The Value of Investing in Innovative Medicines: Socioeconomic Burden of HER2+ Breast Cancer, Diabetic Macular Edema, Age-related Macular Degeneration and Annual Social Impact of Roche's Treatments for the Diseases in LATAM

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List of Abbreviations

AMD	Age-related Macular Degeneration
BC	Breast Cancer
DALYs	Disability-Adjusted Life Years
DME	Diabetic Macular Edema
GDP	Gross Domestic Product
GVA	Gross Value Added
HER2+	Human Epidermal Growth Factor Receptor 2
HDI	Human Development Index
nAMD	Neovascular Age-Related Macular Degeneration
AMD	Age-Related Macular Degeneration
PR	Patients Reached
QALY	Quality Adjusted Life Years
QoL	Quality of Life
SI	Social Impact
SOB	Socioeconomic Burden
TA	Therapy Area

Glossary

Disability Adjusted Life Years (DALY)	DALY is a universal metric that allows researchers and policymakers to compare very different populations and health conditions across time. DALYs equal the sum of years of life lost (YLLs) and years lived with disability (YLDs). One DALY equals one lost year of healthy life. DALYs allow us to estimate the total number of years lost due to specific causes and risk factors at the country, regional, and global levels.
Economically active person (also see "Labour force")	All persons who supply labour for the production of goods and services in a country during a specified period. This includes currently employed persons and currently unemployed persons who are available for and actively seek work.
Forecasting period	Refers to the time span from 2024 to 2027, during which certain inputs are projected. The most recent year with available actual data is 2023.
Gross Value Added (GVA)	Gross value added (GVA) is defined as output (at basic prices) minus intermediate consumption (at purchaser prices); it contains only the added value created in the production process. GVA can be reported separately by economic entity, such as an industry sector. The sum of overall GVA plus taxes on products minus subsidies on products amounts to gross domestic product (GDP).
GVA effects (direct)	Direct GVA effects are changes in the GVA creation corresponding to changes in the production of a sector. Increases in the productive activity imply increases in GVA according to the production-GVA-ratio of the respective sector (which can be derived from national accounts tables).
GVA effects (indirect)	Indirect GVA effects are changes in the GVA creation of sectors that supply goods or services to the sector where a direct effect is observed. Given the interdependence of production processes in an economy, positive direct GVA effects of increased production in one sector implicate additional GVA creation in supplier sectors. E.g. additional production in a bakery requires intermediate inputs such as flour, yeast, electricity, or machinery. Thus, additional production (and GVA creation) also takes place in the sectors supplying these goods and services.

GVA effects (induced)	Induced GVA effects are changes in the GVA creation caused by changes in consumption as a result of direct and indirect effects. Increased GVA creation implicates increased labour income. This, in turn, will be spent on consumption, inducing further production (and GVA creation).
Health footprint	The health footprint is the incremental health benefit that a specific treatment can generate compared to an alternative treatment (usually based on clinical evidence). This benefit is applied to the patient population under investigation over a defined time horizon.
Health outcome	Health outcomes are used to measure the efficacy of a treatment that patients receive in addressing a health condition. Depending on the condition and the intended effect of the treatment, possible health outcomes can be specific blood test results, disease severity indicators, patient-reported outcomes, or survival probability.
Labour force	The labour force consists of all persons who supply labour to produce goods and services during a specified period, i.e., all those who are economically active. It considers people who are currently employed and people who are currently unemployed but seeking work. Unpaid workers, family workers, and students are often omitted, and some countries do not include members of the armed forces. Some definitions of the labour force additionally refer to a working age population only, e.g., to persons aged 15 and older.
Labour force participation rate	The labour force participation rate is the share of the population that is economically active. This includes all people who supply labour to produce goods and services during a specified period.
Quality Adjusted Life Years (QALY)	An outcome measure that considers both the quantity and the quality of extra life provided by the healthcare intervention. It is the arithmetic product of life expectancy and the quality of remaining life years.

Retrospective analysis	Refers to the period from 2017 to 2023.
Socioeconomic footprint	The socioeconomic footprint is the sum of the economic benefits that come along with the incremental health benefits of one treatment compared to an alternative treatment. These benefits are added up for the patient population under investigation over a defined time horizon. The socioeconomic footprint is depicted in terms of gross value added (GVA) per labour input (i.e., labour productivity).
Paid work	Paid work refers to work performed by an individual in the context of gainful employment.
Patients reached	Refers to the number of patients who received a specific medicine at least once during a one-year period.
Productivity loss	Productivity loss refers to the reduction in the capacity to engage in productive economic activities due to health related factors. It is measured with the reduction in gross domestic product (GDP) to capture the impact on the broader economy.
Unpaid work	Unpaid work refers to work performed by an individual outside gainful employment. In order to distinguish unpaid work from leisure time and other activities, the third person criterion is used: Unpaid work encompasses only activities which are replaceable by another person.
Social Impact	The Social Impact is defined as the benefit in terms of avoided losses in work productivity due to better health, expressed by potentially generated gross value added (GVA).
Socioeconomic Burden	The Socioeconomic burden is defined as losses in paid and unpaid work due to a disease. Expressed by lost gross value added (GVA).

1. Executive Summary

Investing in health is a catalyst for economic growth and national prosperity, representing one of the most impactful investments a society can make for its people, communities, and economy. In addition to the welfare benefits, better health also reduces time lost to illness, allowing individuals to return to work sooner, stay productive longer, and engage actively in society [1]. This increased productivity boosts incomes and fuels economic output, creating a virtuous cycle where improved health drives greater wealth. In turn, this wealth supports further investment in healthcare and social services, reinforcing positive health outcomes and promoting sustainable development [2], [3], [4].

Objective

This report aims to demonstrate that healthcare is a strategic investment, with innovative medicines serving as a key driver of improved health outcomes and broader socioeconomic growth across ten Latin American countries. By understanding the socioeconomic burden of two specific disease areas as well as the impact of Roche's relevant pharmaceutical products in ten countries, the study seeks to demonstrate how these medicines, beyond their immediate health benefits to the patient, influence societal welfare and contribute to economic growth.

