

# GLOBAL HEALTH EXPENDITURE

Spotlight on healthcare spending, financing and function  
in the lymphoma and CLL landscape.



**2024**





## About Lymphoma Coalition

---

Lymphoma Coalition (LC) is a worldwide network of patient organisations with a full or partial focus on supporting those affected by lymphoma, including chronic lymphocytic leukaemia (CLL). The need for a central hub of consistent, reliable, and current information for lymphoma patient organisations to share resources and best practices was recognised. Four lymphoma organisations started LC in 2002, with LC incorporated as a not-for-profit organisation in 2010. Today, there are more than 90 member organisations from over 55 countries. LC's current strategy is focused on ensuring impact in two key pillars: information and advocacy.

### Vision

A better future for everyone impacted by lymphoma.

### Mission

Lymphoma Coalition is the leading global coalition of patient organizations. We work together to generate and provide trusted information, knowledge, and best practice to influence and make equitable care possible.

### Values Statement

Lymphoma Coalition respectfully listens to those affected by lymphoma and uses what we learn to collaboratively guide global efforts that have local impact. Credible and principled, integrity is central to all we do.

### Disclaimer

LC provides the report for general information. While LC makes every effort to ensure accuracy, no responsibility can be assumed by LC for the accuracy or timeliness of this information.

### Acknowledgments

LC would like to thank all those whose collaboration and support assisted in developing this report and companies that provided grants to make this report possible. A special thank you to the patients and their care partners who took the time to complete the 2024 Global Patient Survey on Lymphomas & CLL.

To cite this report: Lymphoma Coalition. (2024). Global Health Expenditure. Spotlight on health spending, financing and function in the lymphoma and CLL landscape.

# Contents

<b>Executive Summary</b> .....	6
Purpose .....	6
Burden of Lymphoma and CLL .....	7
Key Highlights and Major Findings .....	8
Trends in Health Spending .....	9
Trends in Healthcare Financing .....	10
Trends in Healthcare Function .....	11
Plain Language Summary .....	12
<b>Introduction</b> .....	13
Lymphoma and CLL .....	13
What Is Health Spending? .....	16
What Is Health System Financing? .....	18
Global Health Expenditure Trends .....	19
<b>Regional Snapshots</b> .....	24
Sub-Saharan Africa .....	24
Central Europe and the Baltics .....	29
Latin America and the Caribbean .....	33
East Asia and the Pacific .....	38
<b>Case Studies</b> .....	43
<b>Case Study 1:</b>	
Early Diagnosis, Supportive Care and Policy Interventions in Sub-Saharan Africa .....	44
<b>Case Study 2:</b>	
Outcomes-Based Reimbursement Schemes in Europe for CAR-T .....	45
<b>Case Study 3:</b>	
State of the Nation Report and National Strategic Action Plan for Blood Cancer in Australia .....	46
<b>Conclusion</b> .....	48
<b>Appendices</b> .....	50
Report Methodology and Data Sources .....	50
Countries in World Bank Income Group .....	52
Countries Belonging to Each Region of Interest .....	53
Pricing and Reimbursement in Select European Countries .....	54
References .....	55

## Abbreviations

---

<b>AIDS</b>	acquired immunodeficiency syndrome
<b>ASIR</b>	age-standardised incidence rate
<b>ASR</b>	age-standardised rate
<b>CAR-T</b>	chimeric antigen receptor T-cell
<b>CHE</b>	current health expenditure
<b>CLL</b>	chronic lymphocytic leukaemia
<b>CRF</b>	cancer-related fatigue
<b>DALY</b>	disability-adjusted life years
<b>DLBCL</b>	diffuse large B-cell lymphoma
<b>EBV</b>	Epstein-Barr Virus
<b>EoL</b>	end-of-life
<b>FDA</b>	Food and Drug Administration
<b>FL</b>	follicular lymphoma
<b>GDP</b>	gross domestic product
<b>GHED</b>	Global Health Expenditure Database
<b>GNI</b>	gross national income
<b>H. pylori</b>	Helicobacter pylori
<b>HIV</b>	human immunodeficiency virus
<b>HL</b>	Hodgkin lymphoma
<b>IARC</b>	International Agency for Research on Cancer
<b>LC</b>	Lymphoma Coalition
<b>LC 2024 GPS</b>	Lymphoma Coalition 2024 Global Patient Survey
<b>MCL</b>	mantle cell lymphoma
<b>NCDs</b>	non-communicable diseases
<b>NHL</b>	non-Hodgkin lymphoma
<b>OCPs</b>	Optimal Care Pathways
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>QoL</b>	quality-of-life
<b>R/R</b>	relapsed/refractory
<b>SDG</b>	Sustainable Development Goal
<b>SDI</b>	socio-demographic index
<b>UHC</b>	universal health coverage
<b>US</b>	United States
<b>USD</b>	United States Dollars
<b>WHO</b>	World Health Organization

## List of Figures

---

1. (A) Global health expenditure as a percentage of GDP from 2000 to 2021.  
(B) Map showing the global health expenditure as a percentage of GDP in 2021.
2. Sources of health spending in countries with (A) low-income (B) lower-middle income (C) upper-middle income, and (D) high-income economies from 2010-2021.
3. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in sub-Saharan Africa.
4. Sources of health expenditure in select sub-Saharan African countries in 2021.
5. Health expenditure by healthcare function in select sub-Saharan African countries.
6. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in (A) Central Europe and the Baltics (B) Czechia (C) Latvia (D) Lithuania, and (E) Slovenia.
7. Sources of health expenditure in select countries in Central Europe and the Baltics in 2021.
8. Health expenditure by healthcare function in select countries in Central Europe and the Baltics in 2021.
9. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in the Latin America and Caribbean region.
10. Sources of health expenditure in LC member countries in the Latin America and Caribbean region in 2021.
11. Health expenditure by healthcare function in Brazil and Uruguay.
12. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in (A) the East Asia and Pacific region, and (B) Australia.
13. Sources of health expenditure in LC member countries in the East Asia and Pacific region in 2021.
14. Health expenditure by healthcare function in LC member countries in East Asia and the Pacific.

## List of Tables

---

1. World Bank definition of income groups.
2. Behaviours always exhibited by lymphoma / CLL doctor to encourage patient participation in decision-making about their care.
3. Health expenditure and incidence and mortality of lymphoma in both sexes, globally and according to the World Bank income groups.
4. Recommended actions to improve cancer control in sub-Saharan Africa.
- A1. Countries included in each World Bank income group.
- A2. List of countries belonging to each region of interest.
- A3. Pricing and reimbursement process used in select European countries for CAR-T therapies.



# Executive Summary

## Purpose

---

Healthcare systems worldwide are functioning under increased financial pressures and operational constraints that contribute to significant inequalities in care, access and outcomes for patients.

Cancer care and treatment must be affordable, available, and accessible to all those who need them. However, factors such as inequitable access, socioeconomic considerations, and environmental issues challenge health systems function and add to the growing strain on systems and the subsequent impact on health spending and health financing.

This report includes four regional snapshots which examine regional health expenditure and health financing trends. Sub-Saharan Africa, Central Europe and the Baltics, Latin America and the Caribbean, and East Asia and the Pacific are the regions included. These are provided to improve understanding of global health systems and their implications for patients with lymphoma, including chronic lymphocytic leukaemia (CLL).

**To illustrate the different aspects of healthcare expenditure and management related to lymphoma treatment, three case studies are featured.**

- The first case study explores the cancer burden in sub-Saharan Africa in relation to diagnostic equipment, supportive services specific to the provision of palliation and cancer control planning, while also highlighting policy interventions and recommendations for a call to action.
- The second case study outlines financial challenges and innovative payment models for chimeric antigen receptor T-cell (CAR-T) therapies in Europe by highlighting the use of outcomes-based reimbursement, where payments are linked to the therapy's effectiveness, as a means to manage high costs and ensure access to these innovative treatments.
- The final case study illustrates the power of patient experience data in driving policy changes and improving healthcare outcomes by detailing the impact of the State of the Nation: Blood Cancer in Australia report that led to a partnership with the Australian Federal Government.

**By examining the key factors that influence health system spending, financing and function, this report aims to provide valuable insights to support advocacy and promote policy interventions in four areas of high interest:**

- Burden of lymphoma and critical challenges
- Trends in general health spending
- Sources of health spending and supports for healthcare functions or health services
- Policy and relevant funding initiatives and/or decisions.

## Burden of Lymphoma and CLL

Lymphoma, the most common blood cancer, encompasses over 80 subtypes. It is essential that patients know and understand their specific subtype in order to receive optimal treatment and care and to support informed decision-making. Lymphoma data is primarily categorised into three categories, namely: Hodgkin lymphoma (HL), non-Hodgkin lymphoma (NHL), and chronic lymphocytic leukaemia (CLL).

Lymphoma, a cancer arising from the lymphocytes, presents an extremely variable clinical course. Some people have a type of lymphoma that grows slowly (indolent) and does not require treatment immediately, while others have a type that progresses rapidly (aggressive) and can be resistant to treatment.<sup>1</sup>

There are multiple factors that influence or contribute to the burden of lymphoma and CLL. From an economic perspective, there is a significant associated financial impact. Health expenses vary across different lymphoma subtypes or based on factors such as care and treatment patterns. For instance, while treatment advances for CLL have improved outcomes, patients with CLL often relapse and require multiple lines of costly therapies. CLL is often associated with significant immune suppression, comorbidities and advanced age, all of which act as compounding risk factors for infections.<sup>1</sup> Additionally, from a geographic perspective, the burden of lymphoma and CLL differs across regions and countries, with significant variations reported in resource limited settings.

Although healthcare costs are primarily the result of expenses associated with the provision of hospital services, patient care, and medical visits, indirect costs also arise from lost productivity for those in the workforce and for care partners who may experience financial hardship as a result of providing care.

## Key Highlights and Major Findings

---

Globally, health systems are increasingly challenged to provide affordable and accessible healthcare for their respective populations. Decisions regarding healthcare are often influenced by governmental health policies, social and economic conditions.

- In sub-Saharan Africa, the incidence of lymphoma is generally lower than in other regions however, there are significant differences in patient outcomes. The region faces high mortality rates due to limited access to healthcare. In many lower resourced regions, cancer burden estimates are based on data contained within cancer registries that may lack or have insufficient empirical local data. Additionally, the burden in sub-Saharan Africa is worsened by the high prevalence of human immunodeficiency virus (HIV), which also increases the risk of certain lymphoma subtypes, with Eastern and Southern Africa having the highest burden attributable to HIV-infection.
- Moderate to high incidence rates of lymphoma are observed in Central Europe and the Baltics. Slovenia has the highest reported rates, with mortality rates in Central Europe and the Baltics lower than those reported in sub-Saharan Africa.
- The incidence of lymphoma varies in Latin America and the Caribbean, with Argentina and Uruguay having the highest reported rates. Additionally, children in this region have a higher incidence than the global average, attributed to widespread viral infections. Mortality rates also vary, with room for improvement in bridging the gap between incidence and mortality.
- Australia and New Zealand have the highest global incidence rates and some of the highest mortality rates. In New Zealand, the indigenous Māori population have a greater incidence and mortality of cancer with poorer survival outcomes across blood cancer types than the non-Māori population, attributed to different factors that include less timely access to diagnosis, treatment and care.
- The incidence of lymphoma is rising in East Asia, driven in part by factors such as improved diagnostics and industrialisation. Some lymphoma subtypes, such as mucosa-associated lymphoid tissue (MALT) lymphoma, are more common in Asia and have been linked to specific infections like *Helicobacter pylori* (*H. pylori*).
- In the Middle East, the incidence of CLL is quite low however, CLL has manifested as a high burden disease pattern in Israel with some speculation pointing to social environmental factors and demographic composition as possible contributors to the difference.
- In 2023, approximately 18,750 people were diagnosed with CLL in the United States with an estimated 4,490 deaths. A recent study to quantify healthcare costs attributable to CLL noted that costs associated with the treatment of CLL may be underestimated as many patients do not require treatment initially and data access to confounders (such as general health status) and data to identify potential barriers to access (such as low socioeconomic status or social determinants of health) are not readily available.<sup>8</sup>





# Trends In Healthcare Spending

Global healthcare spending has increased significantly over the past two decades.

In 2020, health spending surged around the world in response to the COVID-19 pandemic and the significant disruptions to health services and delivery that ensued, compounded by the costs associated with continuity of care for patients with existing or new health issues. In 2021, driven by higher government and out-of-pocket spending, worldwide healthcare spending reached 9.8 trillion USD, representing 10.34% of the global economy. By historical standards, general government spending (as a share of the GDP) was high during the COVID-19 pandemic across all country income groups: high-income, upper-middle income, lower-middle income and low-income.<sup>9</sup> The World Bank defines the different economies income groups, providing the average income of a person in 2022. (Table 1) In 2021, the average government spending on health per capita increased in real terms for all income groups, except low-income countries.<sup>9</sup> On average, health priority in low-income countries fell 0.3 percentage point to 5.9%.<sup>9</sup>

**Table 1. World Bank definition of income groups.**

World Bank income group	Definition
<b>High-income economies</b>	In 2022, each person had an average income of <b>more than \$13,845 USD</b>
<b>Upper-middle-income economies</b>	In 2022, the average income of each person was <b>between \$4,466 and \$13,845 USD</b>
<b>Lower-middle-income economies</b>	In 2022, the average income of each person was <b>between \$1,136 and \$4,465 USD</b>
<b>Low-income economies</b>	In 2022, the average income of each person was <b>\$1,135 or less USD</b>

Countries belonging to each World Bank income group are listed in **Table A1** in the Appendix.

Worldwide, there are significant variations in health spending and health financing. In high-income countries.

The average amount spent per capita on health is approximately \$4,000 USD – a sharp contrast to 11% of the world's population who reside in countries that reportedly spend less than \$50 USD per person, per year on health.

While most healthcare spending in high-income countries is covered by government plans, funding in most low-income countries comes from private sources, out-of-pocket or external aid. As low-income countries spend significantly less on healthcare, this often leads to higher mortality rates and challenges in both disease management and healthcare access.

According to the 2022 World Health Organization Global Health Expenditure database highlighting health expenditure as a percentage of gross domestic product (GDP), Afghanistan spent the highest percentage of its economy on healthcare (21.83%). In contrast, countries like Brunei Darussalam (2.2%), Papua New Guinea (2.32%), Bangladesh (2.36%) and Qatar (2.89%) spent the least.

This is a stark difference to health expenditure in some European countries, such as Belgium (11.04%), Germany (12.93%), Sweden (11.25%), and in other developed countries such as Canada (12.33%) and the United Kingdom (12.36%). The United States had the highest reported per capita health expenditure at \$12,473.79 USD compared with much lower spending in significantly less resourced countries like Burundi (\$24.27 USD), Niger (\$34.34 USD), and Tanzania (\$37.16 USD).



## Policy

While higher spending may lead to better detection or diagnosis, it does not always compare with lower mortality rates, particularly in low-income countries. Understanding health spending trends is crucial to inform and help guide collaborative efforts to improve care and outcomes globally. This understanding helps to emphasise the need for increased and effective healthcare spending across all income levels. Further, continued monitoring of these trends can help policymakers, system leaders and organisations target interventions and healthcare strategies more effectively while ensuring that economic gains translate into improved measurable health outcomes and reporting.



## Trends In Healthcare Financing

Healthcare financing varies significantly across countries and regions influenced, in part, by factors such as economic status, budgetary or resource allocation and specific regional or structural practices.

In low-income countries, individuals often bear a large portion of healthcare costs directly through out-of-pocket payments, as government spending is minimal. Additionally, these countries may rely heavily on external funding from international sources. As countries move to a lower-middle-income status, government spending increases but remains insufficient to meet the needs of the population, leading to a continued reliance on out-of-pocket payments and moderate private spending. While in upper-middle-income countries, government expenditure becomes the primary source of healthcare funding to help reduce the burden on individuals but decreasing external aid significantly.

As high-income countries predominantly fund healthcare through government schemes, this may minimise out-of-pocket expenses while at the same time, reducing reliance on external financial aid.



## Policy

Health financing is a core function of health systems and instrumental to accelerating progress towards the target of universal health coverage as a Sustainable Development Goal (SDG). The United Nations SDGs are comprised of 17 urgent calls for action that are at the heart of the [2030 Agenda for Sustainable Development](#). Health financing policies that support greater access to services, improve quality of care, and ensure adequate staffing and availability of medicines to treat patients are key to improving coverage and financial protection.<sup>21</sup> Further, policy interventions that focus on improving or implementing policies are key to ensuring that patients receive necessary care, treatment, and support without experiencing personal financial hardship.



## Trends In Healthcare Function

As health systems navigate fiscal challenges and adapt to evolving changes in the healthcare ecosystem, trends in healthcare function reveal that a sizeable portion of global healthcare funding continues to be allocated to curative care, a type of medical care that aims to cure or resolve a disease or illness. This includes inpatient, outpatient, and at-home services, highlighting the system-level priority of treating existing health conditions.

Despite the emphasis on curative care, other healthcare functions - such as preventive care, long-term care, and rehabilitative care – tend to receive varying levels of attention and allocation of funding depending on the region or country. No data exists on the amount spent on supportive care in any country. Moreover, not every country consistently reports healthcare function data to the [WHO Global Health Expenditure Database \(GHED\)](#).



### Policy

To improve support services and ensure that patients receive comprehensive and timely care, health function policy interventions that target these areas are essential.

To support informed advocacy and policy action with evidence-based data, it is imperative that countries engage in robust data collection, document supportive care funding, and regularly report relevant health expenditure information to ensure transparency and accessibility by the public.

# Plain Language Summary

Lymphoma is a type of blood cancer that affects many people worldwide. Lymphoma can be aggressive or slow growing, impacting people at all ages and stages of their lives, including during their working years. On top of the obvious impact on health and quality-of-life, a diagnosis of lymphoma may lead to economic and emotional challenges for patients and their families.

Globally, countries are spending more on healthcare, but not all spending is equal. It is important to look at how different countries spend money on healthcare and how this affects lymphoma treatment and outcomes. It is also helpful to understand how money is spent on health as this can help make certain that everyone gets the care they need, especially in places where resources are limited.

While high-income countries spend more on healthcare by using government and insurance systems, lower-income countries rely more on people paying directly for their own care. This can make it hard for people in low-income countries to get the treatment and care they require and as a result, often leads to health disparities and poorer health outcomes.

Oftentimes, most healthcare money goes to treating diseases. More and more, health systems are looking for new ways to pay for expensive or innovative treatments to ensure those who need them can access them.



# Introduction

## Lymphoma and CLL

---

Lymphoma is the most common haematologic malignancy. There are more than 80 different subtypes of lymphomas. Lymphoma data is often categorised into three groups, namely:

1. Hodgkin lymphoma (HL)
2. non-Hodgkin lymphoma (NHL)
3. chronic lymphocytic leukaemia (CLL)

Registry data is usually gathered separately for only one subtype, Hodgkin lymphoma (HL). Data for chronic lymphocytic leukaemia (CLL) is often included with other types of leukaemia even though with current technology, CLL cells and small lymphocytic lymphoma cells (included in NHL data) are identical under a microscope, and CLL acts and behaves like a lymphoma. Data for all other lymphomas is usually grouped under the non-Hodgkin lymphoma (NHL) category. This makes it difficult to get a clear picture of not only incidence and mortality, but also actual costs of care. Each subtype comes with its own typical patient profile, has unique treatment protocols, and different overall survival statistics. Knowing which subtypes are more prevalent in any geographical area is important to determining if allocated healthcare resources are sufficient.

