to 45 years in 70 countries, World Health Survey 2002-2003. Source: To T, et al. BMC Public Health 2012.

22 key recommendations in the Global Asthma Report

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5 to the World Health Organization (WHO)

9 to Governments

4 to Health authorities

4 to Health professionals, professional societies and patient organisations

Key recommendations to WHO

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<u>WHO should</u>

ensure that asthma and other chronic respiratory diseases are included as a priority in the outcome document of the 2018 United Nations (UN) High Level Meeting on NCDs

Key recommendations to WHO

Global Asthma Network

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<u>WHO should</u>

develop and disseminate training manuals for asthma management for low-and middle-income countries (LMICs)

ensure essential asthma medicines are added to its Prequalification Programme

Key recommendations to WHO

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<u>WHO should</u>

promote the harmonisation, across international reference pharmacopoeias, of quality requirements that govern the production and testing of asthma medicines

Key recommendations to WHO

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<u>WHO should</u>

facilitate the development of independent laboratories for the testing of generic products that are not already approved by a stringent regulatory authority or relevant global mechanism

Key recommendations to Governments

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<u>Governments should</u>

include asthma in all their actions resulting from the WHO Global Action Plan for the Prevention and Control of NCDs 2013-2020, and the WHO NCD Global Monitoring Framework

Key recommendations to Governments

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Governments should

ensure their country has a coordinated national strategy towards better measurement of the true burden of asthma, improving access to care and improving adherence to asthma management strategies

Key recommendations to Governments

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Governments should

aim to achieve the UN Strategic Development Goal 3: “ensure healthy lives and promote well-being for all at all ages” to lessen the burden of asthma

Key recommendations to Governments

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Governments should

ensure that essential asthma medicines are on their country's Essential Medicines List and ensure that they are free, subsidised or reimbursed

develop and implement insurance schemes which will allow patients to access and buy asthma medicines

Key recommendations to Governments

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<u>Governments should</u>

strengthen their national policies, such as those to reduce tobacco consumption, encourage healthy eating and reduce exposure to potentially harmful chemicals, smoke and dust

support further research into known asthma triggers and identifying the causes of asthma

Key recommendations to Governments

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Governments should

commit to research that increases the understanding of asthma, its causes, its costs, and leads to improvements in management

support the acquisition of new standardised data to track the country and global burden of asthma

Key recommendations to Health Authorities

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Health Authorities should

collect counts of hospital admissions for asthma among children and adults from defined catchment populations, to monitor trends in asthma over time

report national rates of asthma deaths in children and adults to monitor progress in asthma care, and as an early warning of epidemics of fatal asthma

Key recommendations to Health Authorities

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Health Authorities should

develop new ways to target and deliver asthma care in diverse health systems and contexts, and assess their cost-effectiveness, affordability and feasibility

in LMICs recognise asthma as an important public health issue, include asthma in all their actions and set up a national programme to improve asthma care and limit costs

Key recommendations to Health Professionals, Professional Societies and Patient Organisations

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They should

encourage patient advocacy to improve asthma outcomes

support the government in developing asthma guidelines which are adapted to the national situation

assist in improving correct inhaler technique and adherence to treatment

ensure that their country joins the Global Asthma Network

Chapter 1
The Global Asthma Network

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Global Asthma Network Phase I Surveillance data collected in 2017 to 2019 will provide new information on global asthma prevalence, severity, management and risk factors in children and adults