Scope

The study focuses on a subset of Roche's pharmaceutical products in the following two therapeutic areas: HER2+ breast cancer, and retinal disease which includes Diabetic Macular Edema (DME) and Neovascular Age-related Macular Degeneration (nAMD). The analysis covers ten Latin American countries which are Mexico, Costa Rica, Dominican Republic, Panama, Colombia, Ecuador, Peru, Chile, Argentina and Uruguay. It includes a retrospective evaluation of the 7-year period 2017-2023 and a forecast of the 4-year period 2024-2027*. The analysis only considers products commercialized up until 2023 in the areas of HER2+ breast cancer and retinal disease; potential future launches in these therapeutic areas are not included.

Methodology

The methodology integrates health economics with value chain analysis to provide a comprehensive and robust assessment of the socioeconomic impact of these medicines. The study begins by quantifying the health burden of HER2+ breast cancer and retinal diseases using Disability Adjusted Life Years (DALYs) as health outcomes. Based on this, the socioeconomic burden of diseases, emphasising the estimated productivity losses attributable to disability and mortality, is calculated, taking into account paid and unpaid work productivity.

This analysis provides crucial context for understanding how Roche's medicines can alleviate these socioeconomic burdens and contribute to societal well-being. Health outcomes are measured using

*Although this report was published in 2025, the forecast period was defined as 2024 to 2027, reflecting the availability of actual data at the time of the analysis.

Quality-Adjusted Life Years (QALYs), a standardised metric that reflects the quality and quantity of life gained from medical interventions. These health gains are then translated into socioeconomic value by assessing their direct effects on paid and unpaid labour. The study further examines broader economic impacts, including indirect and induced effects triggered by a more productive workforce. These value chain effects highlight the ripple effect of health improvements across various sectors, ultimately contributing to broader economic growth.

Results and conclusions

It is clear that the socioeconomic burden of both, HER2+ breast cancer, and retinal diseases will increase substantially in the coming years, with these increases underpinned by a variety of factors. Innovative medicines have the potential to radically transform the management of those diseases, improve individual health outcomes, reduce productivity losses, support economic growth, and lessen the strain on healthcare systems. Continued investment in making these medicines accessible is essential and will have a measurable impact on national economies in the coming years.

1.1 Key Findings

1.1.1 HER2+ breast cancer Socioeconomic Burden

Health gains*	Socioeconomic burden*
From 2017 to 2023 **≈1 million DALYs** were lost From 2024 to 2027 **=658,544 DALYs** are expected to be lost	From 2017 to 2023 **≈$25.3 billion** of productivity loss From 2024 to 2027 **≈$18.7 billion** of expected productivity loss

Figure 1: Estimated and projected cumulative health burden (DALYs) of HER2+ breast cancer and related socioeconomic burden (USD).
*Cumulative figures for the periods, 7-year period 2017-2023 and the 4-year period 2024-2027 across all ten countries.

Projections, globally, indicate a concerning 38% rise in incidence of breast cancer and a 68% increase in deaths by 2050 without urgent intervention, with low-HDI countries being most affected [5].

In 2023, The socioeconomic burden (SOB) of HER2+ breast cancer in the ten countries featured in this report was $4.4 billion. This is expected to increase to approximately $5 billion by 2027, accounting to an increase of 13% over this 4-year period (Figure 7). In 2023, the SOB of affected patients of the working age (20-59 years) amounted to $3.5 billion, representing 80% of the total SOB. In the same year, DALYs among patients under 60 years of age totalled 91,962, accounting to 59% of all DALYs. These findings highlight the disproportionate impact of breast cancer on younger women in LATAM [5],[6], which underscores the urgency of investing in breast cancer treatments, particularly because this age group makes the highest economic contribution.

*Although this report was published in 2025, the forecast period was defined as 2024 to 2027, reflecting the availability of actual data at the time of the analysis.

1.1.2 HER2+ breast cancer Social Impact

Health gains*	Social impact*
From 2017 to 2023 **=6,594 QALYs** were gained From 2024 to 2027 **=7,531 QALYs** are expected to be gained	From 2017 to 2023 **≈$157.5 million** of GDP contribution From 2024 to 2027 **≈$209.9 million** of expected GDP contribution

Figure 2: Estimated and projected cumulative health benefits (QALYs) of Roche's HER2+ breast cancer medicines and related Social Impact (USD)
*Cumulative figures for the periods indicated across all ten countries., 7-year period 2017-2023 and the 4-year period 2024-2027 across all ten countries

Investing in innovative treatments transforms lives and economies.

Innovative medicines lead to improved survival and quality of life for people with breast cancer, while creating measurable economic value for communities. Yet in LATAM, breast cancer remains the leading cause of cancer death among women, with over 60% of cases diagnosed too late for curative treatment [8]. Addressing this gap requires urgent, targeted investment in early detection and timely access to effective therapies.The impact of Roche's medicines for HER2+ breast cancer demonstrates what is possible. Between 2017 and 2023, treatment with Roche's medicines generated a cumulative $157.5 million in economic gains across the ten countries, through improved productivity, and extended healthy life years. Over the same period, patients gained a total of 6,594 quality-adjusted life years (QALYs), reflecting the real-world value of innovation. Looking ahead, the opportunity to accelerate progress is clear. From 2024 to 2027, this impact is projected to be nearly $209.9 million, with over 7,531 QALYs gained (Figure 2). Crucially, around 68% of the economic and social benefits arise from treating early-stage breast cancer, where outcomes are significantly better. In 2023, the Social Impact (SI) per patient treated at an early stage was 17% higher than for late-stage disease. However, most women in LATAM are still diagnosed too late. This is a solvable problem. With strengthened screening programs, improved referral pathways, and investments in diagnostic infrastructure, more women can benefit from early intervention. Each woman diagnosed and treated early is not only more likely to survive but also able to remain active in her family and community, contributing to shared prosperity.

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1.1.3 Diabetic Macular Edema (DME) & Age-related Macular Degeneration (AMD) Socioeconomic Burden

Health burden*	Socioeconomic burden*
From 2017 to 2023 **=843,485 DALYs** were lost	From 2017 to 2023 **≈$12.9 billion** of productivity loss
From 2024 to 2027 **=595,107 DALYs** are expected to be lost	From 2024 to 2027 **≈$11.1 billion** of expected productivity loss

Figure 3: Estimated and projected cumulative health burden (DALYs) of DME and AMD, and related socioeconomic burden (USD).
*Cumulative figures for the periods, 7-year period 2017-2023 and the 4-year period 2024-2027 across all ten countries.