In 2022, NHL and HL were the 10<sup>th</sup> and 26<sup>th</sup> most frequent cancer diagnoses worldwide, respectively.<sup>13</sup> The highest incidence rates are seen across Europe, North America, Australia and New Zealand. NHL was also the 11<sup>th</sup> leading cause of cancer death worldwide.<sup>13</sup>

A study using the [Global Burden of Disease](#) database to analyse international trends in the age-standardised incidence rate (ASIR) of CLL from 1990 to 2017 revealed that the number of CLL cases globally more than doubled between 1990 and 2017, rising from 40,537 cases in 1990 to 103,467 in 2017, with most regions experiencing a significant increase in the incidence rate of CLL. In 2017, the highest reported ASIR for CLL was found in North America as well as Western and Central Europe, although East Asia and Latin America demonstrated rapid growth in reported CLL incidence at that time as well. CLL occurs more in the elderly population with a median age of 70 years at diagnosis. As CLL incidence rates rise with age, it is likely that the prevalence and mortality of CLL will continue to increase due to the ageing global population.

Depending on the subtype, lymphomas can be aggressive, progress rapidly, and be considered curable in certain instances, such as diffuse large B-cell lymphoma (DLBCL) and classical HL. Some lymphoma subtypes - like follicular lymphoma, marginal zone lymphoma and CLL - generally advance more slowly, and are currently considered incurable.<sup>15</sup> There are also subtypes like mantle cell lymphoma that have both aggressive and indolent variants.<sup>15</sup> [The National Cancer Institute Treatment Guidelines](#) emphasise a personalised approach based on cancer type, disease progression, and patient health status.

Every two years, Lymphoma Coalition conducts a [Global Patient Survey on Lymphomas & CLL \(GPS\)](#) to investigate different aspects of patient and care partner experience. The most recent survey was conducted online in early 2024 and generated 11,170 responses from patients and care partners in 79 countries (LC 2024 GPS).

While personalised approaches to care are recommended, in practice there are gaps in delivery. For instance, in CLL where genetic abnormalities or mutations can impact which treatment is most suitable, 61% of patients had no idea if they had any.<sup>17</sup> When thinking about preserving their quality of life, 37% of patients said their lifestyle and usual activities were not discussed with or considered by their medical team when making a treatment plan.<sup>17</sup>

Just over half (52%) of patients felt as involved as much as they wanted to be in decisions about their care, but only 24% said they were given more than one treatment choice before starting their most recent therapy.<sup>17</sup> When asked about how their lymphoma/CLL doctor encourages participation in decision-making, a stark contrast emerges between high- and low-income countries. (Table 2)<sup>17</sup>

**Table 2. Behaviours always exhibited by lymphoma / CLL doctor to encourage patient participation in decision-making about their care.<sup>17</sup>**

Doctor behaviour	High-income	Upper-middle income	Lower-middle income
Encourages patients to ask questions	47% (n=8,304)	25% (n=717)	33% (n=129)
Ensures patients understand answers to questions	48% (n=8,248)	31% (n=690)	32% (n=127)
Allows patient to express themselves without interrupting	61% (n=8,280)	38% (n=691)	31% (n=123)
Talks to the patient in a kind and sensitive way	67% (n=8,265)	42% (n=686)	41% (n=125)
Listens carefully to the patient	63% (n=8,282)	44% (n=689)	37% (n=125)

This may be due to several factors including hierarchical doctor-patient relationships that often prevent open discussion and patient involvement in care decisions, as well as time limits during clinical appointments or a lack of access to therapy options, meaning doctors prescribe what is available rather than what is optimal.<sup>17</sup>

In the lymphoma landscape, therapy research continues to be robust with many new treatments being studied and coming to market in recent years. The introduction of innovative treatments is shifting the treatment landscape for patients with lymphoma. New therapies come with high costs and not all health systems can afford these treatments, even if clinical trials show an improved effectiveness in certain populations. Where a patient resides impacts the care available, which can have an effect on outcomes.

Although most of the allocated healthcare funding for people with lymphoma is designated towards hospital inpatient services and office-based medical or doctor visits, it is essential that costs not directly related to patient care are also considered in healthcare planning and spending.<sup>18,19</sup>

Many individuals are diagnosed with lymphoma during their working years.<sup>15</sup> This significantly affects workplace productivity by causing premature mortality of the workforce, absenteeism, short or long-term disability and the need for employers to address absentee workers.<sup>18</sup> The LC 2024 GPS indicated 22% of patients continued working through their treatment, with an additional 19% who stopped working during diagnosis or treatment.<sup>17</sup> For those who took time off for their lymphoma care, only 12% of patients had an easy time returning to work post-treatment. 15% were unable to return to work. The rest experienced challenges such as reduced energy and illness, isolation, and questions about their performance or ability.<sup>17</sup>

The ongoing symptoms of lymphoma and side effects from treatment can also have a financial impact. For instance, fatigue continues to be a challenge for many patients. Over half (58%) of patients experienced fatigue as a symptom of their lymphoma, and 66% indicated they had cancer-related fatigue (CRF) as a side effect of treatment.<sup>17</sup> Almost half of those who reported having CRF (45%) say it has a severe impact on their life, gravely impacting their employment (26%), ability to do daily activities like household chores and shopping (26%), and their financial situation (16%).<sup>17</sup>

Fatigue is experienced by more than half of patients regardless of country income, with a higher number of patients in high income countries experiencing the side effect (68%), followed by upper middle income (55%) and lower middle income (52%) countries, respectively.<sup>17</sup>

Productivity losses experienced by those providing care to someone diagnosed with lymphoma also contribute to the indirect costs of lymphomas. Family members are likely to experience an economic burden due to costs of care and loss of income; an occupational burden as a result of missed work, and/or psychosocial burden due to anxiety, sadness or other factors, all of which may contribute to indirect costs.<sup>18</sup>

According to LC research, 69% of care partners indicated there are barriers to accessing care, including financial concerns, logistical issues, and problems navigating health systems, while only 41% of patients said the same thing.<sup>17</sup> This difference shows how much care partners are handling to allow patients to focus on their health. Almost half (45%) of caregivers have had to stop working either temporarily, permanently or reduce their working hours since the patient was diagnosed.<sup>17</sup> Most care partners (91%) experienced psychosocial stress related to their loved one's diagnosis, with fear and loss of sense of meaning or purpose having the most severe impact on their quality-of-life.<sup>17</sup>



## Policy

Gaining a better understanding of trends in health system spending, including where the majority of the money is spent, what factors most influence health expenditure growth, and what drivers or risks are informing health expenditure will help to ensure that health system leaders and policies support resource allocation, cost-effectiveness analyses, and ongoing monitoring of evolving economic impact.



## What is Health Spending?

### Health expenditure and health systems financing are related, but distinct concepts.

- **Health expenditure** is the amount spent on healthcare goods and services within a given period, typically a year. It measures the final healthcare consumption by households, governments, and other entities.
- **Health system financing** refers to the mechanisms and processes through which funds are mobilised, pooled, and allocated to cover health expenditures. It is a broader concept that goes beyond just measuring spending levels.

Health expenditure refers to all the money spent on healthcare goods and services, which helps maintain and improve the health of individuals and communities. This includes spending on various medical services, such as those that prevent, treat, or rehabilitate health conditions, in addition to those that provide people with long-term care.<sup>20</sup> It also covers public health services aimed at preventing diseases and promoting health, along with the costs of managing healthcare systems.<sup>20</sup>

Additionally, health expenditure includes money spent on medical equipment, healthcare facilities, and activities related to medical education, training, and research.<sup>20</sup> This spending is usually measured as a percentage of a country's total economy, known as the gross domestic product (GDP).<sup>20</sup>

While increased spending on healthcare can lead to better health outcomes and improve people's quality-of-life, it also presents significant challenges.<sup>20</sup> For families and care partners, the cost of healthcare can be overwhelming, sometimes leading to financial hardship or preventing them from accessing necessary treatments.<sup>20</sup>

In the LC 2024 GPS, 8% of patients and 20% of care partners said they experienced financial difficulties that impacted their ability to access treatment. For almost half of these groups (45% patients, 49% care partners), the impact was severe.<sup>17</sup>

Additionally, governments often face the difficult task of providing accessible, high-quality healthcare services while also maintaining financial stability.<sup>20</sup> As health systems respond to financial pressures, health spending relative to GDP decreased in 2022, compared with 2021, in 33 out of 38 countries in the [Organisation for Economic Co-operation and Development \(OECD\)](#).<sup>20</sup>

In lymphoma, the LC 2024 GPS results show that patients residing in lower-middle to upper-middle income countries needed to see a doctor more often about their symptoms before they were diagnosed than those residing in high-income countries.<sup>17</sup> Sixteen percent of those living in lower middle-income countries saw their doctor 10 times or more, a significantly higher number of times than patients (8%) in high-income countries, resulting in an added financial burden on both patients and the healthcare system.<sup>17</sup>

Worldwide, 41% of patients and 69% of care partners said they experienced barriers that made accessing the most recent treatment more difficult. When examined further, barriers to treatment are experienced more in lower-to-middle income countries than in high-income countries. For instance, more patients living in lower-middle countries (40%) experienced waiting times for treatment compared to 24% of patients in upper-middle income countries and only 8% in high-income countries.<sup>17</sup> Accessing a specialist doctor was difficult for 24% of patients in lower-middle income countries, with 17% stating this had a severe impact on their treatment.<sup>17</sup> This is potentially due to the persistent lack of healthcare professionals in lower middle-income countries. Accessing a specialist was less of an issue in upper-middle (16%) and high-income (5%) countries, yet patients who did experience this issue thought it had a more severe impact on getting treatment (32% in both groups) than those in lower-middle income countries.<sup>17</sup>



**Patients in lower-middle income countries were also more likely to report their current health status in the last month as poor.<sup>17</sup>**

- 27% had problems with their mobility (compared to 11% in upper-middle and 17% in high-income countries)
- 17% had problems caring for themselves (compared to 3% in upper-middle and 4% in high-income countries)
- 17% had problems with fine motor skills (compared to 4% in upper-middle and 9% in high-income countries)
- 29% had problems with their balance (compared to 6% in upper-middle and 20% in high-income countries)
- 23% were unable to do all their pre-lymphoma diagnosis activities (compared to 12% in upper-middle and 18% in high-income countries)
- 39% reported pain (compared to 18% in upper-middle and 20% in high-income countries)
- 46% reported a loss of strength (compared to 19% in upper-middle and 35% in high-income countries)
- 47% reported anxiety and/or depression (compared to 36% in upper-middle and 31% in high-income countries)



## Policy

To address the challenges associated with health expenditure, a more comprehensive and targeted approach is needed. This involves developing measurable policies, creating innovative ways to finance healthcare, and focusing on implementing cost-effective interventions. Sustainable solutions must also balance the need to provide quality healthcare with the economic impact of increasing healthcare costs and pressures, while also considering the risk of external factors such as natural disasters, pandemics and humanitarian crises that may impact health expenditure and increase health financing demands.



## What Is Health System Financing?

---

Healthcare funding comes from various sources. These include domestic sources such as taxes, contributions to social health insurance, and payments made directly by individuals.<sup>21</sup> Additionally, external sources like donations and international or national development aid may also contribute to healthcare funding.<sup>21</sup>

Pooling of funds is a method used to distribute financial risks among a population, promoting fairness by allowing the healthy to support the sick and the wealthy to support vulnerable or less fortunate people.<sup>21</sup> Typically, funds are pooled through government systems funded by taxes and health insurance schemes supported by contributions.<sup>21</sup> These pooled funds are then used to pay for healthcare services and interventions that healthcare professionals provide.<sup>21</sup>

Different payment methods can encourage healthcare providers to deliver high-quality, efficient care.<sup>21</sup> These methods include paying for each service separately, providing a set amount per patient, paying based on specific cases, and rewarding healthcare providers for good performance.<sup>21</sup>

Overall, an effective health financing system gathers enough resources, pools funds to minimise financial obstacles and risks, and uses strategic purchasing to motivate and support the delivery of quality services.<sup>21</sup> This approach helps achieve important health system goals, such as universal health coverage (UHC).<sup>21</sup>

UHC ensures that all people have access to the full continuum of essential health services across the life course without experiencing financial hardship, when and where they need them. Despite the inclusion of UHC as one of the targets the nations of the world established when the 2030 SDGs were adopted by all United Nations Member States in 2015, many countries worldwide still lack comprehensive UHC and national cancer control plans, significantly impacting patient access to care and treatment.

In 2021, it was estimated that approximately 4.5 billion people were not covered by essential health services and about 3 billion people face financial hardship, including catastrophic out-of-pocket health spending and extreme poverty due to health costs.<sup>23</sup> This varies across countries. For instance, while Japan and Australia tend to have broader access to newer targeted therapies others, like India and the Philippines, face significant limitations and barriers.

The World Health Organization and World Bank 2023 [Tracking Universal Health Coverage, 2023 Global Monitoring Report](#) shows an alarming lack of progress in the provision of quality, affordable and accessible healthcare. The report highlights that 2 billion people face severe financial hardship due to out-of-pocket payments. This is underscored by a lack of improvement of health service coverage over the past two decades with data pointing to most countries (96 out of 138) failing to provide service coverage, financial protection or both to their respective population.



## Global Health Expenditure Trends

Health spending varies widely across countries, including the amount that is allocated to address primary healthcare needs. Approximately 30% of health spending in middle-income countries is attributed to non-communicable diseases (NCDs) in comparison to about 13% in low-income countries that face economic vulnerabilities and high poverty levels.<sup>25</sup>

In some high-income countries, including the United States, a significant portion of health spending is allocated to inpatient and outpatient care, including payments to hospitals, clinics and physicians for services or fees such as provider-administered medications, prescription drugs or specialist visits.<sup>26</sup>

Globally, the amount of money countries spend on healthcare has increased over the past 20 years, from 8.61% of the world's total economic input in 2000 to 10.34% in 2021 (**Figure 1A**). The increase in health spending in 2020 may be attributed to major disruptions and increased health system costs as a result of the COVID-19 pandemic.<sup>26</sup>

Before the pandemic, OECD countries reportedly spent on average, 8.8% of their overall economy on healthcare – a figure that has remained relatively unchanged since 2013. By 2021, 9.8 trillion USD was spent on healthcare worldwide, 10.3% of the global economy (**Table 1**) or 9.7% if you only consider OECD countries. Although higher than pre-pandemic levels, the decrease in health spending as a share of the economy (to 9.2%) indicates the financial pressure on health systems.

In 2021, health spending varied between countries (**Figure 1B**). According to the WHO GHED level of current health expenditure expressed as a percentage of GDP, Afghanistan stands out as having spent the highest percentage of its economy (21.83%) on healthcare.<sup>30</sup> Other countries with high health spending included Tuvalu, one of the smallest and remote nations in the world (19.97%), as well as Liberia in West Africa (16.62%), Palau in Western Pacific (16.38%), Kiribati in the subregion of Oceania in the central Pacific Ocean (14.81%), and Cuba in the Caribbean (13.79%).<sup>30</sup> In some of the more isolated or island countries, increased health spending is due to their remote nature or geography. Challenges such as additional costs to acquire medical supplies to and from their locations or increased logistical demands and costs related to transportation of patients to places where they may access required care and/or treatment, can contribute to higher health spending in these geographical areas.

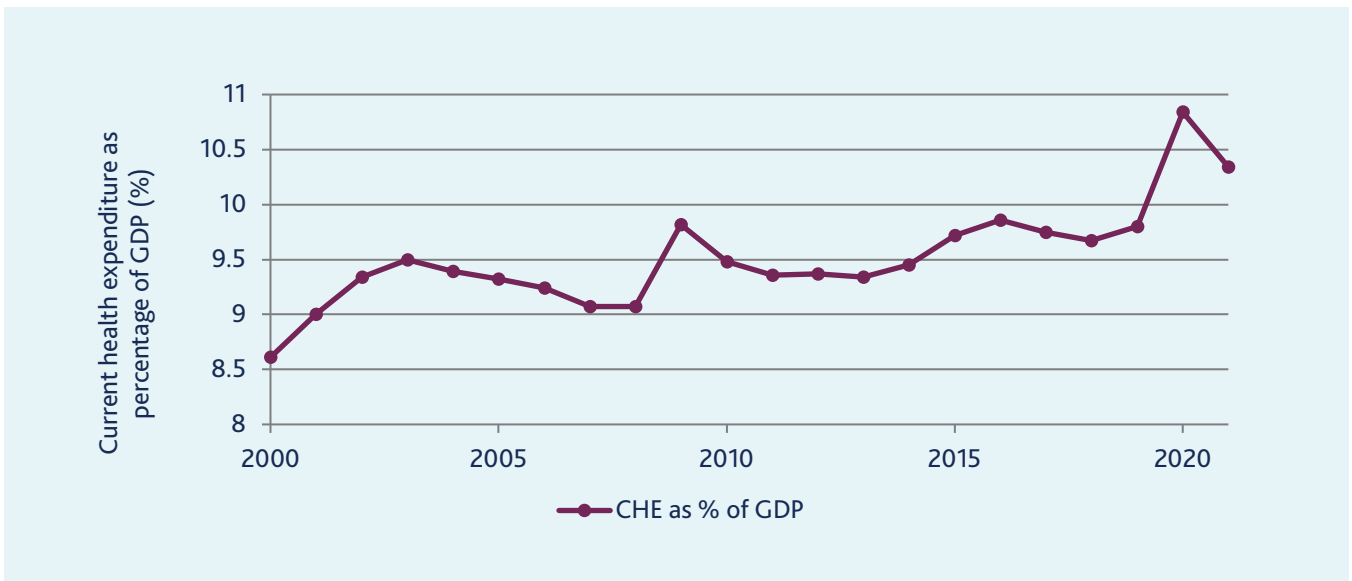
Developed countries also reported high spending, such as the United States (17.36%), Switzerland (11.8%), Germany (12.93%), France (12.31%), the United Kingdom (12.36%), and Canada (12.33%), highlighting their significant financial investment in their respective health systems.<sup>30</sup>

On the other hand, countries like Brunei Darussalam in Southeast Asia (2.2%), Papua New Guinea in Oceania (2.32%), and Bangladesh in South Asia (2.36%) spent the least, showing they have less funding allocated for healthcare needs or services.<sup>30</sup>

