



Self-Care **SOCIO-ECONOMIC RESEARCH 2.0**



GLOBAL
SELF-CARE
FEDERATION

The Global Social and Economic Value of Self-Care

Self-Care at the Forefront of Prevention

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Introduction

ABOUT THE “GLOBAL SOCIAL AND ECONOMIC VALUE OF SELF-CARE” RESEARCH

The *Global Social and Economic Value of Self-Care 2.0* is the second edition of the landmark study designed to equip policy makers, health leaders and decision makers with robust evidence on the value of self-care. Building on the foundational 2022 report, this updated edition reflects a rapidly evolving health policy landscape and provides new evidence on **the role of self-care in strengthening prevention and supporting more resilient, people-centred health systems.**

This report demonstrates that **self-care generates measurable health, social, and economic value across countries at all income levels.** It improves lives for individuals through better health outcomes, and reducing waiting times and travel burdens. It strengthens societies by improving individual productivity, supporting workforce participation, and reducing broader economic burdens associated with preventable illness. It also strengthens health systems by **reducing avoidable demand on overstretched healthcare resources.**

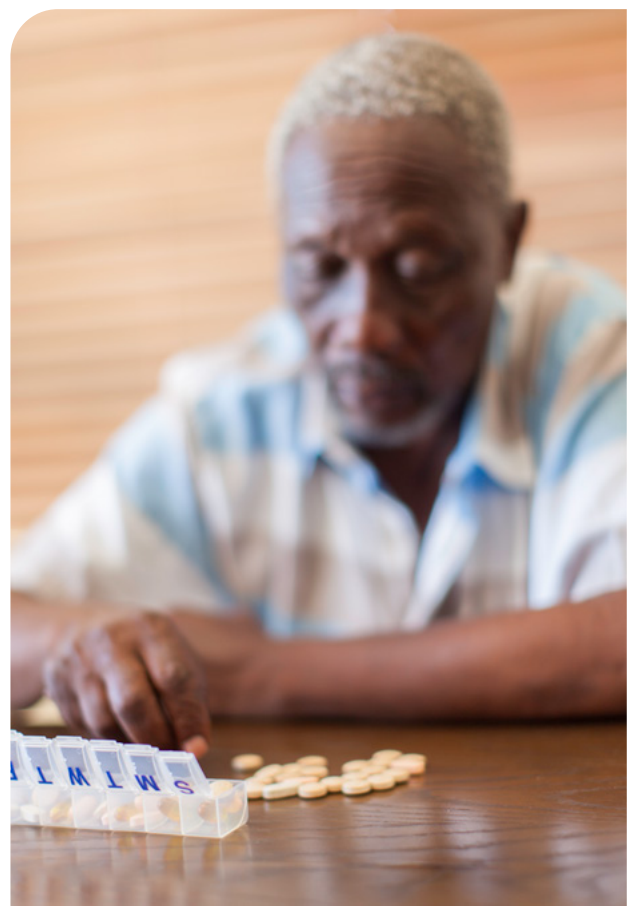
A central finding of this edition is that self-care is a core pillar of prevention and is an essential component of people-centred health systems.

Preventive self-care interventions represent some of the highest-return investments in healthcare. By supporting early action, risk reduction, and healthier behaviour, self-care can prevent disease progression, reduce downstream treatment costs, and reach populations that formal healthcare systems have historically struggled to reach.

While the report examines self-care interventions more broadly, **the economic analysis of current and future projected savings of self-care is based exclusively on sales of registered non-prescription medications.** These products provide a measurable foundation for assessing self-care's economic contribution, including healthcare cost savings, individual productivity gains, and broader societal value.

When analysing preventive self-care, the scope is broadened to include other evidence-based self-care interventions.

This report summarises the findings and conclusions of independent, detailed health economic research commissioned by the Global Self-Care Federation (GSCF). The underlying technical analysis was conducted by May und Bauer GmbH & Co. KG. The methodological approach used in this second edition is consistent with that of the first study, conducted in 2022. The first study was published in full in a peer-reviewed article, and a summary report was published on the GSCF website (GSCF, 2022; May et al., 2023).



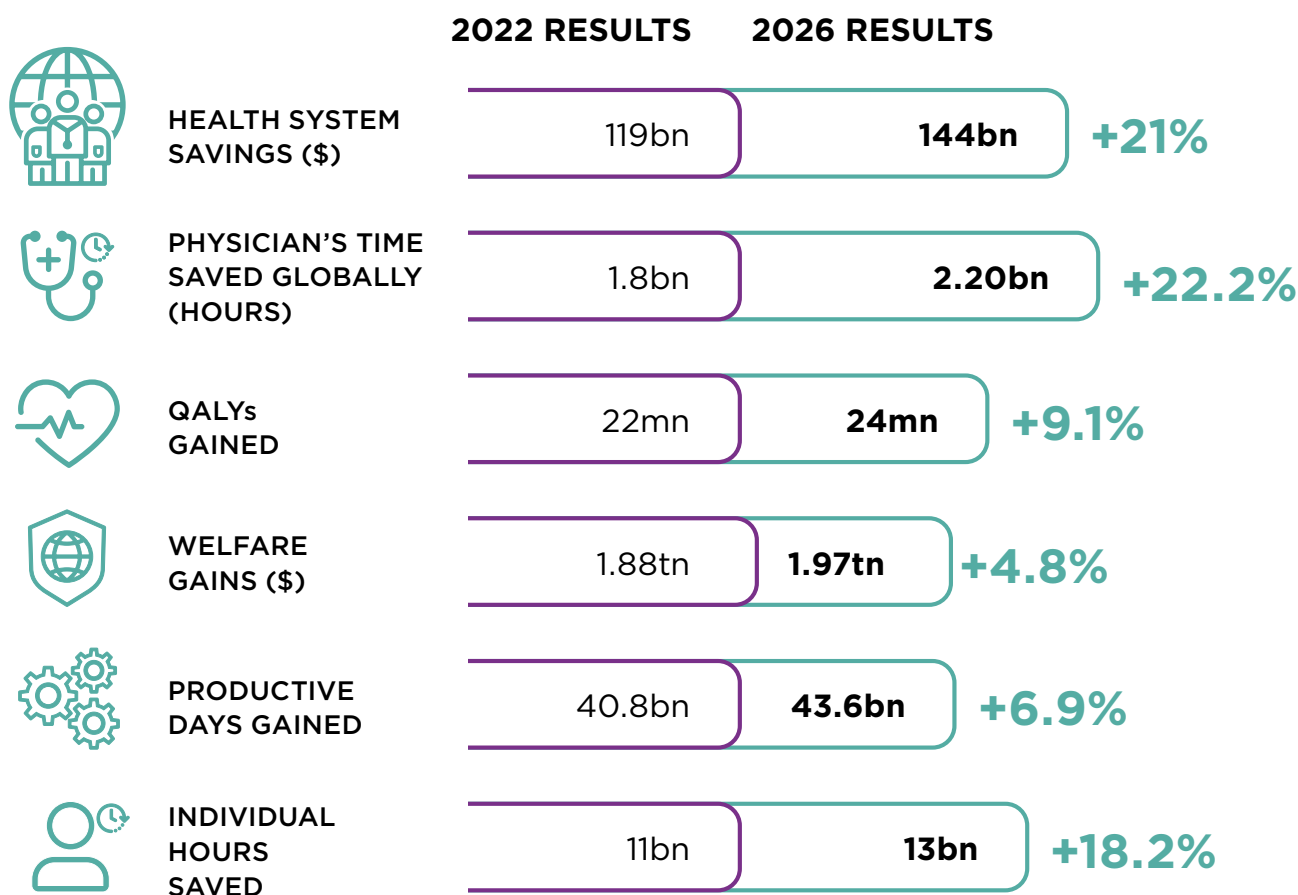
Against a backdrop of increasing structural pressure on health systems globally, this new edition responds directly to the evolving landscape. It updates the global evidence base and highlights how findings have developed since the first study in 2022. Importantly, the evidence reinforces that **responsible self-care is not a marginal complement for health systems but a measurable economic and social force that generates health, social and economic value at every income level.** This report also presents evidence showing that the future potential of self-care is even greater than what is being achieved today.

A key focus of this edition is the role of preventive self-care and its position within broader health system design. Preventive self-care delivers some of the highest-return investments available, with one possible outcome of these interventions

being a reduction in downstream costs that exceeds those of other curative treatments. It also extends the reach of prevention to populations that may otherwise remain underserved by formal healthcare structures.

This report therefore provides both a recap of the findings from the first report and an overview of the updated evidence. The progress observed between 2022 and 2026 analyses reflect the combined influence of demographic change, economic and welfare developments and the growing implementation of self-care policies. **For the first time, this report also examines self-care explicitly through the prevention lens, illustrating its impact through detailed case studies that demonstrate how self-care delivers substantial benefits across all income levels and reduces the burden on healthcare systems.**

Global savings through Self-Care

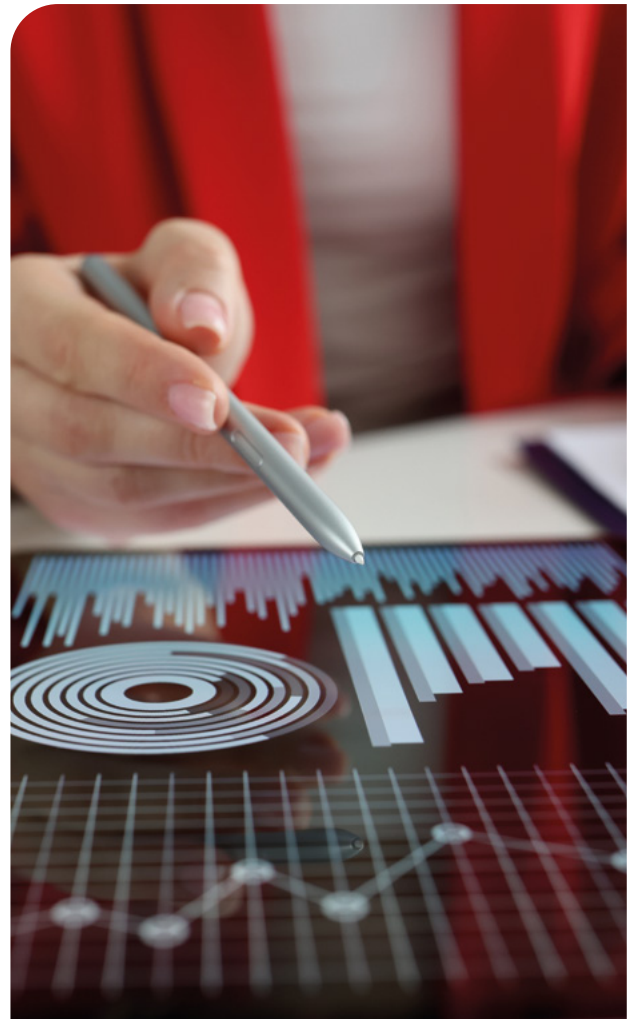


Executive Summary

In 2026, health systems face mounting pressures. Ageing populations, rising non-communicable disease (NCD) burdens, workforce shortages, smaller public budgets and growing geopolitical and economic uncertainties are, to a degree, affecting all countries.

As a result, the key question has shifted from “how do we cope with the disease burdens” to “how do we redesign health systems to be efficient and resilient to effectively manage these increasing burdens?”.

The purpose of this report is to provide evidence to help governments - particularly Ministries of Finance and Ministries of Health - alongside international organisations and health system stakeholders to embed preventive self-care as a core component of health system design.



KEY FINDINGS

THE GLOBAL SOCIAL AND ECONOMIC VALUE OF SELF-CARE 2.0 REPORT UPDATES AND EXPANDS THE EVIDENCE BASE ESTABLISHED IN 2022

(GSCF, 2022; May et al., 2023b).

This second edition updates the first published study by the Global Self-Care Federation (GSCF, 2022). It shows that progress since the first study has been uneven. This is due to differences across countries driven by demographic changes, unequal access to self-care interventions and inconsistent policy implementation. It also introduces prevention as a distinct analytical dimension, highlighting its potential to deliver additional long-term health and economic benefits.

THE CURRENT CONTRIBUTIONS OF SELF-CARE USING REGISTERED NON-PRESCRIPTION MEDICINES ARE SUBSTANTIAL

The annual worldwide impact of self-care is positive for individuals, societies and health systems:



\$144 bn

ANNUAL HEALTH SYSTEM SAVINGS (USD)



\$1.97 tn

WELFARE GAINS ATTRIBUTABLE TO HIGHER PRODUCTIVITY



2.20 bn

PHYSICIAN TIME SAVED GLOBALLY (HOURS)



43.6 bn

ADDITIONAL PRODUCTIVE DAYS GAINED



24 mn QALYs

QALYS (QUALITY-ADJUSTED LIFE YEARS) GAINED, DIRECTLY REFLECTING THE DEGREE TO WHICH SELF-CARE CAN IMPROVE QUALITY OF LIFE



13 bn

INDIVIDUAL HOURS SAVED THAT WOULD OTHERWISE BE SPENT WAITING TO SEE A PHYSICIAN OR TRAVELING TO MEDICAL FACILITIES

PREVENTIVE SELF-CARE REPRESENTS A SIGNIFICANT OPPORTUNITY TO DELIVER MEASURABLE HEALTH, SOCIAL AND ECONOMIC BENEFITS

Preventive self-care can occur at any of the five phases across the life-cycle of disease:

- **Primordial prevention:** prevents the emergence of risk factors.
- **Primary prevention:** stopping disease before it starts.
- **Secondary prevention:** early detection and treatment.
- **Tertiary prevention:** improving quality of life.
- **Quaternary prevention:** avoiding unnecessary or harmful treatment.

Preventive self-care delivers significant benefits, and can have a stronger economic impact than curative treatments:

- It can deliver returns that few curative interventions can match, generating downstream savings by preventing disease before costs arise.
- It prevents unnecessary utilisation of health system resources, as well as loss of productivity and work incapacity.

Preventive self-care's biggest advantage is that it removes structural barriers that too often limit or preclude the availability of healthcare:

The magnitude of gain varies on the system context; it can complement formal health options where available or act as the only scalable prevention option where formal care infrastructure is limited.

RECOMMENDATIONS FOR POLICY-MAKERS:

Self-care strengthens health systems, empowers individuals and supports societies. However, future gains are not automatic and will require supportive policies to realise self-care's full potential.

- **Embed self-care into prevention policies.**
- **Improve access to evidence-based non-prescription medicines.**
- **Strengthen health literacy, evidence-based health information and responsible self-care.**
- **Integrate self-care into universal health coverage strategies.**

UNLOCKING FUTURE POTENTIAL

The updated report also illustrates that realising the full potential of self-care using non-prescription medicines **can significantly add to the benefits being realised today.**

This report outlines how with the appropriate policies, the health, social and economic benefits of self-care could increase by almost 50% by 2040, making self-care a strategic investment in health, equity and system resilience.

ADDITIONAL IMPACT OF SELF- CARE USING NON- PRESCRIPTION MEDICINES WORLDWIDE BY 2040 VS 2026 BASELINE:

~48%

INCREASE IN
QUALITY OF LIFE

+

47%

INCREASE IN
PRODUCTIVITY,
DRIVEN BY ECONOMIC
DEVELOPMENT AND
POLICIES THAT EXPAND
ACCESS, PARTICULARLY
IN LOW-MIDDLE
INCOME COUNTRIES

~41%

INCREASE IN
INDIVIDUAL TIME
SAVINGS DUE TO
REDUCED WAITING
TIME AND TRAVEL
BURDEN

~39%

INCREASE IN
PHYSICIAN TIME
SAVINGS (HOURS)

~34%

GAINS IN HEALTH
SYSTEM SAVINGS

~34%

INCREASE IN WELFARE
GAINS DUE TO ADDED
PRODUCTIVITY



The Economic and Social Value of Self-Care 2.0

INTRODUCTION

This second iteration of the *Global Social and Economic Value of Self-Care* report, uses the same peer-reviewed methodology and conceptual framework as the 2022 study, while also including a new element on the value of preventive self-care.

Responsible self-care, a complementary pillar of strong health systems, empowers individuals to stay healthy, prevent disease and effectively manage illness, enabling longer, healthier and more productive lives.

The WHO defines self-care as the ability of individuals to promote health, prevent disease, maintain wellbeing and manage illness, with or without the support of a healthcare professional. GSCF's updated Economic and Social Impact study shows that responsible self-care delivers substantial social and economic benefits across all health system contexts. As such, self-care has an important role to play in meeting global aspirations for universal health coverage (UHC).

WHY SELF-CARE MATTERS NOW

As individuals, we can reduce unnecessary visits to the physician by taking non-prescription medications for self-treatable conditions such as migraines, allergies, coughs, colds and sore throats. We can also manage some of our own preventive care, such as taking vitamins, minerals and supplements, stopping smoking, improving oral health and preventing sexually transmitted infections (STIs). In many cases, this self-care might be the only healthcare available due to limited primary healthcare infrastructure, making self-care essential in some parts of the world. For others, managing our own health is timely, convenient and removes an unnecessary burden from our health systems. This is important, because smaller healthcare budgets, workforce shortages and multilateral restructuring have all put increasing pressure on health systems, particularly when combined with ageing populations, infectious disease burden and the growing prevalence of NCDs.

Investing in self-care is, therefore, a strategic lever for sustainable health systems, more resilient societies and stronger economies.



THREE KEY DIMENSIONS

This edition of the report is focused on three key dimensions of self-care:

1) prevention,

2) access,

3) quality of life,

and explores how they interact to shape health outcomes.

PREVENTION

By expanding the framework beyond the treatment of existing symptoms, the report highlights the critical role preventive self-care can play in reducing future disease burden, avoiding complications, and strengthening long-term health system resilience.

ACCESS

This edition also provides a deeper assessment of the role of access to non-prescription medicines within healthcare systems. It examines the barriers and enablers that shape equitable access, healthcare utilisation, and progress toward universal health coverage (UHC). Access to self-care interventions is the outcome of increasing product availability and improving product affordability, and a critical determinant of health outcomes. When individuals can obtain timely, safe, and affordable treatment for self-treatable conditions, they are better able to relieve symptoms, reduce pain and discomfort, and maintain daily functioning—ultimately improving both physical and psychological wellbeing.

QUALITY OF LIFE

Moving beyond traditional measures of healthcare utilisation and cost savings, this report emphasises the impact of self-care on individual well-being and productivity, health-related quality of life, and broader social welfare. This perspective reinforces the value of self-care as not only a health intervention, but also a contributor to human well-being and societal resilience.

Figure 1: Key Dimensions of Self-Care



THE INTERDEPENDENT RELATIONSHIP BETWEEN ACCESS, QUALITY OF LIFE AND PREVENTION

Access, quality of life, and prevention should not be viewed as separate domains, but as mutually reinforcing dimensions of an effective self-care ecosystem. This framework (see Fig. 1) represents a dynamic cycle in which improved access to self-care strengthens health outcomes and quality of life, enabling greater social and economic participation. In turn, improved well-being increases individuals' capacity to engage in preventive behaviours and proactive health management.

