



Ghana

Pulmonology



Manuscript completed in December 2023

Neither the European Union Agency for Asylum (EUAA) nor any person acting on behalf of the EUAA is responsible for the use that might be made of the information contained within this publication.

Luxembourg: Publications Office of the European Union, 2023

PDF ISBN 978-92-9403-574-5 doi: 10.2847/58405 BZ-02-23-298-EN-N

© European Union Agency for Asylum (EUAA), 2023

Cover photo/illustration: Treatment of lung disease concept. Paper cut lungs and medicines on a blue background stock photo, Vladimir Sukhachev, © iStock by Getty Images, 9 November 2022, <https://www.istockphoto.com/photo/treatment-of-lung-disease-concept-paper-cut-lungs-and-medicines-on-a-blue-background-gm1440038238-480134922>

Reproduction is authorised provided the source is acknowledged. For any use or reproduction of photos or other material that is not under the EUAA copyright, permission must be sought directly from the copyright holders.

Acknowledgements

The EUAA acknowledges International SOS as the drafter of this report.

The report has been reviewed by International SOS and EUAA.



Contents

Acknowledgements	1
Contents	2
Disclaimer	3
Glossary and abbreviations	4
Introduction	6
Methodology.....	6
Terms of reference	6
Collecting information.....	6
Quality control.....	6
Sources	7
1. Pulmonology	8
1.1. Prevalence.....	8
1.1.1. Prevalence of asthma	8
1.1.2. Prevalence of chronic obstructive pulmonary disease (COPD).....	8
1.1.3. Prevalence of obstructive sleep apnoea (OSA).....	8
1.1.4. Prevalence of tuberculosis (TB).....	9
1.2. Overview of the health sector.....	9
2. Access to treatment	10
3. Insurance and national programmes	12
4. Non-government organisations (NGOs)	12
5. Cost of treatment	12
6. Cost of medication	16
Annex 1: Bibliography	19
Annex 2: Terms of Reference (ToR)	21



Disclaimer

This report was written according to the EUAA COI Report Methodology (2023). The report is based on publicly available sources of information, as well as oral anonymised sources who are based in Ghana. All sources used are referenced.

The information contained in this report has been researched, evaluated and analysed with utmost care. However, this document does not claim to be exhaustive. If a particular event, person or organisation is not mentioned in the report, this does not mean that the event has not taken place or that the person or organisation does not exist.

Furthermore, this report is not conclusive as to the determination or merit of any particular application for international protection. Terminology used should not be regarded as indicative of a particular legal position.

'Refugee', 'risk' and similar terminology are used as generic terminology and not in the legal sense as applied in the EU Asylum Acquis, the 1951 Refugee Convention and the 1967 Protocol relating to the Status of Refugees.

Neither the EUAA, nor any person acting on its behalf, may be held responsible for the use which may be made of the information contained in this report.

On 19 January 2022 the European Asylum Support Office (EASO) became the European Union Agency for Asylum (EUAA). All references to EASO, EASO products and bodies should be understood as references to the EUAA.

The drafting of this report was finalised on 31 October 2023. Any event taking place after this date is not included in this report. More information on the reference period for this report can be found in the methodology section of the Introduction.



Glossary and abbreviations

Term	Definition
CHPS	Community-Based Health Planning Services
CPAP	Continuous Positive Airway Pressure
COPD	Chronic Obstructive Pulmonary Disease
DOT	Directly Observed Therapy
ESS	Epworth Sleepiness Scale
FDA	Food and Drugs Authority
GHANET	Ghana HIV and AIDS Network
GHS	Ghanaian Cedi
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
MDR-TB	Multidrug Resistant Tuberculosis
NHIS	National Health Insurance Scheme
NTP	National Tuberculosis Programme
NGO	Non-Governmental Organisation
O2	Oxygen
OSA	Obstructive Sleep Apnoea



Term	Definition
PA	Physician Assistant
pCO₂	Partial Pressure of Carbon Dioxide
PCR	Polymerase Chain Reaction
PHC	Primary Healthcare
SAGE	Study on global AGEing and adult health
SDB	Sleep Disordered Breathing
SSA	Sub-Saharan Africa
STOP-BANG	S – Snoring, T - Tiredness during the day, O - Observed apnoea (someone has observed the individual stop breathing during sleep), P - High blood Pressure (hypertension), B - Body Mass Index (BMI) greater than 35 kg/m ² , A - Age over 50, N - Neck circumference greater than 40 cm, G - Gender (male)
TB	Tuberculosis
USD	United States Dollar
WHO	World Health Organization
XDR-TB	Extensively Drug Resistant Tuberculosis



Introduction

Methodology

The purpose of the report is to provide information on access to pulmonology treatment in Ghana. This information is relevant to the application of international protection status determination (refugee status and subsidiary protection) and migration legislation in EU+ countries.

Terms of reference

The terms of reference for this Medical Country of Origin Information Report were developed by EUAA.