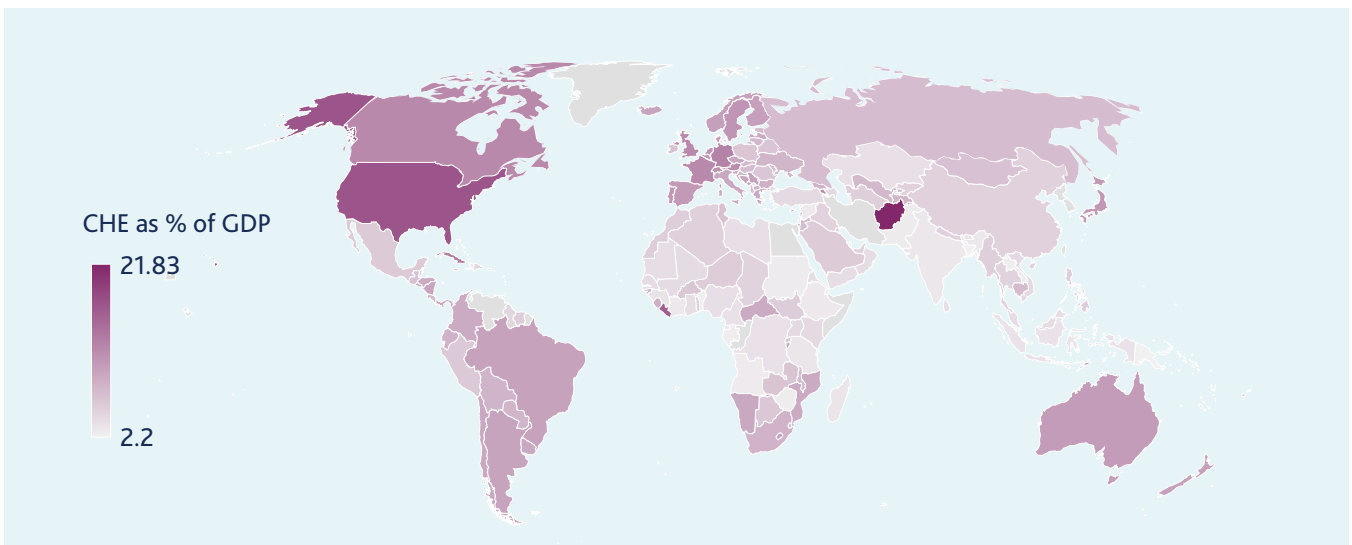
In Latin America, Haiti spent the least amount (3.48%), followed by Venezuela (4.04%) and the Dominican Republic (4.92%). In Central Europe and the Baltics, Poland spent the least (6.44%) while Latvia (9.04%), Slovenia (9.48%) and Czechia (9.49%) reported the highest.<sup>30</sup>

The amount of money spent on healthcare per person, or the global health expenditure per capita, has also been increasing globally.<sup>30</sup> In 2021, the United States spent the most per person, with \$12,012.24 USD - far more than other high-spending countries like Switzerland (\$10,897.45 USD), Norway (\$9,163.00 USD) and Germany (\$6,626.00 USD).<sup>30</sup> In stark contrast, less resourced low-income countries like Burundi (\$24.27 USD), the Central African Republic (\$42.93 USD), and Niger (\$34.34 USD) spent very little per person on healthcare.<sup>30</sup>

**Figure 1. (A) Global health expenditure as a percentage of GDP from 2000 to 2021.**



**Figure 1. (B) Map showing the global health expenditure as a percentage of GDP in 2021.**



Powered by Bing. @Australian Bureau of Statistics, GeoNames, Microsoft, Navinfo, Open Paces, OpenStreetMap, TomTom Zenrin.

Source: WHO GHED. Data retrieved on April 15, 2024. These estimates include spending on healthcare goods and services but do not include spending on capital health items, such as buildings, machinery, information technology and vaccine stocks for emergencies or outbreaks.

High-income countries reportedly spend the most on healthcare, using 13.30% of their overall economy, which translates to about \$6,448.55 USD per person, with most of the healthcare funding coming from the government. High-income countries also had the highest rate of new lymphoma cases, with 12.5 cases per 100,000 people however, their death rate from lymphoma was 2.8 per 100,000 people, only slightly above the global average. (Table 3)

Low-income countries spent much less on healthcare, using 5.25% of their overall economy, or only \$36.50 USD per person. Rather than the government, most healthcare funding in these countries comes from private sources, out-of-pocket spending, and external aid. These countries had a lower rate of new lymphoma cases, with 4.6 cases per 100,000 people. However, they faced the highest death rate from lymphoma at 3.1 per 100,000 people. This suggests significant challenges in diagnosing, as late diagnosis often leads to more aggressive cases of lymphoma, as well as challenges in the management of the disease and the provision of adequate healthcare.

Middle-income countries fell between these two extremes. More specifically, upper-middle-income countries spent 5.92% of their overall economy on health, or \$603.26 USD per person. They had 5.1 new lymphoma cases per 100,000 people and the lowest death rate at 2.1 per 100,000. Lower-middle-income countries only allocated 4.16% of their GDP to health, spending \$104.36 USD per person, with 4.5 new lymphoma cases and 2.4 deaths per 100,000 people.

These statistics reveal a complex relationship between how much countries spend on health and their economic status in relation to lymphoma outcomes. For instance, higher health spending might lead to better detection of lymphoma but does not always result in lower death rates from the disease, especially when comparing high-income and low-income countries. However, caution must be advised when interpreting these figures as the quality and coverage of cancer data, in addition to the regional differences in the more common lymphoma subtypes incidence, varies worldwide, particularly in low- and middle-income countries.<sup>31</sup> This reinforces the value of understanding global trends and patterns to guide efforts to improve lymphoma care and outcomes worldwide. It further emphasises the importance of increasing healthcare spending to ensure that resources are used effectively to diagnosis, treat, and manage lymphoma across all income levels.

**Table 3** summarises the amount spent on healthcare in 2021 and the incidence and mortality rates due to lymphoma in 2022. In addition to the average amounts worldwide, data for different World Bank income groups (see **Table 1**) is also shown.

**Figure 2** shows how healthcare is funded in different World Bank income groups.

**Table 3. Health expenditure and incidence and mortality of lymphoma in both sexes, globally and according to the World Bank income groups.**

	CHE as a percentage of GDP in 2021 (%)	CHE per capita in current USD in 2021	Lymphoma	
			Incidence, ASR (world) in 2022	Mortality, ASR (world) in 2022
<b>Global</b>	10.34	\$1,265.61	6.5	2.6
<b>By World Bank income group</b>				
<b>High income</b>	13.30	\$6,448.55	12.5	2.8
<b>Upper-middle income</b>	5.92	\$603.26	5.1	2.1
<b>Lower-middle income</b>	4.16	\$104.36	4.5	2.4
<b>Low income</b>	5.25	\$36.50	4.6	3.1

Countries belonging to each World Bank income group are listed in **Table A2** in the Appendix.

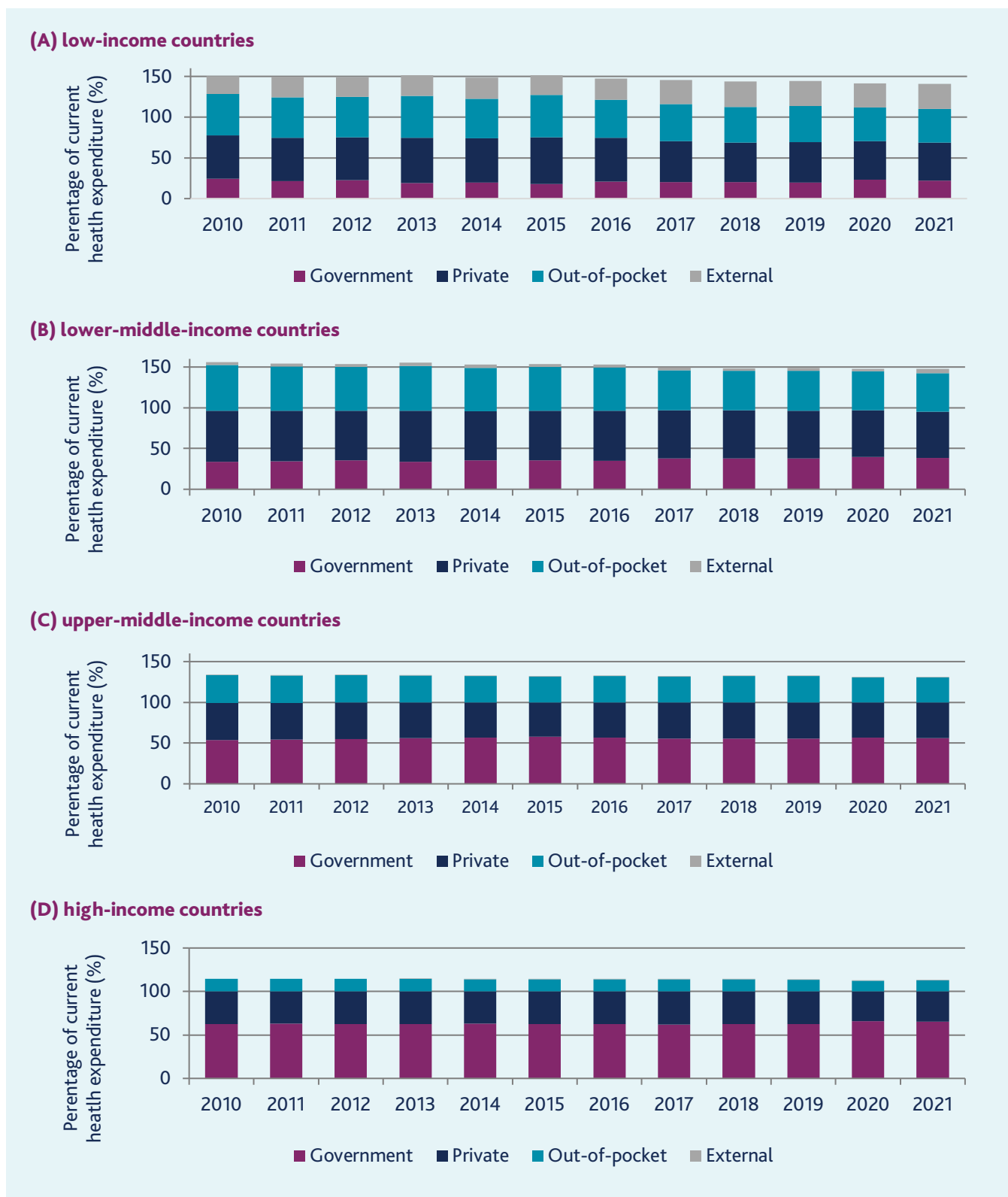
The level of current health expenditure is expressed as a percentage of GDP. Estimates of current health expenditures include healthcare goods and services consumed each year. This indicator does not include capital health expenditures such as buildings, machinery, information technology, and vaccine stocks for emergencies or outbreaks. Data retrieved from the [World Health Organization Global Health Observatory](#) on April 15, 2024.

Current expenditures on health per capita are in USD. Estimates of current health expenditures include healthcare goods and services consumed each year. Data retrieved from the [WHO GHED](#) on April 15, 2024.

Data retrieved from [CANCER TODAY IARC](#) ([gco.iarc.who.int/today](https://gco.iarc.who.int/today); data version: Globocan 2022 (version 1.1)—08.02.2024) on June 18, 2024.

- High-income economies are those in which 2022 GNI per capita was more than \$13,845 USD.
- Lower-middle-income economies are those in which 2022 GNI per capita was between \$1,136 USD and \$4,465 USD.
- Upper-middle-income economies are those in which 2022 GNI per capita was between \$4,466 USD and \$13,845 USD.
- Low-income economies are those in which 2022 GNI per capita was \$1,135 USD or less.

**Figure 2. Sources of health spending in countries with, (A) low-income, (B) lower-middle-income, (C) upper-middle-income, and (D) high-income economies from 2010 to 2021.**



Source: WHO GHED. Data retrieved on April 15, 2024.



# Regional Snapshots

## Sub-Saharan Africa



### Lymphoma: Incidence and Mortality

In 2022, the incidence of lymphoma was lower in sub-Saharan Africa than in other regions. However, there was significant variation found within the area. Zimbabwe had the highest incidence rate at 11.02 per 100,000 people, and Uganda followed with 8.58 per 100,000. South Africa (6.7) and Tanzania (4.27) had moderate incidence rates, while Niger (1.88) and Sierra Leone (0.64) reported very low incidence rates.<sup>32</sup>

Aside from Burkitt lymphoma (BL), a rare and fast-growing cancer that primarily affects children and young adults, lymphoma subtypes are poorly studied in sub-Saharan Africa.<sup>33</sup> It is estimated that the incidence of BL lies between 30-70 per million children in equatorial African countries.<sup>33,34</sup> However, data suggests that the disease burden of lymphoma is increasing in this region.<sup>33</sup> Approximately 30,000 cases of lymphoma occur in this area of Africa each year, which ranks among the top ten types of cancer in the region.<sup>34</sup>

The elevated incidence of lymphoma is attributed to the high prevalence of HIV infection, as approximately two-thirds of all HIV-infected people live in sub-Saharan Africa.<sup>33,34</sup> The incidence of lymphoma since the AIDS epidemic has increased two to threefold in some countries and as much as a staggering 13-fold in others.<sup>34</sup> The limitations of resources in Africa restrict an accurate and early diagnosis for many.

Further, available data shows that mortality rates in this region are high compared with incidence rates. For instance, Zimbabwe and Uganda showed the highest mortality rates in the world at 7.74 and 6.21 per 100,000 people. South Africa (3.54) and Tanzania (3.17) also showed high mortality rates however, the mortality rate in Niger was low (1.45).<sup>32</sup>

**Table A2** in the Appendix lists the countries from which data were analysed to provide this regional snapshot, including Niger, South Africa, and Tanzania, where LC has Member organisations.



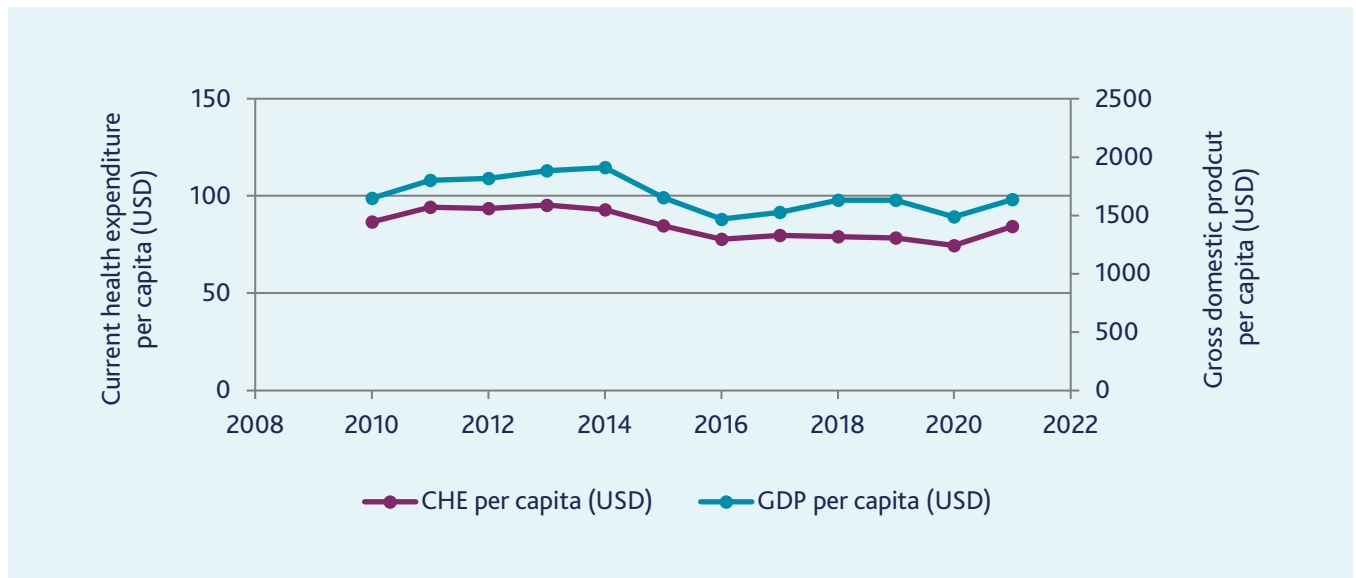


## Trends In Healthcare Spending

In 2021, the percentage of the overall economy spent on healthcare ranged from 2.58% in Benin to 16.62% in Liberia. South Africa (8.27%) spent more on healthcare than both Niger (5.81%) and Tanzania (3.36%).

Figure 3 compares the amount spent on healthcare per person against the GDP per capita, a measure of economic performance. From 2010 to 2021, the amount spent on healthcare per person seems to have kept pace with economic growth. The increase in the amount spent on healthcare per person in all three LC member countries showed a similar trend to the respective country's economic growth.

**Figure 3. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in sub-Saharan Africa.**



Source: [WHO GHED](#). Data retrieved on April 15, 2024.

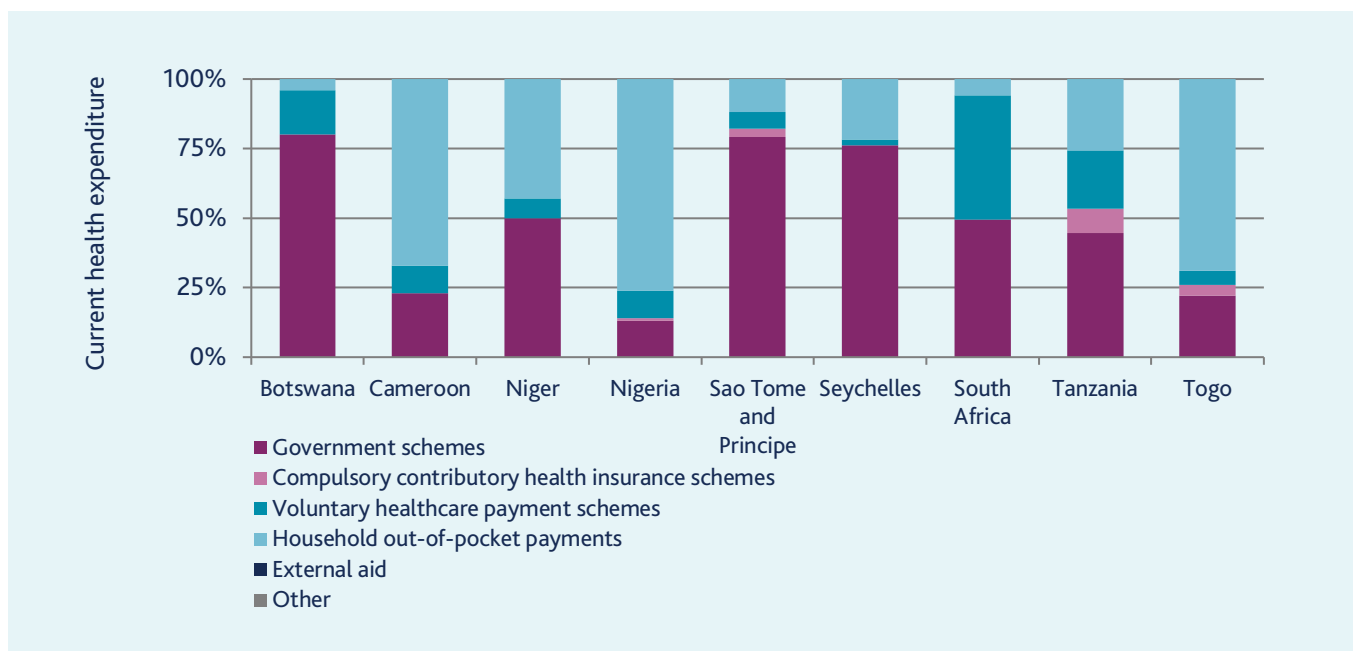


## Trends In Healthcare Financing

Figure 4 shows how select sub-Saharan African countries paid for healthcare in 2021. In Botswana, Sao Tome and Principe, government schemes cover 80% of health expenditure. In contrast, countries like Nigeria and Cameroon have less than 25% of their health spending covered by government schemes. This means they must rely on significant household out-of-pocket payments which increases the burden on patients and their families.