The global burden of AMD and DME is expected to continue to grow Approximately 200 million people suffer from AMD, a leading cause of vision loss in older adults [9]. Between 2017 and 2023 the cumulative burden of AMD and DME was $12.9 billion and is expected to account for $11.1 billion over the period between 2024 and 2027 (Figure 3). In 2023, AMD and DME collectively cost the ten countries featured in this study $2.5 billion. In 2027, this cost is expected to reach around $3.1 billion, reflecting an increase of 25% over the 4-year period, even factoring in existing medical advancements (Figure 9).

1.1.4 Diabetic Macular Edema (DME) & Neovascular Age-related Macular Degeneration (nAMD) Social Impact

Health gains*	Social impact*
From 2017 to 2023 **=12 QALYs** were gained	From 2017 to 2023 **=$307,830** of GDP contribution
From 2024 to 2027 **=1,838 QALYs** are expected to be gained	From 2024 to 2027 **≈54 million** of expected GDP contribution

Figure 4: Estimated and projected cumulative health benefits (QALYs) of Neovascular Age-Related Macular Degeneration medicines and related Social Impact (USD)
*Cumulative figures for the periods indicated across all ten countries., 7-year period 2017-2023 and the 4-year period 2024-2027 across all ten countries.

Addressing sight loss with innovative treatments can prevent substantial productivity losses Across the 10 countries over the period 2017 to 2023, Roche's current medicine for nAMD and DME contributed a cumulative $307,830 to in-year economic growth. This benefit reflects the Social Impact of one year, primarily driven by the recent launch of the medicine in Latin America.

A total of 12 QALYs were gained over the 7-year timeframe. An increase of over $54 million to in-year economic growth for the period 2024 until 2027, and a total of 1,838 QALYs gained is expected, which shows the long-term economic value of investing in innovative medicines and their role in addressing productivity challenges (Figure 4). **Treating the non-working age population can also contribute substantially to economic growth** Across the 10 countries, Roche's current medicine for nAMD and DME is expected to contribute a cumulative $12 million to in-year economic growth from 2024 until 2027 for patients 60 years or older.

2. Background

2.1 Health as an investment

While healthcare was once viewed largely as a necessary expense that strained budgets, this perspective is rapidly giving way to a broader understanding of its value. This shift is supported by strong evidence showing that the health sector contributes significantly to GDP, employment, and long-term economic growth [10]. The world bank [11] highlights how investing in health systems strengthening economic resilience and boosts societal well-being. Similarly, reports from WHO/Europe [12] and PAHO/WHO [13] demonstrate that health investments yield substantial social and economic returns. A systematic review by Masters et al. [14] found that public health interventions can return more than 14 times the initial investment.

2.2 Socioeconomic Burden

The concept of the Socioeconomic Burden (SOB) summarises the effect of health impairments on the labour supply. It refers to how a disease decreases labour supply by impairing individuals' capacity to utilise their human capital.

Thus, the SOB analysis aims to determine the costs that disease and disability exert upon the individual and society, considering health, social, and economic factors. Diseases reduce productivity through two main channels: by shortening life expectancy and by impairing the ability to work. This limits both paid employment and essential unpaid labour, such as household tasks. As a result, the SOB extends beyond healthcare costs, affecting both formal economic output and the unpaid contributions that sustain families and communities.

The SOB consists of two complementing viewpoints to assess the effects of diseases on health and the economy: the Health Burden and the Socioeconomic Burden. The health burden reflects the Disability-Adjusted Life Years (DALYs) lost per disease and country, and the socioeconomic burden measures the monetised paid and unpaid work productivity losses due to the diseases in question, assuming one DALY lost equals to one year in full disability, thus one year without productivity/ work capability (Figure 5). Productivity losses are monetised separately for the three age-groups:

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patients under the age of 20 are assumed not to contribute to neither paid nor unpaid work productivity, patients in the 20-59 age group contribute to both paid and unpaid work productivity, and those in the 60 and over age group contribute only to unpaid work productivity as they are no longer considered part of the labour market.

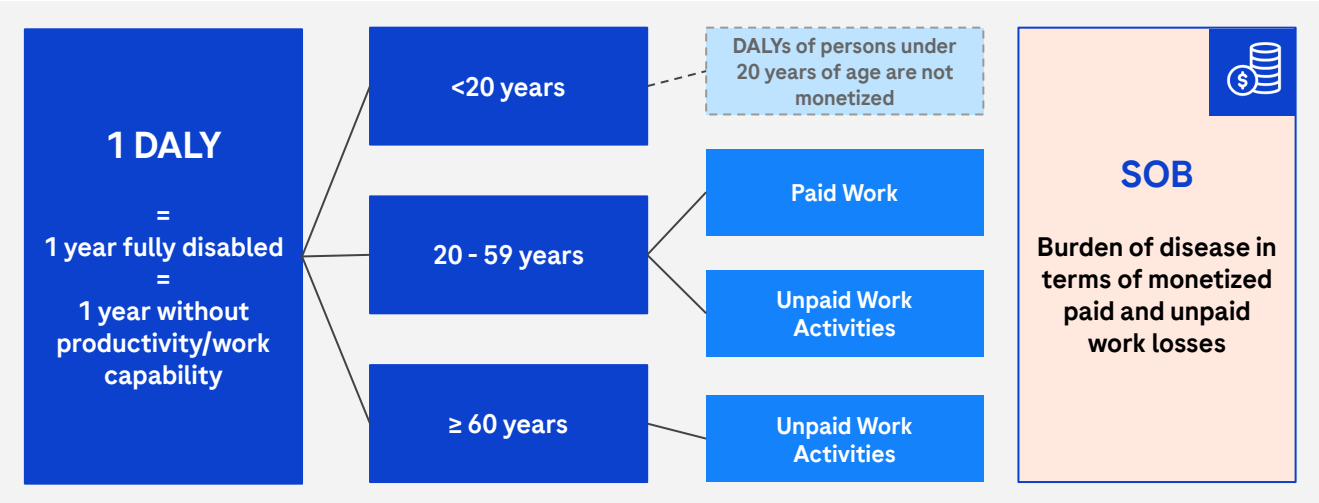

Figure 3: SOB methodology illustration

2.3 Social Impact

The value of medicines is typically measured by the health benefits they provide to patients, including improved quality of life and longer survival. However, better health also enables patients to spend more time on activities and increase their ability to work, contributing to social welfare. This productivity benefit can be measured using the Social Impact method.