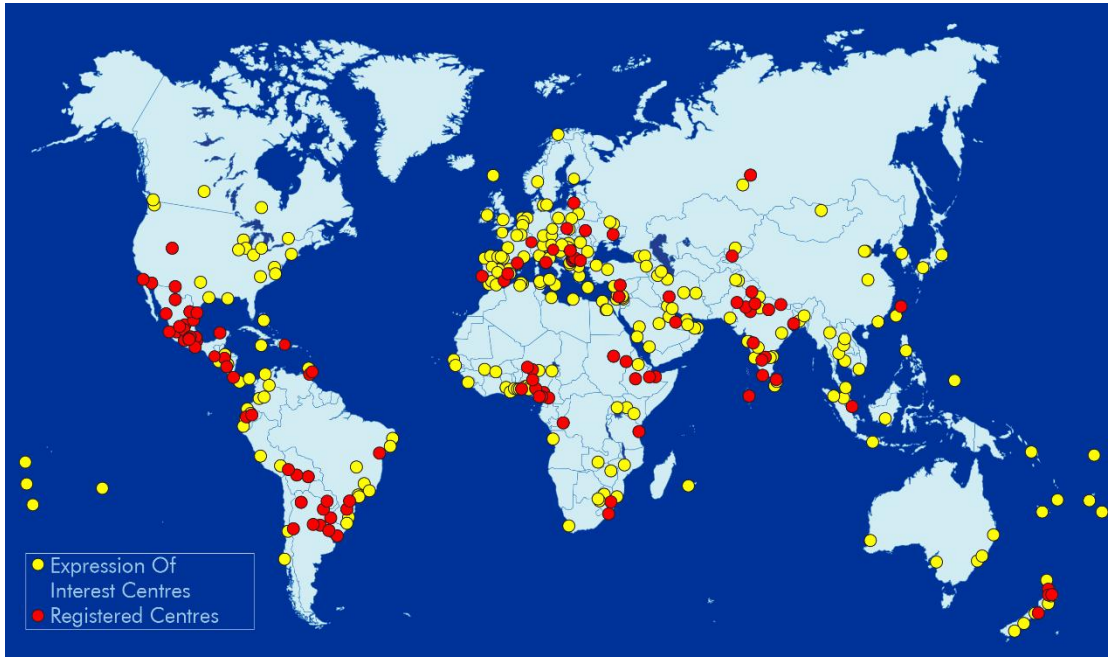

Figure: Global Asthma Network Centres at June 2018

Chapter 2
What is asthma?

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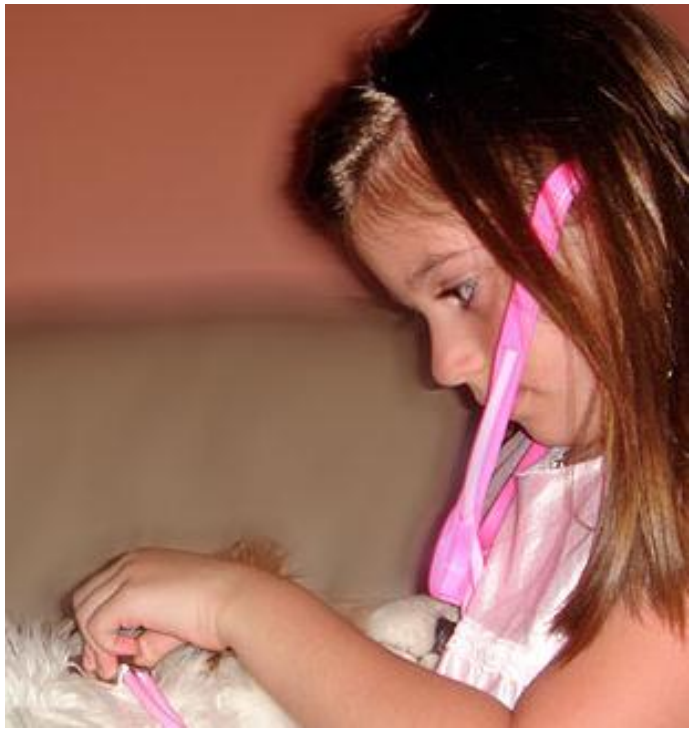
Although many causes and biological mechanisms may lead to asthma, the use of this term as a clinical diagnosis is useful in the majority of patients because it will open the door to appropriate management to reduce disease burden



Chapter 3
Global burden of disease due to asthma

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Globally, asthma is ranked 16th among the leading causes of years lived with disability and 28th among the leading causes of burden of disease