The presence of voluntary healthcare payment schemes is notable in several countries and plays a major role in South Africa (45%). In contrast, compulsory contributory health insurance schemes are minimally represented, with the largest contribution found in Tanzania (9%). There were no data on external aid or other sources of healthcare spending in these countries.

**Figure 4. Sources of health expenditure in select sub-Saharan African countries in 2021.**



Source: [WHO GHED](#). Data retrieved on June 25, 2024



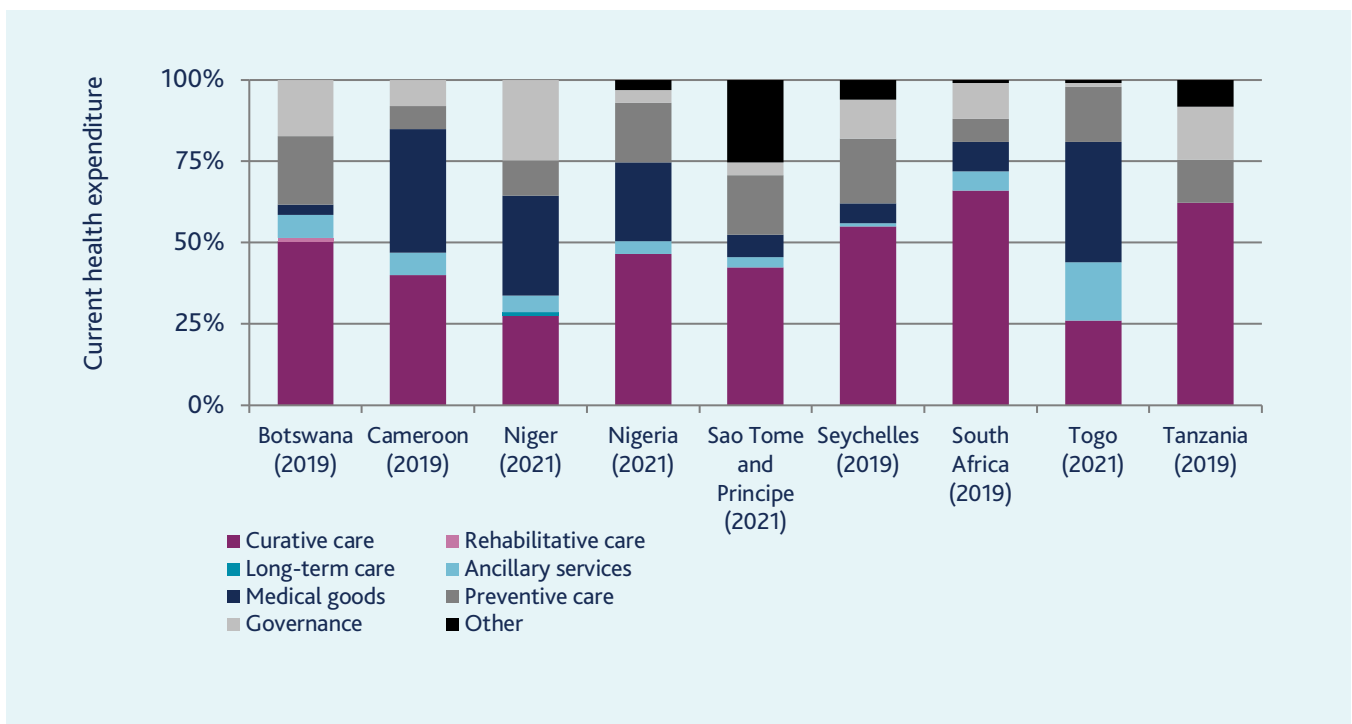
## Trends In Healthcare Function

Figure 5 shows the healthcare functions on which money has been spent in select sub-Saharan African countries. Although the WHO GHED has data available from 2016 to 2022, not every country has consistently collected these data. Thus, the most recent year from which these data are available is indicated within brackets.

In this region, most healthcare funding is spent on curative care, which includes inpatient, outpatient, and at-home services. Preventive care, which reflects efforts to address public health challenges, also receives substantial funding in many countries. There is a variation in spending, with Tanzania (13%) and Niger (11%) allocating a larger portion to preventive care compared to South Africa (7%).

Cameroon (38%), Niger (31%), and Togo (37%) spend a significant portion on medical goods, including pharmaceuticals. Rehabilitative care, long-term care, ancillary services, and governance receive varying funding levels depending on the country's healthcare priorities and resources. No data were available on funding for supportive care in this region.

**Figure 5. Health expenditure by healthcare function in select sub-Saharan African countries. The latest year from which data were available is shown within brackets.**



Source: WHO GHED. Data retrieved on June 21, 2024



## Policy

To address these challenges, several policies are urgently needed.<sup>34</sup> Implementing these policies in collaboration would significantly improve the management of lymphomas in sub-Saharan Africa and potentially reduce the associated morbidity and mortality. For instance:

- There is a critical need to improve diagnostic capabilities across the region.<sup>34</sup> This includes establishing and equipping pathology laboratories with modern diagnostic tools and training pathologists in lymphoma diagnosis.<sup>34</sup>
- Efforts should be made to increase access to affordable and effective treatment options. This may involve negotiating lower prices for essential medicines, developing local pharmaceutical production capabilities, and expanding radiotherapy services.<sup>34</sup>
- Strengthening healthcare systems to provide better supportive care is crucial and may be supported by the implementation of cancer plans that define supportive care as a priority.<sup>34</sup>
- Increased awareness and education about lymphomas aimed toward healthcare providers and the public are needed to promote early detection and timely referral.<sup>34</sup>

Some key challenges in addressing lymphomas in sub-Saharan Africa include limited access to diagnostic facilities and treatment options, particularly for those without health insurance or those living in rural or remote areas.<sup>34,35</sup> Many patients present with advanced-stage disease due to delayed diagnosis, often resulting from a lack of awareness, inadequate healthcare, insufficient or lacking transport infrastructure, and financial constraints.<sup>34</sup> Myths, misinformation, stigma, and socio-cultural/religious beliefs also have an impact on cancer education and awareness.<sup>35</sup>

In the region, diagnostic capabilities are often insufficient, with many centres lacking essential tools such as flow cytometry and immunohistochemistry, leading to misdiagnosis or underdiagnosis of lymphomas.<sup>34</sup> Treatment challenges are equally daunting, with limited availability of chemotherapy drugs, radiotherapy facilities, and supportive care.<sup>34</sup> The high cost of treatment relative to the economic status of most patients further exacerbates the problem, leading to treatment abandonment or incomplete therapy.<sup>34</sup>

# Central Europe and the Baltics



## Lymphoma: Incidence and Mortality

Compared with sub-Saharan Africa and Latin America and the Caribbean, Central Europe and the Baltics region show moderate to high incidence rates and relatively lower mortality rates of lymphoma. In 2022, Slovenia had the highest incidence rate of lymphoma (12.8 per 100,000 people), followed by Croatia (12.4) and Latvia (10.28). Bulgaria had the lowest reported incidence rate (5.33).

Slovenia also had the highest mortality rate (3.93 per 100,000 people), followed by Latvia (3.4) and Poland (2.93). Globally, Central and Eastern Europe (2.3) reported the lowest mortality rates in 2020.<sup>36</sup> However, within Europe, countries in Central Europe and the Baltics show significant inequalities in mortality rates between lower-educated individuals and their more highly educated counterparts for all cancer types.<sup>37</sup>

**Table A2** in the Appendix lists the countries from which data were analysed to provide this regional snapshot. LC member organisations in this region include Bulgaria, Croatia, Czechia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, and Slovenia.



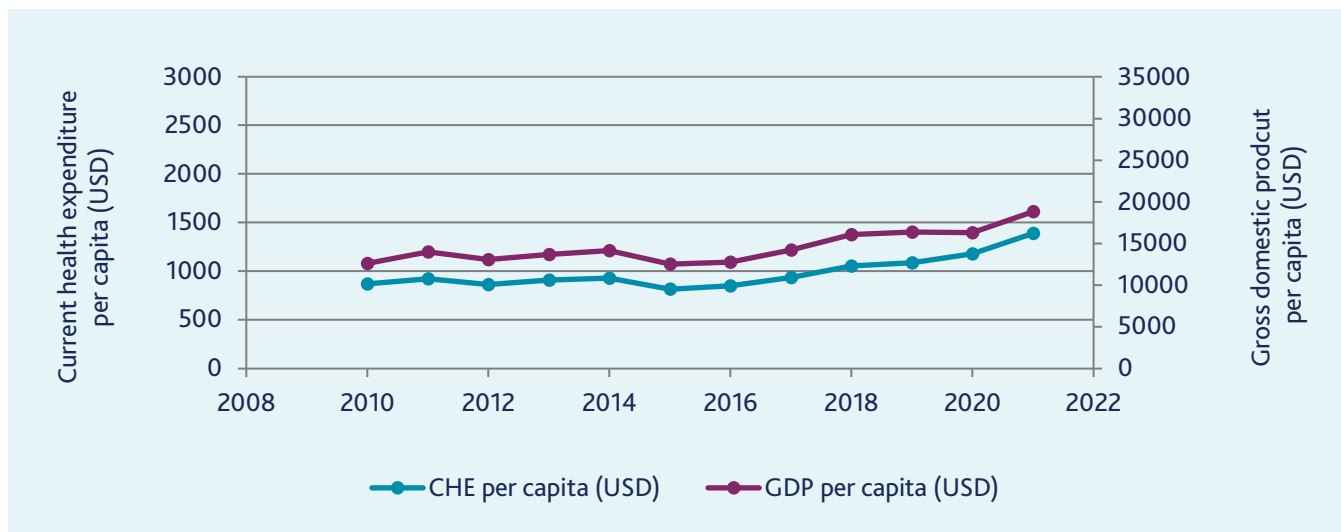
## Trends In Healthcare Spending

In 2021, the amount of the overall economy spent on healthcare ranged from 6.44% in Poland to 9.49% in Czechia. The overall trends during this period indicate that health spending in this region has generally kept pace with economic growth. This suggests that as the economy grows, more resources are being allocated to health expenditure. Figure 6 compares the amount spent on healthcare per person against economic performance.

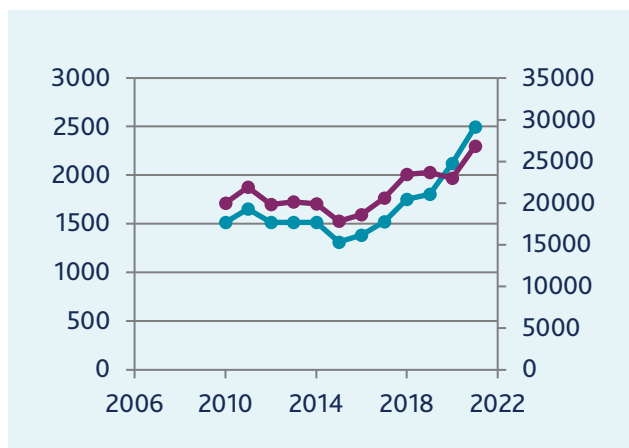
Although health spending is a small portion of the overall economy in many countries, many show upward trends in health spending and economic growth despite the rate and consistency of growth varying by country. For instance, health spending aligns well with economic growth in Czechia, Latvia, Lithuania, and Slovenia, while it seems to be moderate or slower in many other countries worldwide.

**Figure 6. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in (A) Central Europe and the Baltics, (B) Czechia, (C) Latvia, (D) Lithuania, and (E) Slovenia.**

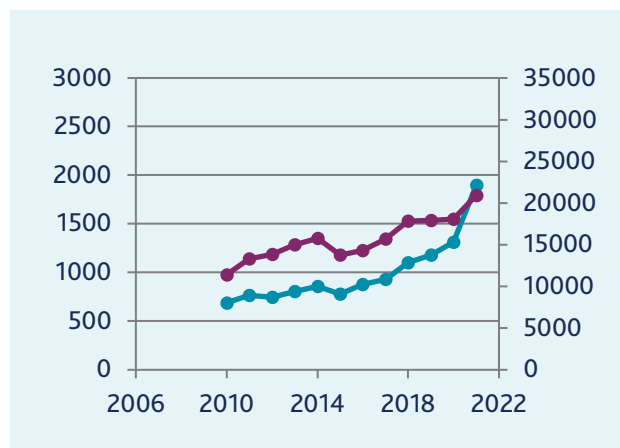
**(A) Central Europe and the Baltics**



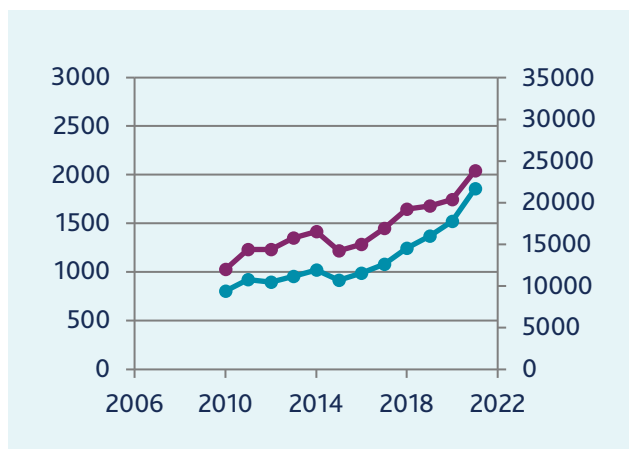
**(B) Czechia**



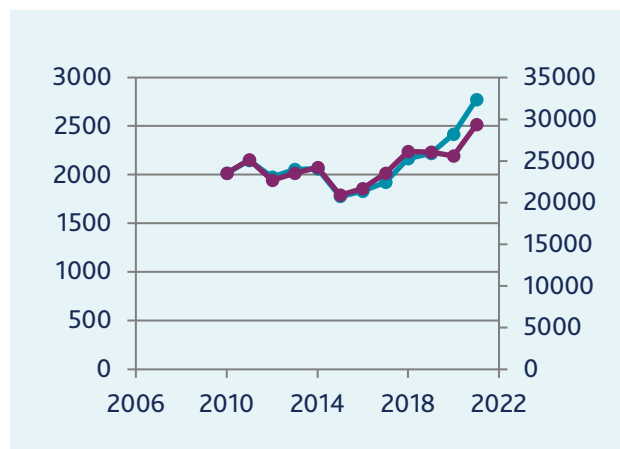
**(C) Latvia**



**(D) Lithuania**



**(E) Slovenia**



Source: WHO GHED. Data retrieved on April 15, 2024.

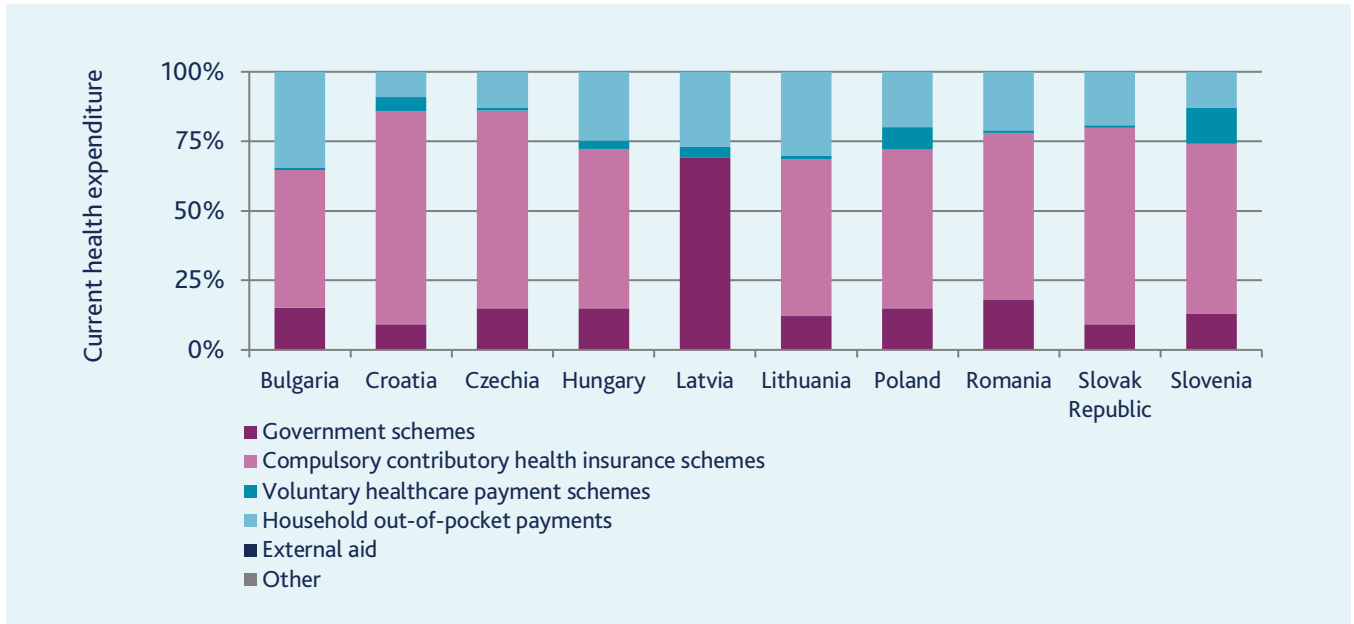


## Trends In Healthcare Financing

In 2021, healthcare financing in Central Europe and the Baltics showed distinct patterns across countries, focusing on various funding sources. Compulsory contributory health insurance schemes were the predominant source of healthcare financing in most countries, particularly in Croatia (76%), Czechia (71%), and the Slovak Republic (70%), where they accounted for a significant portion of health expenditure. Latvia was an exception, relying heavily on government schemes, which made up most of its healthcare funding (69%). Figure 7 illustrates the variation in how healthcare is financed across Central Europe and the Baltics.

Household out-of-pocket payments were notably high in Bulgaria (34%), Hungary (25%), and Lithuania (30%), indicating a substantial financial burden on individuals in these countries. Voluntary healthcare payment schemes played a minor role overall but were most prominent in Slovenia (13%). None of these countries received external aid or declared other sources of healthcare funding in 2021. The data underscores the predominant dependence on compulsory contributory health insurance schemes supplemented by out-of-pocket expenses in this region.

**Figure 7. Sources of health expenditure in select countries in Central Europe and the Baltics in 2021.**



Source: [WHO GHED](#). Data retrieved on June 24, 2024



## Trends In Healthcare Function

Curative care, which includes both inpatient and outpatient services, consistently accounts for the largest portion of health expenditure in all countries. For instance, Croatia and Poland allocate 56% of their health expenditure to curative care, while Bulgaria and Czechia allocate around 51%.