The Social Impact methodology follows an approach similar to calculating the socioeconomic burden of diseases. It captures productivity in both paid and unpaid work and applies consistent assumptions about monetising three age groups. Notably, this method only measures impact over a single year or period, without capturing the potential lifetime contribution of patients.

The Social Impact approach quantifies not only health gains but also broader economic and social benefits linked to improved health (Figure 6). When patients' health improves, they can participate more fully in paid work (direct paid effects), supporting their well-being and the wider economy. They also perform essential unpaid tasks, such as household management and volunteering (unpaid effects), which, while not directly reflected in GDP, are vital to societal functioning.

Better health outcomes also generate broader economic benefits (indirect effects). As patients regain the ability to work and engage in society, demand for goods and services grows,stimulating sectors that support health and productivity. This ripple effect extends through induced effects, where productivity gains and higher incomes drive increased household spending and wider economic growth beyond the direct impact of health interventions (Figure 6).

*Although this report was published in 2025, the forecast period was defined as 2024 to 2027, reflecting the availability of actual data at the time of the analysis.

The Social Impact thus connects health gains from medicines to the economic contribution of individuals and sectors, as measured by Gross Value Added (GVA) and GDP.

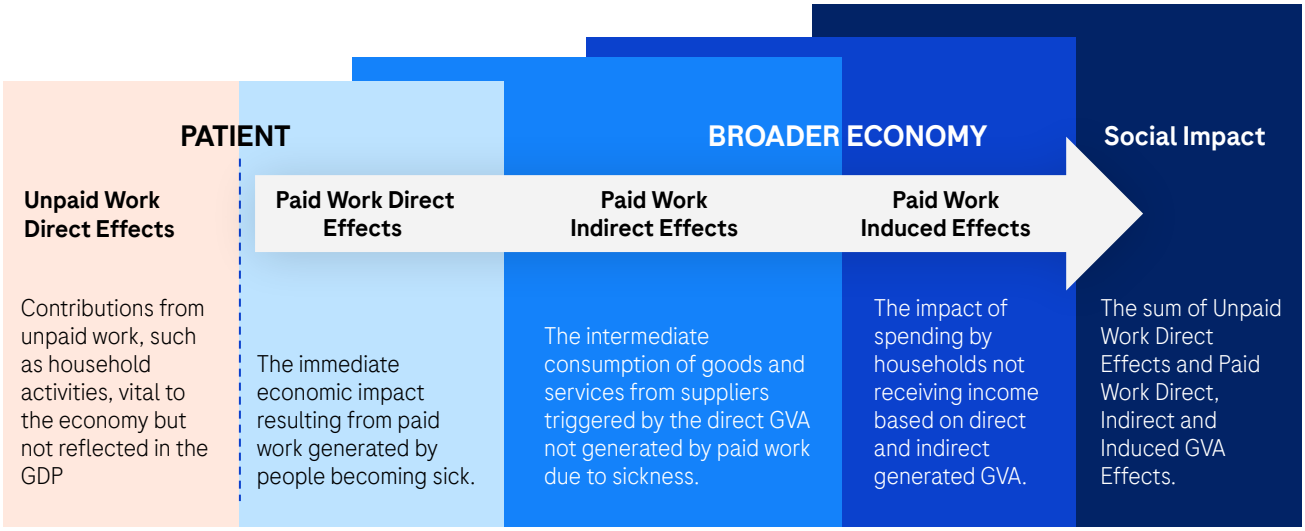

Figure 6: Illustration of the Social Impact effects on the patient and the economy captured in the study

The Social Impact consists of two complementing viewpoints to assess the effects of medicines on the health and socioeconomic burden: the Health Footprint and the Socioeconomic Footprint. The Health Footprint is calculated based on the number of gained Quality Adjusted Life Years (QALYs) a medicine can achieve for a given indication.

The Socioeconomic Footprint measures the socioeconomic benefits resulting from a healthier population when using a specific intervention such as employment or childcare. It is worth mentioning that the Social Impact reflects the impact on the treated patient population only, which is, in most cases, considerably smaller than the overall disease-affected population.

Please refer to the methods report for a more detailed explanation of the methods used, including specific calculations and assumptions [15].

3. Results

3.1 HER2+ breast cancer

3.1.1 Socioeconomic Burden

Globally, 2.3 million women are diagnosed with breast cancer and 670,000 die from the disease every year [16]. In 2020, there were more than 210,000 new diagnoses of breast cancer in Latin America and the Caribbean, and nearly 68,000 deaths [17].In the countries Mexico, Costa Rica, Dominican Republic, Panama, Colombia, Ecuador, Peru, Chile, Argentina, Uruguay, risk factors for breast cancer, including alcohol use, low physical activity, and diets high in red meat, are on the rise [18], [19], [20]. However, in these areas, the slower development of healthcare infrastructure,

together with restricted and inequitable access to trained personnel, technologies, and treatments, has exacerbated both the clinical and economic burden of the disease.