Recognising and leveraging these interdependencies is essential for designing policies that strengthen health system resilience and deliver long-term population health gains.



GLOBAL HEALTH SECTOR UNDER STRAIN AND THE ROLE OF SELF-CARE

The core policy challenge in 2026 has become long-term health system optimisation and sustainability. And responsible self-care delivers substantial and measurable social and economic benefits across all health system contexts.

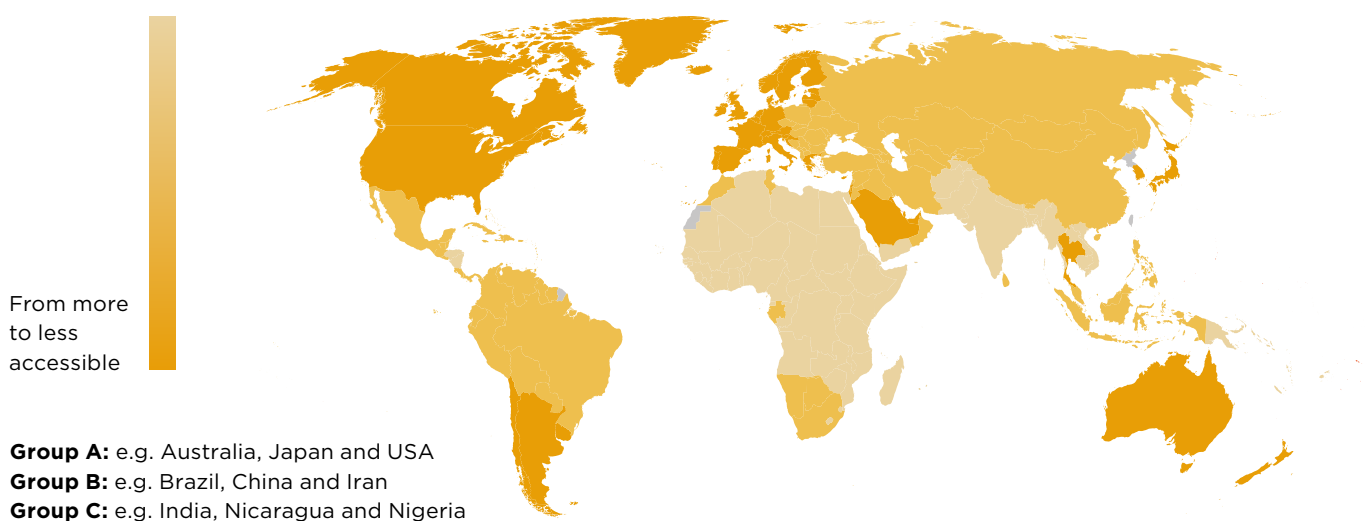
Responsible self-care is practiced by:

- strong regulatory standards for quality, safety and efficacy.
- access to evidence-based non-prescription medicines and self-care interventions.
- where appropriate, support from pharmacists and other healthcare professionals.
- clear referral and escalation pathways.

As a result, strengthening self-care policies should be seen as part of a broader holistic strategy to enhance economic and social outcomes and improve system resilience, not only as a health intervention.

SELF-CARE IN DIFFERENT CONTEXTS

The *2022 GSCF Economic and Social Value of Self-Care* study established a global evidence base demonstrating that self-care interventions, such as the use of non-prescription medicines, can deliver health and social benefits across all health systems. The same underlying methodology continues to underpin the updated analysis and extended outlook to 2040 (May et al., 2023).

Figure 2: Global Country Grouping Regions According to World Bank

COUNTRY GROUPING

Differences in **accessibility** and **affordability** of healthcare among countries located in the same geographic region create the need for country grouping. For this purpose, five parameters were assessed:

1. **National Healthcare Service Coverage in population**
2. **Income Group**
3. **Health Care Expenditure per capita.**
4. **Physicians per 1,000 population**
5. **GDP per capita.**

The country grouping approach was developed in two stages to examine healthcare needs or self-care potential of a country:

1 Economic indicators were analysed to determine the economic status of a country and the potential per capita spending on OTCs (affordability). For this purpose, GDP per capita, healthcare expenditure per capita and income per capita were selected.

2 Indicators relating to healthcare accessibility were examined: the accessibility of health services is a key factor that influences healthcare utilisation, self-care practices and the health status of a population. The indicators chosen include healthcare system coverage and physician density.

A total of 155 countries were included in the economic analysis. 41 countries were categorised into Group A, 60 countries into Group B and 54 countries into Group C. While the countries in most regions were predominantly categorised into one or two groups, East Asia and Pacific region has the most evenly distributed number of countries across the three groups.

Self-care as the first treatment option (FT)
 Self-care as the only treatment option (OT)

Further details on country grouping can be found in the full report (May und Bauer GmbH & Co KG, 2026).

Using the parameters described in Figure 2, countries are grouped into three broad categories: high-, middle- and low-income.

Across these groups, self-care fulfils two core functions and supports progress toward universal health coverage (UHC): it increases efficiency where systems are strong and enables access where formal services are limited.

HIGH-INCOME COUNTRIES: Self-Care as First Treatment Option

In high-income countries, self-care often replaces a physician visit as the first line of treatment for common or self-treatable conditions.

Key benefits of self-care include:

- Substantial cost savings for health systems.
- Significant reductions in physician workload.
- Time savings for individuals.

In these countries, self-care acts as an efficient complement to well-developed healthcare systems.



MIDDLE-INCOME COUNTRIES: Hybrid Patterns

Middle-income countries include a mixture of socio-economic groups therefore policies should be addressed depending on context and tailored to suit the national health system structures.



LOW-INCOME COUNTRIES: Self-Care as Only Treatment Option

In low-income countries, for many, self-care is the only available form of care due to limited primary care infrastructure.

Key benefits of self-care include:

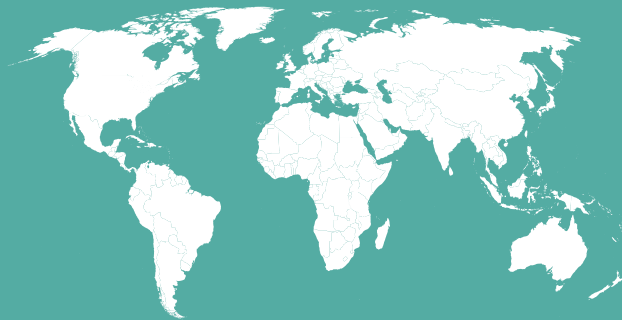
- Helping to maintain the ability to work.
- Reducing the burden of untreated health conditions.
- Improving individual quality of life
- Preventing serious complications in the absence of formal care.



THE VALUE OF SELF-CARE FOR INDIVIDUALS

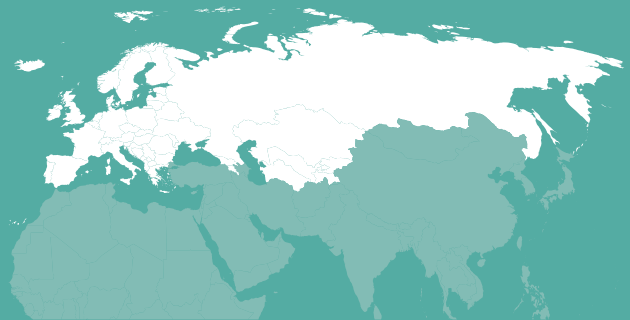
Results in this report, clearly show that self-care interventions generate significant economic and social benefits for individuals, health systems and economies. A key component of this value is welfare gains, defined in this study as the monetary value of the productive days gained through self-care. By supporting earlier recovery and sustained productivity, self-care delivers benefits that extend beyond the individual to the wider economy. Per capita metrics further strengthen the case for self-care.

Key impactful examples include:



GLOBALLY

Self-care results in an average of **six additional productive days per person per year**. By choosing self-care interventions rather than no treatment, individuals recover sooner and gain working days.



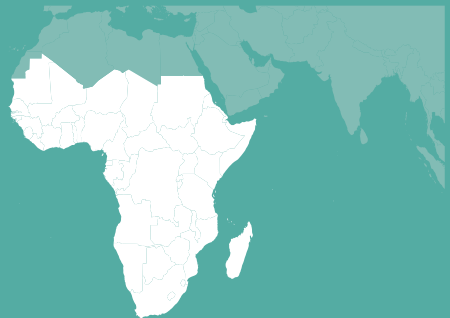
EUROPE AND CENTRAL ASIA

Individuals save an average of **four hours each year**, by avoiding unnecessary consultation appointments - reducing travel, waiting and consultation time - while **53 minutes** of physician time per person is freed for more complex cases.



LATIN AMERICA AND THE CARIBBEAN

Welfare gains of approximately **\$144 per person** per year.



SUB-SAHARAN AFRICA

The productivity effect amounts to only **three days**, reflecting limited access to self-care interventions despite high potential need.

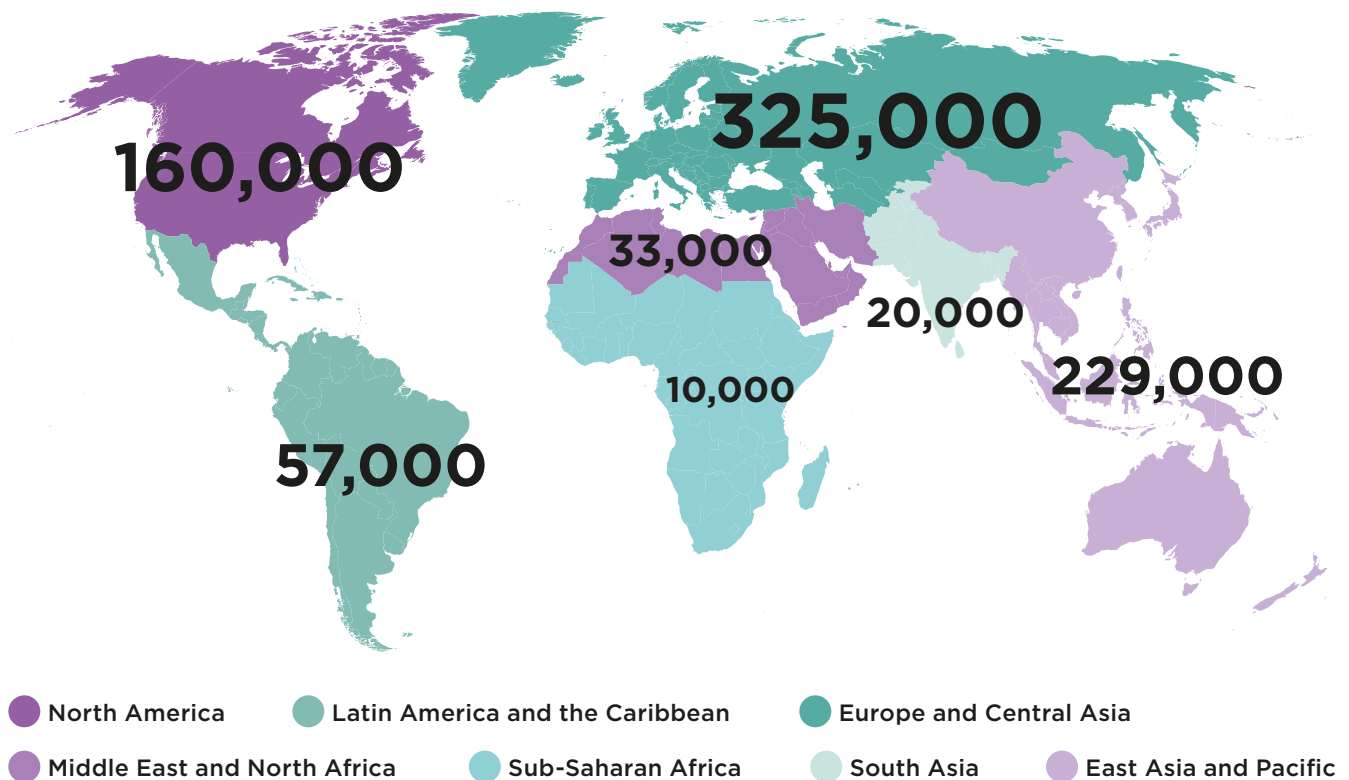
As detailed in the full report, these regional differences are mainly driven by demographics, policy uptake and access.

IMPACT OF SELF-CARE

THE IMPACT ON DEMAND FOR HEALTH WORKERS

The WHO estimates a projected shortfall of 11 million health workers by 2030, mostly in low-and lower-middle income countries (WHO, 2026). With the demand for services increasing, and a growing shortage of health workers, we must use clinical capacity wisely and efficiently. Responsible self-care can play a direct role in alleviating the strain (WHO, 2026). **800,000 additional physicians would be needed worldwide if self-care interventions did not exist** (Figure 3).

Figure 3: The Additional Number of Full-Time Physicians Needed in the Absence of Self-Care



Self-care, therefore, plays a critical role in preserving scarce clinical capacity. Since it frees up approximately 2.20 billion hours of physician time annually, it can enable physicians to focus on individuals with more severe health conditions and on prevention.

However, the full potential of self-care has not yet been realised.



THE TOTAL IMPACT OF SELF-CARE

Further strengthening the self-care environment could unlock additional capacity, easing unnecessary pressure on physician time and supporting more resilient health systems.

The estimated regional contributions of self-care to healthcare system efficiency, economic welfare, productivity and health-related quality of life in 2026 continue to vary considerably

The figure below presents the estimated regional contribution of self-care to healthcare system efficiency, economic welfare, productivity, and health-related quality of life, illustrating differences in value generation across healthcare settings and world regions. Regional differences reflect variation in underlying model assumptions and inputs, including price per packet, healthcare utilisation, access to care, physician costs and other country-specific inputs used in the model. Results should therefore be interpreted within the context of each region.

Table 1: Regional Distribution of Self-Care Benefits and Value Dimensions

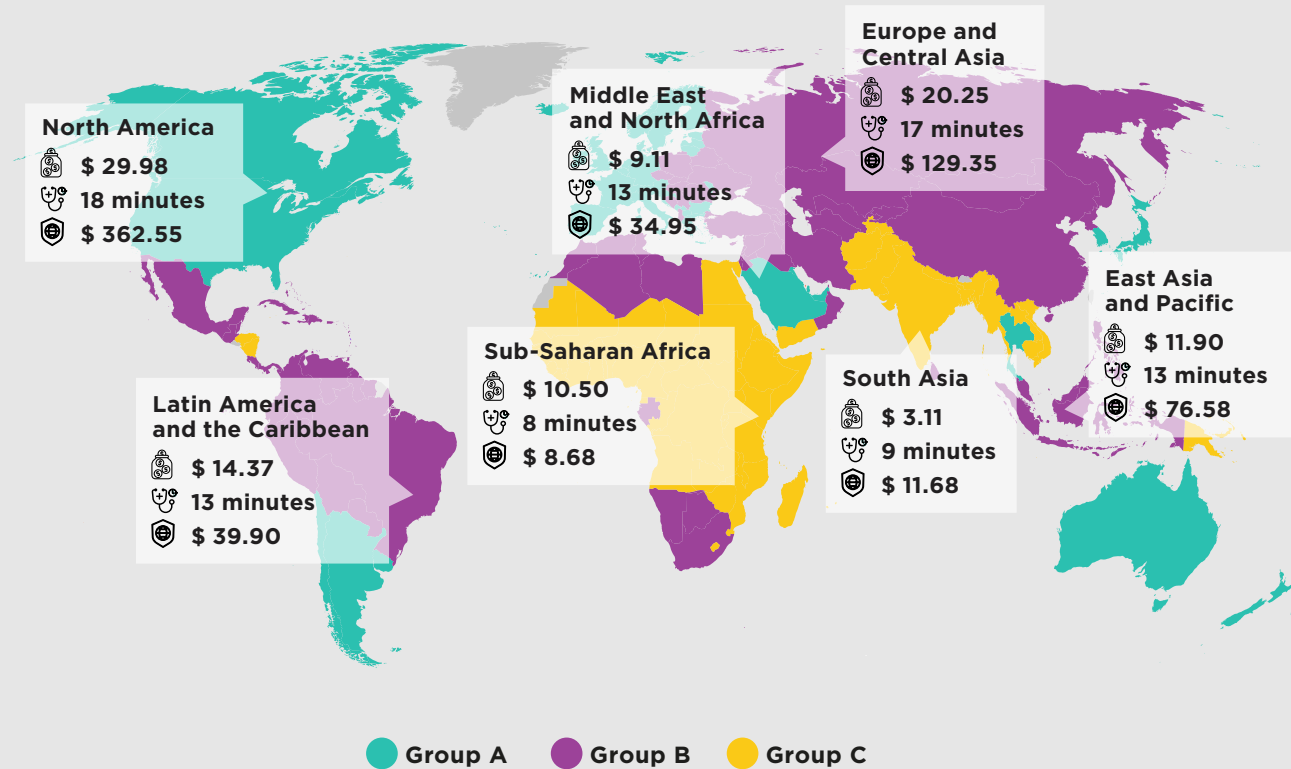
Figures by May und Bauer GmbH & Co KG

Region	Cost Containment	Individual Time Saving	Physician Time Saving	Productivity	Welfare	Quality of Life
East Asia and Pacific	\$31.9 bn	3.9 bn hrs	0.60 bn hrs	10.9 bn days	\$476.6 bn	6 mn QUALYs
Europe and Central Asia	\$58.0 bn	3.7 bn hrs	0.82 bn hrs	7.3 bn days	\$633.4 bn	4 mn QUALYs
Latin America and the Caribbean	\$11.7 bn	1.2 bn hrs	0.17 bn hrs	3.5 bn days	\$94.3 bn	2 mn QUALYs
Middle East and North Africa	\$6.6 bn	1.1 bn hrs	0.16 bn hrs	3.1 bn days	\$72.8 bn	2 mn QUALYs
North America	\$31.8 bn	1.3 bn hrs	0.32 bn hrs	2.4 bn days	\$576.8 bn	1 mn QUALYs
South Asia	\$2.3 bn	1.3 bn hrs	0.11 bn hrs	12.5 bn days	\$97.4 bn	7 mn QUALYs
Sub-Saharan Africa	\$2.1 bn	0.3 bn hrs	0.03 bn hrs	3.8 bn days	\$22.2 bn	2 mn QUALYs
GLOBAL VALUE	\$144.3 bn	12.7 bn hrs	2.20 bn hrs	43.6 bn days	\$1,973.5 bn	24 mn QUALYs

THE PER UNIT IMPACT OF NON-PRESCRIPTION MEDICINES

The self-care benefits accrued per unit of non-prescription medicine sold.