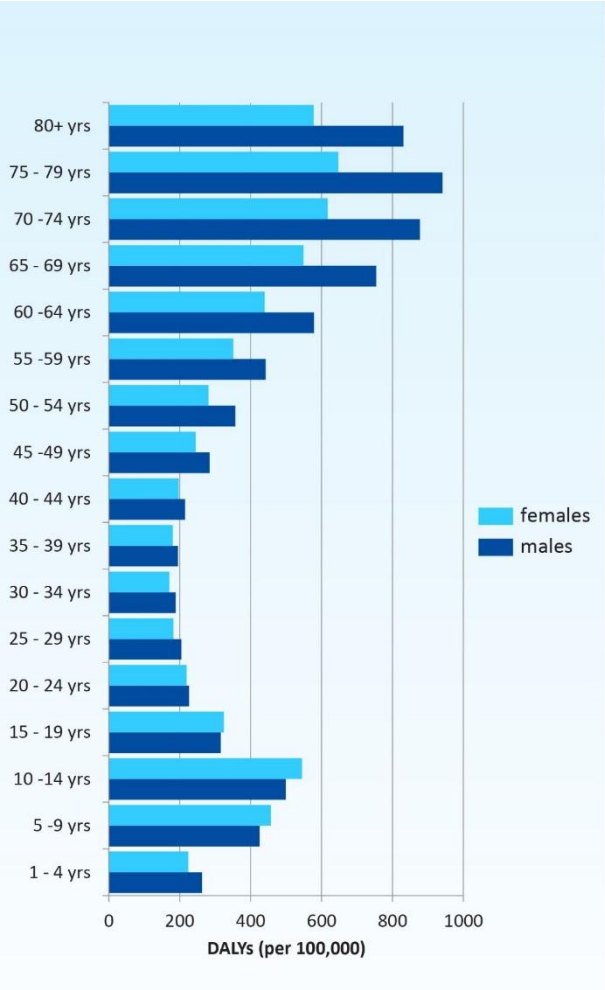

Figure 4:
Burden of disease, measured by disability adjusted life years (DALYs) per 100,000 of global population attributed to asthma by age group and sex, 2010.

Chapter 4
Hospital admissions for asthma

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There is potential for using asthma hospital admissions as an indirect indicator of the burden of more severe asthma, and the efficacy of care. However, more research is required to understand factors underlying the variations in hospital admission rates observed in different settings.

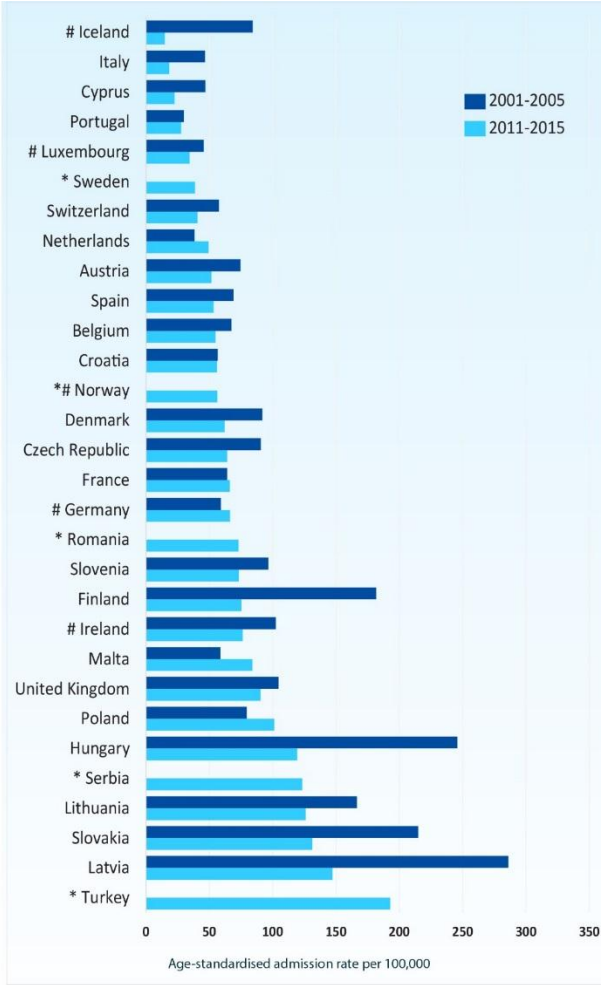

Figure 1:

Title: Age-standardised admission rates for asthma (all ages) in 30 European countries, 2001-2005 and 2011-2015, ranked by age-standardised admission rate in 2011-2015.