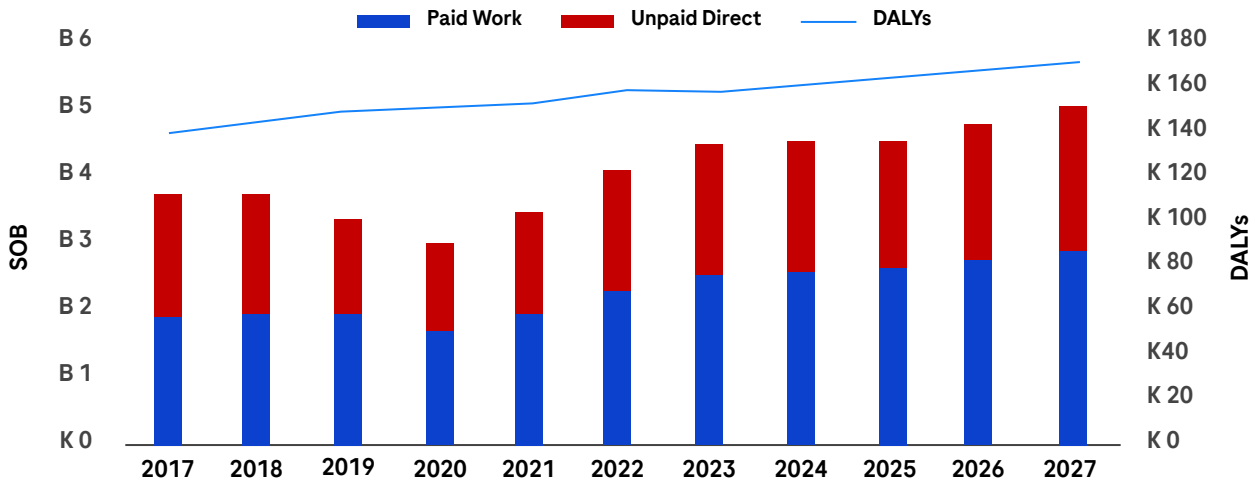

Figure 7: SOB of HER2+ breast cancer per year in USD

HER2+ breast cancer, which globally accounts for 15% to 20% of all breast cancer cases [21], represents a particularly important financial strain. The total socioeconomic burden of HER2+ breast cancer has grown steadily since 2017, reaching approximately a cumulative $25.3 billion between 2017 and 2023 across the economies of the ten countries featured in the study. This amount is equivalent to nearly 25% of the combined value of Colombia's agriculture, hunting, forestry, and fishing sectors that together form the backbone of the GDP [22]. Harnessing even a fraction of this potential through targeted action could unlock transformative economic impact. Between 2024 and 2027, this burden is projected to sum up to a cumulative $18.7 billion, underscoring the increasing economic impact that both patients and healthcare systems face as the number of cases continues to rise (Figure 7).

3.1.2 Social Impact

Due to investments in innovative medicines, patient outcomes for HER2+ breast cancer have improved over time. Long-term survival as well as improved quality of life are now a real and life-changing possibility for many patients [13,14,15] while simultaneously unlocking millions of dollars of societal and economic benefits for everyone.

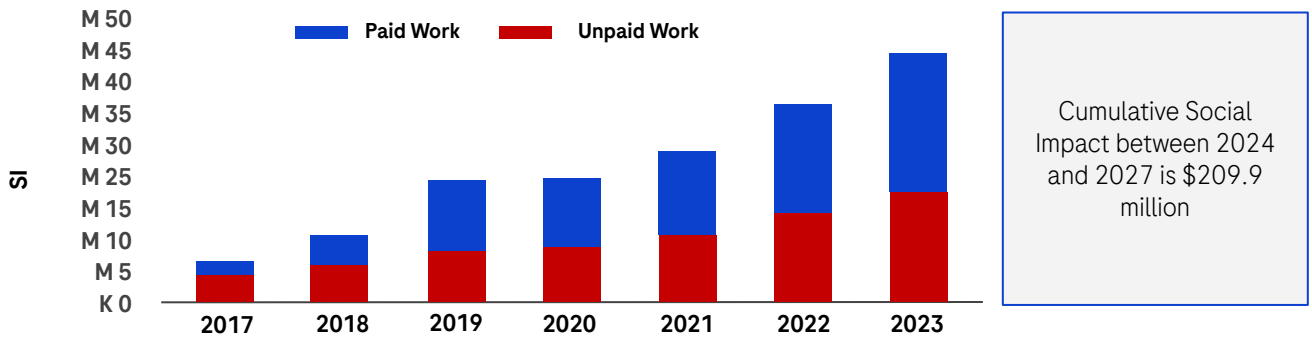

Figure 8: SI of HER2+ breast cancer medicines per year

	Breast cancer	Early breast cancer*	Metastatic breast cancer**
2017	$ 7.24 M	$ 4.52 M	$ 2.72 M
2018	$ 11.73 M	$ 6.96 M	$ 4.77 M
2019	$ 21.22 M	$ 12.4 M	$ 8.82 M
2020	$ 20.95 M	$12.55 M	$ 8.4 M
2021	$ 24.86 M	$ 15.26 M	$ 9.6 M
2022	$ 32.3 M	$ 20.46 M	$ 11.84 M
2023	$ 39.2 M	$ 25.89 M	$ 13.31 M
2017 - 2023	**$ 157.49 M**	**$ 98.05 M**	**$ 59.44 M**
2024 - 2027	**$ 209.94 M**	**$ 144.61 M**	**$ 65.33 M**
2017 - 2027	**$ 367.43 M**	**$ 242.66 M**	**$ 124.77 M**

Table 1: Detailed SI results per HER2+ breast cancer indication and year

* HER2+ = neo-adjuvant; HER2+ - adjuvant only; HER2+ - adjuvant, continued RD

** 1st and 2nd line HER2+ (HR+ and HR-) metastatic breast cancer

Over the period from 2017 to 2023, Roche's HER2+ breast cancer medicines contributed a cumulative $157.49 million ($98.05 million for early and $59.44 million for metastatic breast cancer) to economic growth in the ten countries. A further $209.94 million, ($144.61 million for early and $65.33 million for metastatic breast cancer), is expected for the years 2024 to 2027 (rounded figures, Table 1).

In 2023, the Social Impact per patient of early HER2+ breast cancer was 17% higher than that for late HER2+ breast cancer ($1693 and $1450, respectively). From 2024 to 2027, this figure is expected to be even higher, and reaches 21%. This underscores the critical importance of early diagnosis and treatment to prevent disease progression and reduce mortality. Each breast cancer-related death has far-reaching societal implications. Notably, children whose mothers have died that are younger than five years of age are approximately 4.09 times more likely to die compared to those whose mothers are alive [26].

3.2 Diabetic Macular Edema (DME) & Age-related Macular Degeneration (AMD)

3.2.1 Socioeconomic Burden

Whether a result of ageing or other health conditions, sight loss is one of the most distressing forms of disability that can affect a person, impacting tens of millions of people worldwide. Approximately 200 million people suffer from AMD, a leading cause of vision loss in older adults. Additionally, DME is a major cause of vision loss among the working-age population in developed countries, with diabetes being the underlying causal factor. The use of innovative medicines alongside specialist care can prevent substantial productivity losses and reduce healthcare costs associated with managing the complications of diabetes and ageing.