The terms of reference for this Medical Country of Origin Information Report can be found in Annex 2: Terms of Reference (ToR). The initial drafting period was finalised on 8 September 2023, peer review occurred between 9 - 29 September 2023, and additional information was added to the report as a result of the quality review process during the review implementation up until 31 October. The report was internally reviewed subsequently.

Collecting information

EUAA contracted International SOS (Intl.SOS) to manage the report delivery including data collection. Intl.SOS recruited and managed a local consultant to write the report and a public health expert to edit the report. These were selected from Intl.SOS' existing pool of consultants. The consultant was selected based on their experience in leading comparable projects and their experience of working on public health issues in Ghana.

This report is based on publicly available information in electronic and paper-based sources gathered through desk-based research. This report also contains information from multiple oral sources with ground-level knowledge of the healthcare situation in Ghana who were interviewed specifically for this report. For security reasons, all oral sources are anonymised.

Quality control

This report was written by Intl.SOS in line with the European Union Agency for Asylum (EUAA) COI Report Methodology (2023),¹ the EUAA Country of Origin Information (COI) Reports Writing and Referencing Guide (2023)² and the EUAA Writing Guide (2022).³ Quality control of the report was carried out both on content and form. Form and content were reviewed by Intl.SOS and EUAA.

¹ EUAA, Country of Origin Information (COI) Report Methodology, February 2023, [url](#)

² EUAA, Country of Origin Information (COI) Reports Writing and Referencing Guide, February 2023, [url](#)

³ EUAA, The EUAA Writing Guide, April 2022, [url](#)



The accuracy of information included in the report was reviewed, to the extent possible, based on the quality of the sources and citations provided by the consultants. All the comments from reviewers were reviewed and were implemented to the extent possible, under time constraints.

Sources

In accordance with EUAA COI methodology, a range of different published sources have been consulted on relevant topics for this report. These include governmental publications, academic publications, reports by non-governmental organisations and international organisations. All sources that are used in this report are outlined in the Bibliography section.

Key informant interviews were carried out in July 2023. Interviews were conducted mainly with officers who work within organisations of Ghana's healthcare system. A complete anonymised list of interviewees can be found in the bibliography.



1. Pulmonology

Pulmonology is the field of medicine that specialises in diagnosing and treating diseases that affect the respiratory system, especially of the lungs. This report looks at the situation of care for asthma, chronic pulmonary disease (COPD) obstructive sleep apnoea (OSA) and tuberculosis (TB) in Ghana.

1.1. Prevalence

1.1.1. Prevalence of asthma

There are no recent studies to determine the prevalence of asthma in Ghana. According to a study that utilised data from the nationally representative World Health Organization (WHO) Study on global AGEing and adult health (SAGE) Wave 2, the prevalence of asthma for the period under study (2014-2015) was 2.4 % and 1.5 % among adults aged 50 years or more and those aged 18-49 years respectively, while the overall prevalence among adults was 2.2 %.⁴

1.1.2. Prevalence of chronic obstructive pulmonary disease (COPD)

The prevalence of COPD in Ghana has not been studied, but a study by the Global Burden of Disease 2017 Chronic Respiratory Disease Collaborators estimated the prevalence of chronic respiratory disease in sub-Saharan Africa (SSA) as 5.1 %, and COPD as 1.56 % (1.39 %-1.75 %).⁵ In support of a low prevalence, it has also been found that SSA has the lowest mortality from COPD.⁶

1.1.3. Prevalence of obstructive sleep apnoea (OSA)

Most of the prevalence studies for OSA in Ghana and the West African sub-region have been determined mainly by the assessment of risk and excessive daytime sleepiness. Using the validated Berlin, STOP-BANG and Epworth Sleepiness Scale (ESS) questionnaires in groups of patients with co-morbidities it was found that approximately 50 % of Ghanaian stroke survivors have a high risk of sleep apnoea after an average of 2 years post stroke.⁷

⁴ Aheto, J. M. K., et al., Prevalence, socio-demographic and environmental determinants of asthma in 4621 Ghanaian adults: Evidence from Wave 2 of the World Health Organization's study on global AGEing and adult health, December 2020, [url](#), p. 9

⁵ GBD Chronic Respiratory Disease Collaborators, Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, June 2020, [url](#), p. 589

⁶ GBD Chronic Respiratory Disease Collaborators, Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, June 2020, [url](#), p. 585

⁷ Sarfo, F. S., et al., Prevalence and Predictors of Sleep Apnea Risk among Ghanaian Stroke Survivors, March 2017, [url](#), p. 6



1.1.4. Prevalence of tuberculosis (TB)

The estimated incidence of TB for Ghana in 2021 was 136 cases per 100 000 people with a small proportion of patients diagnosed with multidrug-resistant tuberculosis (MDR-TB); 2.6 % and 3.3 % of newly diagnosed and previously treated cases, respectively.⁸