Figure 4: The Impact of One OTC Pack in Terms of Self-Care Benefits



The figure above shows the impact of one OTC pack in terms of self-care benefits per region. In addition to this, global estimates show that the impact of just one packet of non-prescription medicine results in \$15.91 in cost savings, 14.4 minutes of physician's time saved and \$67.8 in welfare gains, attributable to higher productivity.

In this study, the definition of "pack" is applied according to IQVIA nomenclature: "The number of packs ("units") sold." It describes normalised data on OTC expenditure derived from different sources. Standardised units for OTC expenditure are required in global studies due to differences in definitions of OTC pack, including size and dosage, between countries.

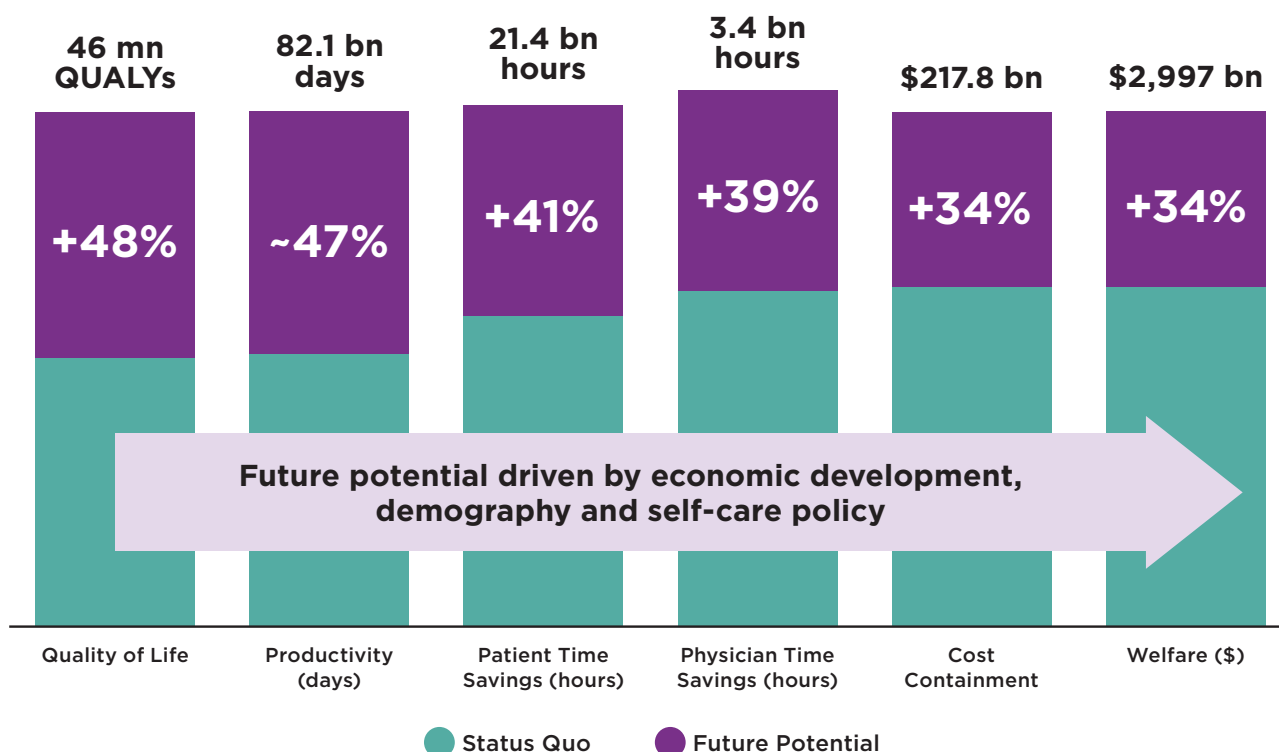
UNLOCKING FUTURE POTENTIAL (TO 2040)

The evidence shows that self-care uptake is moving in the right direction, but at an uneven pace across countries. However, with the right policies, the global benefits of self-care could increase significantly by 2040:

- **~48% increase in quality of life and 47% increase in productivity**, driven by economic development and policies that expand access, particularly in low-middle income countries.
- **~41% increase in individual time savings** due to reduced waiting time and travel burden.
- **~39% increase in physician time savings** (hours).
- **~34% gains in health system savings**.
- **~34% increase in welfare gains** due to added productivity.

Taken together, these projections show that responsible self-care is one of the few interventions that simultaneously preserves access, reduces avoidable expenditure and frees scarce clinical capacity without compromising quality of care. It represents a significant step towards health system optimisation and resiliency.

Figure 5: Future Potential Driven by Economic Development, Demography and Self-Care Policy



The right strategic policy choices are essential for realising these benefits:

HIGH-INCOME COUNTRIES:

Provide incentives for people to use self-care interventions by reducing barriers to access, including expanding access to appropriate non-prescription medicines through prescription-to-non-prescription switches and implementing financial incentives for self-care.

MIDDLE-INCOME COUNTRIES:

Balanced strategies tailored to suit the national health system structures. Middle-income countries include a mixture of socio-economic groups therefore policies should be addressed depending on context.

LOW-INCOME COUNTRIES:

Providing access to non-prescription medicines, ensuring availability and delivering reliable information, because health literacy is a fundamental catalyst for self-care.

MONETARY VALUATION OF QALYS GENERATED THROUGH SELF-CARE

The 2022 study quantified, for the first time on a global scale, the health benefits generated using non-prescription medicines within the framework of self-care. These health gains were measured using the **Quality-Adjusted Life Year (QALY)**, a standard international metric used by health economists and Health Technology Assessment (HTA) agencies worldwide to evaluate the impact of health interventions.

This approach makes it possible to compare the health gains from self-care with those from other health interventions, such as pharmaceuticals, vaccines, and clinical treatments. However, while QALYs capture health outcomes, they do not fully reflect the broader societal value of improved health.

In practice, health systems operate within finite budgets and must balance competing

priorities. This raises a central question: *what value does society place on an additional year of healthy life?* To support decision making, QALY results are often translated into monetary terms using **society's willingness to pay for one additional QALY**, providing a common framework for comparing health gains with the resources required to achieve them. This approach does not place a market value on health or human life; rather, it provides a way to assess the value generated by health interventions relative to the investment required.

In this report, updated evidence on the health-related quality-of-life benefits of using non-prescription medicines to manage self-treatable conditions, is used to estimate total QALY gains. These gains underpin the valuation of self-care's broader societal contribution, including reduced pressure on health systems and wider economic benefits. The methodological framework used for the calculation of QALYs is outlined in Appendix 2.

Table 2: Monetary valuation of QALYs generated through self-care by country income group

Countries per income group	Annual Gains in QALYs gained through self-care	Monetary Value (USD)
High Income	5 million	\$488 billion
Middle Income	10 million	\$181 billion
Low Income	8 million	\$35 billion

Monetary value (2× GDP per capita i.e. WHO Recommendation). Countries grouped by World Bank Income Group. Country group figures are rounded independently; therefore totals may not sum exactly to the reported global estimate.

Table 2 summarises the results of this analysis by World Bank income group. The column in the middle shows the total number of QALYs generated each year through the use of non-prescription medicines in low-, middle-, and high-income countries. These figures quantify the annual health gains attributable to self-care in terms of additional years of healthy life.

The right-hand column complements this information by expressing these health gains in monetary terms. Applying established estimates of society's willingness to pay for one additional QALY provides an estimate of the economic value that these health gains represent. As explained above, these monetary values should not be interpreted as placing a price on health or human life. Rather, they express the societal value of the health benefits generated through self-care interventions and provide a common metric for comparing these benefits with the resources required to achieve them.

The monetised QALY estimates therefore illustrate the magnitude of the value created by non-prescription medications, linking the health benefits generated by non-prescription medicines with their wider economic implications for society.

COST-EFFECTIVENESS ANALYSIS OF SELF-CARE

As health systems face growing financial and capacity pressures, prioritising interventions that deliver the greatest health impact while using the fewest available resources has become increasingly important. The cost-effectiveness analysis compares the monetised value of the health gains generated through self-care interventions with the corresponding costs of the intervention. A fundamental principle of these evaluations is that they focus on incremental costs and benefits. Rather than considering total costs and outcomes, the analysis examines the additional costs and health gains generated by an intervention compared with an appropriate alternative. This provides a measure of the value for money created by an intervention relative to what would have happened without it. In this analysis, the comparator is a “wait-and-see” approach, meaning no active treatment. A complete description of the methodology is provided in Appendix 4.

The results, summarised in the **world map to the next page**, show that self-care interventions using non-prescription medicines is highly cost-effective in most countries. In many settings, the monetary value of the health gains substantially exceeds the costs of treatment, demonstrating that self-care interventions for self-treatable conditions represents a highly attractive investment. **In health economic terms, it can be regarded as a “best buy”, where comparatively small expenditures generate disproportionately large health benefits** (May und Bauer, 2026).

The countries in which cost-effectiveness could not be demonstrated are almost exclusively those with extremely low levels of per capita income. These findings should be interpreted with caution, as exceptionally limited healthcare resources result in very low willingness-to-pay thresholds. They therefore reflect the economic constraints of these health systems rather than the intrinsic value of self-care interventions.

Moreover, it is unlikely that self-care in these settings resembles the average pattern observed in higher-income countries. In many low-income countries, access to non-prescription medicines is restricted and financial resources are scarce.

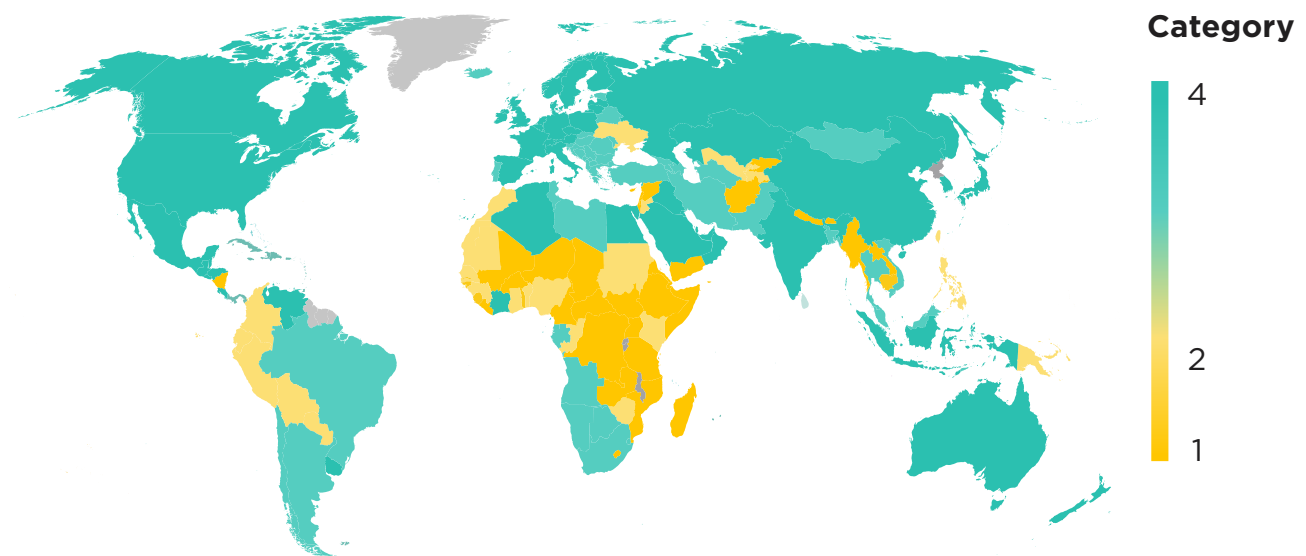


As a result, self-care is likely to be reserved for situations in which treatment is perceived as particularly important or medically necessary, rather than for the routine management of self-treatable conditions.

Under these circumstances, the average health gains generated by self-care are likely to be substantially higher than those assumed in the present global analysis.

For this reason, the findings for the lowest-income countries should not be interpreted as evidence that self-care is inherently not cost-effective in these settings. Rather, they highlight the limitations of applying globally averaged assumptions to countries with fundamentally different healthcare contexts and utilisation patterns. A more context-specific evaluation of self-care in low-income countries therefore represents an important area for future research.

Figure 6: Global Cost-Effectiveness Classification of Self-Care Interventions Based on ICER-To-Threshold Ratios



The analyses presented so far have focused exclusively on the cost-effectiveness of self-care interventions using non-prescription medications to manage self-treatable conditions. The preventive dimension of self-care, which represents a central focus of the present report, has not yet been considered. Without anticipating the detailed analyses presented in the following chapters, a number of illustrative examples demonstrate that **preventive self-care interventions are often characterised by exceptionally high levels of cost-effectiveness**. By preventing disease before it occurs, such interventions frequently generate substantial health gains while requiring only relatively modest investments.

As illustrated in the table below, this favourable relationship between costs and health benefits is particularly pronounced in low- and lower-middle-income countries. In these settings, preventive self-care measures often represent one of the most

efficient opportunities to improve population health despite severely constrained healthcare budgets. Consequently, prevention within the framework of self-care may be regarded as one of the most valuable health investments available, especially in resource-limited settings.

Improving access to essential self-care interventions in these settings could further enhance the health impact of self-care by enabling broader and more timely use of effective interventions for self-treatable conditions.

A complete explanation of the methodology can be found in Appendix 4.

Table 3: Illustrative Cost-Effectiveness of Selected Public Health Interventions

Intervention	Illustrative Cost per DALY Averted (USD)	General Classification	Source
ORS (Oral Rehydration Salts)	~70–150	Very cost-effective	Robberstad et al. 2004; DCP3 RMNCH Ch. 9
Zinc Supplementation for Diarrheal Diseases	~10–100	Very cost-effective	Robberstad et al. 2004; DCP3 RMNCH Ch. 9
Deworming Treatments	~10–150	Very cost-effective	Lo et al. 2015; DCP3 NTD Ch. 17
Vitamin A Supplementation	~4–100	Very cost-effective	DCP3 RMNCH Ch. 8; GiveWell 2024
Multiple Micronutrient Supplements	~15–115	Very cost-effective	WHO MMS Technical Report 2021
Insecticide-Treated Mosquito Nets (ITNs)	~5–31	Extremely cost-effective	DCP2 Table 21.6; DCP3 rankings

Note: the examples were selected by May und Bauer GmbH & Co KG based on robust evidence of cost-effectiveness and include a broader range of self-care interventions beyond registered non-prescription medicines.

CONCLUSIONS

Responsible self-care is already delivering significant benefits today and offers substantial potential for the future. By improving individuals' ability to manage appropriate health needs, reducing avoidable demand on health services, and freeing up healthcare resources, self-care contributes to more efficient and resilient health systems. These benefits include reduced pressure on health services, gains in productivity and quality of life, and potential to support broader health system goals, including progress towards universal health coverage.

The evidence shows that self-care is a powerful lever to better optimise health systems and may be one of the most cost-effective interventions available, delivering good value for money by generating meaningful gains at relatively low cost while reducing avoidable pressure on healthcare services.



Investments in self-care interventions should not replace investments in professional healthcare but should be considered a complementary part of effective health systems. It supports **health system optimisation**, acts as an economic and social investment, and contributes to more equitable and sustainable healthcare delivery.

Digital tools can further strengthen access to information and support appropriate self-care decisions, but only when embedded within trusted regulatory and professional frameworks. Within this system, pharmacists play a key role as accessible healthcare professionals, helping people choose appropriate treatments and ensuring timely escalation to medical care when needed.

Realising this potential depends on sustained, supportive policy action across health systems.



RECOMMENDATIONS FOR POLICY-MAKERS

**EMBED SELF-CARE
INTO PREVENTION
POLICIES**

**IMPROVE ACCESS
TO EVIDENCE-BASED
NON-PRESCRIPTION
MEDICINES**

**INCREASE HEALTH
LITERACY BY PROVIDING
EVIDENCE-BASED
HEALTH INFORMATION AND
RESPONSIBLE SELF-CARE**

**INTEGRATE SELF-CARE
INTO UNIVERSAL HEALTH
COVERAGE STRATEGIES**

Future gains are neither automatic nor guaranteed.

Realising the potential of self-care will depend on the adoption of supportive policies by governments across the world, which could result in social and economic benefits of self-care increasing substantially, with potential gains of up to 50% by 2040.

Self-care is, therefore, a strategic investment in health, equity and long- term system resilience.

The Role of Self-Care and Non-Prescription Products in Prevention

INTRODUCTION

Prevention is a fundamental pillar of public health and plays a central role in addressing the growing burden of diseases, particularly non-communicable diseases (NCDs), supporting the control of communicable diseases, and strengthening overall health system resilience.

This section examines the role of prevention, its economic and health benefits, the return on investments for preventive interventions, and the specific contribution of self-care to prevention. It is supported by **seven case studies** illustrating how prevention and self-care operate in practice. While the analysis presented in the preceding section focused on registered non-prescription medicines, the case studies in this section encompass a wider range of self-care interventions to illustrate their role across the prevention continuum.

At its core, self-care extends the reach of prevention beyond formal healthcare systems.

It enables individuals to engage in **ongoing health maintenance, early symptom recognition, and appropriate self-management**, supporting earlier and more efficient interventions across a range of conditions.

From both a public health and economic perspective, self-care interventions play an increasingly important role in prevention by improving early access to care, reducing disease progression and complications, and decreasing the avoidable use of healthcare services. In doing so, it shifts care from resource-intensive settings to **low-threshold, more cost-effective interventions at the individual level**, improving both health outcomes and health system efficiency.

Overall, **self-care is an increasingly important component of people-centred, prevention-oriented health systems**, contributing to improved access to healthcare, greater system efficiency, and the broader objectives of universal health coverage (WHO, 2022a).



WHAT IS PREVENTION?

The World Health Organization (WHO) defines prevention as *“measures to reduce the occurrence of risk factors, prevent the occurrence of disease, to arrest its progress and reduce its consequences once established”* (WHO, 2021a, p.5).

Prevention therefore extends beyond avoiding disease onset to include **early intervention and mitigation of disease impact across the full disease continuum**. It is increasingly understood as a **life-course approach**, encompassing a range of interventions from population-level risk factor regulation (for example regulations and taxations on tobacco and alcohol, promotion of healthy foods, health literacy) to individual-level early detection and disease management (for example cardiometabolic risk assessment and management, early detection, effective treatment, and vaccination) (Mikkelsen et al., 2019).

There is growing recognition that effective prevention requires both clinical interventions and approaches that empower individuals to actively manage their own health.

In this context, self-care and non-prescription products have become important components of prevention-oriented health systems.

The combination of self-care interventions and prevention can expand access to care, support early intervention and reduce pressure on health systems. Enabling individuals to make more informed decisions about their own healthcare complements more formal healthcare services, to strengthen prevention across different stages of the disease continuum.