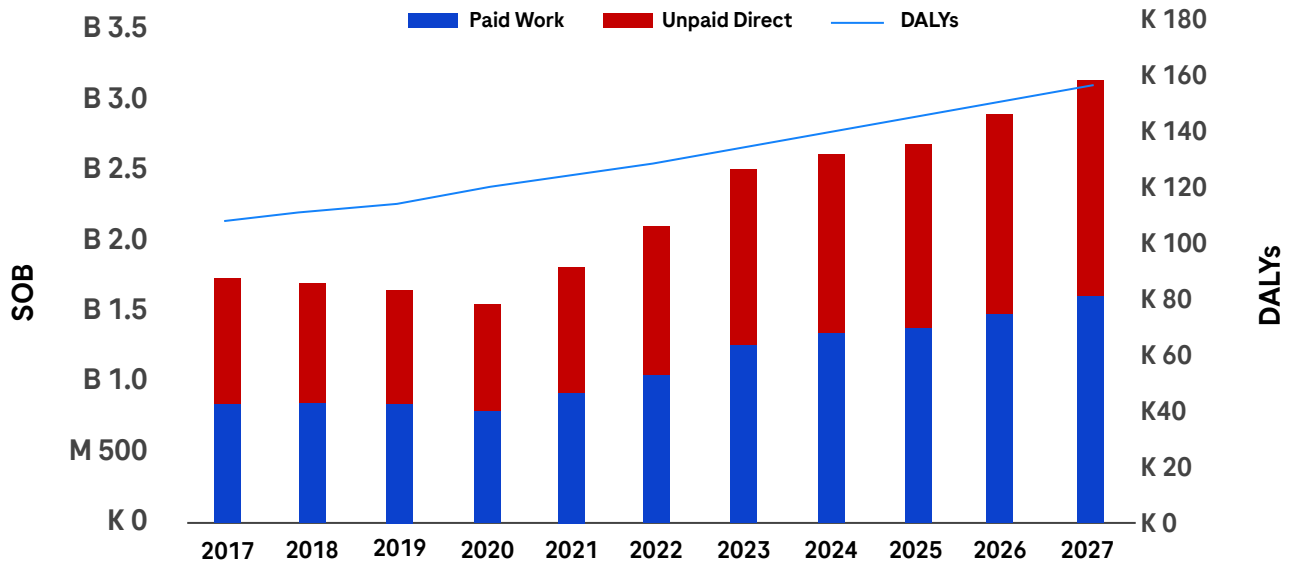

Figure 9: SOB of AMD and DME per year

The SOB of AMD and DME, across the 10 pilot countries was approximately $12.9 billion between 2017 and 2023 and is expected to be $11.1 billion between 2024 and 2027 (Figure 9). The yearly SOB is expected to continuously raise even when accounting for the impact of available health interventions.

3.2.2 Social Impact

The societal impact of sight loss is substantial. However, as many people who suffer from sight loss are not of working age (60 years or older), calculating the economic impact of these conditions is more challenging. In practice, this means sight loss is often considered to be an inevitable part of the ageing process, rather than a medical condition that is possible - and important - to treat, with clear benefits for patients and society.

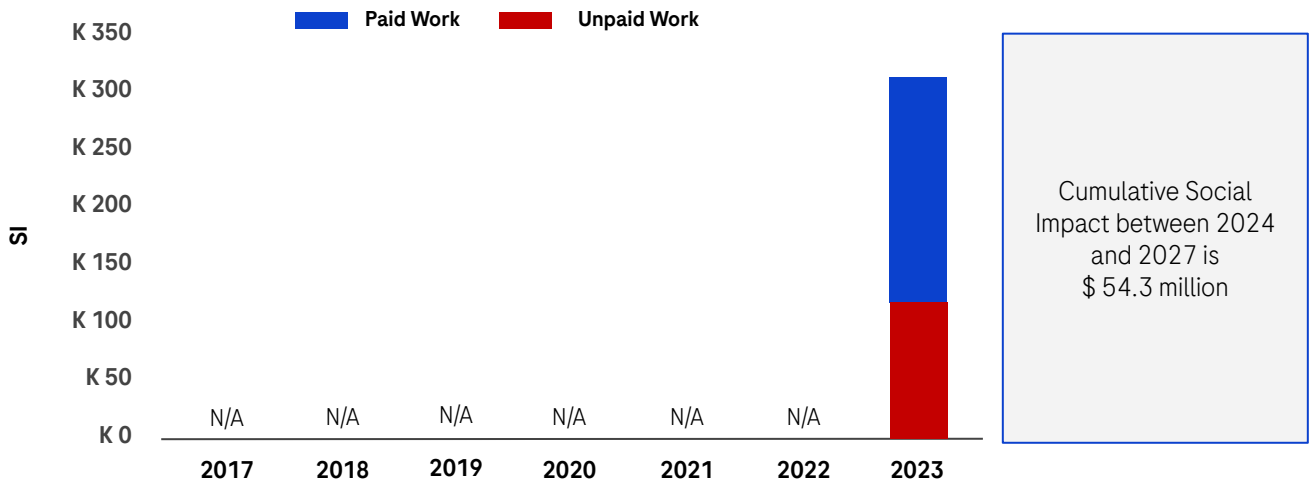

Figure 10: SI of nAMD and DME medicine per year; Between 2017 and 2022 no medicines indicated for nAMD and DME were marketed

	Retinal disease	Early breast cancer*	Metastatic breast cancer**
2017	N/A	N/A	N/A
2018	N/A	N/A	N/A
2019	N/A	N/A	N/A
2020	N/A	N/A	N/A
2021	N/A	N/A	N/A
2022	N/A	N/A	N/A
2023	$ 307,830	$ 2,103	$ 305,726
2017 - 2023*	**$ 307,830**	**$ 2,103**	**$ 305,726**
2024 - 2027	**$ 54.26 M**	**$ 486,446**	**$ 53.77 M**
2017 - 2027	**$ 54.57 M**	**$ 488,549**	**$ 54.08 M**

Table 2: Detailed SI results per HER2+ breast cancer indication and year

* Between 2017 and 2022 no medicines indicated for nAMD and DME were marketed.