Source: Eurostat updated from http://ec.europa.eu/eurostat/web/health/health-care/data/database [version dated 16 November 2017].

Chapter 5
Asthma mortality

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Avoidable asthma deaths are still occurring due to inappropriate management of asthma, including over-reliance on reliever medicines, rather than preventer medicines.

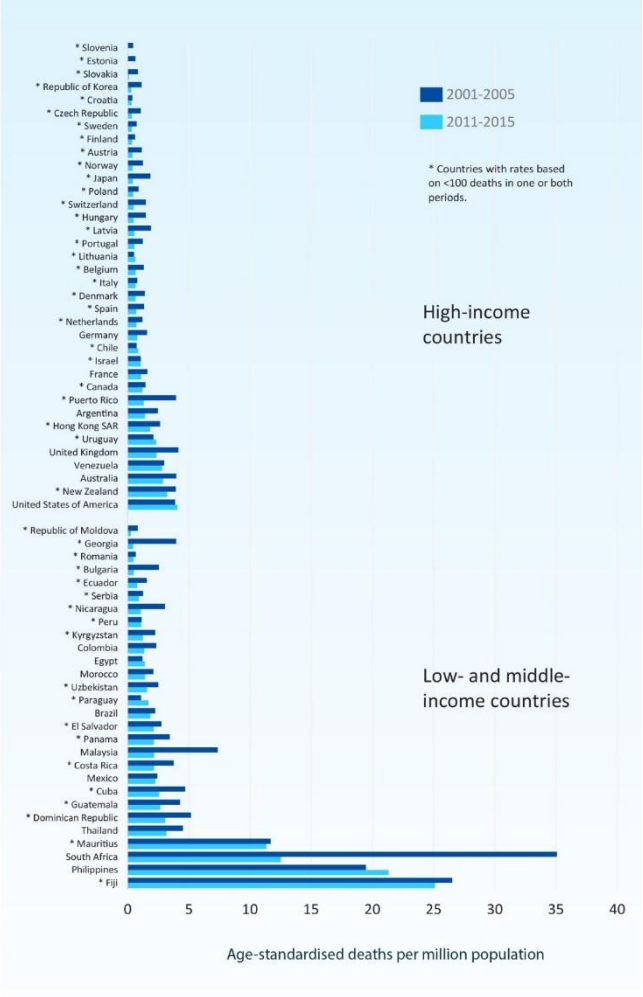

Figure 2:

Age-standardised asthma mortality rates (ages 5-34) 2001-2005 and 2011-2015 by country, ranked by 2011-2015 age-standardised mortality rate within World Bank 2014.

Sources: WHO Mortality Database updated from http://www.who.int/healthinfo/statistics/mortality_rawdata/en/ [version dated 1 October 2017]. Population denominators from UN World Population Prospects, June 2017 revision http://data.un.org/Data.aspx?d=POP&f=tableCode%3A22 [Accessed 8 January 2018]. Income groups based on the World Bank 2014 definitions https://blogs.worldbank.org/opendata/new-country-classifications [Accessed 11 January 2018].