Prevention is therefore fundamental to improving health outcomes and provides a basis for analysing the role of self-care interventions - particularly non-prescription medicines - **as accessible, low-threshold tools that can support prevention across different stages of the health and disease continuum.**



IMPORTANCE OF PREVENTION

Prevention is grounded in the life cycle of disease: the progression from exposure to risk factors, through subclinical and clinical stages, to a range of outcomes including recovery, disability or death. Preventive interventions aim to interrupt this progression at different points, either **by reducing exposure to risk factors, enabling early detection, or limiting the consequences of a disease once established** (Keyes et al., 2026).

This makes prevention relevant for both communicable and non-communicable diseases, although their relative importance varies across regions and health systems. Infectious diseases remain a major concern, particularly in low- and middle-income countries, requiring sustained efforts in vaccination, hygiene, and surveillance (WHO, n.d.). At the same time, NCDs represent a growing share of global morbidity and mortality, particularly in ageing populations (Vos et al., 2020). Prevention strategies must, therefore,

address both acute and chronic diseases simultaneously and adapt to different socioeconomic contexts.

Analysis by the OECD shows that the rising burden of chronic diseases drives the increase in healthcare expenditures and productivity losses in high-income countries. It also shows that **investments in prevention, particularly those that target modifiable risk factors, generate greater health and economic returns compared to treatment-focused approaches alone** (OECD, 2026).

Modern prevention frameworks consider how disease risks are shaped by complex interactions between biological, behavioural, social, environmental and structural determinants (Brownson et al., 2009). Prevention is therefore not only a clinical or behavioural concept, but also an important policy-relevant and system-oriented strategy, closely linked to broader health system goals such as **universal health coverage, health equity and the long-term sustainability of health systems** (WHO & UNICEF, 2018).



PREVENTION AND PUBLIC HEALTH

Prevention has a distinct role in targeting specific disease pathways and risk factors within a broader public health framework (Caron et al., 2024). It both overlaps with and is complemented by related public health concepts.

Health promotion takes a broader perspective by addressing the underlying determinants of health, including social, economic and environmental conditions, and aims to empower individuals and communities (WHO, 2021a). It addresses upstream determinants of health and well-being, whereas prevention focuses more specifically on reducing the risk or impact of defined diseases (WHO, 1986).



Disease control refers to efforts to reduce the incidence, prevalence or severity of diseases through surveillance, case management and targeted interventions (Christensen, 2001). It is particularly relevant in the context of communicable diseases, where rapid response to outbreaks is essential (Hellewell et al., 2020). Disease control is often more reactive than prevention, although both approaches are closely linked in practice.

Health protection focuses on safeguarding populations from external threats such as environmental hazards, occupational risks and infectious disease outbreaks through regulatory and policy measures (WHO EMRO, n.d.). It plays a key role in population-level risk mitigation and complements prevention strategies.

LEVELS OF PREVENTION

The preventive health strategies are divided into five phases: **primordial, primary, secondary, tertiary** and **quaternary prevention**. Each is intended to intervene at particular stages of the disease life cycle, with the ultimate goals of preventing disease onset and reducing its impacts once it occurs (AbdulRaheem, 2023).

PRIMORDIAL PREVENTION

Primordial prevention focuses on the **social, economic and environmental determinants of disease risk factors**. It deals with root causes including poverty, access to education, environmental quality and social inequities that can increase the risk of disease for an entire population (AbdulRaheem, 2023).

Primordial prevention, often directed towards children, seeks to reduce exposure to risk factors in early life to affect the underlying development of both communicable and non-communicable diseases. The relevant policies include healthy urbanism, tobacco control laws, educational programmes that deter the adoption of risk factors, and social policies that consider income inequality and environmental justice (WHO, 2024a).

Self-care interventions play an indirect role at this phase, primarily through health literacy, the adoption of behavioural norms, and community engagement that influences long-term risk exposure (WHO, 2022a).



PRIMARY PREVENTION

Primary prevention aims to **prevent the onset of an illness in healthy people by modifying disease risk factors and enhancing protective factors**. These include vaccination programmes, dietary counselling, promoting physical activities, modifying the environment to decrease exposure to disease-causing agents, and behavioural interventions that encourage healthier lifestyles (Keyes et al., 2025).

This phase is the traditional model of preventing disease before it occurs. For communicable diseases, it includes vaccination and for non-communicable diseases, interventions include measures targeting tobacco use, and providing education and access to healthier diets and physical activity (WHO, 2024a).

Self-care is central at this level, enabling individuals to promote health and prevent disease through informed behaviours, lifestyle changes and the use of accessible interventions such as non-prescription products (WHO, 2019).





SECONDARY PREVENTION

Secondary prevention focuses on **early detection and timely interventions** such as screening programmes, regular health examinations, diagnostic tests on asymptomatic diseases and the timely response to pre-clinical disease conditions (Santaballa et al., 2020).

This phase is particularly important for preventing non-communicable diseases, where early detection significantly improves outcomes and reduces long-term healthcare costs (OECD, 2026). However, it is also relevant for communicable diseases, where early identification and response can limit transmission and improve outbreak control (WHO, 2022a).

Self-care contributes through **symptom recognition, self-monitoring and early treatment**, increasingly supported by digital health tools and pharmacy-based services (WHO, 2019).



TERTIARY PREVENTION

Tertiary prevention involves **treating existing diseases to prevent complications**, reduce disability, improve quality of life, and prevent the recurrence of a disease by optimising therapy, rehabilitation and controlling lifetime disease (Keyes et al., 2026).

This phase includes full rehabilitation, systematic programmes on chronic disease management, treatment adherence and measures to avoid disease progression or subsequent complications. It is particularly relevant for chronic diseases but also applies to communicable diseases with long-term consequences (AbdulRaheem, 2023).

Self-care is central at this level because individuals are by necessity responsible for day-to-day disease management, including medication adherence, symptom control and lifestyle adjustments (WHO, 2022a).

QUATERNARY PREVENTION

Quaternary prevention addresses the risk of overmedicalisation, excessive healthcare intervention and iatrogenic injury (avoidable harm caused by medical care itself) (AbdulRaheem, 2023). Its central concern is addressing medical interventions that may cause more harm than benefit.

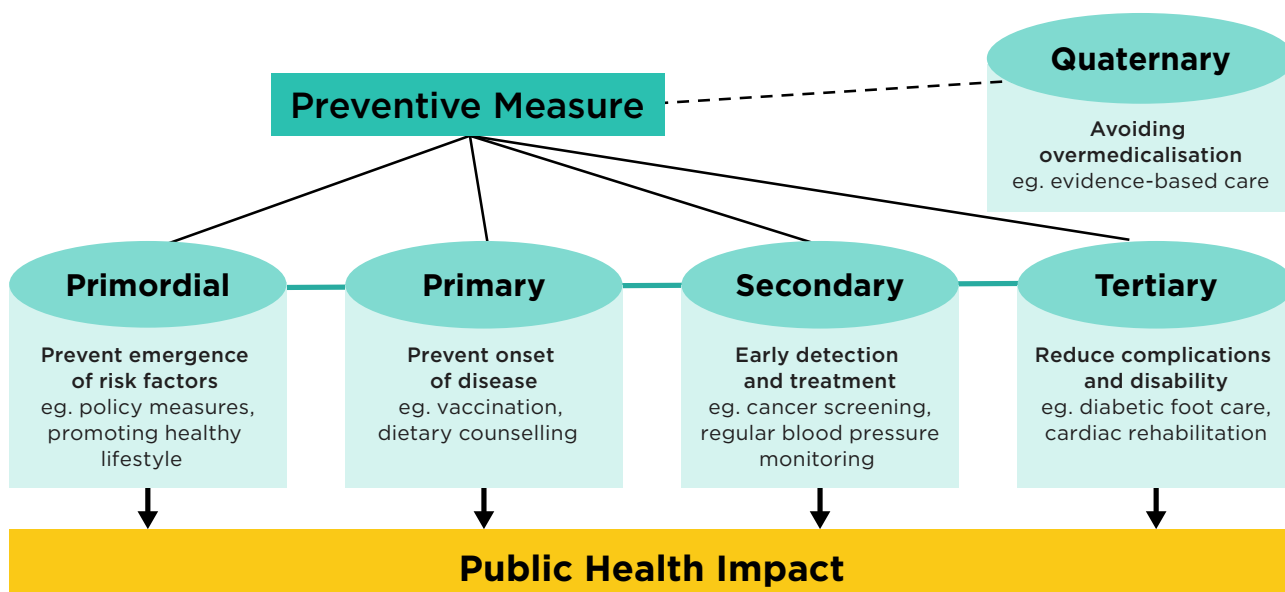
Its importance has grown substantially as the evidence on medical overuse has accumulated. One clear risk is the widespread prescribing of antibiotics (Keyes et al., 2025). The concept is closely aligned with established WHO priorities on rational use of medicines, safety of individuals and avoidance of harm in healthcare delivery (WHO, 2017).

Self-care contributes to this phase by **promoting appropriate healthcare use, informed decision-making and the responsible use of non-prescription products**, supported by appropriate guidance and integration within health systems (WHO, 2022a).



Figure 7 demonstrates how targeted interventions at each of the different phases of prevention contribute to improved public health outcomes, ranging from the prevention of risk factors to early detection, rehabilitation and the avoidance of overmedicalisation. Quaternary prevention is not a sequential phase along the disease course like the other four phases; it acts on the medical system itself by preventing overdiagnosis and overtreatment.

Figure 7: Multilevel Prevention and Its Impact on Public Health



RETURN ON INVESTMENT

Prevention delivers strong and consistent investment returns through **reduced healthcare utilisation, improved individual productivity, and long-term gains in population health.**

Evidence from the WHO estimates that scaling up cost-effective interventions for NCDs could generate significant benefits, including **fewer premature deaths, reduced disability adjusted life years (DALYs), and gains in healthy life years (QALYs)** (WHO, 2021b). Both metrics are commonly used in the self-care and prevention literature to capture disease burden averted (DALYs) and quality-of-life improvements (QALYs).

From a system perspective, prevention is also closely linked to the objectives of UHC, as it supports equitable access to care, reduces unmet needs and enhances system resilience (WHO & UNICEF, 2018). Effective prevention strategies also play an important role in reducing health inequalities by addressing disparities in risk exposure and access to services (Marmot et al., 2010).



THE IMPORTANCE OF SELF-CARE IN PREVENTION

Within this broader prevention agenda, **self-care represents an important but often under-recognised lever for improving population health and system efficiency.**

Preventive self-care supports earlier action on health risks, helps reduce disease burden, and preserves healthcare system capacity while improving individual quality of life.

It therefore functions as a low-threshold entry point into prevention, enabling action without requiring immediate contact with formal healthcare services.

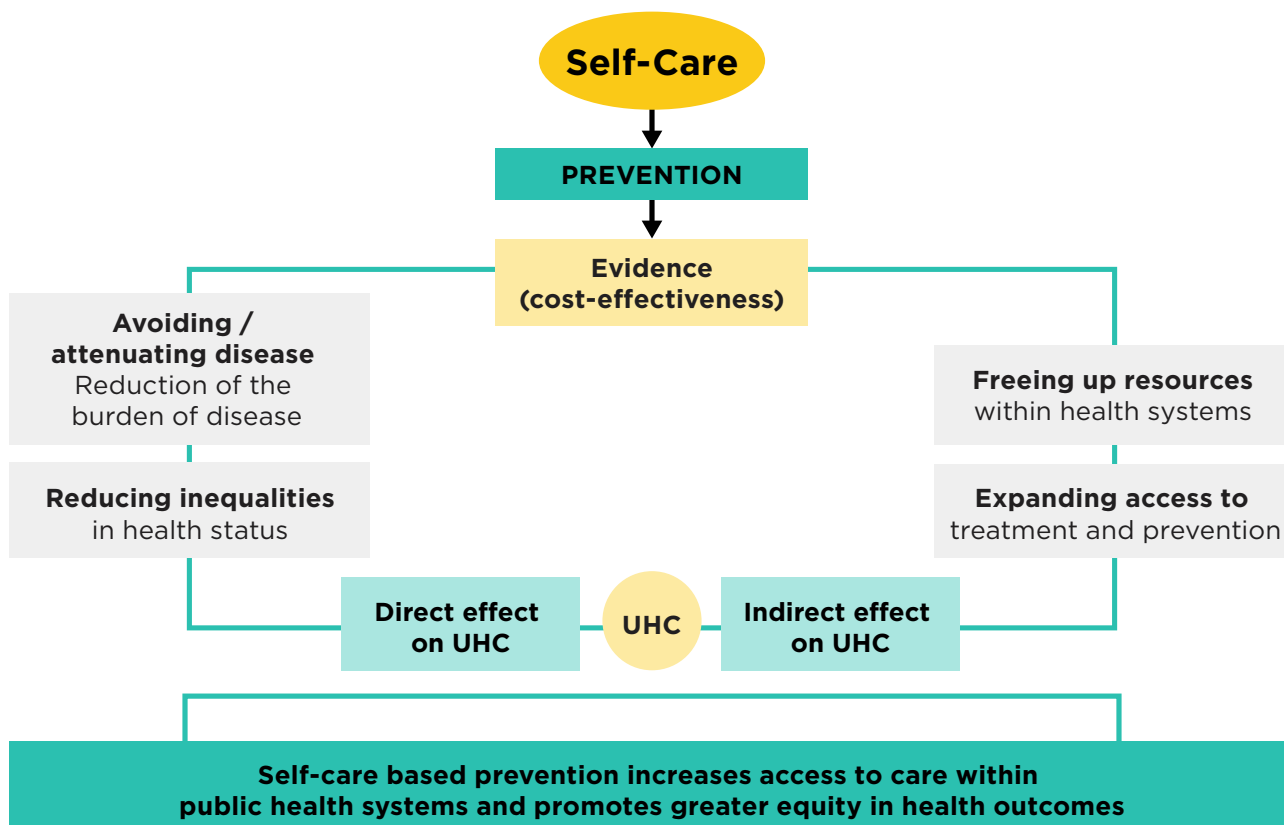
This is because preventive self-care has the potential to **avoid downstream costs**, including hospitalisation and productivity losses associated with disease progression, and often targets long-term health risks, including the prevention and management of chronic diseases. Curative self-care, in contrast, is generally directed at the management of self-treatable conditions, where it primarily substitutes for GP visits and prescription medicine use while also helping to maintain individual productivity by reducing the duration and impact of illness (May und Bauer, 2026).

A key advantage of preventive self-care is that it increases the accessibility of healthcare: preventive self-care can often be used **without requiring direct interaction with healthcare professionals**, making it a scalable and cost-effective complement to formal prevention strategies.

Figure 8: Self-Care: Effects of Low-Threshold Access to Prevention

CONTRIBUTION TO HEALTH SYSTEM SUSTAINABILITY

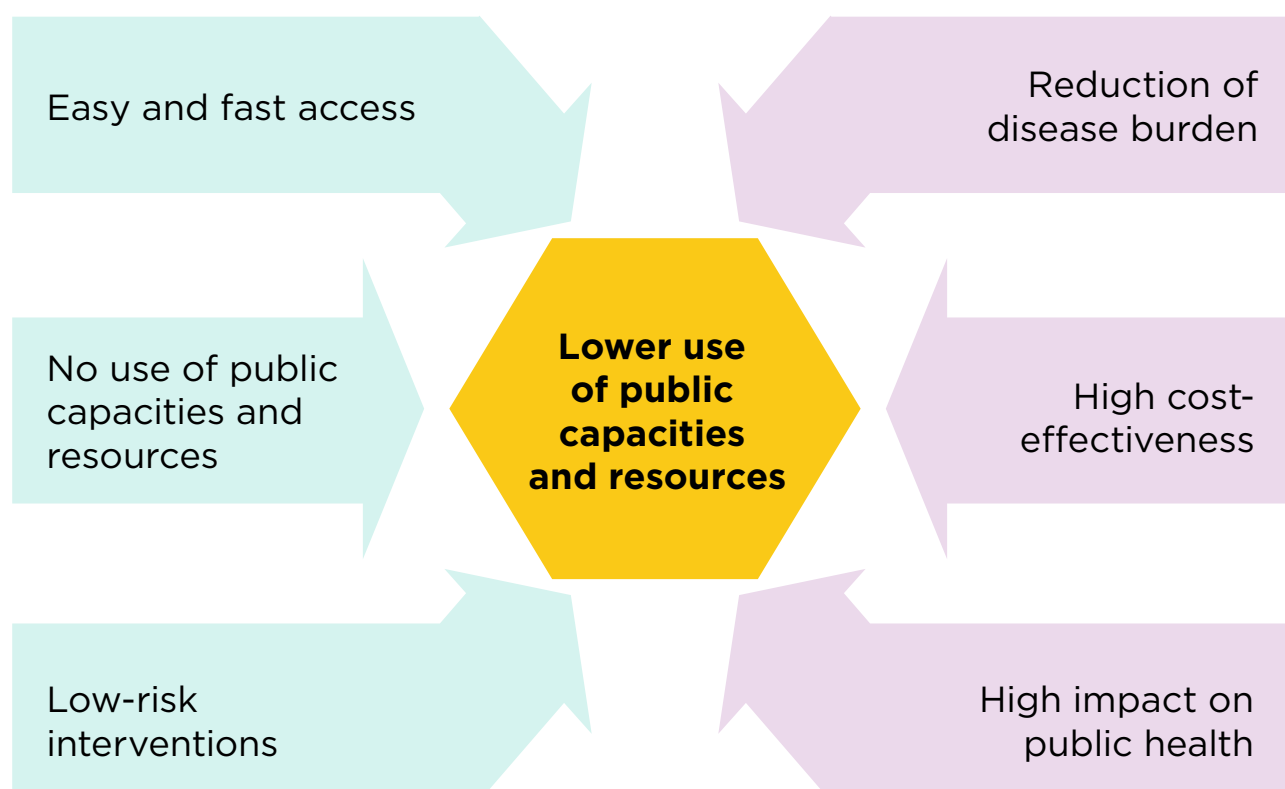
As outlined in the figure below, preventive self-care also contributes to **universal health coverage (UHC)** by improving system efficiency, as appropriate care can often take place outside formal healthcare pathways. This helps **free up clinical resources for more complex needs** while maintaining access to timely and effective care.

Figure 9: Contribution of Preventive Self-Care to Universal Health Coverage

From a health policy standpoint, the systematic integration of preventive self-care measures into public support programmes delivers both **health and economic benefits**. However, uptake of effective preventive measures is insufficient **without targeted incentive structures and enabling conditions**.

This requires a combination of economic instruments, alongside education and awareness campaigns, to support and encourage preventive self-care.

Figure 11: What is the Specific Value of Self-Care in Prevention?



The figure above summarises the key drivers of the value of preventive self-care, showing that it arises both from the intrinsic characteristics of self-care interventions and non-prescription products and from their broader system-wide economic effects; together, these demonstrate that preventive self-care is often a **“best buy” for health systems**, delivering substantial health gains with relatively limited resources and, in some cases, generating net cost savings while freeing up healthcare capacity and funding for other priorities.