** Due to low early uptake, the Social Impact (SI) results are correspondingly low.

Over the period from 2017 to 2023, Roche's nAMD and DME medicine contributed a cumulative $307,830 to economic growth in the 10 countries, this comparatively low Social Impact is attributable to the late market entry of the medicine in Latin America and the correspondingly low early uptake during this period. A further $54.26 million is expected for the years 2024 to 2027, as treatment uptake is projected to increase (rounded figures, Table 2). This medicine contributed $58,035 of economic growth in 2023 for patients 60 years and above, with an expected additional contribution of $11.9 million in the 2024 to 2027 timeframe. This highlights that treating the non-working age population can also contribute substantially to economic growth through unpaid work activities.

4. Recommendation and Required Actions

This study highlights the need to rethink approaches to healthcare investment and access to new medicines. Over the next decade, current and future treatments have the potential to radically transform the management of diseases and address growing productivity and economic challenges. A virtuous cycle of improved health, economic growth, and prosperity can be achieved, but immediate action is required to prioritise today's and future medical advances.

4.1 HER2+ breast cancer

Breast cancer is the leading cancer among women in Latin America [27]. While incidence and mortality rates for breast cancer vary from country to country [28], [29], the burden of breast cancer has substantially increased over the past years [30]. Continued investment in innovation has led to improved patient outcomes, particularly for early-stage diagnoses, enabling individuals to remain economically productive and live fulfilling lives beyond work. This demonstrates the powerful role of innovation - especially in diagnosing and treating early, potentially preventing progression - and the economic and societal value that new medicines bring.

4.2 Retinal Disease

Sight loss is often mistakenly perceived as an inevitable consequence of aging or health conditions such as diabetes, leading to underinvestment in treatments that could considerably improve outcomes. Innovative treatments for conditions such as nAMD and DME can prevent or even reverse vision loss, enhancing quality of life and enabling individuals to continue contributing to the economy through both paid and unpaid work. Improving access to intravitreal therapies and strengthening diabetic eye screening would not only benefit patients only, but also yield substantial economic returns by reducing productivity losses associated with unpaid work among elderly or retired individuals.

4.3 Conclusion and Next Steps

The findings in this report underscore the substantial impact that innovative medicines can have on both individual health outcomes and the broader societal and economic well-being. The increasing burden of diseases, such as breast cancer, and retinal diseases calls for a proactive approach to healthcare investment. The data demonstrates that effective interventions improve patient outcomes, reduce productivity losses, support economic growth, and lessen the strain on healthcare systems.

As healthcare evolves, governments, healthcare systems, and industry stakeholders must prioritise investment in new and emerging treatments, in line with the WHO and OECD recommendation that countries allocate at least 6% of GDP to health spending [31]. Early diagnosis, and access to innovative therapies will be key drivers in transforming the future of disease management. Failure to act now will result in a growing economic and social burden that could have far-reaching consequences for public health and fiscal sustainability.

The following steps must include:

- Payers need to promote early diagnosis and ensure access to innovative treatments to improve patient outcomes and reduce long-term economic costs.
- Healthcare providers should focus on strengthening systems and clinical policies that enable the timely adoption of cutting-edge therapies.
- Governments must increase public investment in medical innovation, ensuring that future breakthroughs are realized and equitably accessible.

Building a sustainable healthcare future requires concerted efforts and cross-sector collaboration between governments, healthcare providers, and the pharmaceutical industry. By fostering this collaboration, we can ensure that the benefits of medical innovation are widely accessible and that we are better prepared to meet future healthcare challenges. By acting decisively now, stakeholders could create a virtuous cycle of improved health, economic productivity, and societal well-being. Delaying these actions will only deepen the socioeconomic burden of disease in the years to come.

References

[1] L. Scruggs, A. Fox, and M. M. Reynolds, 'Is Redistribution Good for Our Health? Examining the Macrocorrelation between Welfare Generosity and Health across EU Nations over the Last 40 Years', J Health Polit Policy Law, vol. 49, no. 5, pp. 855–884, Oct. 2024, doi: 10.1215/03616878-11257040.

[2] 'Investing in health systems to protect society and boost the economy: Priority investments and order-of-magnitude cost estimates', OECD Health Working Papers 144, Jul. 2022. doi: 10.1787/d0aa9188-en.

[3] M. M. Ridhwan, P. Nijkamp, A. Ismail, and L. M.Irsyad, 'The effect of health on economic growth: a meta-regression analysis', Empir Econ, vol. 63, no. 6, pp. 3211–3251, Dec. 2022, doi: 10.1007/s00181-022-02226-4.

[4] O. Ohikhuare, O. Oyewole, and A. Adedeji, 'Public Health Investment, Human Capital Accumulation, and Labour Productivity: Evidence from West Africa', Zagreb International Review of Economics and Business, vol. 25, no. 2, pp. 139–163, Nov. 2022, doi: 10.2478/zireb-2022-0019.

[5] J. Kim et al., 'Global patterns and trends in breast cancer incidence and mortality across 185 countries', Nat Med, vol. 31, no. 4, pp. 1154–1162, Apr. 2025, doi: 10.1038/s41591- 025-03502-3.

[6] C. Villarreal-Garza et al., 'Breast cancer in young women in Latin America: an unmet, growing burden', Oncologist, vol. 18, no. 12, pp. 1298–1306, 2013, doi: 10.1634/theoncologist.2013-0321.

[7] C. Villarreal-Garza, E. A. Lopez-Martinez, J. F. Muñoz-Lozano, and K. Unger-Saldaña, 'Locally advanced breast cancer in young women in Latin America', Ecancermedicalscience, vol. 13, p. 894, 2019, doi: 10.3332/ecancer.2019.894.

[8] L. L. P. de Lemos et al., 'Stage at diagnosis and stage-specific survival of breast cancer in Latin America and the Caribbean: A systematic review and meta-analysis', PLoS One, vol. 14, no. 10, p. e0224012, 2019, doi: 10.1371/journal.pone.0224012.

[9] U. of Bristol, 'Boosting key protein in eye cells could prevent age-related vision loss, finds international team'. Accessed: Sep. 27, 2024. [Online]. Available: https://www.bristol.ac.uk/infection-immunity/news/2024/age-vision.html

[10] R. Atun, J. L. Fries, K. Hernandez-Villafuerte, M. Müller, D. Ostwald, and M. Schmitt, 'Contribution of investment in health and cancer control to economic growth in Commonwealth countries', eClinicalMedicine, vol. 82, Apr. 2025, doi: 10.1016/j.eclinm.2025.103180.