1.2. Overview of the health sector

Ghana has a pluralistic health sector in terms of ownership (public and private), and in terms of healthcare models (orthodox, traditional and alternative medicine).⁹ Healthcare services are provided by the public sector, as well as by the private sector service providers made up of for-profit providers and non-profit faith-based health facilities.¹⁰ The health system is organised in three levels: the primary level, with a focus on primary healthcare (PHC) services, starts with the community-based health planning services (CHPS) compound, followed by the sub-district health centre/clinic and lastly the district hospital. The secondary and tertiary levels have regional and teaching hospitals, respectively.¹¹

Public and private facilities, at all levels of the health system, can provide care within limits set by the Standard Treatment Guidelines 2017.¹² The primary level of care has the capacity to identify and make differential diagnoses of some of the pulmonology conditions. At the district hospital level, medical staff can make more definitive diagnoses, commence basic care and also refer the client to the appropriate secondary or tertiary facility for definitive case management.¹³

Though there is no institute specialised in the treatment of pulmonary diseases, the teaching hospitals have the most pulmonology care expertise. There are no private specialist pulmonology practices, but there are a few private health facilities that provide specialist pulmonology consultations as part of their service package. Most of these facilities are located in Accra and Kumasi, as pulmonologists working in the respective teaching hospitals can provide part-time services in the private sector.¹⁴

The main sources of financing for the majority of people living with pulmonology conditions is the National Health Insurance Scheme (NHIS). However, this often only covers the cost of inpatient (bed and feeding) and outpatient care (consultation), and some laboratory investigations and categories of medicines in both settings. Anything not covered by the insurance will have to be paid for out of pocket at the point of service.¹⁵

⁸ WHO, Tuberculosis profile: Ghana, 2023, [url](#)

⁹ Ghana, MOH, National Health Policy: Ensuring healthy lives for all (revised edition), January 2020, [url](#), p. 23

¹⁰ Ghana, MOH, Health Sector Medium Term Development Plan, 2022-2025, December, 2021, [url](#), p. 11

¹¹ Ghana, MOH, Health Sector Medium Term Development Plan, 2022-2025, December, 2021, [url](#), p. 11

¹² Ghana, MOH, GNDP, Standard Treatment Guidelines, 2017, [url](#), pp. 175, 183, 471

¹³ CPKII01, consultant pulmonologist, interview, July 2023, Accra

¹⁴ CPKII02, administrator at a private hospital, interview, July 2023, Accra

¹⁵ CPKII02, administrator at a private hospital, interview, July 2023, Accra



2. Access to treatment

Treatment is available at all levels of the health system, within the prescribed limits of the Standard Treatment Guidelines 2017.¹⁶ All patients can access care at the nearest point of service to them at any level of the health system. Based on the severity of the condition and the capacity of the point of service to manage the condition, care will be continued, or the patient will be referred to the next higher level of care for further appropriate case management. There is however limited access to respiratory specialists/pulmonologists-led clinics as there are not more than six such specialists for adults, and four paediatric pulmonologists in the country. Therefore, clinic appointments for new referrals may have a four-to-eight week wait period, depending on how urgent it is.¹⁷ Patients can however walk into any emergency room in any secondary or tertiary facility and will be admitted for treatment.¹⁸

Treatment is geographically accessible in all the regions. However, urban towns, primarily because of the presence of secondary and or tertiary facilities, have better access to specialist services than populations in rural areas. In the absence of pulmonologists, uncomplicated conditions are managed by general medical practitioners. There are no restrictions to patients' access to treatment; everyone has access to all services that are available at all levels of the health system. In general, the most significant barriers to treatment access for all the conditions include unavailability of the treatment needed, which is limited by the level of care at which it is sought and the staff expertise available, and inability to pay for the care available. Patients who have registered with the NHIS or private medical insurance schemes will have their cost of care (either inpatient or outpatient) covered, as determined by their insurance package, while those without any form of insurance will have to pay out of pocket for these services. Private health insurance schemes provide a better coverage in terms of services that will be paid for and cost of services than the NHIS does.¹⁹

Uninsured patients pay out of pocket for all services received at outpatient as well as inpatient points of care. These include the cost of consultation, diagnostic services, medicines and inpatient accommodation fees, as necessary. If insured, on presentation of one's insurance card, whether NHIS or private, no direct payment is made as the insurance company reimburses the service provider at a later date on submission of claim.²⁰

Except for the NHIS, there is no government financial support for patients with pulmonary conditions. The NHIS coverage though does not fully cover the cost of specialised diagnostic tests and investigation and medicines.²¹

¹⁶ Ghana, MOH, GNDP, Standard Treatment Guidelines, 2017, [url](#)

¹⁷ CPKII02, administrator at a private hospital, interview, July 2023, Accra

¹⁸ CPKII02, administrator at a private hospital, interview, July 2023, Accra

¹⁹ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²⁰ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²¹ CPKII01, consultant pulmonologist, interview, July 2023, Accra



Healthcare centres and CHPS centres are unable to provide asthma care as many are not adequately resourced (human, equipment, oxygen or medicines). Access to asthma care in hospitals is readily available and the hospitals are better resourced to provide optimum routine and emergency care.²²

Specific treatment and treatment programmes for COPD in Ghana do not exist. However, some overlap with the treatment of asthma care is available. Patients with COPD are referred to chronic respiratory clinics in a few large hospitals (three or four such clinics are in Accra and Kumasi) when diagnosed, or when misdiagnosed, may be referred to asthma clinics or managed as difficult asthma.²³ The diagnosis and treatment of OSA is limited to two teaching hospitals (Korle Bu in Accra and Komfo Anokye in Kumasi).