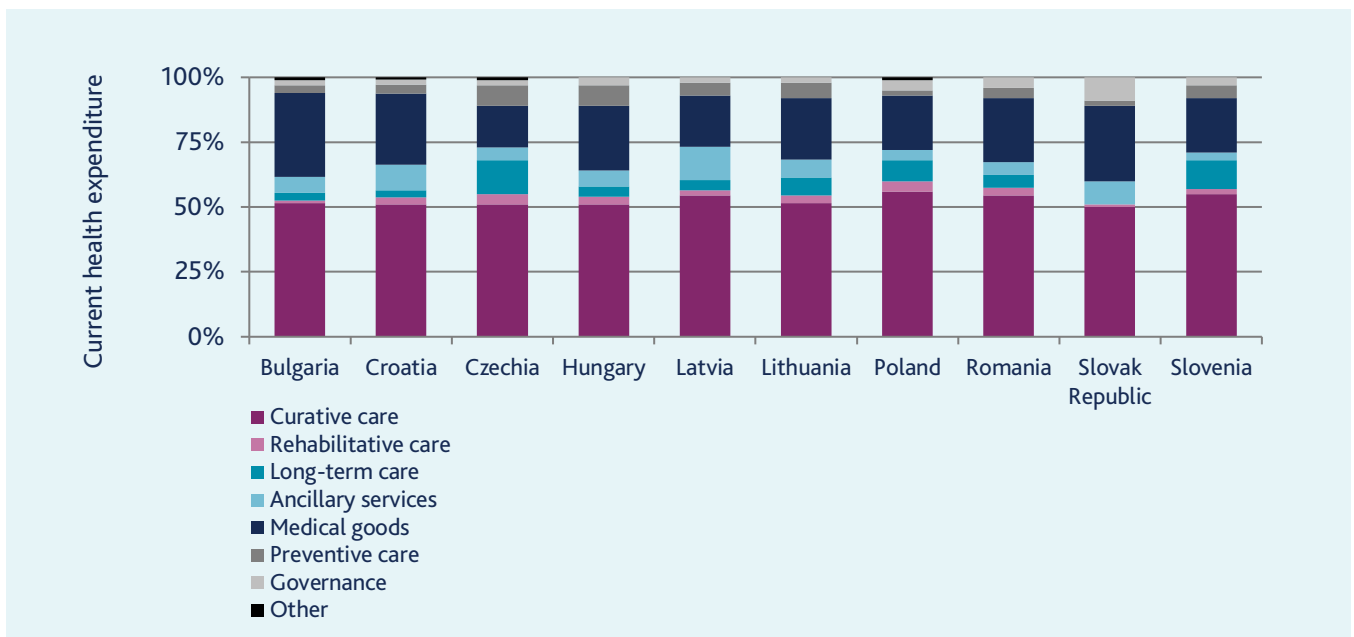
Preventive care, which is crucial for early detection and prevention of diseases, shows variation across the region. More specifically, Czechia and Hungary allocate 8% of their expenditure to preventive care, indicating a relatively higher investment in prevention compared with other countries like Bulgaria and Poland, which spend only 3% and 2%, respectively.

Long-term care and rehabilitative care receive less focus, with most countries allocating a small percentage of their expenditure to these areas. Czechia (13%) and Slovenia (11%) allocated the most to long-term care among these countries even though they do not have the highest rates of people over the age of 65 in their general populations, while countries like Latvia and the Slovak Republic allocate minimal resources to these functions. There were no data on the allocation towards supportive care. Figure 8 shows the healthcare functions for which money has been spent in LC member countries in Central Europe and the Baltics region in 2021.

Medical goods, such as pharmaceuticals, also represent a significant portion of spending. Bulgaria, for example, allocates 32% of its health expenditure to medical goods, which is one of the highest among the countries listed. In contrast, Czechia spends only 16% on medical goods, the lowest in this category. Additionally, ancillary services and governance, which include administrative and support services, generally receive a smaller share of health expenditure. Slovenia, for instance, allocates only 3% to ancillary services, while the Slovak Republic allocates 9% to governance, the highest in this category.

Overall, the data indicates a strong emphasis on curative care and medical goods, with less focus on preventive, rehabilitative, and long-term care services. This trend suggests potential areas for advocacy and improvement, particularly in enhancing preventive care and support services for better health outcomes. Further, research demonstrates that patients in countries with above-average health expenditure in Europe generally experience faster diagnoses, better communication with doctors and no barriers to care compared with patients in countries with lower-than-average health expenditure.<sup>15</sup>

**Figure 8. Health expenditure by healthcare function in select countries in Central Europe and the Baltics in 2021.**



Source: [WHO GHED](#). Data retrieved on June 24, 2024





## Policy

- Efforts should be made to improve health financing for supportive care services in the region. This includes policies that address the consistent collection and timely reporting of relevant supportive care data by health systems to ensure supportive care is a key priority in national cancer plans.
- To help ensure equitable access to medical goods, such as pharmaceuticals, greater consistency in terms of health financing at the country level can play a role in addressing existing variances in health spending across the region.

## Latin America and the Caribbean



### Lymphoma: Incidence and Mortality

The burden of lymphoma in Latin America and the Caribbean varies across countries in the region. Argentina has the highest incidence rate of lymphoma at 8.21 per 100,000 people, followed by Uruguay (10.73), Venezuela (8.41), Bahamas (8.06), Colombia (7.18), and Brazil (5.05).

Children aged 0–14 years in Latin America and the Caribbean have a higher incidence of lymphoma than the combined average world incidence rate. The incidence of lymphoma increases with age, from 7.8 per 100,000 children aged under 1 year to 30.2 in 100,000 people aged 15–19 years. This is attributed to the increased exposure to endemic forms of viral infections, including Epstein-Barr virus, Kaposi sarcoma herpesvirus, and human T-lymphotropic virus.<sup>38</sup> HL is most common in adolescents ages 15-19 years with incidence relatively rare in young children who are more likely to present with Burkitt lymphoma, lymphoblastic lymphoma, or diffuse large B-cell lymphoma.

Further, the mortality rates in these countries range from 2.1 (in Brazil) to 4.4 (in Peru) per 100,000 people. Compared with some countries in Central Europe and parts of the Pacific, there is room for improvement in the region to reduce the gap between incidence and mortality rates.

**Table A2** in the Appendix lists the countries from which data were analysed to provide this regional snapshot. LC member countries in this region include Argentina, Bahamas, Brazil, Colombia, Uruguay, and Venezuela.



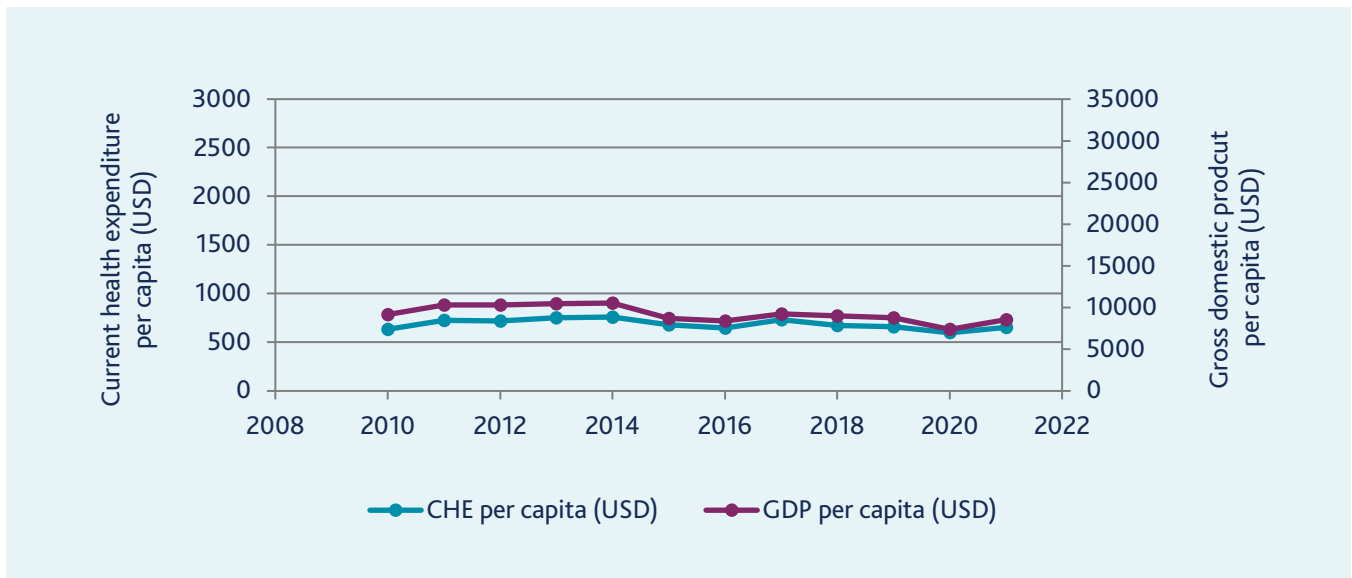
## Trends In Healthcare Spending

In 2021, the amount of the overall economy spent on healthcare ranged from 3.48% in Haiti to 13.79% in Cuba. The countries of Brazil (9.89%), Argentina (9.71%), and Uruguay (9.36%) reportedly spent the most on healthcare.

The trend in healthcare expenditure in Latin America and the Caribbean from 2010 to 2021 was characterised by initial growth, followed by a period of volatility and decline, with a significant impact from the COVID-19 pandemic in 2020 and signs of recovery in 2021. This trend closely mirrored the region's overall economic performance as reflected in GDP per capita figures. Figure 9 compares the amount spent on healthcare per person against the GDP per capita – a measure of economic performance.

Although data for Venezuela are incomplete, data for other countries in the region indicate that health spending has generally kept up with or exceeded economic growth.

**Figure 9. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in the Latin America and Caribbean region.**



Source: [WHO GHED](#). Data retrieved on April 15, 2024

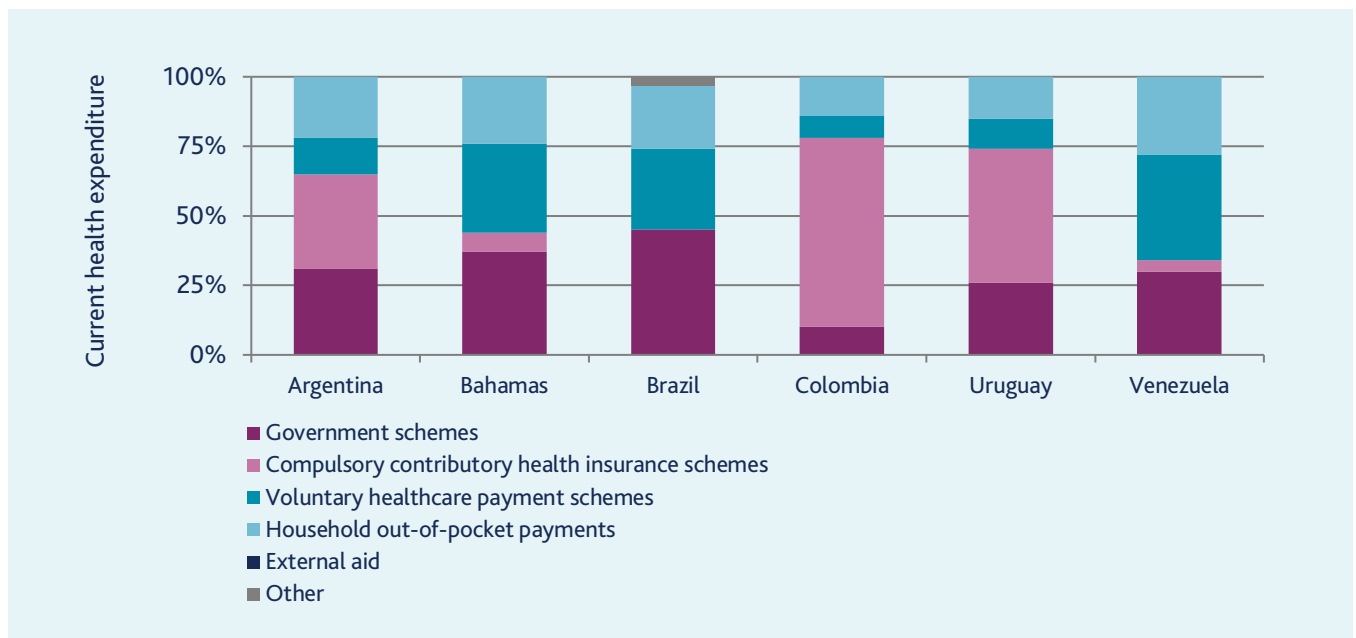


## Trends In Healthcare Financing

With the exception of Colombia (10%) and Uruguay (26%), government schemes cover a substantial portion of health costs in Brazil (45%), Bahamas (37%), Argentina (31%), and Venezuela (30%). Figure 10 shows health financing data for LC member countries in 2021, revealing diversity in how healthcare is funded.

- In Colombia, 68% of health spending comes from compulsory contributory health insurance schemes.
- Voluntary healthcare payment schemes contribute to countries such as Venezuela (38%), Bahamas (32%), and Brazil (29%).
- Household out-of-pocket payments are considerable in Venezuela (28%), Bahamas (24%), Brazil (23%), and Argentina (22%), but lower in Uruguay (15%) and Colombia (14%).
- None of these countries received external aid in 2021, and only Brazil declared a small part of health financing from a source not listed here (3%).

**Figure 10. Sources of health expenditure in LC member countries in the Latin America and Caribbean region in 2021.**



Source: [WHO GHED](#). Data retrieved on June 25, 2024



## Trends In Healthcare Function

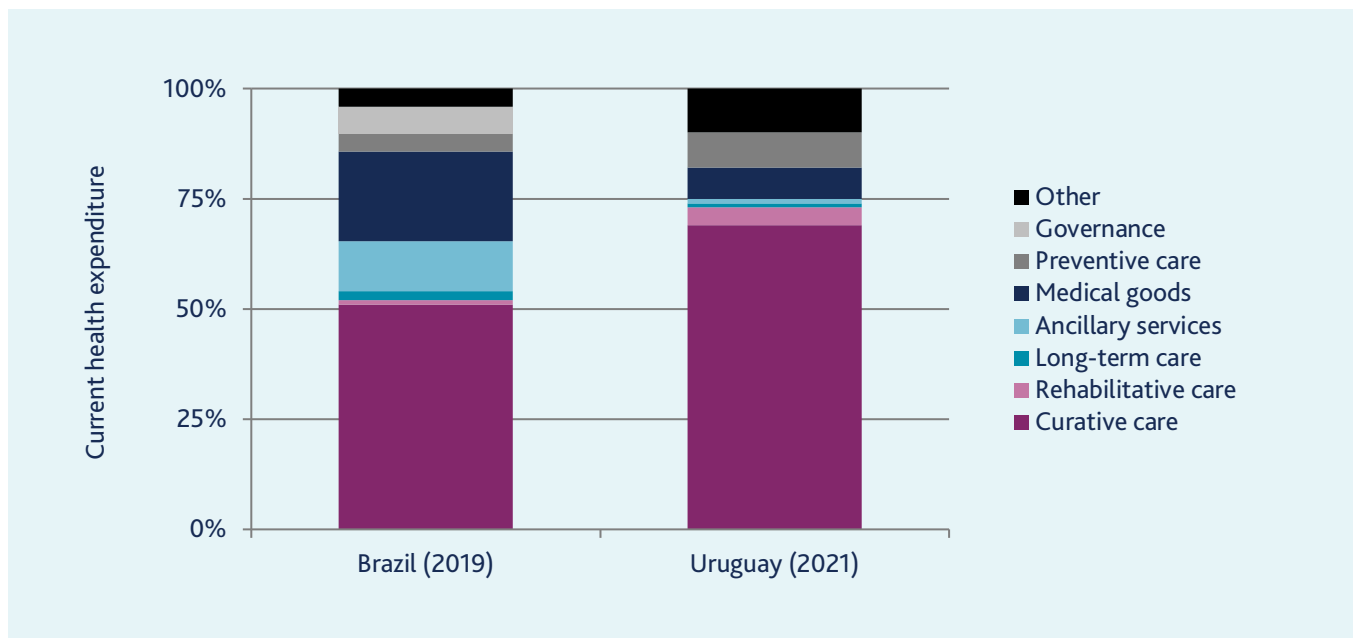
In Brazil, medical goods account for 20% of the expenditure, reflecting a significant investment in pharmaceuticals and medical supplies. Ancillary services, which include diagnostic and laboratory services, make up 11% of the spending. Preventive care, aimed at preventing illness and promoting health, represents 4% of the expenditure while governance, which includes administrative costs, accounts for 6%. Other expenses make up 4%.

In Uruguay, the distribution is different. Medical goods represent only 7% of the expenditure. Preventive care is higher at 8%, indicating a greater emphasis on health promotion and disease prevention. Governance costs are negligible, and other expenses are higher at 10%, suggesting a broader allocation to miscellaneous healthcare services. Rehabilitative care, which helps patients recover from illness or injury, accounts for 4%, a notable difference from Brazil's 1%.

Overall, while both countries prioritise curative care, Brazil allocates a larger portion of its healthcare budget to medical goods and ancillary services. In contrast, Uruguay places more emphasis on preventive care and other healthcare services. There were no data on spending on supportive care.

Figure 11 shows the distribution of spending on various healthcare functions in Brazil (in 2019) and Uruguay (in 2021), as these were the only LC Latin America and Caribbean member countries where data were available. Similar to other regions, the largest portion of healthcare spending in both countries was allocated to curative care, with Brazil spending 50% and Uruguay 69%. This indicates a strong focus on treating existing health conditions.

**Figure 11. Health expenditure by healthcare function in Brazil and Uruguay. The latest year for which data were available is shown within brackets.**



Source: [WHO GHED](#). Data retrieved on June 21, 2024

In terms of challenges, many countries in the region struggle with fragmented health systems.<sup>39</sup> The region's healthcare systems are characterised by a mix of private, social security, and public services, with public health services often being the only option for many people.<sup>40</sup>

Additionally, there is insufficient funding and inequitable distribution of resources and healthcare workers.<sup>39</sup> Access to high-cost cancer drugs is limited in certain countries and national cancer plans are scarce.<sup>40</sup> Further, personalised care, including genetic risk management, is often overlooked.<sup>40</sup> Social determinants such as socioeconomic status, cultural beliefs, and geographic barriers further complicate access to care.<sup>40</sup> The number of oncologists and palliative care services remains low, and innovative strategies like telemedicine and retraining of specialists have not been widely implemented.<sup>39</sup>

Moreover, the lack of comprehensive, population-based cancer registries also hampers the ability to conduct evidence-based situation analyses and formulate effective public health policies.<sup>40,38</sup> The scarcity of well-designed databases and the shortage of human resources for data entry contribute to this problem.<sup>40</sup> Additionally, a poor understanding of data protection concerns has hindered working with public health data in some countries.<sup>40</sup>



## Policy

Efforts to improve cancer care in the region must address systemic issues, including the integration of health services, increasing financial resources, optimising the oncology workforce, and improving technical resources and services for cancer prevention and treatment.<sup>39</sup> Investing in research, evidence-based care, and education is crucial for progress.<sup>39</sup> Additionally, extended and sustained governmental support of cancer registration is required to provide comparable data that benefits patients.<sup>38</sup> Finally, addressing disparities in cancer care, such as those faced by rural and indigenous populations, through community-based participatory research and patient navigator programs is essential for achieving equitable cancer care in Latin America and the Caribbean.<sup>39</sup>

# East Asia and the Pacific



## Lymphoma: Incidence and Mortality

In East Asia and the Pacific, the burden of lymphoma is characterised by relatively high incidence rates in developed countries like Australia and New Zealand, with varying mortality rates across the region.<sup>31</sup>

In 2022, Australia had the highest reported incidence rate of lymphoma at 14.75 per 100,000 people, followed by Singapore (12.6), New Zealand (12.06), Japan (10.36), and Malaysia (6.66). China and the Philippines have lower incidence rates at 3.77 and 5.39 per 100,000, respectively.<sup>31</sup>

The largest increase in lymphoma incidence has been reported in East Asian countries such as the Republic of Korea and Singapore, which have experienced dramatic economic progress over the last three decades. Some important contributors to this increasing incidence might be earlier detection with improved diagnostic techniques, industrialisation, ageing populations, and rising HIV infection incidence in Asia.<sup>41</sup>

Studies show that Asian populations have different lymphoma subtypes compared with Western populations. For instance, the incidence of mature natural killer/T-cell lymphomas and mucosa-associated lymphoid tissue lymphomas are higher, while there are fewer cases of FL and CLL/SLL. The higher rates of mucosa-associated lymphoid tissue lymphoma in Asia can be linked to the common presence of the bacteria *H. pylori*.<sup>42</sup> Moreover, the higher number of natural killer/T-cell lymphoma cases in southeastern Japan are associated with the human T-lymphotropic virus 1.<sup>42</sup> These differences suggest that both ethnicity and environment play roles in the development of these diseases.<sup>42</sup>

A study of Asian populations living in the United States showed that second-generation Asian Americans had higher reported rates of FL, CLL/SLL, and nodular sclerosis HL compared with first-generation immigrants.<sup>43</sup> This may support the concept that environmental factors contribute to the development of lymphoma or CLL.