In addition, quaternary prevention highlights another way in which self-care contributes to health system sustainability by reducing unnecessary healthcare utilisation and avoiding interventions that may provide limited benefit or cause harm.

By supporting appropriate use of healthcare services, self-care delivers a dual advantage: protecting limited resources and reducing harm from unnecessary medical interventions.

PREVENTIVE EFFECTS IN SELECTED SELF-CARE CONDITIONS: CASE STUDIES

Self-care has a wide range of applications in prevention, spanning multiple conditions and risk factors. Across these use cases, preventive self-care contributes consistently to reducing disease burden, avoiding downstream healthcare utilisation, and improving overall health system efficiency.

Table 4 illustrates how different levels of prevention can be supported through self-care and non-prescription products, highlighting practical examples across key conditions and intervention types.

In this report, seven case studies have been selected to demonstrate the real-world preventive impact of self-care across different health contexts.

Table 4: Types of Prevention and Self-Care Intervention Examples

Phase of Prevention	Goal	Self-Care Examples
Primary Prevention	Prevent disease onset	• Fluoride Toothpaste • Nicotine Replacement Therapy (NRT) • Sunscreen • Antifungals • Hand & Surface Hygiene • Condoms • Vitamin D (supplementation)
Secondary Prevention	Early detection and treatment	• Oral Rehydration Solution (ORS) • Antiseptic wound cleaning • Anti-allergy self-care products • PDE5 inhibitors
Tertiary Prevention	Reduce complications and improve quality of life	• Oral Rehydration Solution (ORS) • Antifungals • Non-prescription medications
Quaternary Prevention	Avoid overtreatment and unnecessary interventions	• Responsible self-care • Reduced antibiotic misuse • Non-prescription medicines for sore throat/ upper respiratory infections

Note: examples in **bold** were selected for further analysis and are presented as case studies

Case study 1

Smoking Cessation with Nicotine Replacement Therapy

Tobacco use remains one of the world's leading preventable causes of morbidity and mortality and a major driver for NCDs, including cardiovascular diseases, chronic obstructive pulmonary disease (COPD) and multiple cancers.

According to the WHO, there are approximately **1.3 billion smokers worldwide** and tobacco use causes more than seven million deaths each year, including around 1.6 million attributable to passive smoking (WHO, 2025c).

Although demand for quitting is high - **around 60% of smokers** (750 million people) **express a desire to stop** - successful cessation remains difficult due to the addictive nature of nicotine and the complex behavioural and physiological mechanisms underlying dependence (WHO, 2024c). As a result, only around half of those who want to quit make an attempt, and many attempts fail without support (VanFrank et al., 2024; Piper et al., 2016).

Nicotine replacement therapy (NRT) delivers a controlled dose of nicotine to alleviate withdrawal symptoms and cravings. NRT, therefore, significantly increases quit rates, establishing it as a key tool within comprehensive tobacco control strategies (Hartmann-Boyce et al., 2018; WHO, 2024c).

NRT-supported cessation is an example of primary prevention. In individuals with existing conditions, such as COPD or cardiovascular disease, cessation also carries secondary and tertiary prevention relevance by slowing disease progression, reducing complications, and lowering mortality (USDHHS, 2020; WHO, 2024c).

The benefits of cessation extend well beyond the individual level. At the population level, reduced smoking prevalence lowers second-hand smoke exposure, decreases healthcare expenditures and increases economic productivity (Goodchild et al., 2017; WHO, 2025c).

In this way, smoking cessation is not only a clinical intervention but a population-level prevention tool that contributes directly to reducing the NCD burden and improving health equity.

By reducing one of the major global health risks, successful smoking cessation contributes to greater health equity and, consequently, to improved social justice at the population level. And NRT is widely accessible without prescription, making it central to NRT's function as a self-care-oriented intervention.

NRT is widely available as a non-prescription intervention in many settings, making it a practical example of how self-care tools can extend prevention beyond formal healthcare systems. It enables timely, independent access to evidence-based support and reduces reliance on clinical consultations for a highly preventable condition.



ECONOMIC IMPACT

From an economic perspective, smoking cessation delivers large long-term savings by avoiding the substantial costs of treating smoking-related diseases. In 2022 alone, tobacco use was responsible for social and economic losses US \$1.7 trillion - equivalent of 1.7% of annual global GDP (WHO, 2024). Against this backdrop, even modest increases in cessation rates generate significant downstream savings, reduce pressure on healthcare systems and improve sustainability.

NRT is a cost-effective intervention that can increase smoking cessation rates at comparatively low intervention costs. Its economic value lies primarily in preventing future disease and reducing long-term healthcare expenditure, rather than generating immediate cost savings. Evidence suggests that NRT-supported smoking reduction and cessation is cost-effective in terms of QALYs, particularly among smokers who would otherwise be unlikely to try to quit (Wang et al., 2008). As part of a comprehensive tobacco control strategy, improving access to NRT represents a high-value investment for policymakers.

IMPACT OF NRT

Evidence demonstrates NRT significantly increases the likelihood of successful smoking cessation. Although approximately **60% of the world's 1.3 billion smokers** want to quit, only around **half make a quit attempt**. Among those attempting to quit,

an estimated **25% use NRT**. Current evidence indicates a quit success rate of approximately **15% with NRT**, compared with **8% without NRT support** (Hartmann-Boyce et al., 2018; Cochrane). Applying these proportions to the current global smoking population suggests that NRT is associated with approximately 11 million additional successful quitters, compared with attempting to quit without NRT. This estimate is derived from health economic model calculations based on recent population-level data (May und Bauer GmbH & Co KG, 2026). This translates into an estimated **11 million additional successful quitters** attributable to NRT globally. This figure represents a modelled estimate derived from recent population-level survey data (May und Bauer GmbH & Co KG).

Looking ahead, policies that encourage quit attempts through public awareness campaigns and improve access to NRT could significantly increase cessation rates. Using a conservative future scenario, quit attempts increase by **4%** and NRT use rises from **25% to 35%** of smokers attempting to quit, increasing the number of NRT users to approximately **227.5 million**. This would increase the number of successful quitters attributable to NRT to approximately **16 million**.

Beyond the direct public health impact, smoking cessation generates substantial long-term health benefits, including approximately **eight additional life years and 1.2 quality-adjusted life years (QALYs)** per successful quitter (Doll et al., 2004; Jha et al., 2013; Thomas et al., 2021; Wang et al., 2008).

Table 5: Calculation of Incremental Health Outcomes and Cost Effects Associated with NRT

	Status Quo	Future Scenario
Smokers Globally	1.3 bn	1.3 bn
Smokers Willing to Quit	750 mn	750 mn
Smokers Trying to Quit	625 mn	Assumption: 650 mn (+4%)
Quit Attempts with NRT	Assumption: 25% -> 156,25 mn	Assumption: 35% -> 227,5 mn
Quit Success Rate	With NRT:15%; Without: 8%	With NRT:15%; Without: 8%
Additional Successful Quitters Attributable to NRT	11 mn	16 mn
ΔLYG/ΔQALYwith NRT Use	LYG =87.5 mn; QALY =13.1 mn	LYG =127.5 mn; QALY =19,1 mn
Value of QALY Gained Globally with NRT Use *Threshold (2*GDP per capita)	\$13.1 mn	\$19.1 mn
Healthcare Cost Savings	\$54.7 bn	\$79.7 bn

Note: further details on the analysis can be found in the full report (May und Bauer GmbH & Co KG).

It also produces substantial healthcare cost savings. Based on Coyte et al. (2018), each successful smoking cessation is associated with approximately **USD 5,000** in avoided healthcare costs, resulting in an estimated **USD 54.7 billion** in healthcare savings under the status quo and **USD 79.7 billion** under the future scenario.

The estimates presented in Table 5 are based on a decision-analytic health economic model that quantifies the incremental health and economic benefits attributable to NRT. A detailed description of the methodology, assumptions, and data sources is provided in the full report (May und Bauer GmbH & Co KG, 2026).

IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

Although nicotine replacement therapy (NRT) is classified as a secondary prevention intervention, it also supports **primary prevention** by preventing smoking-related diseases through successful smoking cessation.

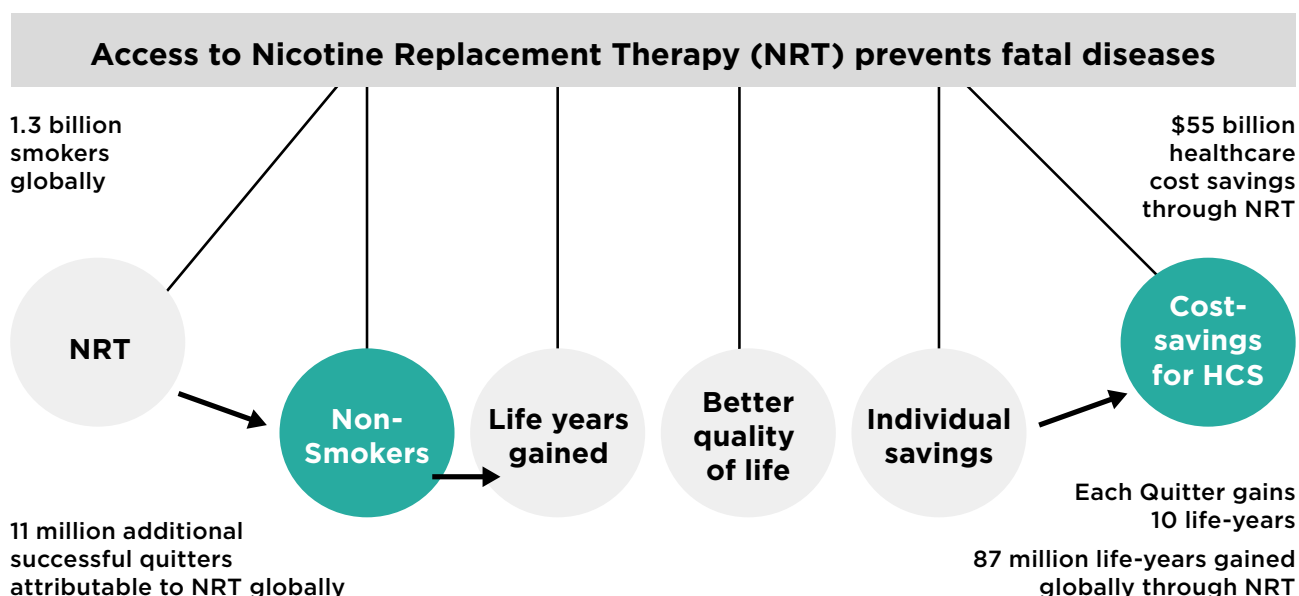
As a **widely available non-prescription medicine**, NRT empowers people to quit smoking through self-care while reducing pressure on healthcare systems.

Improving access to NRT through self-care policies can increase quit rates, improve population health, and reduce healthcare expenditure.

Importantly, NRT is one of the few health interventions that **improves life expectancy and quality of life while simultaneously generating net healthcare cost savings**, making it a high-value investment for policymakers.

NRT is a high-value self-care intervention, combining proven clinical effectiveness with cost-effectiveness to support healthier populations and more sustainable healthcare systems.

Figure 11: Smoking Cessation - Saving Millions of Life Years by Preventive Self-Care



Case study 2

Oral Health and the Prevention of Dental Caries

Fluoride toothpaste is a **highly effective, evidence-based and cost-efficient intervention** for the prevention of dental caries, the most prevalent NCD worldwide (Toumba et al., 2019; Bernabé et al., 2025). By preventing disease before clinical manifestation, it reduces the need for more complex and costly treatment (Hofbauer et al., 2022).

Oral diseases affect nearly 3.5 billion people globally, with untreated dental caries alone accounting for approximately 2.5 billion cases (WHO, 2022b; Bernabé et al., 2025). Poor oral health and untreated caries are associated with chronic inflammation, impaired nutrition, reduced quality of life and increased risk factors linked to other NCDs, including impaired glycaemic control in diabetes (Giacaman et al., 2022; Jevdjevic & Listl, 2024).

As a **widely available, low-cost, non-prescription intervention**, fluoride toothpaste enables people to prevent dental caries through routine self-care, reducing reliance on healthcare services. **Supporting universal access to fluoride toothpaste and promoting good oral hygiene** represent high-value investments that can improve population health while reducing the long-term burden of oral disease (Jullien, 2021; WHO, 2022b).



PREVENTIVE EFFECTS OF FLUORIDE TOOTHPASTE

Health economic evidence consistently demonstrates that fluoride toothpaste combines **strong clinical effectiveness with low implementation costs**. Regular use is associated with an average 24% reduction in dental caries (Marinho et al., 2003). It also represents good value for money, with studies confirming its cost-effectiveness, particularly when affordable and widely accessible (Hofbauer et al., 2022).

Fluoride toothpaste also helps avoid costly downstream treatment. By reducing the incidence and progression of dental caries, it lowers the need for restorative procedures, extractions, and emergency dental care (Atkins et al., 2016). **Given that untreated dental caries affects approximately 2.5 billion people worldwide**, the potential health and economic benefits of prevention are substantial.



The global economic burden of oral diseases was estimated at approximately **USD 710 billion** in 2019, including **USD 387 billion** in direct treatment costs and USD 323 billion in productivity losses (Jevdjevic & Listl, 2024).

The economic impact of poor oral health extends well beyond healthcare expenditure. Oral diseases are associated with reduced oral health-related quality of life, lost work and school days, and measurable **productivity losses** (Adachi et al., 2025).

Improving access to affordable fluoride toothpaste through self-care policies can help reduce these avoidable costs while supporting more efficient, sustainable, and equitable healthcare systems.

The table below summarises key health economic evidence on fluoride toothpaste across clinical effectiveness, cost-effectiveness, disease burden, downstream treatment savings, productivity losses, and affordability.

Table 6: Overview of Health Economic Evidence on Fluoride Toothpaste (Key Findings and Sources)

Category	Effect	Finding/Value	Source
Clinical Effectiveness	Caries-preventive effect vs. non-fluoride toothpaste	24 % caries reduction on average; higher fluoride concentration = greater effect	Marinho et al., 2003
Cost Effectiveness	Cost-benefit ratio (WHO-CHOICE methodology)	High likelihood of good value for money, especially at low market prices; strongly price-dependent	Hofbauer et al., 2022
Disease Burden	Global prevalence of untreated caries	Approximately 2.5 billion people affected; burden primarily through YLDs (years lived with disability), not mortality	WHO, 2022b; Bernabé et al., 2025
Direct Treatment Costs	Avoidance of downstream treatments (restorations, extractions, emergency care)	Relevant cost savings by reducing caries incidence and progression – e.g., caries treatment \$1,467/child, full mouth reconstruction \$9,349/child in a high-risk population (Alaska Native children)	Atkins et al., 2016
Global Economic Burden	Total cost of oral diseases worldwide (2019)	Approximately USD 710 billion total: USD 387 billion direct costs + USD 323 billion productivity losses	Jevdjevic & Listl, 2024
Contextual Ranking	Rank of oral diseases in health expenditure comparison	Rank 3 in the EU (behind diabetes and cardiovascular disease)	Jevdjevic & Listl, 2024
Productivity Losses	Absenteeism: association with poor oral health-related quality of life	OR 2.48 – 2.5-fold higher odds of absenteeism with low oral health-related quality of life	Adachi et al., 2024
Productivity Losses	Presenteeism (reduced performance at work): association with poor oral health-related quality of life	OR 5.00 – 5-fold higher odds of presenteeism with low oral health-related quality of life	Adachi et al., 2024
Productivity Losses	Presenteeism: association with number of decayed teeth	OR 1.12 – each additional decayed tooth increases presenteeism risk by 12 %	Adachi et al., 2024
Affordability and Access	Affordability of fluoride toothpaste by income group (78 countries)	Strongly affordable in high-income countries; strongly unaffordable in low- and lower-middle-income countries (WHO threshold: < 1 daily wage per year per person)	WHO, 2022b
Overall Assessment	Health economic profile of fluoride toothpaste	Highly favourable cost-benefit profile: high effectiveness, low cost (where affordable), scalable – with potential to relieve health systems	Hofbauer et al., 2022

IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

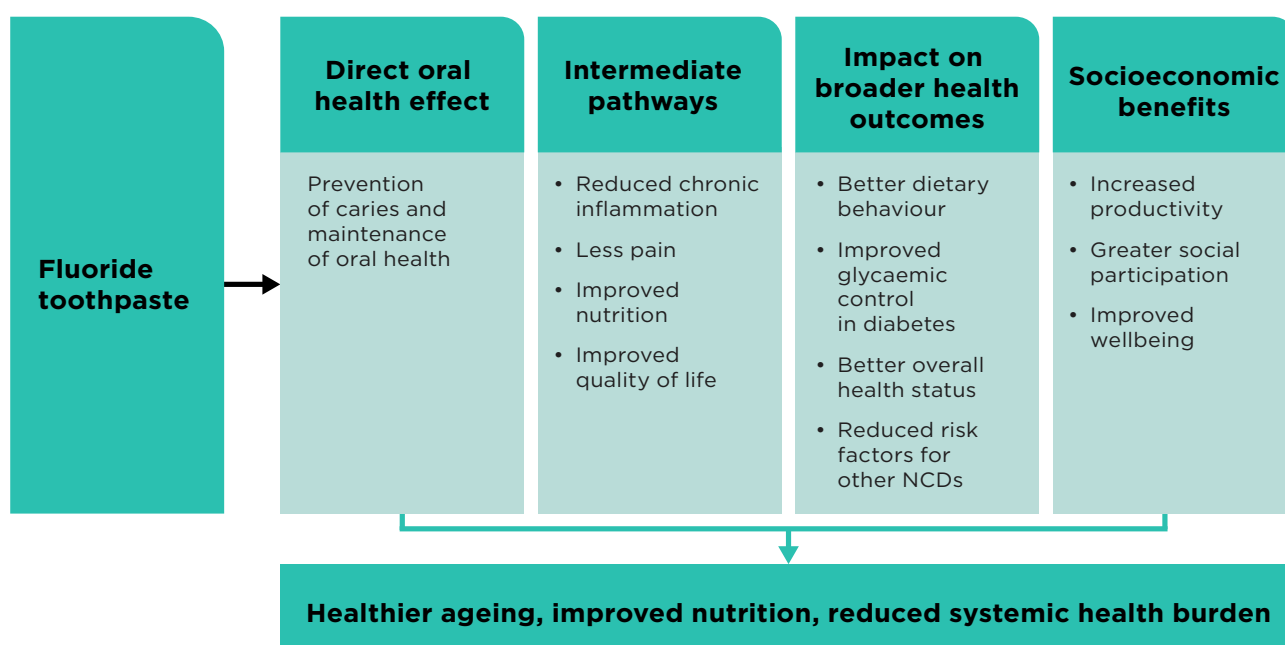
Fluoride toothpaste delivers its preventive effects continuously through **routine self-care**, without requiring healthcare professional involvement. By reducing the incidence and progression of dental caries, it helps avoid costly downstream treatment while improving **health system efficiency and sustainability**.