[11] 'Investing in Health is Key to Job Creation and Economic Growth.' Accessed: Jun. 26, 2025. [Online]. Available: https://shorthand.worldbankgroup.org/a82c07e4-f771-486a a53b-e818d6990885/

[12] M. Dyakova, Investment for health and well-being: a review of the social return on investment from public health policies to support implementing the sustainable development goals by building on health 2020. in Health Evidence Network synthesis report, no. 51. Copenhagen, Denmark: WHO Regional Office for Europe, 2017.

[13] 'The high socio-economic benefit of promoting health and well-being - PAHO/WHO | Pan American Health Organization'. Accessed: May 16, 2025. [Online]. Available: https://www.paho.org/en/news/5-2-2025-high-socio-economic-benefit-promoting-health and-well-being

[14] R. Masters, E. Anwar, B. Collins, R. Cookson, and S. Capewell, 'Return on investment of public health interventions: a systematic review', J Epidemiol Community Health, vol. 71, no. 8, pp. 827–834, Aug. 2017, doi: 10.1136/jech-2016-208141.
[15] A. Atitallah et al., 'The Value of Investing in Innovative Medicines: Socioeconomic Burden and Annual Social Impact of Roche Treatments for HER2+ Breast Cancer, Multiple Sclerosis and Retinal Disease', [Online]. Available: https://www.wifor.com/en/download/the-value-of-investing-in-innovative-medicines socioeconomic-burden-and-annual-social-impact-of-roche-treatments-for-her2-breast cancer-multiple-sclerosis-and-retinal-disease 2/?wpdmdl=351724&refresh=68a88f5cd0a001755877212
[16] 'Breast cancer,WHO'. Accessed: Sep. 11, 2024. [Online]. Available: https://www.who.int/news-room/fact-sheets/detail/breast-cancer
[17] 'Breast cancer - PAHO/WHO | Pan American Health Organization'. Accessed: Aug. 25, 2025. [Online]. Available: https://www.paho.org/en/topics/breast-cancer
[18] R. Vieira, J. S. S. Tobar, R. Dardes, and L. C. Santos Thuler, 'Alcohol Consumption as a Risk Factor for Breast Cancer Development: A Case-Control Study in Brazil', Asian Pac J Cancer Prev, vol. 19, no. 3, Mar. 2018, doi: 10.22034/APJCP.2018.19.3.703.
[19] A. O. Werneck et al., 'Physical Activity and Sitting Time Patterns and Sociodemographic Correlates Among 155,790 South American Adults', Journal of Physical Activity and Health, vol. 20, no. 8, pp. 716–726, Aug. 2023, doi: 10.1123/jpah.2022-0305.
[20] E. Pineda, M. I. Ortega-Vélez, M. Preciado-Rodríguez, S. Saucedo-Tamayo, and G. Caire Juvera, 'Dietary patterns, cooking methods and breast cancer risk in Mexico: An exploratory case-control study', Nutr Health, vol. 30, no. 2, pp. 349–359, Jun. 2024, doi: 10.1177/02601060221119260.
[21] American Cancer Society, 'Breast Cancer HER2 Status'. [Online]. Available: https://www.cancer.org/cancer/types/breast-cancer/understanding-a-breast-cancer diagnosis/breast-cancer-her2-status.html
[22] United Nations, 'UNdata | record view | Gross Value Added by Kind of Economic Activity at current prices - National currency'. Accessed: Nov. 25, 2024. [Online]. Available: https://data.un.org/Data.aspx?d=SNAAMA&f=grID%3A201%3BcurrID%3ANCU%3BpcFl ag%3A0
[23] BCRF, 'HER2-Positive Breast Cancer Guide | BCRF', Breast Cancer Research Foundation. Accessed: Sep. 11, 2024. [Online]. Available: https://www.bcrf.org/blog/her2- positive-breast-cancer-treatment-research/
[24] S. M. Khoirunnisa, F. D. A. Suryanegara, L. A. De Jong, D. Setiawan, and M. J. Postma, 'A Systematic Review of Health-Related Quality of Life in Women with HER2-Positive Metastatic Breast Cancer Treated with Trastuzumab', PharmacoEconomics Open, vol. 8, no. 4, pp. 511–524, Jul. 2024, doi: 10.1007/s41669-024-00478-7.
[25] S. Khoirunnisa, F. Suryanegara, D. Setiawan, and M. Postma, 'P64 Health-Related Quality of Life in HER2-Positive Early Breast Cancer Woman Using Trastuzumab: A Systematic Review and Meta-Analysis', Value in Health, vol. 25, no. 12, p. S15, Dec. 2022, doi: 10.1016/j.jval.2022.09.076.
[26] K. E. Agho, O. K. Ezeh, A. J. Ferdous, I. Mbugua, and J. K. Kamara, 'Factors associated with under-5 mortality in three disadvantaged East African districts', International Health, vol. 12, no. 5, pp. 417–428, Sep. 2020, doi: 10.1093/inthealth/ihz103.
[27] A. Amadou, G. Torres-Mejía, P. Hainaut, and I. Romieu, 'Breast cancer in Latin America: global burden, patterns, and risk factors', Salud Publica Mex, vol. 56, no. 5, p. 547, Sep. 2014, doi: 10.21149/spm.v56i5.7379.
[28] J. S. Torres-Román et al., 'Disparities in breast cancer mortality among Latin American women: trends and predictions for 2030', BMC Public Health, vol. 23, no. 1, p. 1449, Jul. 2023, doi: 10.1186/s12889-023-16328-w.
[29] E. Cazap, 'Breast Cancer in Latin America: A Map of the Disease in the Region', American Society of Clinical Oncology Educational Book, no. 38, pp. 451–456, May 2018, doi: 10.1200/EDBK_201315.
[30] N. Justo, N. Wilking, B. Jönsson, S. Luciani, and E. Cazap, 'A Review of Breast Cancer Care and Outcomes in Latin America', The Oncologist, vol. 18, no. 3, pp. 248–256, Mar. 2013, doi: 10.1634/theoncologist.2012-0373.
[31] WHO, New Perspectives on Global Health Spending for Universal Health Coverage, 1st ed. Geneva: World Health Organization, 2021. [Online]. Available: https://iris.who.int/bitstream/handle/10665/259632/WHO-HIS-HGF-HFWorkingPaper 17.10-eng.pdf

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