Finally, mortality rates due to lymphoma also vary across the region.<sup>31</sup> While Australia and New Zealand have mortality rates of 2.91 and 3.3 per 100,000 people respectively, Malaysia (3.78) and Singapore (3.52) have the highest reported mortality rates whereas China and the Philippines have lower mortality rates, at 1.64 and 3 per 100,000, respectively.<sup>31</sup>

**Table A2** in the Appendix lists the countries from which data were analysed to provide this regional snapshot. LC member countries in this region include Australia, China, Japan, Malaysia, New Zealand, Philippines, Republic of Korea and Singapore.



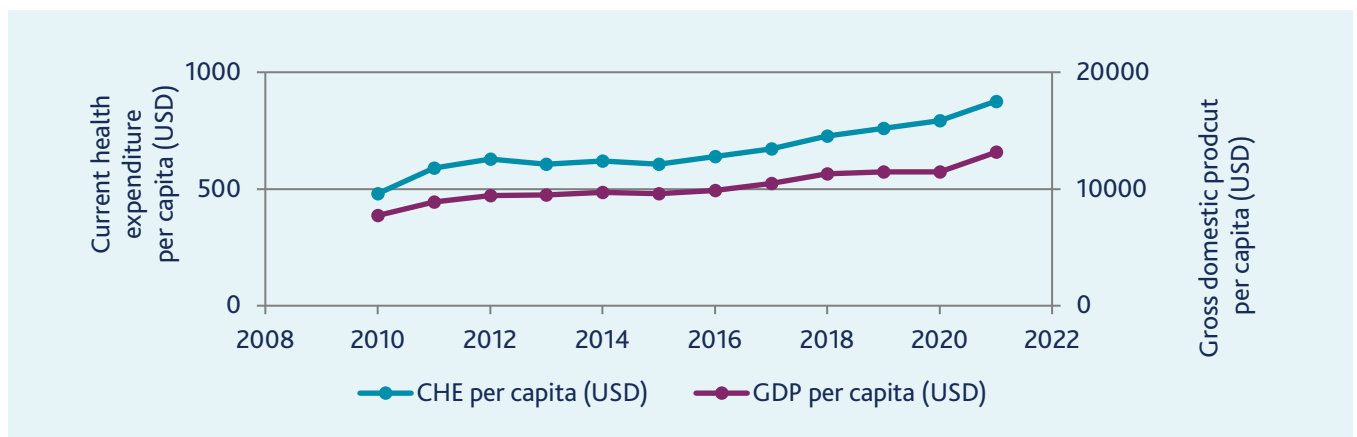
# Trends In Healthcare Spending

In 2021, the amount of the overall economy spent on healthcare ranged from 2.2% (in Brunei Darussalam) to 19.97% (in Tuvalu). Additionally, countries like Japan (10.82%), Australia (10.54%), and New Zealand (10.05%) spent the most money on healthcare based on GDP. When considering these trends, it must be noted that the absolute values still indicate that healthcare spending remains a small portion of the overall economy in most countries.

Figure 12(A) compares the amount spent on healthcare per person against the GDP per capita – a measure of economic performance. From 2010 to 2021, the amount spent on healthcare per person in this region seems to have kept pace with economic growth, and even slightly exceeded it. This suggests a growing prioritisation of healthcare spending in the region.

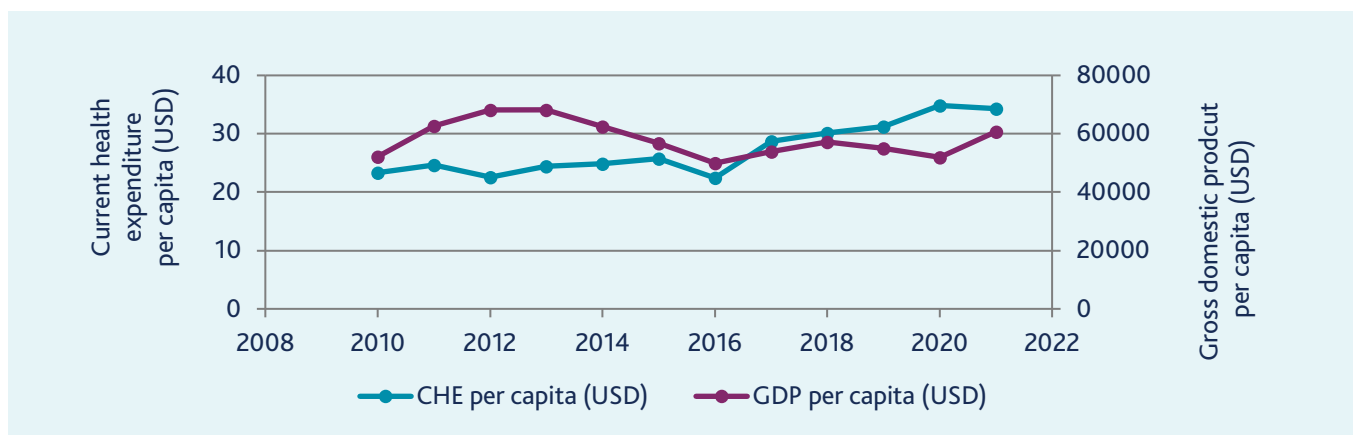
**Figure 12. Current health expenditure per capita versus GDP per capita from 2010 to 2021 in (A) the East Asia and Pacific region and (B) Australia.**

## (A) the East Asia and Pacific region



Data also indicates that the relative growth of health expenditure per person shows a positive trend and keeps up with the pace of economic growth, as shown in Figure 1(B). For instance, in Australia growth in health spending seems to be outpacing economic growth.

## (B) Australia



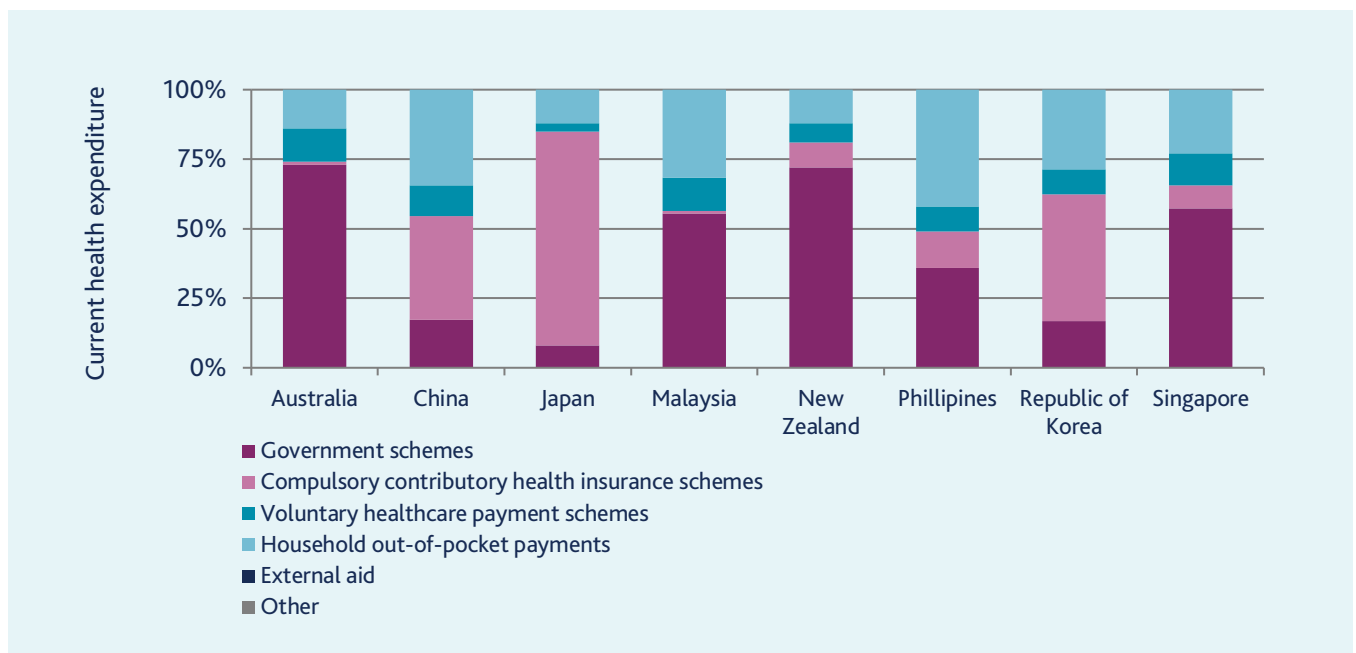
Source: [WHO GHED](#). Data retrieved on April 15, 2024.



## Trends In Healthcare Financing

Countries like Australia and New Zealand have well-established public health systems, with government schemes covering over 70% of health spending. Further, over 70% of health spending in Japan comes from compulsory contributory health insurance schemes. In contrast, in countries such as China, Malaysia, and the Philippines, household out-of-pocket payments account for more than 30% of health spending, which places a burden on those living with lymphoma. In 2021, none of these countries declared external aid or other sources of health spending. Figure 13 shows the diverse landscape of how LC member countries in East Asia and the Pacific paid for healthcare in 2021.

**Figure 13. Sources of health expenditure in LC member countries in the East Asia and Pacific region in 2021.**



Source: [WHO GHED](#). Data retrieved on June 25, 2024





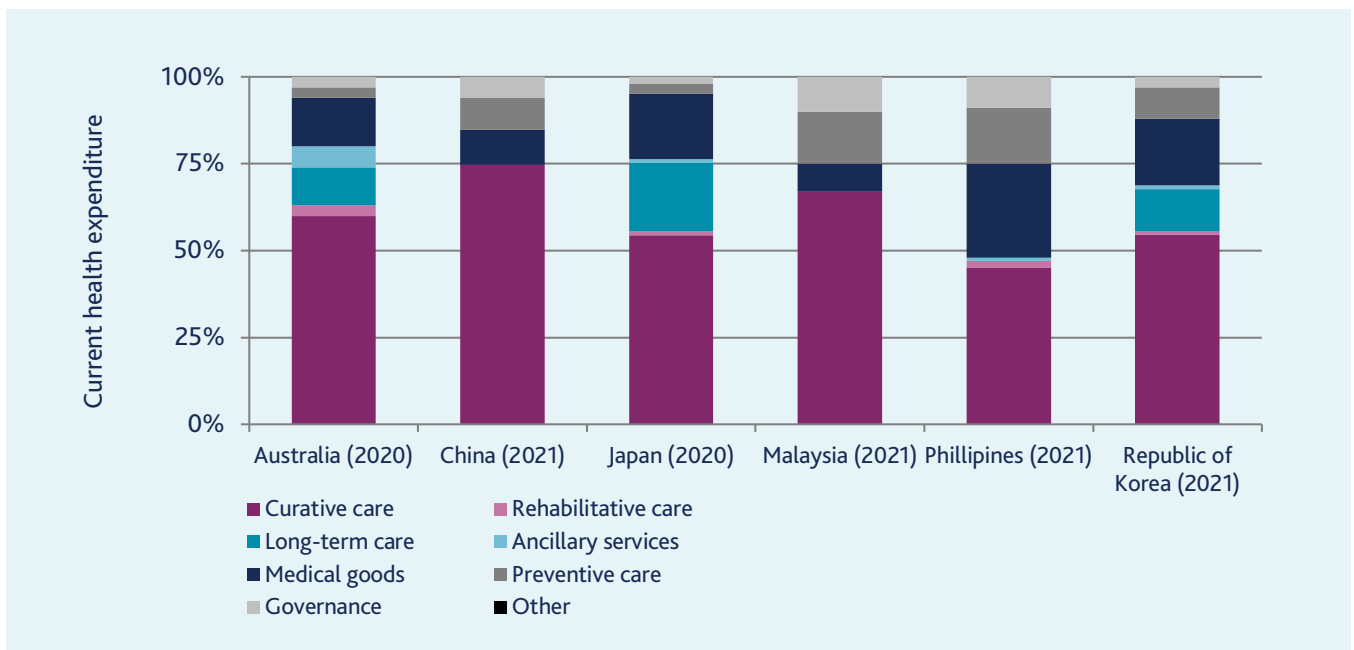
## Trends In Healthcare Function

Similar to other regions, a significant portion of the healthcare budget is allocated to curative care, with percentages ranging from approximately 54% in the Republic of Korea to 74% in China. This indicates a strong emphasis on treatments aimed at curing illnesses.

- In addition to curative care (60%), Australia also shows notable investments in medical goods (14%) and long-term care (11%). Of the countries presented here, it also has the highest investment in ancillary care (6%), which are the supportive services that are provided to aid the primary care process. These services typically include laboratory tests, imaging services such as X-rays and MRIs, and other diagnostic and therapeutic procedures that support the diagnosis and treatment of patients. Preventive care (3%) and governance (3%) receive minimal funding.
- Malaysia (15%) and the Philippines (16%) spent the most on preventive care and governance (10% and 9%, respectively).
- Japan's healthcare spending is more diversified, with 55% dedicated to curative care and significant portions allocated to long-term care (20%) and medical goods (19%).

Figure 14 shows the distribution of spending on various healthcare functions in LC East Asia and Pacific member countries where data were available. New Zealand and Singapore did not have data and there were no data on funding for supportive care. The most recent year from which data were available is indicated within brackets.

**Figure 14. Health expenditure by healthcare function in LC member countries in East Asia and the Pacific. The latest year from which data were available is shown within brackets.**



Source: [WHO GHED](#). Data retrieved on June 21, 2024



## Policy

Advocacy skill-building for patient groups, promoting evidence-based advocacy using patient experience data, improving information provision to patients, and enhancing collaboration among stakeholders across the region may help address the key challenges.<sup>23</sup>

### **Additionally, specific policy or advocacy actions might include:**

- Mapping policies and advocacy readiness in each country and ensuring training is available to advocates using patient evidence-based data.
- Investing in the development of credible patient education materials that help to address personal health literacy as well as promote organisational health literacy practices in healthcare and health systems.
- Establishing a multi-stakeholder lymphoma advisory board for the region to ensure cultural considerations and patient population needs are articulated and reflected in support of culturally appropriate actions and decision-making.<sup>23</sup>
- Implementing actions or initiatives using a cross-collaborative or multi-sectoral approach to support the overall goal of improved care and patient outcomes across East Asia and the Pacific.<sup>23</sup>



# Case Studies

## Case Study 1

### Early Diagnosis, Supportive Care and Policy Interventions in Sub-Saharan Africa

In sub-Saharan Africa, efforts to improve health outcomes by implementing sustainable solutions and proposing policy interventions are changing healthcare functions and aiming to improve patient outcomes.

#### Diagnostic Technology

Blood cancer leads to the death of thousands of children every year in sub-Saharan Africa. A health program led by researchers at the University of Oxford aims to improve the diagnosis and treatment of blood cancers by bringing the next generation of diagnosis technology to Tanzania and Uganda. Launched in 2020, the project [Aggressive Infection-Related East Africa Lymphoma \(AI-REAL\)](#) provides new equipment and the necessary training in blood testing to detect the presence of virus-associated cancers, including EBV-related lymphomas, to establish effective and affordable cancer diagnostics through the use of simple blood tests. It is hoped that availability to in-country testing for lymphomas, in addition to related healthcare professional training in using the various techniques and equipment, will result in improved early diagnosis and improved overall survival.

#### Cancer Control Planning

To address the significant challenges of cancer in sub-Saharan Africa, there is an increased call for urgent action by African governments. With less prosperous economies based on the GDP per capita and disparities in cancer outcomes in the region, poor or absent registry data and the scarce availability of population-based cancer registries contributes to the underdiagnosis of cancer cases. The Lancet Commission on cancer in sub-Saharan Africa was created to examine the state of cancer control in the region by gathering evidence and detailing a plan for action. This work resulted in a series of recommended actions in response to the increasing burden of cancer in Africa detailed in a comprehensive 2022 publication, [Cancer in sub-Saharan Africa: a Lancet Oncology Commission - ScienceDirect](#).

**Table 4. Recommended actions to improve cancer control in sub-Saharan Africa as published by The Lancet Commission on cancer in sub-Saharan Africa.**

Recommended Action	Area of Focus	Estimated Timelines
Cancer control planning	Develop or update national plans and provide financing	Within 5 years
Improve data and cancer registration	Establish and support national cancer registries	Within 5 years
Design healthcare systems that promote equity of access	Incorporate cancer care into universal health coverage	Within 5 years
Increase cure and improve care	Provide affordable, adequate and value-based cancer treatment	Within 5 years
Effective palliation	Establish support care programme	Within 1-3 years
Build and maintain the workforce	Establish oncology training and increase the number of healthcare professionals	Within 3-5 years
Innovation and research	Establish a centre of excellent or research network in each country	Within 1-3 years
Invest in telehealth	Expand the use of digital health solutions to address cancer burden and disparities	Within 1-3 years

Source: The Lancet. Cancer in sub-Saharan Africa. Infographic - SSA cancer ([thelancet.com](https://www.thelancet.com)). Retrieved on August 29, 2024.

While the high cost of cancer medicines, low purchasing power of countries and high out-of-pocket expenditure for cancer medicines for patients all present challenges, there are also examples of success in the region that directly address cancer care and improvements to infrastructure and oncology services. For instance, the [Tanzania Comprehensive Cancer Project](#) that aims to reduce the burden of cancer morbidity and mortality through private-public collaboration by scaling up the quality of cancer care through increased capacity, improvements to infrastructure, advancements in joint research agendas, and early detection services.

There are also examples of international partnership models that support high-impact research and train the next generation of oncology and haematology leaders in cancer research and clinical care, including the [partnership](#) between the [Uganda Cancer Institute](#) and the [Fred Huch Cancer Centre](#) in the US that resulted in the establishment of a state-of-the-art cancer institute in Uganda with outpatient services, research, training and laboratories to address the growing cancer burden in the region.