As a widely available, low-cost self-care intervention, improving access to affordable fluoride toothpaste can strengthen oral health prevention and reduce the long-term burden of oral disease.

Realising these benefits depends on **affordable and equitable access**, particularly in low- and middle-income countries where oral healthcare remains limited. Improving access to fluoride toothpaste through **self-care and universal health coverage (UHC) policies** can reduce the burden of oral disease and support more equitable and sustainable healthcare system.

The figure below illustrates how fluoride toothpaste contributes not only to the prevention of dental caries, but also indirectly supports broader health outcomes through improved oral health, nutrition, wellbeing, and reduced systemic disease burden.

Figure 12: Indirect Preventive Effects of Fluoride Toothpaste on Broader Health Outcomes



Case study 3

Erectile Dysfunction, Access to PDE5 Inhibitors, and Implications for Prevention of NCDs

Erectile dysfunction (ED) is a highly prevalent condition and an important component of men's health. It is increasingly recognised as an **early clinical marker of cardiovascular disease, diabetes, and other chronic conditions**, providing an opportunity for earlier identification of underlying vascular disease (Montorsi et al., 2003; Vlachopoulos et al., 2013).

Phosphodiesterase-5 inhibitors (PDE5i), including sildenafil and tadalafil, are well established, effective and safe first-line treatments (Smith et al., 2013). However, access varies considerably across countries, with some maintaining prescription-only status while others have introduced **pharmacist-led or non-prescription access models** (May et al., 2025).

Improving access to ED treatment can encourage treatment seeking and increase contact with healthcare professionals, creating opportunities to identify and manage underlying cardiovascular and metabolic risk factors (May et al., 2025; Lee et al., 2021; Bell et al., 2020). As part of a self-care approach, expanding appropriate access to PDE5 inhibitors can therefore contribute not only to symptom management but also to **earlier diagnosis, secondary prevention, and progress towards universal health coverage by addressing unmet need in men's health** (Jackson et al., 2010).



SPECIFIC CHARACTERISTICS OF PDE5 INHIBITORS IN SELF-CARE

PDE5 inhibitors are **well-established, effective and safe** treatments for erectile dysfunction (Smith et al., 2013; Andersson, 2018). While these medicines remain prescription-only in many countries, others have introduced **pharmacist-led or non-prescription access models**, enabling appropriate self-care while maintaining professional oversight (May et al., 2025; Lee et al., 2021; Bell et al., 2020).

Improving access through these models can reduce barriers to treatment, encourage earlier care-seeking, and create opportunities to identify underlying cardiovascular and metabolic risk factors.

PREVENTIVE EFFECTS OF PDE5 INHIBITORS BASED ON CROSS-COUNTRY EVIDENCE

Evidence suggests that **how these medicines are accessed influences treatment uptake and engagement with healthcare services.**

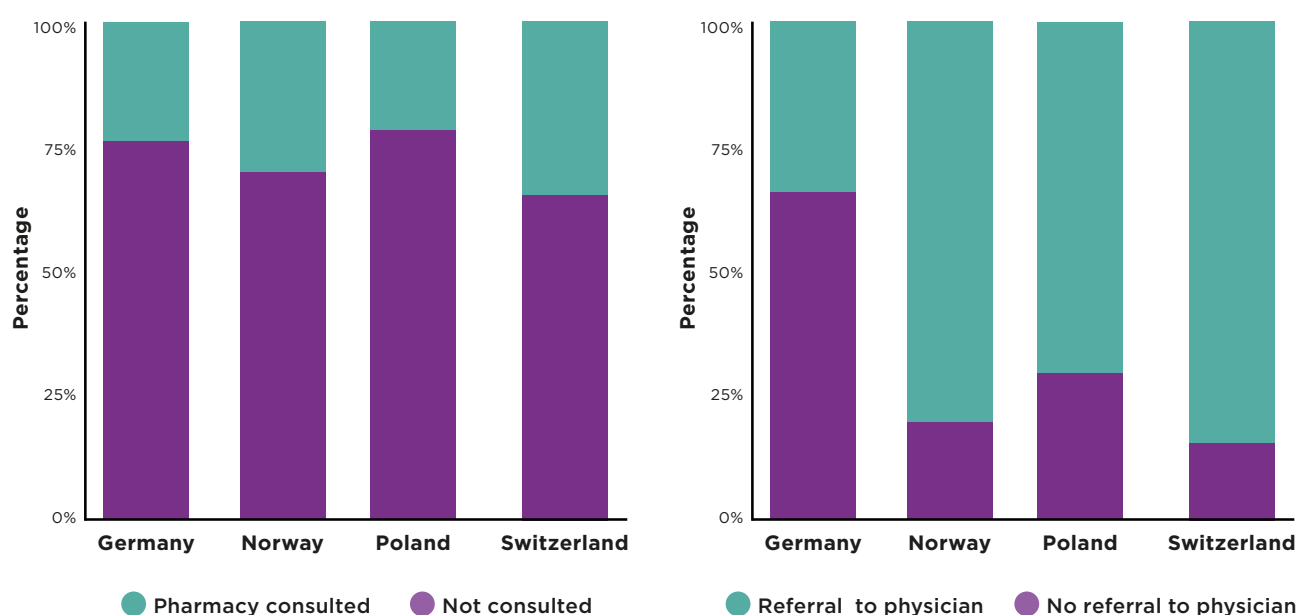
A survey of approximately **10,000 men** across Germany, Norway, Poland, and Switzerland found substantially higher use of PDE5 inhibitors in countries with more accessible pharmacy-based models. In Germany, where PDE5 inhibitors are available only by prescription, **22.2%**

of men with ED reported using these medicines. In comparison, utilisation was significantly higher in Norway (**41.5%**) and Switzerland (**30.4%**), where pharmacist-led and non-prescription access models are available.

Importantly, easier access **did not replace physician care**. Pharmacists frequently served as the first point of contact and referred patients to physicians where appropriate, demonstrating that pharmacy-based access can complement existing healthcare pathways rather than bypass them (Lee et al., 2021; May et al., 2025). By increasing healthcare engagement, these models create additional opportunities to identify and manage underlying cardiovascular and metabolic risk factors at an earlier stage.

These findings have important implications for prevention. While PDE5 inhibitors do not directly prevent disease onset, **improving access can increase healthcare engagement and create opportunities for the earlier detection and management of underlying cardio-vascular disease, diabetes, and other chronic conditions** (Vlachopoulos et al., 2013). By reducing barriers to treatment and helping address stigma-related delays, **regulated pharmacy-based access models** can strengthen links to formal care and support the secondary prevention of NCDs (Rasmussen et al., 2020; Kirby et al., 2011).

Figure 13: Proportion of Pharmacy Consultations and Physician Referrals in Germany, Norway, Poland, and Switzerland (May et al., 2025)



IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

The case of PDE5 inhibitors illustrates a broader point: **access pathways shape preventive impact**. When delivered through pharmacy-based or other regulated self-care models, these medicines lower barriers to care and encourage earlier health system engagement, particularly in populations that may otherwise delay seeking treatment.

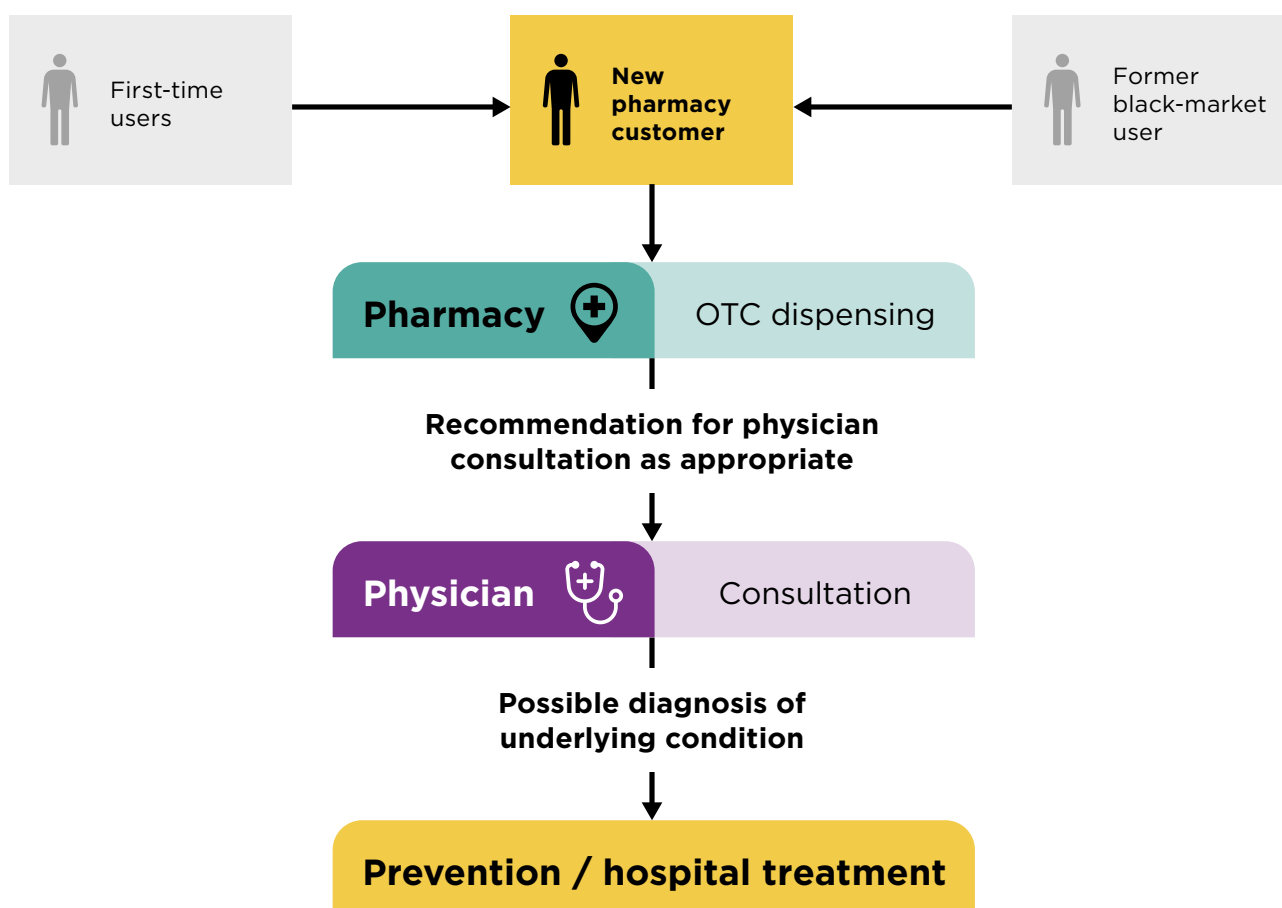
Importantly, these access points can also support **secondary prevention of non-communicable diseases (NCDs)**. Increased contact with healthcare professionals provides opportunities

for earlier identification and management of underlying conditions such as cardiovascular disease and diabetes, while also helping to address stigma-related barriers to care.

Within a **universal health coverage (UHC)** framework, regulated self-care models can therefore help reduce unmet need, strengthen prevention-oriented care pathways, and improve overall system efficiency—while maintaining appropriate clinical oversight.

Overall, this demonstrates how shifting elected treatments to lower-threshold, regulated settings can support both **earlier intervention and stronger prevention outcomes**, without compromising safety or continuity of care.

Figure 14: Treatment Pathway of PDE5 Inhibitors Users Among New Pharmacy Customers



Case study 4

Antifungal Self-Care and Early Intervention in Infectious Disease Control

Superficial fungal infections, including dermatophytoses and candidiasis, are among the most prevalent infectious diseases globally, affecting a substantial proportion of the population across all income settings.

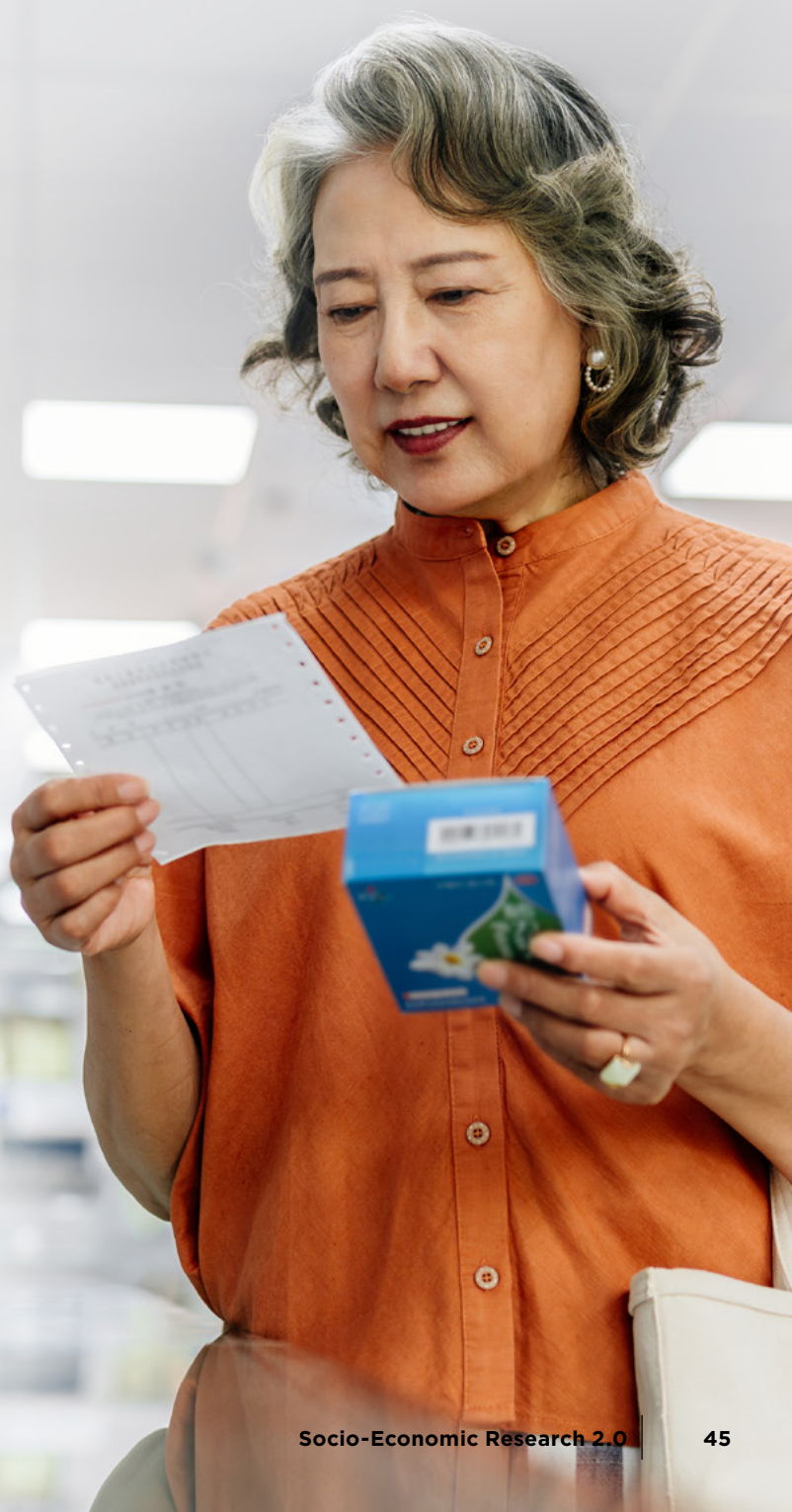
While rarely life-threatening, these conditions are associated with significant public health burden through high prevalence, impaired quality of life, lost productivity, and the risk of recurrence and onward transmission if left untreated (Hay et al., 2014). Their widespread and recurrent nature also creates avoidable demand on healthcare services, particularly for conditions that are typically straightforward to diagnose and treat.

Because superficial fungal infections are **often self-recognisable and treatable at an early stage**, they are particularly well suited to self-care. Access to safe and effective **non-prescription antifungal medicines** enables timely treatment, helping to reduce delays in care, prevent disease progression, and limit transmission to others (WHO, 2019; IQVIA, 2024). This supports both improved individual outcomes and more efficient use of healthcare resources.

Antifungal self-care interventions contribute across multiple phases of prevention:

- **primary prevention** by limiting exposure and interrupting transmission pathways.
- **secondary prevention**, as they enable early detection and prompt treatment of localised infections.
- **tertiary prevention**, by reducing recurrence and chronic complications.
- **quaternary prevention**, because the availability of safe and effective non-prescription treatments helps to avoid unnecessary medicalisation.

Within the context of UHC, access to effective self-care interventions such as non-prescription antifungals can improve equitable access to treatment, reduce delays in care, and support more efficient resource allocation within healthcare systems (WHO, 2019; WHO & UNICEF, 2018).



SPECIFIC CHARACTERISTICS OF ANTIFUNGAL PRODUCTS IN SELF-CARE

Topical antifungal medicines are available as non-prescription medicines for clearly defined and easily recognisable conditions. This reflects their favourable benefit–risk balance profile and supports policy approaches that promote responsible self-care to improve access and reduce avoidable demand on healthcare services (WHO, 2019).

When used appropriately, topical antifungals are well suited to self-care, particularly for mild and localised infections. Their safe and effective use depends on clear consumer education, appropriate stewardship, and referral when symptoms are atypical, recurrent, or severe (Falotico & Lipner, 2022; Lockhart et al., 2023).

However, antifungals should not be considered universally low risk. Inappropriate use—including poor diagnostic accuracy, prolonged treatment, and antifungal-corticosteroid combinations—can contribute to treatment failure and resistance (Lockhart et al., 2023; Benedict et al., 2024).

This reinforces the importance of responsible self-care supported by pharmacy guidance and clear referral pathways.



PREVENTIVE EFFECTS OF ANTIFUNGAL SELF-CARE BASED ON HEALTH ECONOMIC EVIDENCE

The preventive value of antifungal self-care lies primarily in its ability to enable early intervention, helping to interrupt disease progression, reduce recurrence, and limit transmission to others.

The scale of the burden is substantial. In 2021, there were an estimated **1.73 billion cases of fungal skin disease globally—equivalent to around one in five people worldwide** and a 68% increase since 1990 (Qin et al., 2024). Although rarely life-threatening, this high prevalence creates a considerable burden for individuals, societies, and healthcare systems.

The economic impact is also significant. In the United States alone, fungal diseases were estimated to cost **\$11.5 billion in 2019**, including direct medical costs and productivity losses (Benedict et al., 2022). **Dermatophytosis** alone accounted for more than 4.7 million outpatient visits and over **\$1.2 billion in total costs** (Benedict et al., 2019). These figures highlight the broader opportunity for health systems: improving access to safe, regulated self-care pathways for common fungal infections can reduce avoidable healthcare utilisation while improving timely access to treatment.