Chapter 6
The economic burden of asthma

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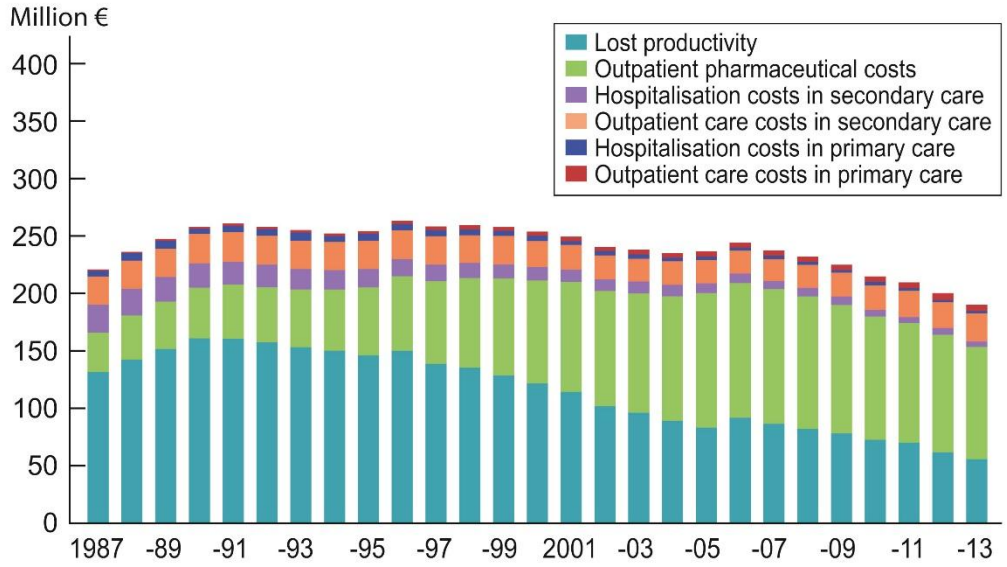
Strategies towards improving access and adherence to evidence-based therapies can be effective in reducing the economic burden of asthma in both developed and developing countries.

Figure:

Success of a national asthma strategy: overall annual costs of asthma care at the societal level in Finland from 1987 to 2013; the national Asthma Program began in 1994. Monetary values are in euros (€).

Source: Adapted with permission from Haahtela T et. al. Journal of Allergy and Clinical Immunology. 2017.



Chapter 7
Factors affecting asthma

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Chapter 7
Factors affecting asthma

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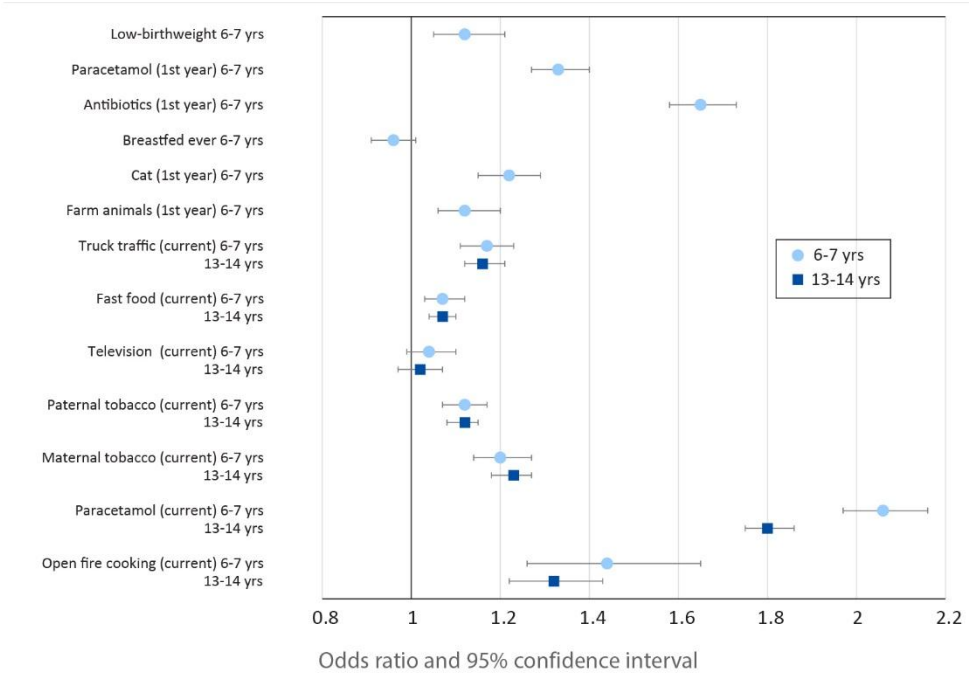
In low- and middle-income countries the proportion of people with non-allergic asthma is greater than in high-income countries. Also, environmental factors may act differently in these settings.