## Supportive care services

Despite major advancements in modern medicine, approximately 80% of annual deaths occur in low-and-middle income countries. Yet most advance care planning to define end-of-life preferences for future medical care occurring in resource rich high-income countries.<sup>44</sup> People with malignant diseases often present when palliative care is needed, leading to high costs as national or government funding to support home-based palliative care is not available.<sup>45</sup> Additionally, while planning for end-of-life care (EoL) is a dynamic process and evidence shows that people value quality-of-life (QoL) at this stage of their disease, it may be avoided due to cultural considerations, views, avoidance of distressing discussions about death, or a lack of knowledge about the benefits.

A recent institution-based cross-sectional study in Northern Tanzania examined the willingness of people to receive palliative care, noting that most cancer patients enrolled in the study (60.6%) expressed a willingness to accept palliative care with key factors defined as age, occupation, and a more advanced level of knowledge regarding the benefits.<sup>46</sup>

While there have been steps to provide palliative care, policies that make it more accessible are critical. These include specialised training, public advocacy, enhanced research and data reporting, guidelines and intensive policy planning to promote inclusion in public health programming and services.<sup>46</sup>

## Case Study 2

# Outcomes-Based Reimbursement Schemes in Europe for CAR-T

CAR-T therapies are approved for treating relapsed/refractory (R/R) aggressive B cell lymphomas, mantle cell lymphoma (MCL), and indolent B cell lymphomas. In clinical trials, complete response rates of 40–54%, 67% and 69–74% were observed in patients with R/R aggressive B cell lymphomas, MCL, and indolent B cell lymphomas, respectively, who were treated with CAR-T therapies.<sup>47</sup> Although long-term data indicates curable remission rates in these patients, and despite CAR-T therapy rapidly ramping up, significant barriers to effective implementation and patient access persist.<sup>47</sup>

The evolving therapeutic landscape for lymphomas is diverse with many advances in the field leading to innovative treatment options. These options can be quite costly based on price variations for innovative therapies to treat lymphomas due to the different agreements reached between the treatment manufacturers and national health services.<sup>48</sup>

This is the case with respect to the various pricing and reimbursement schemes used to fund CAR-T therapies in Europe which are expensive and often present financial challenges for healthcare systems.<sup>47,48,49,50</sup> In Europe, CAR-T therapies are priced at approximately 350,000 EUR, making them the costliest cancer treatment currently on the market.<sup>48</sup> Some Western European countries, such as Spain, Italy, Germany, and France, have established innovative funding models for CAR-T therapies, often involving regional management and outcomes-based reimbursement (**Table 2**).

In Central Europe and the Baltic countries, the high cost of these therapies may exceed the budgets of smaller healthcare systems, slowing their rollout.<sup>51</sup> For instance, Czechia and Poland have initiated funding schemes and expanded CAR-T centres. In 2020, the Polish government included innovative treatments like CAR-T therapies within its new 4 billion (\$895.2 million USD) medical fund. Czechia has a program that supports patients from neighbouring Slovakia, which lacks its own CAR-T facilities. Romania is in the earlier stages of adopting CAR-T therapies, with limited clinical sites and funding mechanisms.

In some European countries, payments for CAR-T therapies are spread by payers over time and are contingent upon achieving specific health outcomes.<sup>49</sup> This outcomes-based reimbursement approach helps balance the need for innovative treatments with budget constraints, allowing healthcare systems to adopt new therapies while also managing financial risk.<sup>49</sup> In Italy and Spain, payments are staged and depend on patient outcomes, such as survival or remission.<sup>49</sup> In Germany, outcomes-based rebates are provided if patients do not achieve expected health benefits.<sup>49</sup> (**Table A3**)

Overall, the implementation of outcomes-based reimbursement schemes requires robust data collection to track patient outcomes accurately.<sup>49</sup> This can be challenging for many countries as it involves setting up systems to collect and analyse data, which may require additional resources and investment in infrastructure.<sup>49</sup> However, despite these challenges, outcomes-based reimbursement offers promising solutions to ensure innovative therapies are more accessible and affordable, ensuring that payments align with the real-world benefits these therapies provide patients based on the effectiveness of the therapy, thereby reducing the financial risk for healthcare providers and payers.<sup>49</sup>

## Case Study 3

# State of the Nation Report and National Strategic Action Plan for Blood Cancer in Australia

The **State of the Nation Report** is a powerful example of how patient experience data, reported effectively, can drive policy changes in health spending.

The [Leukaemia Foundation](#) surveyed more than 3,200 people living with blood cancer to develop the first [State of the Nation: Blood Cancer in Australia](#) report, which was published in 2019. It was a crucial driver for the organisation to develop a key partnership with the Australian Federal Government, which pledged 150,000 AUD in the 2019–20 budget to establish the Blood Cancer Taskforce.

Led by 32 Australian experts comprised of haematologists, researchers, patients and members of the blood cancer community, the Taskforce developed the [National Strategic Action Plan for Blood Cancer](#) in 2020 to help shape government and inform health system policies and practices. Of the total twenty-one actions in the National Action Plan, eight were considered a high priority to address achieving best practice, enabling access to treatment and support for new discoveries.

### Impact on Lymphoma Management and Care

Since the launch of the first State of the Nation report, the [Pharmaceutical Benefits Advisory Committee](#) has made more than 16 positive recommendations to subsidise blood cancer treatments, including six lymphoma therapies. Further, the Australian Federal Government committed 80 million AUD in funding for CAR T-cell therapy manufacture and the development of a CAR-T Centre of Excellence in Victoria in 2019.

From February 2022, the Australian Federal Government has covered acalabrutinib (Calquence®) for the treatment of MCL, which means patients will no longer have an out-of-pocket cost of 8,200 AUD per script. Three CAR-T therapies for lymphomas have also been approved for use and are funded for patients who meet the criteria. These include tisagenlecleucel (Kymriah®); axicabtagene ciloleucel (Yescarta®), and brexucabtagene autoleucel (Tecartus®), which are available at eight sites nationally.<sup>53</sup> Without government funding, treatment with tisagenlecleucel (Kymriah®), a highly specialised treatment delivered in specialised tertiary hospitals, would cost more than 500,000 AUD for each patient.

In Australia, the [National Blood Cancer Taskforce](#) received Federal funding to develop 11 optimal care plans (OCP) for blood cancer.<sup>53</sup> This is the most complete set of OCPs of any complex cancer group, with disease-specific information available for major blood cancer sub-types.<sup>53</sup> In May 2024, eight detailed OCPs were available. This includes [Optimal Care Pathways for lymphoma](#) and includes [cutaneous T-cell lymphoma](#) as well as [Hodgkin and diffuse large B-cell lymphomas](#), [Waldenstrom's macroglobulinaemia](#), and low grade lymphomas, such as FL, marginal zone lymphoma and MCL.

All OCPs have gone through a national endorsement process, being approved by the Federal Government and all states and territories as best practice in the standard of care for anyone diagnosed with blood cancer in Australia.<sup>53</sup> The OCPs are aimed at enabling healthcare professionals to provide nationally consistent, high-quality, evidence-based information at each stage of the blood cancer pathway, from diagnosis and treatment to ongoing care.<sup>55</sup> Each OCP consists of three main components:<sup>55</sup>

1. A complete OCP that outlines the pathways and timelines that define optimal care for someone diagnosed with each blood cancer, suitable for healthcare professionals.
2. A quick reference guide that summarises the OCP, allowing healthcare professionals to access the information quickly.
3. A guide to best cancer care, a version of the OCP specifically designed for patients and their loved ones.

While a positive step, patients are largely unaware of the existence of these OCPs. Only 2% of Australian respondents to the LC 2024 GPS were fully aware of these resources, and 17% were somewhat aware.<sup>17</sup> A further 34% had no knowledge of them, but indicated they would like to know more.<sup>17</sup>



# Conclusion

Lymphoma, including CLL, is a complex and varied group of blood cancers with over 80 different subtypes. The lymphoma disease impact is significant, affecting patients, their families, and the broader economy due to healthcare costs and productivity losses.

Recent innovations and advancements have brought hope to patients with relapsed or refractory lymphomas. These therapies have shown promising response rates in clinical trials and the real world. However, their high costs and the complexity of administration of some products present barriers to widespread access. In addition to the price of the therapy, other expenses such as those associated with treatment preparation, logistics like travel and lodging, administration, and side effects must also be considered.

Globally, healthcare spending has increased over the past two decades. In 2020, health spending surged because of the COVID-19 pandemic and by 2021, hospital spending alone accounted for 40% of total health spending on average. The financial pressure on health systems worldwide is evident, with health spending as a share of the economy decreasing in 2022 compared with 2021 in many OECD countries.

High-income countries allocate a more sizeable portion of their economy to healthcare, spending about 13.30% of their GDP, which translates to approximately \$6,448.55 USD per person. These countries have established processes that contribute to higher detection rates of lymphoma, though they do not always correlate with lower mortality rates.

In contrast, low-income countries spend significantly less on healthcare, both as a percentage of GDP (5.25%) and per capita (\$36.50 USD), resulting in higher mortality rates from lymphoma due to challenges in disease diagnosis, management and healthcare access. The data highlights the disparities in healthcare funding and the need for targeted policies to enhance healthcare access and quality, particularly in low-income regions.

By understanding how funds are allocated and spent on healthcare, policymakers and system leaders can identify healthcare gaps and inefficiencies, ensuring that resources are directed towards areas with the greatest need. Continued monitoring of these trends will help ensure that health expenditures are closely aligned with economic growth, particularly in regions facing substantial health challenges and health disparities. This is critical in the lymphoma landscape where treatment costs can be high and equitable access to care is essential for improving quality-of-life and patient outcomes.

It is vital that efforts to improve lymphoma care focus on increasing access to affordable treatments, enhancing diagnostic capabilities, and addressing the economic and psychosocial burdens faced by patients as well as their care partners and families. Advocacy groups are positioned to play a crucial role in raising awareness about these key areas in addition to supporting research and data collection and influencing policy development and policy interventions that support equitable access to care and treatment.



Health expenditure data is essential to improving and supporting healthcare services and delivery, with the reporting, collection and analyses of health expenditure data playing an important role in supporting advocacy efforts and defining policy interventions. Although higher spending may lead to better detection or diagnosis, it does not always compare with lower mortality rates, particularly in low-income countries. Gaining an understanding of health spending trends is crucial for guiding efforts to improve lymphoma care and outcomes globally, emphasising the ongoing need for increased and effective healthcare spending across all income levels.

Health expenditure trends help inform policy action, improve health system reporting and provide important information for health expenditure forecasting. By gaining a better understanding of trends in health system spending, as well as the key drivers that directly and indirectly impact cost, will help to ensure that policymakers can make informed decisions during resource allocation, cost-effectiveness analyses, and when monitoring the evolving economic impact of lymphomas.

As health expenditure continues to rise, policy and advocacy efforts that focus on improving health financing are critical, including policies to ensure that patients with lymphoma receive the necessary care, treatment, and support without experiencing financial hardship. It is important to ensure that patients with lymphoma receive comprehensive care, and that their care partners are also considered in policy development and implementation where financial hardship is a risk. Further, strategic advocacy efforts and policy interventions should also focus on supportive care services and advocate for countries to clearly document supportive care funding in addition to regularly reporting relevant data to inform decision-making and health system investment.

To proactively address the challenges associated with health expenditure and health financing, a more comprehensive and collaborative approach is needed. This involves developing policies, creating innovative ways to finance healthcare, and focusing on implementing cost-effective interventions that work for patients and care partners. Sustainable solutions must balance the need to provide quality healthcare with the economic impact of increasing healthcare costs and pressures. In a changing global landscape, it is also essential for health systems to consider and plan for external environmental risks to help ensure that diagnosis, care and treatment plans for patients with lymphoma and CLL are not interrupted.

# Appendices

## Report Methodology and Data Sources

---

To inform this report, a comprehensive multi-method approach to the analysis of health spending trends and patterns worldwide was conducted. The primary source of health spending data in this report was the [World Health Organization \(WHO\) Global Health Expenditure Database \(GHED\)](#), which contains data on health spending for more than 190 countries, starting from 2000. The data are organised according to the System of Health Accounts 2011 system, which helps consistently track how money is spent on health by different sources, providers, and functions. The WHO also uses specific methods to estimate missing data.

For information on cancer incidence and mortality, the primary source for data cited in this report is the [International Agency for Research on Cancer \(IARC\)](#). The source provides a detailed look at the global cancer burden in 2022, using GLOBOCAN estimates, and covers data on cancer incidence, mortality, and prevalence for 185 countries or territories, including 36 types of cancer categorised by sex and age group.

For insights on patient experience, data from the [Lymphoma Coalition Global Patient Survey \(GPS\) on Lymphomas and CLL](#), as well as past reports produced by Lymphoma Coalition, are cited. The GPS, first launched in 2008, is conducted every two years to understand the experiences of patients with lymphoma, focusing on the effects of treatment and care. Data from the GPS helps to ensure patients' voices are heard and informs published research papers, conference presentations and posters, patient resources, and education materials, in addition to supporting LC Member organisations worldwide in their respective planning, advocacy and policy work.

## Analytical Methods

---

This report examines how countries spend money on healthcare, focusing on their income levels, geographic regions, and specific health system characteristics. It also looks at how these spending patterns relate to health outcomes and degree of equity in healthcare access, using case studies to offer a closer look at the factors, policies, and issues that may influence health expenditures. The report also considers healthcare spending relative to the population size and economic strength at regional levels, breaking down spending by sources of funding and healthcare functions to which the funding was allocated.

## Case Studies

---

The first case study explores the cancer burden in sub-Saharan Africa in relation to diagnostic equipment, supportive services specific to the provision of palliation and cancer control planning, while also highlighting policy interventions and recommendations for a call to action. It examines three different examples: first, it details a collaborative project led by clinical and academic institutions to improve access to diagnostic technology in Tanzania and Uganda. This is followed by the recommendations of The Lancet Commission on cancer in sub-Saharan Africa explores policy interventions to help improve cancer control planning in the region using a multi-year strategic blueprint and finally, an overview of end-of-life and the willingness of people to receive palliative care based on an institutional cross-sectional study in Northern Tanzania.

The second case study outlines financial challenges and innovative payment models for chimeric antigen receptor T-cell (CAR-T) therapies in Europe. CAR-T therapies represent a significant advancement in lymphoma treatment but come with high costs, approximately 350,000 EUR, making them the most expensive cancer treatments on the market. The study examines various pricing and reimbursement schemes across Europe. The case study highlights the use of outcomes-based reimbursement, where payments are linked to the therapy's effectiveness, as a means to manage high costs and ensure access to these innovative treatments.

The final case study illustrates the power of patient experience data in driving policy changes and improving healthcare outcomes. It details the impact of the State of the Nation: Blood Cancer in Australia report that led to a partnership with the Australian Federal Government. This partnership resulted in the development of the National Strategic Action Plan for Blood Cancer, increased funding to subsidise lymphoma treatment, and the launch of Optimal Care Pathways (OCPs) for blood cancer to provide consistent, high-quality care across Australia.

# Countries In World Bank Income Group

**Table A1. Countries included in each World Bank income group for this analysis.**

World Bank income group	Countries
<b>High income</b>	American Samoa, Andorra, Antigua and Barbuda, Aruba, Australia, Austria, Bahamas, Bahrain, Barbados, Belgium, British Virgin Islands, Brunei Darussalam, Canada, Cayman Islands, Channel Islands, Chile, Croatia, Curacao, Cyprus, Czechia, Denmark, Estonia, Faroe Islands, Finland, France, French Polynesia, Germany, Gibraltar, Greece, Greenland, Guam, Guyana, Hong Kong, Hungary, Iceland, Ireland, Isle of Man, Israel, Italy, Japan, Republic of Korea, Kuwait, Latvia, Liechtenstein, Lithuania, Luxembourg, Macao, Malta, Monaco, Nauru, Netherlands, New Caledonia, New Zealand, Northern Mariana Islands, Norway, Oman, Panama, Poland, Portugal, Puerto Rico, Qatar, Romania, San Marino, Saudi Arabia, Seychelles, Singapore, Sint Maarten (Dutch part), Slovakia, Slovenia, Spain, St Kitts and Nevis, St Martin (French part), Sweden, Switzerland, Trinidad and Tobago, United Arab Emirates, United Kingdom, United States of America, Uruguay, Virgin Islands (US)
<b>Upper-middle income</b>	Albania, Argentina, Armenia, Azerbaijan, Belarus, Bosnia Herzegovina, Botswana, Brazil, Bulgaria, China, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Equatorial Guinea, Fiji, Gabon, Georgia, Grenada, Guatemala, Indonesia, Iraq, Jamaica, Kazakhstan, Kosovo, Libya, Malaysia, Maldives, Marshall Islands, Mauritius, Mexico, Moldova, Montenegro, Namibia, North Macedonia, Palau, Paraguay, Peru, Russian Federation, Serbia, South Africa, St Lucia, St Vincent and the Grenadines, Suriname, Thailand, Tonga, Türkiye, Turkmenistan, Tuvalu, West Bank and Gaza
<b>Lower-middle income</b>	Algeria, Angola, Bangladesh, Benin, Bhutan, Bolivia, Cabo Verde, Cambodia, Cameroon, Cape Verde, Comoros, Republic of Congo, Côte d'Ivoire, Djibouti, Egypt, Eswatini, Ghana, Guinea, Haiti, Honduras, India, Islamic Republic of Iran, Jordan, Kenya, Kiribati, Kyrgyzstan, Lao People's Democratic Republic, Lebanon, Lesotho, Mauritania, Micronesia (Federated States), Mongolia, Morocco, Myanmar, Nepal, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Philippines, Samoa, Sao Tome and Principe, Senegal, Solomon Islands, Sri Lanka, Tajikistan, United Republic of Tanzania, Timor-Leste, Tunisia, Ukraine, Uzbekistan, Vanuatu, Viet Nam, Zambia, Zimbabwe
<b>Low income</b>	Afghanistan, Burkina Faso, Burundi, Central African Republic, Chad, Democratic People's Republic of Congo, Eritrea, Ethiopia, Gambia, Guinea-Bissau, Democratic People's Republic of Korea, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Rwanda, Sierra Leone, Somalia, South Sudan, Sudan, Syrian Arab Republic, Togo, Uganda, Yemen

Source: [World Bank Open Data](#). Data retrieved on June 26, 2024. Countries In World Bank Income Group

## Countries Belonging to Each Region of Interest

**Table A2. List of countries belonging to each region of interest.**

WHO region	Countries
<b>Sub-Saharan Africa</b>	Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Congo (Dem. Rep.), Congo (Rep.), Cote d'Ivoire, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe
<b>Central Europe and the Baltics</b>	Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia
<b>East Asia and the Pacific</b>	American Samoa, Australia, Brunei Darussalam, Cambodia, China, Fiji, French Polynesia, Guam, Hong Kong SAR, Indonesia, Japan, Kiribati, Korea (Dem. People's Rep.), Korea (Rep.), Lao PDR, Macao SAR, Malaysia, Marshall Islands, Micronesia (Fed. Sts.), Mongolia, Myanmar, Nauru, New Caledonia, New Zealand, Northern Mariana Islands, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Vietnam
<b>Latin America and the Caribbean</b>	Antigua and Barbuda, Argentina, Aruba, Bahamas, Barbados, Belize, Bolivia, Brazil, British Virgin Islands, Cayman Islands, Chile, Colombia, Costa Rica, Cuba, Curacao, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Sint Maarten, St. Kitts and Nevis, St. Lucia, St. Martin, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Turks and Caicos Islands, Uruguay, Venezuela, Virgin Islands (U.S.)