There are no government-sponsored therapeutic interventions, such as continuous positive airway pressure (CPAP) devices (and masks); these are rented out to patients at subsidised prices.²⁴

TB diagnosis, care and treatment is under the oversight of the National Tuberculosis Programme (NTP). Care is managed in the community under close supervision of Directly Observed Therapy (DOT) treatment centres, which oversee small catchment areas demarcated by the NTP. The DOT treatment centres are widely spread in all districts across the country, and patients are referred there for diagnosis and treatment on suspicion of TB. The care provided is supported by the Global Fund through the NTP.²⁵ Under the NTP, the WHO-recommended diagnosis and standardised regimen is provided to all patients without any charge. Similarly, there are special programmes and funding support from the Global Fund for the provision and supervision of free care for TB, including MDR-TB treatment, controlled by the NTP.²⁶

The Standard Treatment Guidelines 2017 provide guidance on treatment, specific drugs and the health delivery level at which they can be prescribed for these and other conditions. In district and regional hospitals, specialist and non-specialist doctors and physician assistants (PAs) have been empowered to treat pulmonology conditions as far as their competencies and level of service allow.²⁷

The access to treatment as described is the same for citizens returning after spending some time abroad. There is no discrimination to access treatment for any of the conditions.²⁸

²² Nyarko, K.M., et al., Capacity assessment of selected health care facilities for the pilot implementation of Package for Essential Non-communicable Diseases (PEN) intervention in Ghana, [url](#), p. 3

²³ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²⁴ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²⁵ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²⁶ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²⁷ CPKII01, consultant pulmonologist, interview, July 2023, Accra

²⁸ CPKII01, consultant pulmonologist, interview, July 2023, Accra



3. Insurance and national programmes

The NHIS does not cover the cost of TB care. The cost of care for TB is free and is covered by the NTP. The NTP is well established in Ghana and oversees the importation and distribution of all diagnostics and drugs for the diagnosis and treatment of TB. Supported by funding from the Global Fund and other international donor agencies, it oversees the management, training of healthcare workers, and monitoring and evaluation of TB care at the treatment (DOT) centres. It ensures that patients receive free TB treatment, and that each patient's treatment once started will be completed through measures ensuring local and convenient access to daily treatment.²⁹

For the other pulmonary conditions, the public NHIS and private health insurance schemes cover both inpatient and outpatient cost of care to different degrees, with the private schemes generally providing more cover than the NHIS.³⁰ The NHIS covers the consultation fees for all general and specialist clinic attendances, as well as hospital admission (bed and food). All persons living in Ghana can register for this insurance.³¹

4. Non-government organisations (NGOs)

There are a few NGOs that offer predominantly community-based advocacy and support for people affected with TB. These include the Ghana Coalition for NGOs in Health, the Stop TB Partnership and the Ghana HIV and AIDS Network (GHANET). They do not provide any treatment support.³²

5. Cost of treatment

The cost of treatment in the public sector is regulated by the NHIS. The NHIS tariffs are expected to be the official fees and charges in public facilities. This is often not adhered to because the insurance tariffs are lower than the market prices and do not cover the current cost of the services. Facilities, mainly the teaching hospitals, will go on to secure parliamentary approval for higher rates for fees and charges that the NHIS tariffs are unable to fully cover. These additional fees and charges are paid out of pocket by patients. Other public facilities will have instances where staff request unofficial fees and charges for services rendered.³³

²⁹ Rudman, J., et al., Cost-Benefit Analysis of Interventions to Reduce Tuberculosis Burden in Ghana, [url](#), p. 8

³⁰ CPKII01, consultant pulmonologist, interview, July 2023, Accra

³¹ Ghana, NHIS, Membership site visited September 2023, [url](#)

³² CPKII01, consultant pulmonologist, interview, July 2023, Accra

³³ CPKII01, consultant pulmonologist, interview, July 2023, Accra



The cost of treatment in the private sector is not regulated and different service providers set different fees and charges that enable them to, at least, fully recover their costs. These fees and charges may be revised at any time, and the revisions are primarily influenced by foreign exchange rates and market forces.³⁴

The cost of treatment is generally higher in private than in public facilities, and also increases from primary to tertiary level of care.³⁵