Figure:

Effects of individual-level exposures on wheeze in the last 12 months.
Mixed logistic regression models with random intercepts at the school, centre and country levels.

Sample sizes:
6-7 year old = 131,924
13-14 year old = 238,586

Sources: ISAAC Publications
Found at
http://isaac.auckland.ac.nz/publications/publicationsintro.html



Chapter 8
Cost-effective asthma management using inhaled corticosteroids

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Low dose inhaled beclometasone and a short-acting β_2-agonist were found to be effective for improving the control of asthma, with a cost-effectiveness ratio of more than 100 international dollars per Disability Adjusted Life Year (DALY) averted in LMICs (WHO 2017).

We need new ways of targeting and delivering standardised, affordable inhaled corticosteroid-based asthma care to achieve better economic and patient outcomes.

Chapter 9
Spacers for asthma and wheezing in children

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Inhaled therapy is essential treatment of acute and chronic asthma, and the metered dose inhaler with a spacer is the optimal delivery system in children.

An alternative to a commercially produced valved spacer is a 500ml plastic bottle spacer, adapted from a drink bottle.

Chapter 10
Achieving access to affordable, quality-assured, essential asthma medicines

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In many countries, essential asthma medicines are unavailable, unaffordable, or of unreliable quality, resulting in unnecessary burden and mortality from asthma.

Chapter 11
Asthma management in low-income countries

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Patients are dying of asthma in low-income countries from lack of effective management. Prompt action is needed from leaders (governments, development partners and technical organisations) to achieve more success stories.

Chapter 12
Asthma in regions:
Country reports from Africa: Benin

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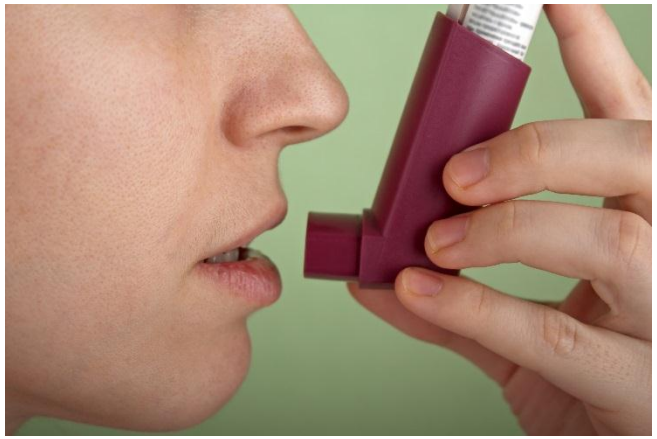

Patient Story

24 year old Anita received preventer medicine for her asthma, but abandoned it when she lost her job and her income.

When she was five months pregnant she had a severe exacerbation and required urgent hospital admission.

Patient access to asthma preventer medicines remains a major issue in Benin.

Chapter 12
Asthma in regions:
Country reports from Africa: Ghana

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Patient Story

After hospitalisation for life-threatening asthma at 5 years of age and regular follow-up asthma clinic visits, 12 year old Sefa now enjoys a normal life.

However, being in a family of 11, monthly treatment costs are difficult to sustain, being 15% of the annual family income of US$4,000.

Moreover, asthma medicines are not always available.