By enabling timely treatment outside formal care settings, non-prescription antifungal self-care can reduce avoidable physician consultations, lower treatment delays, and help prevent onward transmission in households, workplaces, sports facilities, and other shared environments.

This supports improved health outcomes while reducing avoidable demand on healthcare systems.

However, access alone is not sufficient. Effective self-care requires appropriate safeguards, including consumer education, pharmacy guidance, and clear referral pathways for recurrent, atypical, or severe cases. This is particularly important to reduce misdiagnosis, inappropriate use, and antimicrobial resistance.

Ultimately, antifungal self-care demonstrates a broader policy lesson: **when common, low-risk conditions can be safely managed through regulated self-care, health systems can improve access, reduce unnecessary demand, and allocate scarce clinical resources more efficiently.**

Table 7 summarises key figures on the burden of fungal skin diseases.

Table 7: Burden of Fungal Skin Diseases

Indicator	Value	Source
Global Incidence (2021)	1.73 billion cases (~1 in 5 people)	Qin et al., 2024
Increase since 1990	+68% (driven by environmental and socio-demographic factors)	Qin et al., 2024
Age-Standardised DALY Rate	43.39 per 100,000	Qin et al., 2024
Share of Total Skin Disease DALYs	~8%	Qin et al., 2024
US: Total Economic Burden (2019) Broken down into:	\$11.5 billion*	Benedict et al., 2022
US: Direct Medical Costs (2019)	\$7.5 billion	Benedict et al., 2022
US: Productivity Losses from Absenteeism (2019)	\$870 million (~2.1 million missed workdays)	Benedict et al., 2022
US: Dermatophytosis Costs from Premature Deaths (2019)	\$3.2 billion	Benedict et al., 2022

*Note: Minor discrepancies reflect rounding.

IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

Non-prescription antifungal products are effective, safe, and—when used appropriately —associated with a low risk of resistance. Their accessibility enables earlier treatment initiation, which helps reduce disease progression, recurrence, and onward transmission.

From a health system perspective, they can improve efficiency by reducing avoidable primary care consultations and allowing healthcare resources to be directed toward more severe or complex cases.

Antifungal treatments illustrate the broader value of self-care not only for non-communicable diseases, but also for communicable conditions where timely intervention is essential to limit spread and complications. As such, non-prescription antifungal products represent a practical example of how self-care policies can deliver measurable public health gains while also improving economic efficiency through faster access to treatment and reduced pressure on healthcare systems.

Case study 5

Oral Rehydration Solutions (ORS) in the Prevention of Diarrhoea-Related Complications

Acute diarrhoea is one of the world's most common global health conditions and remains a significant cause of morbidity across all age groups. It poses a significant risk of dehydration, particularly among vulnerable populations such as young children, older adults and individuals with underlying health conditions. Without timely treatment, dehydration can rapidly progress to severe complications, hospitalisation, and, in some cases, death (WHO, 2024b; Liu et al., 2016).

From a public health perspective, the key risk is therefore not the infection itself, but the preventable progression to dehydration and associated complications. **This makes early, accessible intervention and effective management critical.**

Oral rehydration solutions (ORS) directly address this risk by restoring fluid and electrolyte balance, and are widely recognised as a cornerstone intervention for preventing avoidable diarrhoea-related mortality (Posovszky et al., 2020).

Diarrhoea is particularly well suited to self-care-based management, as symptoms are generally easy to recognise, and treatment can be initiated immediately at home when products are readily available, reducing delays in care.

ORS is primarily associated with:

- **secondary prevention:** by interrupting disease progression early.
- **tertiary prevention:** by reducing severity, complications, and the need for hospital admission.
- **quaternary prevention:** by reducing avoidable healthcare utilisation, reducing unnecessary medicalisation and avoiding inappropriate use of more intensive treatments.



SPECIFIC CHARACTERISTICS OF ORS IN SELF-CARE

ORS is supported by a strong evidence base for efficacy and safety and is widely recommended as first-line treatment for acute diarrhoea (Posovszky et al., 2020).

Their primary function is the **rapid replacement of fluids and electrolytes**, directly correcting the physiological imbalance caused by dehydration. A key strength of ORS lies in their **simplicity and ease of use**: they can be administered safely without medical supervision, require minimal health literacy, and are suitable for use across all age groups and population settings.

From a health system perspective, **ORS are widely available over the counter at low cost and remain stable under a broad range of storage conditions**. These characteristics support reliable large-scale distribution and make ORS a highly scalable intervention for population-level self-care.



PREVENTIVE EFFECTS OF ORS BASED ON SCIENTIFIC AND HEALTH ECONOMIC EVIDENCE

Oral rehydration solutions (ORS) are a **high-impact, evidence-based intervention for preventing avoidable deaths from acute diarrhoea**, particularly among children under five in low- and middle-income countries (Munos et al., 2010; Posovszky et al., 2020). At full coverage, ORS could prevent up to **93% of diarrhoeal deaths**, highlighting its exceptional preventive potential at population scale (Munos et al., 2010).

Over the past decades, global diarrhoeal mortality has declined substantially—from approximately 2.7 million under-five deaths in 1980 to around 0.5 million in 2015—driven in part by improved access to ORS (Black et al., 2019). Importantly, ORS alone accounts for an estimated **36.2% of the total reduction in diarrhoeal mortality**, underscoring its central role in global child survival gains.

Despite this progress, **coverage gaps remain a critical policy challenge**. Current estimates indicate that diarrhoea still causes approximately 450,000 deaths annually among children under five (UNICEF Supply Division, 2025), with ORS coverage reaching only about 44% in 2015 and substantial variation across regions (Black et al., 2019). As a result, **one in two children with diarrhoea still does not receive ORS**, leaving a large proportion of preventable deaths unaddressed.

Modelling suggests that **closing the coverage gap to 90% could prevent an additional 75% of the deaths**, meaning nearly all remaining preventable deaths could be avoided (Black et al., 2019).

From a health economic perspective, ORS is consistently identified as **one of the most cost-effective child health interventions globally**. Estimates suggest costs of approximately at around US\$150 per DALY averted, while ORS plus zinc can be substantially cheaper, at roughly US\$10 to US\$50 per DALY averted, depending on the setting and delivery context (WHO, 2007; Horton et al., 2015). These values place ORS among the highest-value health investments available to health systems (Hutton et al., 2007; Horton et al., 2015).

Beyond mortality reduction, ORS also delivers broader system and societal benefits. By enabling rapid home-based treatment, it reduces caregiver burden, limits work and school absenteeism, and helps prevent longer-term complications associated with repeated or severe dehydration episodes (Baral et al., 2020; Al Fidah et al., 2025). It also reduces reliance on **costlier and sometimes inappropriate care pathways**, including unnecessary

antibiotic use, intravenous rehydration, and avoidable hospital admissions.

Overall, the combination of **very low cost, high scalability, strong clinical effectiveness, and substantial mortality reduction positions ORS as a benchmark example of a cost-effective, equity-enhancing self-care intervention** with clear relevance for national and global health policy (Zubairi et al., 2024; UNICEF, 2025).

Table 8: Overview of Scientific and Health Economic Evidence on ORS

Category	Finding/Value	Source
Mortality Decline	Under-5 deaths from ~5 million →~500,000 per year (historical); from 2.7 million (1980) to ~0.5 million (2015) (modelling)	Black et al., 2019
Current Mortality	~450,000 children under 5 still die from diarrhoea annually	UNICEF Supply Division, 2025
Coverage Progress	ORS use in LMICs rose from 0 % (1980) to 44 % (2015)	Black et al., 2019
Coverage Gap	Half of children with diarrhoea still do not receive ORS	Wolfheim et al., 2019
Opportunity	Closing coverage to 90 % could prevent an additional 75 % of remaining deaths	Black et al., 2019
Cost-Effectiveness (WHO)	~\$150 per DALY (ORS alone); \$10–\$50 per DALY (ORS + zinc)	WHO, 2007; Horton et al., 2015
Cost-Effectiveness (General)	ORS as one of the most cost-effective interventions in global health	Hutton et al., 2007
Health System Savings	Reduced physician visits, emergency care, IV fluids, hospital admissions	Zubairi et al., 2024
Indirect Economic Benefits	Reduced caregiver burden, absenteeism (work/school), long-term consequences of dehydration and malnutrition	Baral et al., 2020; Al Fidah et al., 2025
Antibiotic Reduction	ORS access reduces unnecessary antibiotic use in self-limiting diarrheal illness	Rhee et al., 2019; El-Khoury et al., 2016
System Level	Health system relief through shift to low-cost, community-based care	Zubairi et al., 2024; UNICEF, 2025



IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

Oral rehydration solutions (ORS) illustrate how **simple, individual-level interventions can generate large-scale population health impact when deployed at sufficient coverage.**

While the clinical effect operates at the household level, the aggregate outcome is a substantial and measurable reduction in preventable mortality at global scale.

The mortality evidence is particularly notable in global health terms, demonstrating that **a non-prescription self-care product can act as a major driver of reductions in communicable disease deaths**, especially in vulnerable child populations. This underscores the potential for self-care tools to function not only as supportive measures, but as core components of primary prevention strategies.

ORS also highlights a broader policy principle: for acute, rapidly progressing conditions, **access is itself a determinant of prevention.** Early, low-threshold availability enables timely treatment initiation, which directly influences clinical outcomes and survival.

Accordingly, barriers to access—whether regulatory, economic, or infrastructural—translate into avoidable morbidity, mortality, and healthcare utilisation, representing a preventable cost to both health systems and societies.

Case study 6

Sunscreen and the Prevention of Skin Cancer

Across the globe, there are an estimated **6.64 million new cases of skin cancer annually**, resulting in approximately **2.89 million disability-adjusted life years (DALYs) in 2021** (Zhou et al., 2025). Notably, **skin cancer accounts for around one in every three cancer diagnoses worldwide**, underscoring its substantial global health burden (WHO, 2023). The vast majority of cases are attributable to ultraviolet (UV) radiation exposure, making this a highly preventable disease category.

Sunscreen use therefore represents a critical and **cost-effective opportunity to improve both individual and population-level health outcomes**, while also reducing the significant economic burden on health systems (Neale et al., 2023). It is a **highly effective, evidence-based intervention for the prevention of skin cancer**, the most common form of cancer globally (Urban et al., 2021). Its value lies primarily in its role as a **primary preventive measure**: by reducing exposure to UV radiation—the leading modifiable risk factor for skin cancer—it prevents carcinogenesis at its earliest stage rather than managing downstream disease consequences (Green et al., 2011; Sander et al., 2020).





SPECIFIC CHARACTERISTICS OF SUNSCREEN IN SELF-CARE

Sunscreen is a **widely scalable and easily accessible self-care intervention** that complements formal healthcare systems and is suitable for population-wide preventive use (Singh et al., 2024).

Regulatory classification varies across regions. In many countries, including those in Europe and Japan, sunscreens are regulated as cosmetics, while in the United States and Canada they are regulated as over-the-counter (OTC) drug products under monograph systems, and in Australia as therapeutic goods (Perugini et al., 2019; FDA, 21 CFR 352). This regulatory diversity nonetheless converges on a common outcome: **broad population access without the need for medical consultation or prescription.**

As a result, sunscreen is widely available in supermarkets, pharmacies, convenience stores, and online platforms, making it one of the most accessible preventive health products globally. Importantly, long-term sunscreen use is considered safe and well tolerated, supporting its suitability for sustained population-level prevention strategies.

PREVENTIVE EFFECTS OF SUNSCREEN BASED ON HEALTH ECONOMIC EVIDENCE

Sunscreen combines **strong clinical effectiveness with low implementation costs**, making it a key preventive intervention in skin cancer control strategies.

Strong clinical evidence supports its effectiveness. The landmark Nambour Skin Cancer Prevention Trial in Australia - the only population-based randomised controlled trial of sunscreen and skin cancer outcomes - found that daily sunscreen use reduced squamous cell carcinoma (SCC) tumour incidence by 38%. Long-term follow-up over 10 years further demonstrated a **50% reduction in new primary melanomas and a 73% reduction in invasive melanomas** (Green et al., 2011). A large observational study in Norway similarly found that regular sunscreen use was associated with reduced melanoma risk. These findings are supported by recent clinical reviews and consensus updates (Sander et al., 2020; Nicholson et al., 2025), reinforcing the protective effect of consistent sunscreen use.

From a policy perspective, these effects are particularly significant because **skin cancer is both highly common and largely preventable**. Even modest reductions in incidence translate into substantial reductions in healthcare demand, given the need for surgical excision, oncology treatment, radiotherapy, and long-term follow-up for many cases. At population level, this translates into meaningful reductions in both direct treatment costs and system capacity pressures.

Despite this preventability, the burden continues to grow. Non-melanoma skin cancer (NMSC) is projected to increase by at least 1.5-fold between 2020 and 2044, driven largely by population growth and ageing (Hu et al., 2022).

This creates a rising and largely avoidable cost pressure for health systems.

The scale of the economic impact is substantial. In Australia, total direct government expenditure on newly diagnosed skin cancer cases reached AU\$824 million in 2021 (Gordon et al., 2022). In the Netherlands, costs increased from €278 million in 2007 to €465 million in 2017 and are projected to reach €1.35 billion by 2030 (Noels et al., 2020). Beyond healthcare expenditure, skin cancer also generates significant productivity losses; for example, the average productivity loss per premature melanoma death across Europe has been estimated at €450,694 (Ortega-Ortega et al., 2022).

Economic evidence consistently support the value of prevention. Modelled analyses indicate that sunscreen-based prevention is cost-effective under WHO-CHOICE frameworks (Gordon et al., 2020), and systematic reviews confirm that primary prevention strategies for skin cancer are consistently cost-effective across settings and methodologies (Collins et al., 2024a).

The effectiveness of sunscreen in real-world settings is influenced by application adequacy, reapplication frequency, and SPF level.

Importantly, typical consumer use involves applying only 20–50% of the quantity used in clinical trials, which substantially reduces effective protection (Sander et al., 2020).

While sunscreen is generally affordable in high-income countries, access and affordability remain more limited in some low- and middle-income settings. However, global skin cancer burden is disproportionately concentrated in high-income regions such as Australia, New Zealand, Europe, and North America, where affordability is not the primary constraint (Zhou et al., 2025). In these settings, key barriers are behavioural and system-level, including inconsistent use, limited public health messaging, and incomplete integration of sun protection into preventive care pathways.

In contrast, in many low- and middle-income countries, skin cancer prevention receives relatively low policy priority due to competing health burdens, despite substantial ultraviolet (UV) exposure in tropical and subtropical regions (Urban et al., 2021). Lower observed incidence in these settings is likely influenced by a combination of factors, including higher baseline skin pigmentation (melanin provides partial UV protection), younger population structures, underdiagnosis and underreporting due to limited cancer registry and pathology infrastructure, and competing causes of mortality (Urban et al., 2021).



**Table 9: Overview of Health Economic Evidence on Fluoride Sunscreen
(Key Findings and Sources)**

Category	Effect	Finding/Value	Source
Clinical Effectiveness – Melanoma Prevention	Reduction in melanoma risk with regular sunscreen use	In the only RCT with 10-year follow-up: 50% reduction in primary melanoma (HR 0.50; 95% CI 0.24-1.02); 73% reduction in invasive melanoma (HR 0.27; 95% CI 0.08-0.97).	Green et al., 2011 ;
Clinical Effectiveness – Broader Skin Cancer Prevention	Sunscreen reduces SCC incidence and overall skin cancer risk; confirmed by systematic reviews	38% SCC reduction in 4.5-year RCT (RR 0.61; 95% CI 0.46-0.81); ~40% sustained reduction at 8 years (RR 0.62; 95% CI 0.38-0.99); - Recent clinical reviews confirm protection against SCC and melanoma.	Green et al., 1999 ; van der Pols et al., 2006 ; Sander et al., 2020; Nicholson et al., 2025 ;
Clinical Effectiveness (Observational)	Risk reduction with higher SPF in large prospective cohort	~30% reduced melanoma risk with SPF ≥ 15 vs. lower SPF (HR 0.67; 95% CI 0.53-0.83); - population-attributable fraction 18%.	Ghiasvand et al., 2016 (NOWAC study)
Disease Burden	Global skin cancer incidence, DALYs, and economic impact of diagnostic delays	6.64 million cases globally (2021); 2.89 million DALYs; - Age-standardised incidence rate (ASIR) rising at 1.94% per year (1990-2021); - COVID-19-related delay in diagnosis led to 111,464 years of life lost (YLL) and \$7.65 billion USD in additional costs.	Zhou et al., 2025; Maul et al., 2024
Direct Treatment Costs	Cost per patient and national economic burden	- AU\$824 million total (Australia, 2021); €465 million (Netherlands, 2017); - Projected €1.35 billion by 2030.	Gordon et al., 2022; Noels et al., 2020
Cost-Effectiveness	Cost-benefit of daily sunscreen vs. early detection	- Prevention more effective and cost-saving than early detection alone; - Favourable profile under WHO-CHOICE methodology.	Hirst et al., 2012; Gordon et al., 2020; Collins et al., 2024a
Productivity Losses	Lost productivity from melanoma premature death (Europe)	Based on 2018 data across 31 European countries: €450,694 per premature melanoma death.	Ortega-Ortega et al., 2022
Economic Return on Investment	Population-level sun protection program (SunSmart WA)	- AU\$8.70 return per AU\$1 invested; 90.1% likelihood cost-effective; 636 melanomas; 46 deaths prevented per 100,000 over 20 years.	Collins et al., 2024b
Overall Assessment	Health economic profile of sunscreen	Highly favourable cost-benefit profile: - Strong evidence for SCC and melanoma prevention; - Potential to reduce health system burden; - Scalable self-care intervention.	Sander et al., 2020; Collins et al., 2024a

IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

Sunscreen contributes to prevention across the established prevention framework, with impacts spanning *primary*, *secondary*, and *tertiary prevention*.

It functions primarily as *primary prevention* by reducing the onset of skin cancer through protection against ultraviolet (UV) radiation exposure. It also contributes to *secondary prevention* by reducing the development of actinic keratoses—precancerous lesions with potential for malignant transformation—and to *tertiary prevention* by lowering recurrence risk in individuals with a history of skin cancer.