In Tables 1 and 2 the public outpatient and inpatient treatment prices are derived from the NHIS tariffs for tertiary hospitals (2023),³⁶ and the private outpatient and inpatient treatment prices, as well as reimbursement and insurance information, are based on information from interviewee CPKII02.³⁷

Concerning the coverage and reimbursement of the treatment prices in the tables 1 and 2 below, unless stated otherwise, the following principles apply to all listed treatments:

- 1/ Public and some private sector facility treatment prices are covered by NHIS and sometimes private insurance.
- 2/ If insured, on presentation of one's insurance card, whether NHIS or private, no payment is made by the patient, as the insurance company re-imburses the facility at a later date on submission of claims.
- 3/ In public facilities, any price difference between the listed NHIS tariffs and the price asked by the facility is borne by the patient (some facilities obtain parliamentary approval to increase their prices). In private facilities where NHIS coverage is accepted, the price difference between the NHIS tariffs and the private price is borne by the patient.
- 4/ Uninsured patients pay out of pocket for all services at public and private facilities.

Table 1: Cost of specialist consultation for adults in public tertiary and private health facilities

Specialist	Public outpatient treatment price in GHS	Public inpatient treatment price in GHS*	Private outpatient treatment price in GHS	Private inpatient treatment price in GHS*
Pulmonologist	121.77	128.59	300 - 400	500 - 600
General practitioner	86.37	128.59	150	500

³⁴ CPKII02, administrator at a private hospital, interview, July 2023, Accra

³⁵ CPKII01, consultant pulmonologist, interview, July 2023, Accra

³⁶ NHIS Tariffs for Tertiary Hospitals, February 2023

³⁷ CPKII02, administrator at a private hospital, interview, July 2023, Accra



TB specialist	Free (Special programme)	Free (Special programme)	150	Not available
----------------------	-----------------------------	-----------------------------	-----	---------------

*Inpatient treatments prices are calculated per day.

Table 2: Cost of diagnostic interventions in public tertiary and private health facilities

	Public treatment price in GHS	Private treatment price in GHS
Diagnostic research, in the form of lung function tests (i.e. spirometry)	59.41	300
Diagnostic imaging: Bronchoscopy	Not available	1 000 - 1 500
Diagnostic research: Measuring arterial blood gas; arterial pH, pCO₂, "base excess", arterial oxygen saturation	27.97	200
Diagnostic research: Measuring of blood oxygen level (e.g. pulse oximetry)	Free	Free
Diagnostic research: Measuring of blood oxygenation for home use	Not found	300
Sputum smear microscopy (TB)	Free	65
Resistance test for tuberculosis drugs	Free (under NTP)	Not available
Diagnostic test: examination in a sleep laboratory (e.g. polysomnography)	Not found	750 – polygraphy 4 500 – polysomnography
Diagnostic imaging: X-ray radiography	85 (For suspected or confirmed TB patients, it is free at TB DOT centres under NTP.)	200
Diagnostic research: PCR for Mycobacterium TB	Free at DOT centres	1 200



	Public treatment price in GHS	Private treatment price in GHS
Breathing machines (ventilator, respirator, etc.)	1 000 ICU fees include ventilator fees.	2 000 ICU fees include ventilator fees.
Mandibular (advancement) splint for obstructive sleep apnea	Not available	Not available
BiPAP therapy for home use	Not found	140 000 - 170 000 (about 14 000 USD) to order from abroad
BiPAP therapy	Not found as a stand-alone price. It is part of composite ICU charge	Not found as a stand-alone price. It is part of composite ICU charge
CPAP therapy for home use	Not found	90 000 - 120 000
CPAP therapy	200 (follow-up consultation)	400 (follow-up consultation)
Nebuliser	Not found Cost is included as part of a composite inpatient care.	Not found Cost is included as part of a composite inpatient care
Spacer (with mask) for inhaler with asthma medication	Not found	300
Medical devices pulmonology: Oxygen therapy with device and nasal catheter	10 per hour (Not covered by insurance: can be purchased with out-of-pocket payment for home use.)	20 per hour (Not covered by insurance, can be purchased with out-of-pocket payment for home use.)
Medical devices pulmonology: oxygen therapy with O2 pressure tank	10 per hour (Not covered by insurance: can be purchased with out-of-pocket payment for home use.)	20 per hour (Not covered by insurance: can be purchased with out-of-pocket payment for home use.)