Chapter 12
Asthma in regions:
Country reports from Africa: Nigeria

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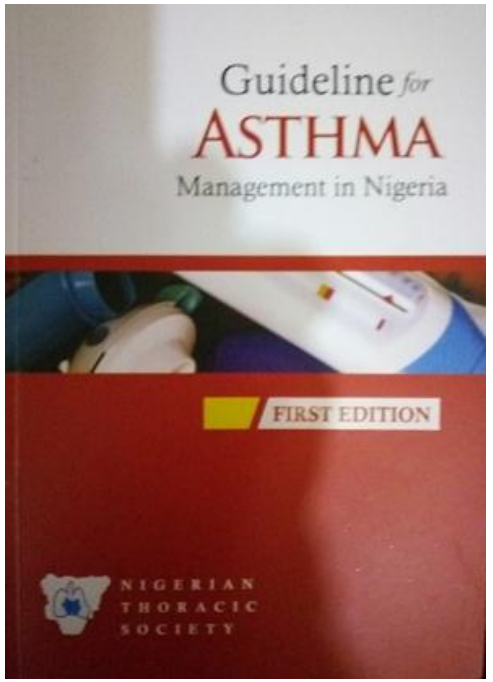
Doctor Story

"For children under 5 years old who need inhaled corticosteroid the family cannot buy it even when they could afford it.

Use of leukotriene modifiers in these children is frequently associated with side effects. This makes management of paediatric asthma difficult."



Chapter 12
Asthma in regions: Country reports from Africa: South Africa

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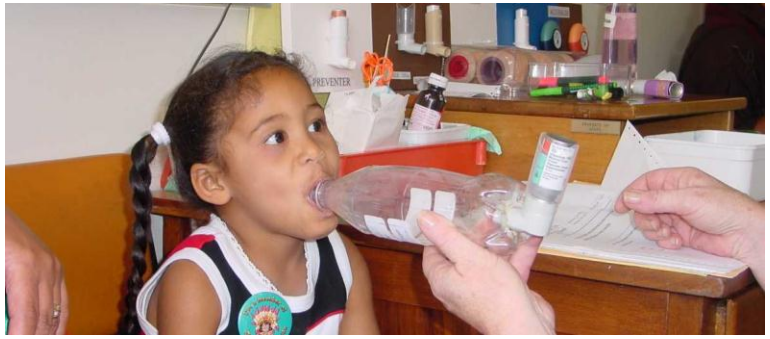
Patient Story

A 5 year old child has attended clinic three times with recurrent wheezing and a troublesome cough which have not improved with inhaled asthma reliever. The father is being treated for tuberculosis (TB). There is a family history of asthma. The mother smokes.

Whether the child's symptoms are due to poorly controlled asthma or TB may be a diagnostic dilemma in areas of high TB prevalence.



Chapter 12
Asthma in regions:
Country reports from Africa: Sudan

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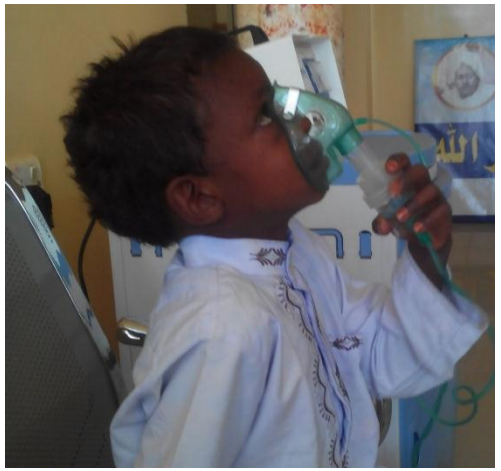
Patient Story

Ahmed, a 9 year old child from central Sudan, repeatedly admitted to hospital for asthma at least monthly for the past 2 years, is clearly in a need of an asthma preventer medicine. Unfortunately, physicians have never prescribed him an inhaled corticosteroid.



Chapter 12
Asthma in regions: Africa-tailored spirometry training course

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There is no job more rewarding than seeing a child encumbered by debilitating asthma freed and living a healthy life, or a group of healthcare professionals inspired and using spirometry for the first time, making considerable change to the care they deliver.

It takes a network of teams to make it happen.

Chapter 13
Asthma in regions: Country reports from Asia and India: China

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Patient Story

A 4 year old child with recurrent wheezing was referred to a Tier III hospital to consider asthma diagnosis and management. The specialist suggested an asthma preventive medicine; however, the parent asked "could you NOT prescribe corticosteroids for my child" as they did not want an asthma diagnosis. This can also lead to parents stopping prescribed asthma treatment once symptoms have improved.