Source: World Bank Open Data. Data retrieved on June 26, 2024.

# Pricing and Reimbursement in Select European Countries

**Table A3. Pricing and reimbursement process used in select European countries for CAR-T therapies.**

Country	Overview of pricing and reimbursement process
<b>Austria</b> <sup>56</sup>	<ul style="list-style-type: none"> <li>• CAR-T therapy is funded through a system called "Leistungsorientierte Krankenanstaltenfinanzierung" (LKF), which translates to activity-based hospital financing. This system assigns standardised point scores to medical procedures performed in hospitals nationwide.</li> <li>• The financial value assigned to each LKF point can differ from one province to another. As a result, the funding available for CAR-T therapy can vary between treatment centres and may not always cover all the costs involved.</li> <li>• Additionally, there is no established system for transferring costs between provinces. This means that a CAR-T treatment centre may have to absorb the costs of treating patients from other provinces, potentially leading to financial challenges for the centre and the province where it is located.</li> </ul>
<b>France</b> 49,50	<ul style="list-style-type: none"> <li>• CAR-T therapies are reimbursed on the condition of data collection through national registries. The data are used to reassess therapy approval based on real-world effectiveness.</li> <li>• Patients have reimbursed access to therapies through the Autorisations temporaires d'utilisation agreement while price negotiations are finalised.</li> <li>• Authorised centres receive CAR T-cell product funding through a national financing mechanism for innovative, high-cost products, known as "Liste en Sus" or "Supplementary List."</li> <li>• Hospitals receive a flat supplement of 15,000 EUR per patient to cover procedure costs, although this may not fully cover all associated expenses.</li> </ul>
<b>Germany</b> 49,50,57,58	<ul style="list-style-type: none"> <li>• Groups of health insurers (covering around 50% of the population in total) are reimbursing CAR-T therapies through outcomes-based reimbursement agreements, where manufacturers may need to reimburse costs if patients die after treatment.</li> <li>• Funding for CAR-T therapies is managed through agreements at the centre level, with individual sick funds responsible for reimbursement.</li> <li>• Funding does not cover other associated costs, which is a key concern for hospitals considering adopting CAR-T therapies.</li> </ul>
<b>Italy</b> 49,50,57,58	<ul style="list-style-type: none"> <li>• Reimbursement for CAR-T therapies is broken down into three staged payments tied to patient outcomes, such as survival.</li> <li>• CAR-T therapy funding is allocated to the regions by the central government and managed by regional authorities.</li> <li>• Funding is provided through the "Fondo Farmaci Oncologici Innovativi" or "Funds for Innovative Oncological Medicines."</li> <li>• In certain regions, to ensure procedure costs are covered for patients referred from another area, authority approval from the patient's original region may be required before initiating therapy. This can delay patient access to treatment.</li> </ul>
<b>Spain</b> 49,50,57,58	<ul style="list-style-type: none"> <li>• Reimbursement for CAR-T therapies is broken down into two staged payments tied to patient outcomes, such as survival.</li> <li>• CAR-T therapy funding is managed at the regional level, requiring approval from both regional authorities and a national expert group.</li> <li>• The cost of care and procedures are covered by the Autonomous Community where the treatment occurs and is subsequently refunded via the Health Cohesion Fund. This ensures that treatment is only initiated with guaranteed funding, mitigating financial risks for treatment centres.</li> </ul>
<b>United Kingdom</b> 49,57,58	<ul style="list-style-type: none"> <li>• Funded through the Cancer Drugs Fund.</li> <li>• CAR-T therapies are reimbursed on the condition of collecting additional data at the cohort level from a combination of follow-up from the pivotal trials, as well as data from use in clinical practice in either country, which form the basis for future reassessments.</li> </ul>

## References

1. Lymphoma Coalition. Subtype Report. Chronic Lymphocytic Leukaemia. 2022. [2022\\_Lymphoma\\_Coalition\\_Report\\_CLL\\_VF\\_A4\\_Digital.pdf](#)
2. Nakaganda, A., Spencer, A., Orem, J. *et al.* Estimating cancer incidence in Uganda: a feasibility study for periodic cancer surveillance research in resource limited settings. *BMC Cancer* 23, 772 (2023). [doi.org/10.1186/s12885-023-11124-6](https://doi.org/10.1186/s12885-023-11124-6)
3. Chen, Yan *et al.* Estimates of the global burden of non-Hodgkin lymphoma attributable to HIV: a population attributable modeling study. *eClinicalMedicine*, Volume 67, 102370 [Estimates of the global burden of non-Hodgkin lymphoma attributable to HIV: a population attributable modeling study](#)
4. Mafra A, Laversanne M, Gospodarowicz M, *et al.* Global patterns of non-Hodgkin lymphoma in 2020. *Int J Cancer*. 2022;151(9):1474-1481. doi:10.1002/ijc.34163
5. Jason K. Gurney, Shelley Campbell, Stephanie Turner, Nina Scott. Addressing cancer inequities for indigenous populations: The New Zealand story, *Journal of Cancer Policy*, Volume 23, 2020,100209, ISSN 2213-5383, [doi.org/10.1016/j.jcipo.2019.100209](https://doi.org/10.1016/j.jcipo.2019.100209)
6. Sydney Clough, Matthew Wheeler, James Stanley, Virginia Signal, Myra Ruka, Jonathan Koea, Jason Gurney, Blood cancer incidence, mortality and survival for Māori in New Zealand, *Cancer Epidemiology*, Volume 93,2024,102656,ISSN 1877-7821, [doi.org/10.1016/j.canep.2024.102656](https://doi.org/10.1016/j.canep.2024.102656)
7. Yao Y, Lin X, Li F, Jin J, Wang H. The global burden and attributable risk factors of chronic lymphocytic leukemia in 204 countries and territories from 1990 to 2019: analysis based on the global burden of disease study 2019. *Biomed Eng Online*. 2022 Jan 11;21(1):4. doi: 10.1186/s12938-021-00973-6. PMID: 35016695; PMCID: PMC8753864.
8. Lee TY, Johnson A, Cooke CE, Yared JA, Summers A, Yang K, Liu S, Tang B, Onukwugha E. Costs and health care resource utilization among Medicare beneficiaries diagnosed with chronic lymphocytic leukemia. *J Manag Care Spec Pharm*. 2024 May;30(5):430-440. doi: 10.18553/jmcp.2024.30.5.430. PMID: 38701030; PMCID: PMC11068650.
9. Global spending on health: coping with the pandemic. Geneva: World Health Organization; 2023. Licence: CC BY-NC-SA 3.0 IGO. [9789240086746-eng.pdf](#)
10. Social Health Protection Network. Global Health Expenditure Report 2023, Published December 14, 2023. Accessed November 6, 2024. [Global Health Expenditure Report 2023 - P4H Network](#)
11. World Bank Group. World Bank Open Data. Accessed November 01, 2024. [World Bank Open Data | Data](#)
12. Know your subtype. Lymphoma Coalition (2018). [lymphomacoalition.org/home/know\\_your\\_subtype](https://lymphomacoalition.org/home/know_your_subtype).
13. Bray F, Laversanne M, Sung H, *et al.* Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2024;74(3):229-263. doi: 10.3322/caac.21834
14. Ou Y, Long Y, Ji L, Zhan Y, Qiao T, Wang X, Chen H, Cheng Y. Trends in Disease Burden of Chronic Lymphocytic Leukemia at the Global, Regional, and National Levels From 1990 to 2019, and Projections Until 2030: A Population-Based Epidemiologic Study. *Front Oncol*. 2022 Mar 10;12:840616. Doi: 10.3389/fonc.2022.840616. PMID: 35359356; PMCID: PMC8961301.
15. Lymphoma Coalition. Lymphoma Care in Europe. Reflections on Patient Experience and Priorities for Care. 2022. [Report\\_Lymphoma\\_Care\\_In\\_Europe\\_VF\\_A4\\_Digital.pdf](#)
16. NPDQ® Adult Treatment Editorial Board. PDQ B-Cell Non-Hodgkin Lymphoma Treatment. Bethesda, MD: National Cancer Institute. Available at: [cancer.gov/types/lymphoma/hp/b-cell-lymphoma-treatment-pdq](https://cancer.gov/types/lymphoma/hp/b-cell-lymphoma-treatment-pdq). Accessed November 06, 2024.
17. Lymphoma Coalition. Global Patient Survey on Lymphomas & CLL. 2024. [lymphomacoalition.org/global-patient-survey](https://lymphomacoalition.org/global-patient-survey)
18. Rand L, Dunn M, Slade I *et al.* Understanding and using patient experience as evidence in healthcare priority setting. *Cost Eff Resource Allocation* (2019) 17:20 [doi.org/10.1186/s12962-019-0188-1](https://doi.org/10.1186/s12962-019-0188-1).
19. Fitch MI. Supportive care framework. *Can Oncol Nurs J*. 2008;18(1):6-24. doi:10.5737/1181912x181614

20. OECD (2023), Health at a Glance 2023: OECD Indicators, OECD Publishing, Paris, [doi.org/10.1787/7a7afb35-en](https://doi.org/10.1787/7a7afb35-en).
21. World Health Organization. Health Topics. Health Financing. Accessed November 06, 2024. [Health financing](#)
22. World Health Organization. Universal Health Coverage. 2023. Accessed November 06, 2024. [Universal health coverage \(UHC\)](#)
23. Lymphoma Coalition. Lymphoma care in Asia-Pacific. [lymphomacoalition.org/wp-content/uploads/LC-APAC-Report-Card-Letter-Web-V2.pdf](https://lymphomacoalition.org/wp-content/uploads/LC-APAC-Report-Card-Letter-Web-V2.pdf) Published August 2020. Accessed August 01, 2024.
24. World Health Organization. Billions left behind on the path to universal health coverage. September 2023. Accessed November 05, 2024. [Billions left behind on the path to universal health coverage](#)
25. World Health Organization. Global Spending on Health. Weathering the Storm. Global Report. 2020. Accessed November 06, 2024. [9789240017788-eng \(2\).pdf](#)
26. Peterson Center on Healthcare. KFF. Health System Tracker. What drives health spending in the U.S. compared to other countries? August 02, 2024. Accessed August 02, 2024 [What drives health spending in the U.S. compared to other countries? - Peterson-KFF Health System Tracker](#).
27. Business Insider. Accessed November 06, 2024. [businessinsider.com/healthcare-spending-as-percent-of-gdp-recession-2016-12](https://businessinsider.com/healthcare-spending-as-percent-of-gdp-recession-2016-12)
28. OECD. OECD iLibrary. [Health at a Glance 2021: OECD Indicators. Health Expenditure in relation to GDP](#). Accessed December 6, 2024.
29. OECD. Health spending and financial sustainability. Accessed June 27, 2024. [Health spending and financial sustainability | OECD](#)
30. World Health Organization. [Global Health Expenditure Database](#). Global Health Expenditure Database
31. International Agency for Research on Cancer. [Cancer Today](#). Accessed June 25, 2024. Cancer Today
32. International Agency for Research on Cancer. CANCER TODAY IARC ([gco.iarc.who.int/today](https://gco.iarc.who.int/today)); data version: Globocan 2022 (version 1.1)—08.02.2024) on June 26, 2024.
33. Cainelli F, Tanko MN, Vento S. The challenge of lymphomas in sub-Saharan Africa. *Lancet Oncol*. 2010;11(7):610-1. doi: 10.1016/S1470-2045(10)70100-5.
34. Naresh KN, Raphael M, Ayers L, et al. Lymphomas in sub-Saharan Africa--what can we learn and how can we help in improving diagnosis, managing patients and fostering translational research?. *Br J Haematol*. 2011;154(6):696-703. doi:10.1111/j.1365-2141.2011.08772.x
35. Omotoso O, Teibo JO, Atiba FA, et al. Addressing cancer care inequities in sub-Saharan Africa: current challenges and proposed solutions. *Int J Equity Health*. 2023;22(1):189. doi: 10.1186/s12939-023-01962-y.
36. Huang J, Chan SC, Lok V, et al. Global burden, risk factors, and trends of non-Hodgkin lymphoma: A worldwide analysis of cancer registries. *Cancer Med*. 2024;13(5):e7056. doi: 10.1002/cam4.7056.
37. Vaccarella S, Georges D, Bray F, et al. Socioeconomic inequalities in cancer mortality between and within countries in Europe: a population-based study. *Lancet Reg Health Eur*. 2022;25:100551. doi: 10.1016/j.lanepe.2022.100551.
38. De Paula Silva N, Colombet M, Moreno F, Erdmann F, Dolya A, Piñeros M, et al. Incidence of childhood cancer in Latin America and the Caribbean: coverage, patterns, and time trends. *Rev Panam Salud Publica*. 2024;48:e11. <https://doi.org/10.26633/RPSP.2024.11>
39. Strasser-Weippl K, Chavarri-Guerra Y, Villarreal-Garza C, et al. Progress and remaining challenges for cancer control in Latin America and the Caribbean. *Lancet Oncol*. 2015;16(14):1405-38. doi: 10.1016/S1470-2045(15)00218-1.
40. Llera AS. A fresh perspective on Latin America cancer care: uncovering hidden messages in unconventional data sources. *Lancet Reg Health Am*. 2023;24:100559. doi: 10.1016/j.lana.2023.100559
41. Tan D, Tan SY, Lim ST, et al. Management of B-cell non-Hodgkin lymphoma in Asia: resource-stratified guidelines. *Lancet Oncol*. 2013;14:e548-e561. doi: 10.1016/S1470-2045(13)70450-9. Tan 2013 PDF p1 col 1.
42. Phillips AA, Smith DA. Health disparities and the global landscape of lymphoma care today. *Am Soc Clin Oncol Educ Book*. 2017;37:526-534. doi: 10.1200/EDBK\_175444. Phillips 2017 PDF p2 col 2 para 1.



43. Clarke CA, Glaser SL, Gomez SL, et al. Lymphoid malignancies in U.S. Asians: incidence rate differences by birthplace and acculturation. *Cancer Epidemiol Biomarkers Prev.* 2011;20:1064-1077. doi: 10.1158/1055-9965.EPI-11-0038. Clarke 2011 PDF p12 col 2 para 2
44. Gafaar TO, Pesambili M, Henke O, Vissoci JRN, Mmbaga BT, Staton C (2020) Good death: An exploratory study on perceptions and attitudes of patients, relatives, and healthcare providers, in northern Tanzania. *PLoS ONE* 15(7): e0233494. doi.org/10.1371/journal.pone.0233494
45. Else Kröner-Fresenius-Stiftung. Strengthening of palliative care in northern Tanzania. Accessed November 03, 2024. [Strengthening of palliative care in northern Tanzania | Else Kröner-Fresenius-Stiftung](#)
46. Mushi GL, Serventi F, Alloyce JP, Saria VF, Xu X, Khan K, et al. (2023) Willingness of advanced cancer patients to receive palliative care and its determinants: A cross-sectional study in Northern Tanzania. *PLoS ONE* 18(10): e0290377. doi.org/10.1371/journal.pone.0290377
47. Cappell KM, Kochenderfer JN. Long-term outcomes following CAR T cell therapy: what we know so far. *Nat Rev Clin Oncol.* 2023;20(6):359-371. doi: 10.1038/s41571-023-00754-1.
48. Giorgioni L, et al. CAR-T state of the art and future challenges, A regulatory perspective. *Int J Mol Sci.* 2023;24(14):11803. doi: 10.3390/ijms241411803
49. Jørgensen J, Hanna E, Kefalas P. Outcomes-based reimbursement for gene therapies in practice: the experience of recently launched CAR-T cell therapies in major European countries. *J Mark Access Health Policy.* 2020;8(1):1715536. doi: 10.1080/20016689.2020.1715536
50. Canales Albendea MÁ, Canonico PL, Cartron G, et al. Comparative analysis of CAR T-cell therapy access for DLBCL patients: associated challenges and solutions in the four largest EU countries. *Front Med (Lausanne).* 2023;10:1128295. doi:10.3389/fmed.2023.1128295
51. Zamecnik A. Access to CAR-T therapies in Central and Eastern Europe in "catch-up" mode compared to the West. 2022. Available at: [pharmaceutical-technology.com/features/access-to-car-t-therapies-in-central-and-eastern-europe-in-catch-up-mode-compared-to-the-west/?cf-view&cf-closed](https://pharmaceutical-technology.com/features/access-to-car-t-therapies-in-central-and-eastern-europe-in-catch-up-mode-compared-to-the-west/?cf-view&cf-closed) Accessed August 2024.
52. Australian Government. Department of Health. Budget 2022-23. Accessed August 06, 2024. [health.gov.au/sites/default/files/documents/2022/03/budget-2022-23-investing-in-cancer-prevention-diagnoses-and-treatment-budget-2022-23-investing-in-cancer-prevention-diagnoses-and-treatment.pdf](https://health.gov.au/sites/default/files/documents/2022/03/budget-2022-23-investing-in-cancer-prevention-diagnoses-and-treatment-budget-2022-23-investing-in-cancer-prevention-diagnoses-and-treatment.pdf)
53. State of the Nation: Blood Cancers in Australia Report 2023. Final Report to Leukaemia Foundation. February 2023. Accessed August 01, 2024. [Leukaemia-Foundation\\_Final-Report\\_State-of-the-Nation-Blood-Cancers-in-Australia-Report-2023.pdf](#)
54. Department of Health and Aged Care. Expanded access to cutting edge CAR T-cell therapy. Published January 28, 2020. Accessed August 06, 2024. [Expanded access to cutting edge CAR T-cell therapy | Health Portfolio Ministers | Australian Government Department of Health and Aged Care](#)
55. Leukaemia foundation. Optimal Care Pathways for healthcare professionals. Last updated May 14, 2024. Accessed June 20, 2024. [Healthcare Professional Optimal Care Pathways - Leukaemia Foundation](#)
56. Hopfinger G, Rupp B, Greil R. Barriers to patient access of CAR T cell therapies in Austria. *Memo.* 2023;16:79-90. doi:10.1007/s12254-022-00859-w.
57. Heine R, Thielen FW, Koopmanschap M, et al. Health economic aspects of chimeric antigen receptor T-cell therapies for hematological cancers: Present and future. *Hemasphere.* 2021;5(2):e524. doi:10.1097/HS9.0000000000000524
58. Catapult cell and gene therapy. CAR-T cell therapies and the use of outcomes-based reimbursement in the five major European countries. Available at: [ct.catapult.org.uk/resources/case-studies/car-t-cell-therapies-and-the-use-of-outcomes-based-reimbursement-in-the-five-major-european-countries](https://ct.catapult.org.uk/resources/case-studies/car-t-cell-therapies-and-the-use-of-outcomes-based-reimbursement-in-the-five-major-european-countries). Accessed August 2024.



For more information about Lymphoma Coalition, please visit  
**[lymphomacoalition.org](http://lymphomacoalition.org)**