	Public treatment price in GHS	Private treatment price in GHS
Clinical admittance in pulmonology department (daily rates)	1 470	1 500 - 2 000

6. Cost of medication

The cost of medication in the public sector is regulated by the NHIS medicines list.³⁸ The NHIS medicines list is expected to include the official charges for medicines in public facilities. This is often not adhered to because the prices of NHIS' medicines list are lower than the market prices. Facilities, mainly the teaching hospitals, will go on to secure parliamentary approval for higher fees and charges to ensure they are able to recover the cost of medicines that the NHIS may not fully cover. These additional fees and charges are paid out of pocket by patients.³⁹

The cost of medicines in the private sector is not regulated and different service providers set different fees and charges that enable them to, at least, fully recover their costs. These fees and charges may be revised at any time and the revisions are primarily influenced by foreign exchange rates.⁴⁰

The cost of medication is generally higher in private as compared to public facilities, and also increases from primary to tertiary level of care.⁴¹ Most medicines are available in the whole country. The private sector pharmacies maintain a more complete stock of medicines than public facilities and medicines are more readily available in urban than in rural communities.⁴²

As far as possible, medicines found in the country are registered by the Food and Drugs Authority (FDA) for use. The implication of this is that the quality of the medicines can be assured, to a large extent. For a product to be registered it means that it has gone through and passed the rigorous testing and product source verification processes carried out by the FDA of Ghana. However non-registered, as well as fake, medicines are also found in the country.⁴³

Some of the medicines are on the Essential Medicines List and the National Health Insurance Medicines List. Their inclusion on the list encourages pharmacies and health facilities to stock

³⁸ Ghana, NHIS, Medicine List, February 2023, [url](#)

³⁹ CPKII01, consultant pulmonologist, interview, July 2023, Accra

⁴⁰ CPKII01, consultant pulmonologist, interview, July 2023, Accra

⁴¹ CPKII01, consultant pulmonologist, interview, July 2023, Accra

⁴² CPKII01, consultant pulmonologist, interview, July 2023, Accra

⁴³ CPKII01, consultant pulmonologist, interview, July 2023, Accra



them, reducing situations when stocks run out. Public facilities prices as available in the NHIS medicines' list. No brand names are covered under the medicines' list.⁴⁴

In situations where needed medicines are not available in the country, citizens may make arrangements for friends and family living abroad to purchase and send to them these medicines, or they may seek the support of pharmacies to order the medicines. These scarce medicines may or may not be registered by the FDA. These medications are often prescription-only medications and often need to be accompanied by the prescription.⁴⁵

In Table 3, '*Pharmacy*' refers to the private sector and '*Hospital*' the public sector facility. The public prices for medications are as listed in the NHIS medicines' list.⁴⁶ Prices in private facilities as well as information on insurance and reimbursement are provided by interviewee CNKII02.⁴⁷

Concerning the coverage and reimbursement of the medication prices in the table below, unless stated otherwise, the following principles apply:

- 1/ Both public and private sector prices can be covered by NHIS or/and private insurance.
- 2/ If insured, on presentation of one's insurance card, whether NHIS or private, no payment is made by the patient, as the insurance company re-imburses the facility at a later date on submission of claims.
- 3/ In private facilities, where NHIS coverage is accepted, the price difference between the NHIS tariffs and the private price is borne by the patient.
- 4/ Uninsured patients pay out-of-pocket for all medications at public and private facilities.

Table 3: Medicines prices in public and private sector health facilities

Generic name	Brand name	Strength of unit	Form	Number of units in the container	Price per box in GHS	Place (pharmacy, hospital, ...)
Formoterol + budesonide (combination)	Formoterol+ budesonide	4.5 mcg/ 160 mcg	inhaler	1	102	Hospital
	Symbicort™	4.5 mcg/ 160 mcg	inhaler	1	129	Pharmacy

⁴⁴ CPKII01, consultant pulmonologist, interview, July 2023, Accra

⁴⁵ CPKII01, consultant pulmonologist, interview, July 2023, Accra

⁴⁶ Ghana, NHIS, Medicine List, February 2023, [url](#)

⁴⁷ CPKII02, administrator at a private hospital, interview, July 2023, Accra



Generic name	Brand name	Strength of unit	Form	Number of units in the container	Price per box in GHS	Place (pharmacy, hospital, ...)
Salmeterol + fluticasone (propionate)	Salmeterol+fluticasone	50 mcg/ 250 mcg	Inhaler	1	145	Hospital
	Seretide	50 mcg/ 250 mcg	inhaler	1	285	Pharmacy
Salbutamol	Salbutamol	100 mcg/ dose	inhaler	200 doses	31.20	Hospital
	Ventolin®	100 mcg/ dose	inhaler	200 doses	89.80	Pharmacy
Terbutaline	Bricanyl™	5 mg	tablet	100	640	Pharmacy
Theophylline	Theophylline	200 mg	tablet	per tablet	3.84	Hospital
Montelukast sodium	Denk Air®	10 mg	tablet	28	196	Pharmacy
Beclomethasone	Beclamethasone	200 mcg/ doses	Inhaler	200 doses	37.44	Hospital
	Clenil®	100 mcg / doses	inhaler	200 doses	270	Pharmacy
Fluticasone	Fluticasone	250 mcg/dose	inhaler	120 doses	117	Hospital
	Flixonase™	125 mcg/dose	inhaler	120 doses	600	Pharmacy
Ipratropium	Ipratropium	250 mcg/ml	Nebuliser	2	187	Hospital
	Atrovent™	20 mcg /dose	inhaler	200 doses	169	Pharmacy
Combination of isoniazid +rifampicin +ethambutol +pyrazinamid (eg with brandname Forecox)	StopTB kit	75/ 150/ 275/ 400 mg	tablet	Starter pack 28x6 Continuation pack 12x28	Free	DOT treatment centres
Amikacin	Amikacin 500	500 mg/2ml	injection	1	77	Pharmacy
Levofloxacin	Levofloxacin	5 mg/ml	Infusion	100 ml	120	Hospital
	Tavanic®	500 mg	tablet	5	313	Pharmacy
Linezolid	Zyvoxil®	600 mg	tablet	10	3 893	Pharmacy
Moxifloxacin	Avelox®	400 mg	tablet	10	350	Pharmacy