Chapter 13
Asthma in regions: Country reports from Asia and India: India

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In India, almost 80% of expenditure on a sick patient is on buying medicine, mostly from personal savings.

Since 2011, Rajasthan state has provided free inhaled asthma medicines at all points of care. Pooled procurement of medicines for 70 million people has reduced the costs to the state.

Chapter 13
Asthma in regions: Country reports from Asia and India: Indonesia

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Patient Story

A 5 year old boy has persistent asthma that requires management with an inhaled corticosteroid. The drug is available and covered by health insurance. However, the family cannot afford a spacer. Hence, a homemade bottle spacer is used.

Chapter 13
Asthma in regions: Country reports from Asia and India: Malaysia

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Patient Story

A 5 year old girl had episodes of cough and breathlessness after colds and running. She responded well to nebulised bronchodilator. There was a strong family history of asthma and atopy. The parents (physicians) believed she had reactive airway disease but were wary of the diagnosis of asthma. Thus, the girl only took the prescribed inhaled corticosteroids or montelukast during acute episodes.

There was no asthma action plan or regular medical follow-up.

Chapter 13
Asthma in regions: Country reports from Asia and India: Thailand

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Patient Story

A 50 year old woman dentist with latex allergy had breathlessness and nasal congestion for six months. She partly responded to antibiotics, asthma relievers and an inhaled preventer. Her investigations showed high blood and eosinophil counts, and sputum with numerous degranulated eosinophils. She responded well to a short course of prednisolone, resulting in reduction of eosinophil levels.

Chapter 14
Asthma in regions: Country reports from Latin America: Argentina

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Patient Story

A 9 year old boy, on budesonide treatment, was admitted to hospital for asthma. The physician recommended switching to inhaled corticosteroid with long-acting β_2-agonist treatment, but the public hospital pharmacy did not stock it. The mother could not afford to buy it at a private pharmacy, so he continued with only budesonide.

Chapter 14
Asthma in regions: Country reports from Latin America: Brazil

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Patient Story

A 6 year old boy presented to the emergency department with his third severe asthma attack in one year. He improved with salbutamol by nebuliser, oxygen and intravenous hydrocortisone.

Upon discharge, 24h later, he was prescribed oral prednisolone for 5 days and inhaled salbutamol as needed, but no inhaled corticosteroid was recommended nor was he referred for follow-up.

Chapter 12
Asthma in regions: Country reports from Latin America: Chile

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Patient Story

A 5 year old girl, whose mother has asthma, had recurrent wheeze from 12 months of age. Previously only assessed in primary care, she was hospitalised for an obstructive crisis and diagnosed with asthma.
For the first time doctors prescribed inhaled corticosteroids to manage her symptoms.

Chapter 14
Asthma in regions: Country reports from Latin America: Colombia

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Patient Story

Marta, whose 6 year old son Santiago suffers from asthma, recently attended an asthma education programme where she learnt about the benefits of the regular use of an inhaler. She is very pleased, as since then Santiago has not been hospitalised for asthma.

Chapter 14
Asthma in regions: Country reports from Latin America: Mexico

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Patient Story

Gabriel is 8 years old and he has suffered more than six asthma attacks during the last 12 months, resulting in several hospital admissions. His treating physician prescribed inhaled corticosteroids but the family cannot afford to buy the medicine regularly because of their low income.

Chapter 15
The role of patient advocacy

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Patient advocacy can ensure integration of patient viewpoints into planning and policy decisions.

Chapter 16
Asthma as an NCD Priority

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Asthma is an important NCD in all regions of the world, affecting people in low- and middle-income countries as well as high-income countries.

Chapter 17
Asthma and the UN's Sustainable Development Goals 2030

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The Strategic Development Goals' focus on mortality alone does not capture morbidity and the imperative to reduce the burden of asthma.