Annex 1: Bibliography

Oral sources, including anonymous sources

CPKII01, a consultant pulmonologist, interview, Accra, July 2023. The person wishes to remain anonymous.

CPKII02, an administrator at a private hospital, interview, Accra, July 2023. The person wishes to remain anonymous.

Public sources

Aheto, J. M. K., Udofia, E. A., Kallson, E., Mensah, G., Nadia, M., Nirmala, N., Chatterji, S., Kowal, P., Biritwum, R. and Yawson, A. E., Prevalence, socio-demographic and environmental determinants of asthma in 4621 Ghanaian adults: Evidence from Wave 2 of the World Health Organization's study on global AGEing and adult health, PLOS One, Vol. 15, Issue 12, December 2020, <https://doi.org/10.1371/journal.pone.0243642>, article no. e0243642, pp. 1-15, accessed 18 August 2023

GBD Chronic Respiratory Disease Collaborators, Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, The Lancet Respiratory Medicine, Vol. 8, June 2020, [https://doi.org/10.1016/s2213-2600\(20\)30105-3](https://doi.org/10.1016/s2213-2600(20)30105-3), pp. 585-596, accessed 18 August 2023

Ghana, MOH (Ministry of Health), GNDP (Ghana National Drugs Programme), Standard Treatment Guidelines, 2017, <https://www.moh.gov.gh/wp-content/uploads/2020/07/GHANA-STG-2017-1.pdf>, accessed 18 August 2023

Ghana, MOH (Ministry of Health), Health Sector Medium Term Development Plan 2022-2025, December 2021, https://www.globalfinancingfacility.org/sites/gff_new/files/Ghana-GFF-Investment-Case.pdf, accessed 18 August 2023

Ghana, MOH (Ministry of Health), National Health Policy: Ensuring healthy lives for all (revised edition), January 2020, https://www.moh.gov.gh/wp-content/uploads/2020/07/NHP_12.07.2020.pdf-13072020-FINAL.pdf, accessed 18 August 2023

Ghana, NHIS (National Health Insurance Scheme), Medicine List, February 2023, v.1.0, <https://nhis.gov.gh/medlist>, accessed 22 August 2023

Ghana, NHIS (National Health Insurance Scheme), Membership, <https://www.nhis.gov.gh/membership>, accessed 18 August 2023



Ghana, NHIS (National Health Insurance Scheme), Tariffs for Tertiary Hospitals, February 2023, accessed 18 August 2023, not available online

Nyarko, K.M., Ameme, D.K., Ocansey, D., Commeh, E., Markwei, M.T. and Ohene, S.A., Capacity assessment of selected health care facilities for the pilot implementation of Package for Essential Non-communicable Diseases (PEN) intervention in Ghana, *The Pan African Medical Journal*, October 2016 <https://doi.org/10.11604/pamj.supp.2016.25.1.6252>, pp. 1-16, accessed 18 August 2023

Rudman, J., Poku, Y. A. and Houben, R., Cost-Benefit Analysis of Interventions to Reduce Tuberculosis Burden in Ghana, Copenhagen Consensus Center, https://copenhagenconsensus.com/sites/default/files/gp_a4_tb_final.pdf, accessed 18 August 2023

Sarfo, F. S., Jenkins, C., Mensah, N. A., Saulson, R., Sarfo-Kantanka, O., Singh, A., Nichols, M., Qanungo, S. and Ovbiagele, B., Prevalence and Predictors of Sleep Apnea Risk among Ghanaian Stroke Survivors, *Journal of Stroke and Cerebrovascular Diseases*, Vol. 26, Issue 7, March 2017, <https://doi.org/10.1016/j.jstrokecerebrovasdis.2017.02.027>, pp. 1602 - 1608, accessed 18 August 2023

Wachinou, A.P., Houehanou, C., Ade, S., Totah, T., Berger, M., Solelhac, G., Amidou, S., Fiogbe, A.A., Alovokpinhou, F., Lacroix, P., Preux, P.-M., Marques-Vidal, P., Agodokpessi, G., Houinato, D. and Heinzer, R., Prevalence of sleep-disordered breathing in an African general population: The Benin Society and Sleep (BeSAS) study, Vol. 10, Issue 9, April 2022, [https://doi.org/10.1016/S2213-2600\(22\)00046-7](https://doi.org/10.1016/S2213-2600(22)00046-7), pp. 831-839, accessed 18 August 2023

WHO (World Health Organization), Tuberculosis profile: Ghana, 2023, https://worldhealthorg.shinyapps.io/tb_profiles/?_inputs_&entity_type=%22country%22&lan=%22EN%22&iso2=%22GH%22, accessed 18 August 2023



Annex 2: Terms of Reference (ToR)

Pulmonology (asthma, COPD, sleep apnoea, tuberculosis)

General information

- Briefly describe prevalence and incidence of asthma, COPD, sleep apnoea and tuberculosis (epidemiologic data).
- How is the health care organized for these diseases?
- How are these diseases treated – at specific centres, in primary health care centres, secondary care / hospitals, tertiary care etc.?
- Which kinds of facilities can treat these diseases [public, private not for profit (e.g., hospitals run by the church), private for-profit sector]? Include links to facilities' websites if possible.
- How are the resources organized in general to treat patients with these diseases? Are there sufficient resources available to treat all patients?
- Is there a particular kind of these diseases for which no (or only partial) treatment exists in the country?
- Is there a (national) institute specialised in treating these diseases?
- Are there any national or international plans or (donor) programmes for certain diseases; if yes, could you elaborate on such programme(s) and what it entails?

Access to treatment

- Are there specific treatment programmes for asthma, COPD, sleep apnoea and tuberculosis? If so, what are the eligibility criteria to gain access to it and what they contain?
- Are there specific government (e.g., insurance or tax) covered programmes for these diseases? If so, what are the eligibility criteria to gain access to it?
- Are there any factors limiting the access to healthcare for patients? If so, are they economic, cultural, geographical, etc.? Are there any policies to improve access to healthcare and/or to reduce the cost of treatments and/or medication? What is the number of people having access to treatment? Keep focus on e.g., waiting times rather than the exact number of specialists in the field.
- If different from information provided in the general section; is the treatment geographically accessible in all regions?
- What is the 'typical route' for a patient with these diseases (after being diagnosed with the disease)? In other words: for any necessary treatment, where can the patient find



help and/or specific information? Where can s/he receive follow-up treatment? Are there waiting times for treatments?

- What must the patient pay and when?
- Is it the same scenario for a citizen returning to the country after having spent a number of years abroad?
- What financial support can a patient expect from the government, social security or a public or private institution? Is treatment covered by social protection or an additional / communal health insurance? If not, how can the patient gain access to a treatment?
- Any occurrences of healthcare discrimination for people with any of these diseases?

Insurance and national programmes

Include if relevant, otherwise delete section.

- National coverage (state insurance).
- Programmes funded by international donor programmes.
- Include any insurance information that is specific for patients with these diseases.

Cost of treatment

Guidance / methodology on how to complete the tables related to treatments:

- Do not delete any treatments from the tables. Instead state that they are not available or information could not be found if that is the case.
- In the table, indicate the price for inpatient and outpatient treatments in public and private facilities and if the treatments are covered by any insurance or by the state.
- For inpatient, indicate what is included in the cost (bed / daily rate for admittance, investigations, consultations...). For outpatient treatment, indicate follow up or consultation cost.
- Is there a difference in respect to prices between the private and public facilities?
- Are there any geographical disparities?
- Are the official prices adhered to in practice?
- Include links to online resources used, if applicable (e.g., hospital websites).

Note: a standardised list of treatments was also included in the original ToR, as can be viewed in the report.

Cost of medication

Guidance / methodology on how to complete the tables related to medications:



- Do not delete any medicines from the tables. Instead, state that they are not available or information could not be found if that is the case.
- Are the available medicines in general accessible in the whole country or are there limitations?
- Are the medicines registered in the country? If yes, what are the implications of it being registered?
- Indicate in the tables: generic name, brand name, dosage, form, pills per package, official prices, source, insurance coverage.
- Are (some of the) medicines mentioned on any drug lists like national lists, insurance lists, essential drug lists, hospital lists, pharmacy lists etc.?
If so, what does such a list mean specifically in relation to coverage?
- Are there other kinds of coverage, e.g., from national donor programmes or other actors?
- Include links to online resources used, if applicable (e.g., online pharmacies).

Note: a standardised list of medication was also included in the original ToR, as can be viewed in the report.

NGOs

Include if relevant, otherwise delete section.

- Are any NGOs or international organisations active for patients with asthma, COPD, sleep apnoea and tuberculosis? What are the conditions to obtain help from these organisations? What help or support can they offer?
- Which services are free of charge and which ones are at a cost? Is access provided to all patients or access is restricted for some (e.g., in case of faith-based institutions or in case of NGOs providing care only to children for instance).