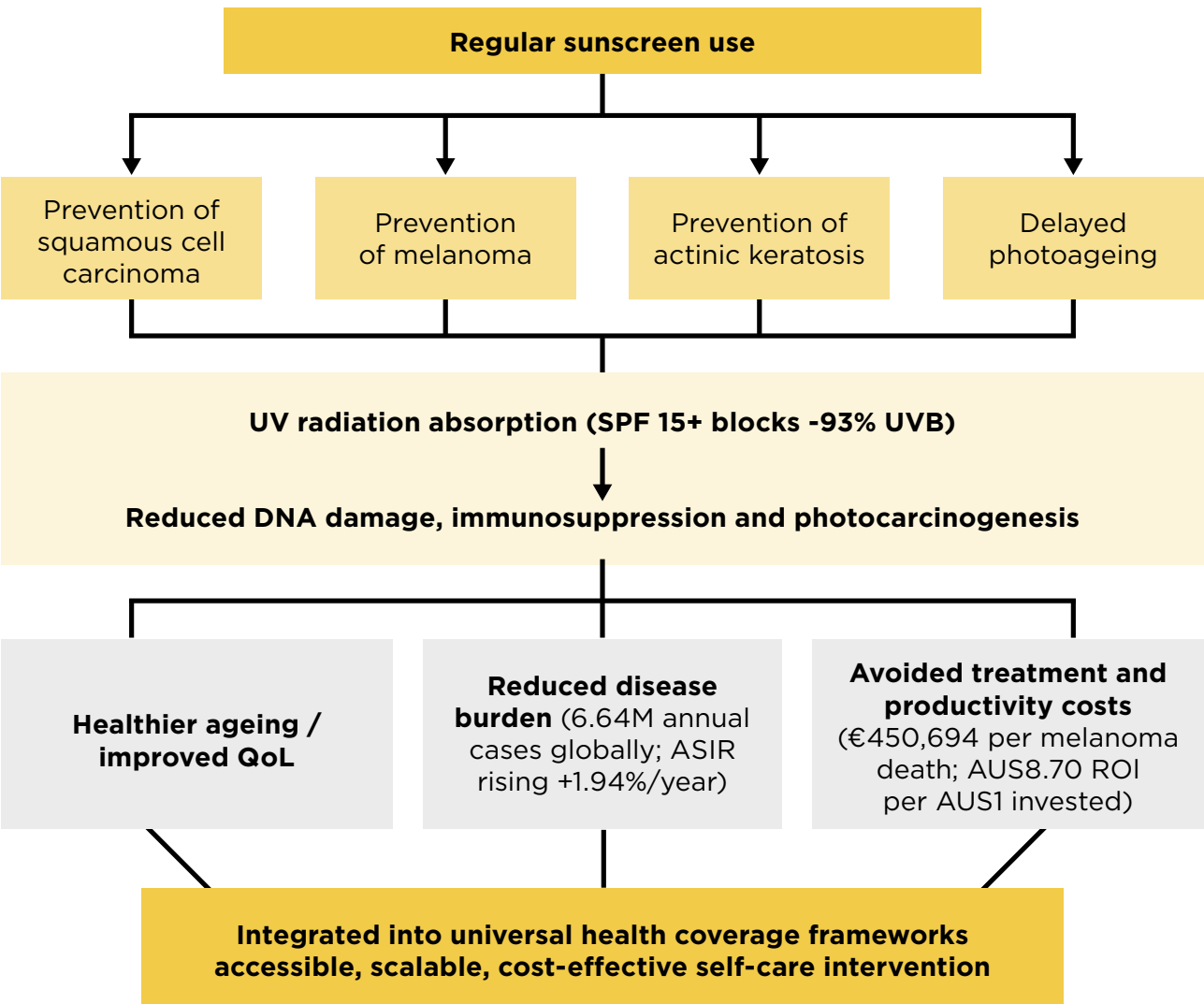
At the individual level, it directly reduces SCC incidence, melanoma risk, and actinic

keratosis development (Green et al., 1999). Beyond skin cancer, it contributes to healthier ageing by preventing photoageing.

At the population level, these effects are particularly significant given the scale of disease burden, with **more than 6.6 million new cases of skin cancer annually**. Even modest improvements in consistent sunscreen use can therefore translate into substantial reductions in morbidity and avoidable treatment costs (Zhou et al., 2025).

Realising the full preventive potential of **sunscreen depends on sustained affordability, accessibility, and correct, consistent use**. Addressing this gap will therefore require health system actors to consider embedding sunscreen promotion more firmly into preventive care strategies.

Figure 15: Preventive Effects of Sunscreen on Broader Health Outcomes



Case study 7

Responsible Self-Care Instead of Overtreatment, Reducing Unnecessary Interventions such as Antibiotic Overuse

Responsible self-care itself can also be a form of prevention, contributing to quaternary prevention by reducing unnecessary healthcare use, avoiding overtreatment, and supporting more rational and efficient use of healthcare resources.

From a health system perspective, this function is increasingly important in the context of rising demand and constrained primary care capacity. In this setting, responsible self-care represents an important complementary mechanism that can help prevent avoidable healthcare consumption while maintaining health outcomes and individual well-being, particularly where access to formal healthcare is constrained (May et al., 2023a).

A particularly relevant and well-recognised example is the management of **acute sore throat**, a common self-limiting condition that frequently prompts primary care consultations despite limited need for medical intervention in most cases.

Responsible self-care in such conditions can contribute to reducing antibiotic overuse. When individuals manage self-limiting illnesses such as acute sore throat, acute diarrhoea, or uncomplicated respiratory infections with appropriate non-prescription products and evidence-based self-care measures, this can reduce unnecessary consultations that might otherwise result in precautionary or inappropriate antibiotic prescribing.

ILLUSTRATIVE EXAMPLE: SORE THROAT AND QUATERNARY PREVENTION

Antimicrobial resistance (AMR) represents a major global threat. In 2019, almost five million deaths were associated with it, and the economic burden is projected to **reach \$300 billion to over \$1 trillion annually by 2050** (Murray et al., 2022; Dadgostar P, 2019).

Acute sore throat is a clear and highly relevant example of this challenge. It is one of the most common reasons for healthcare consultations in both children and adults globally. However, approximately **80% of sore throat cases are viral in origin**, for which antibiotics provide no clinical benefit (Ebell et al., 2016). Despite this, more than half of patients consulting a healthcare professional receive an antibiotic prescription (Eurobarometer, 2013; de la Poza Abad et al., 2015; Spinks et al., 2013).

Appropriate self-care, supported by pharmacist guidance and non-prescription symptomatic relief, can effectively manage sore throat without antibiotics. By reducing unnecessary consultations and prescribing, self-care directly supports quaternary prevention and contributing to efforts to reduce antimicrobial resistance.



EFFECTS OF RESPONSIBLE SELF-CARE IN QUATERNARY PREVENTION BASED ON SCIENTIFIC EVIDENCE

Self-care using non-prescription medicines can **reduce avoidable healthcare utilisation**, ease physician workload, improve access to timely treatment, shorten recovery times, and help maintain productivity and quality of life across healthcare systems. These benefits arise in part because self-care enables appropriate management of self-treatable conditions outside formal healthcare pathways, thereby reducing unnecessary demand on clinical services (GSCF, 2026).

This preventive effect is particularly relevant in high-income health systems, where self-care often functions as the first-line response for common, low-acuity conditions that might otherwise lead to primary care consultations.

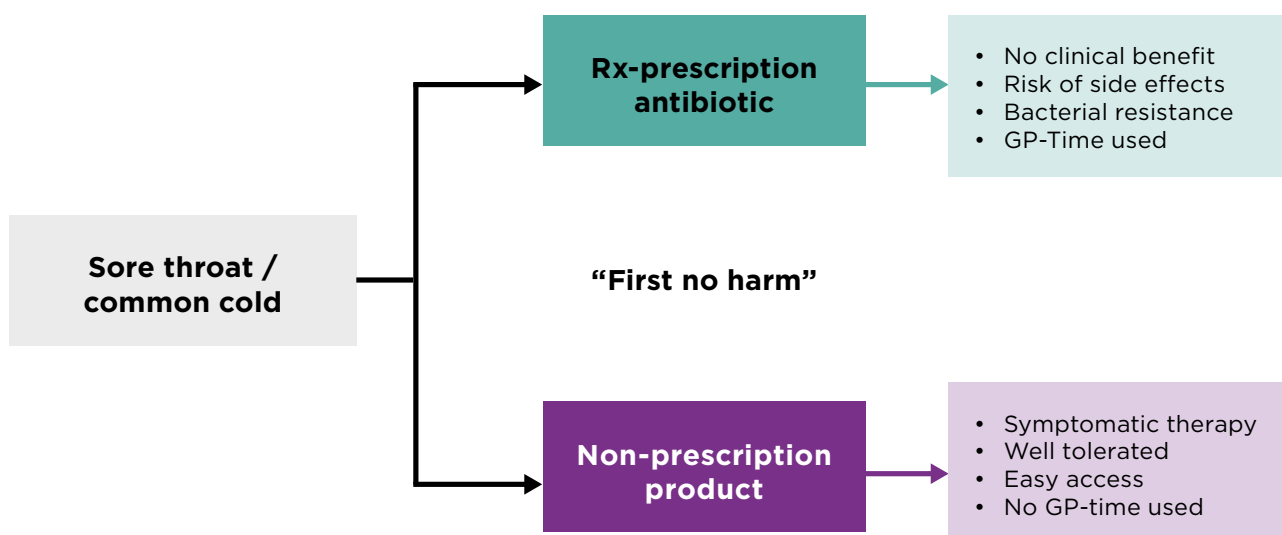
Importantly, the drivers of inappropriate antibiotic use differ substantially between high-income countries (HICs) and low- and middle-income countries (LMICs), and this shapes how self-care contributes to quaternary prevention.

In HICs, the central challenge is **overtreatment within highly medicalised systems**, where patients frequently present with self-limiting conditions and antibiotics may still be prescribed. In this context, responsible self-care helps reduce unnecessary consultations and supports more appropriate clinical decision-making, thereby lowering avoidable antibiotic prescribing and its downstream risks.

In LMICs, by contrast, antibiotics are often accessed **without prescription and used inappropriately due to limited diagnostic capacity, weaker regulatory enforcement, constrained access to healthcare, and lower health literacy** (Sulis et al., 2020; Cabral et al., 2024). Here, the challenge is less overtreatment within clinical care and more **unsafe and unregulated antibiotic use outside formal healthcare systems**.

In this setting, self-care plays a different but complementary role: it provides **accessible, evidence-based alternatives for managing self-limiting conditions** such as acute diarrhoea and uncomplicated respiratory infections, reducing reliance on informal antibiotic use. By doing so, it helps limit avoidable adverse drug effects, reduces unnecessary treatment exposure, and contributes to slowing the development of antimicrobial resistance.

Figure 16: Example Quaternary Prevention: Reducing Unnecessary Antibiotic Overuse



IMPLICATIONS FOR SELF-CARE-BASED PREVENTION

When individuals can appropriately manage self-treatable conditions outside formal healthcare structures, **the cascade of unnecessary care – such as avoidable consultations, diagnostic testing, prescriptions and escalating treatments – can be prevented at its origin.**

From a quaternary prevention perspective, self-care is most effective when **evidence-based, appropriate first-line options replace lower-value or potentially harmful alternatives**, whether this is an unnecessary prescription in high-income primary care systems or informal antibiotic use in more resource-constrained settings.

The shared underlying principle is the availability of **safe, trusted, and accessible self-care options as a first point of action**, supported by adequate health literacy, access

to non-prescription medicines, and structured guidance through pharmacies or community-based health services (May et al., 2023a; WHO, 2019).

From a health system perspective, this role strengthens the relevance of self-care within universal health coverage frameworks.

By reducing avoidable demand, preserving clinical capacity, and enabling health professionals to focus on higher-acuity and preventive care, responsible self-care functions as a system efficiency and sustainability mechanism that complements formal healthcare delivery rather than replacing it.



Conclusion

The combination of prevention and self-care offers a scalable and effective approach to reducing the burden of both communicable and non-communicable diseases across all health system contexts.

While the specific implementation priorities may differ between high-income and low- and middle-income settings, the underlying evidence consistently supports the value of self-care as a core component of prevention strategies.

The benefits extend beyond individuals to households, communities, health systems, and the wider economy. These gains are reflected in reduced healthcare utilisation, improved productivity, and long-term reductions in disease burden, all of which contribute to improved system efficiency and sustainability.

To realise these benefits at scale, governments and healthcare providers should implement policy measures that actively support and integrate preventive self-care into national health strategies, including improved access to evidence-based non-prescription options and strengthened public health guidance.

OVERALL CONCLUSIONS

This report, together with the 2022 edition, presents a very clear and compelling case for the wide-ranging health, social and economic benefits of self-care at every level of society, from the individuals to national health systems and even global economies. While there have been positive developments over the past four years, progress remains uneven and significant opportunities remain unrealised.

The evidence also demonstrates that the impact of self-care is substantially amplified when integrated into prevention frameworks, particularly for conditions where early action can meaningfully alter disease progression and outcomes.

These benefits are universal but context-dependent in their expression. For countries with developing health systems, self-care is often the only available healthcare option, making it paramount for treating disease and illness because without it the only viable alternative is often no treatment. In more developed systems, self-care functions as a complementary mechanism that **reduces avoidable pressure on already constrained health system capacity**, supporting more efficient allocation of clinical resources.

This distinction is increasingly important in the context of **global health system stress**, driven by ageing populations, rising prevalence of chronic disease, workforce shortages, fiscal constraints, and broader geopolitical and economic uncertainty. Across all settings, demand is rising faster than system capacity, reinforcing the need for scalable, cost-effective solutions that extend beyond traditional models of care delivery.

The call to action for governments and health systems actors is to do more to promote the use of self-care, with particular emphasis on upstream interventions that reduce disease burden before escalation occurs.

As detailed in GSCF's *Self-Care Readiness Index*, an effective policy response should be built around the four enabling pillars of self-care systems: **empowered individuals**, supported through improved health literacy and access to reliable, evidence-based health information; **supportive stakeholders**, including healthcare professionals, pharmacists, and community health actors who enable and reinforce responsible self-care; **enabling policy frameworks**, which formally integrate self-care into prevention strategies, primary care delivery, and universal health coverage systems; and **access to quality-assured products**, underpinned by appropriate regulatory frameworks, affordability measures, and resilient supply chains (GSCF, 2021).

Where these enablers are in place, self-care operates not only as an individual behaviour but as a system-level mechanism that strengthens prevention, improves efficiency, and enhances health system resilience.

The opportunity ahead is substantial. With more effective integration of self-care into prevention and healthcare systems, there is the potential to achieve **up to 50% greater health and economic benefits by 2040**, driven by earlier intervention, reduced avoidable healthcare utilisation, and improved long-term population health outcomes.

The direction of travel is therefore not incremental but transformational. With the right policy choices, self-care can become a cornerstone of **more equitable, efficient, and resilient health systems**, capable of meeting rising demand while improving health outcomes for individuals and societies and strengthening overall health system sustainability.



RECOMMENDATIONS FOR POLICY-MAKERS

- Embed self-care into prevention policies.
- Improve access to evidence-based non-prescription medicines.
- Strengthen health literacy, evidence-based health information and responsible self-care.
- Integrate self-care into universal health coverage strategies.

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LIST OF ABBREVIATIONS

AESGP	Association of European Self-Care Industry
AFAMELA	Asociación de Fabricantes de Medicamentos de Libre Acceso
AIHW	Australian Institute of Health and Welfare
BOFA	Bank of America
CAM	Complementary and Alternative Medicine
CHPA	Consumer Healthcare Products Association
CiNii	Scholarly and Academic Information Navigator
CNKI	China National Knowledge Infrastructure
DALY	Disability-Adjusted Life Year
DMPA-SC	Depot-medroxyprogesterone acetate Subcutaneous
ED	Emergency Department
FHCP	Food Health & Consumer Products of Canada
GDP	Gross Domestic Product
GKV	Gesetzliche Krankenversicherung (Statutory Health Insurance)
GP	General Practitioner
GSCF	Global Self-Care Federation
HIV	Human Immunodeficiency Virus
HIVST	HIV self-testing
HPV	Human Papilloma Virus
ICER	Incremental Cost-Effectiveness Ratio
ILAR	Asociación Latinoamericana de Autocuidado Responsable (Latin American Association for Responsible Self-Care)
IMF	International Monetary Fund
JBI	Joanna Briggs Institute
MAS	Minor Ailment Scheme
MENA	Middle East and North Africa
MICE	Multivariate Imputation by Chained Equations
NHI	National Health Insurance

LIST OF ABBREVIATIONS

NHS	National Health Service
NHSC	National Healthcare System Coverage
OCP	Oral Contraceptive Pill
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket
ORS	Oral Rehydration Solution
OTC	Over-the-Counter
PAGB	Proprietary Association of Great Britain
PICOS	Population, Intervention, Comparison, Outcomes and Study Design
PMDA	Pharmaceutical and Medical Devices Agency
PMM	Predictive mean matching
PPI	Proton Pump Inhibitors
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
QALY	Quality-Adjusted Life Year
RISS	Research Information Sharing Service
Rx	Prescription-only medicine
Rx-to-OTC	Prescription-only to Over-the-Counter
SHI	Statutory Health Insurance
SHIS	Statutory Health Insurance System
SSA	Sub-Saharan African
SCC	Squamous Cell Carcinoma
STC	Self-Treatable Health Conditions
SUS	Sistema Único de Saúde
UAE	United Arab Emirates
UHC	Universal Health Coverage
UK	United Kingdom
UNDP	United Nations Development Programme
USA	United States of America
USD	United States Dollar
UTC	Under the counter
WHO	World Health Organization

DEFINITIONS

Country Group	Consists of several countries across different regions of the world that have been grouped together based on similarities in levels of healthcare accessibility, affordability and availability. The parameters considered include income per capita, national healthcare system coverage, gross domestic product (GDP), healthcare expenditure per capita and physician density.
National Healthcare System	There are many typologies used in the literature to classify healthcare systems, yet there is no collective term for all basic models. 'National healthcare system' is, therefore, used to refer to all types of healthcare systems.
Over-the-Counter Reimbursable (OTX)	Medicines that can be purchased without a prescription, but are reimbursable by the national healthcare system or health insurance companies under certain conditions, such as a prescription issued by a physician.
Over-the-Counter Medicine (OTC)	Medicines available for purchase by the consumer without the requirement of a prescription.
Prescription-Only Medicine (Rx):	Medicines that require a prescription, which is written by a physician, dentist, nurse or other approved healthcare professional.
Rx-to-OTC Switch	A reclassification process that involves changing the status of a medicine from prescription-only status to over-the-counter status.
Self-Care	The definition of self-care used is: "The proactive management of self-treatable and transient ailments by a patient or consumer according to their personal preference and without the use of a prescription medicine".
Self-Treatment	The act of treating oneself using medicines purchased from pharmacies or readily available at home without any prior medical examination by a physician.
Self-Treatable Condition (STC)	A health problem that is commonly self-limiting and does not result in any long-term consequences, for example hay fever or a migraine.
Under the Counter (UTC)	In this study, under the counter refers to prescription medicines that are directly sold without the authority of a physician's prescription.
Uptake of Self-Care	An increase in the degree of utilisation of over-the-counter treatment options.

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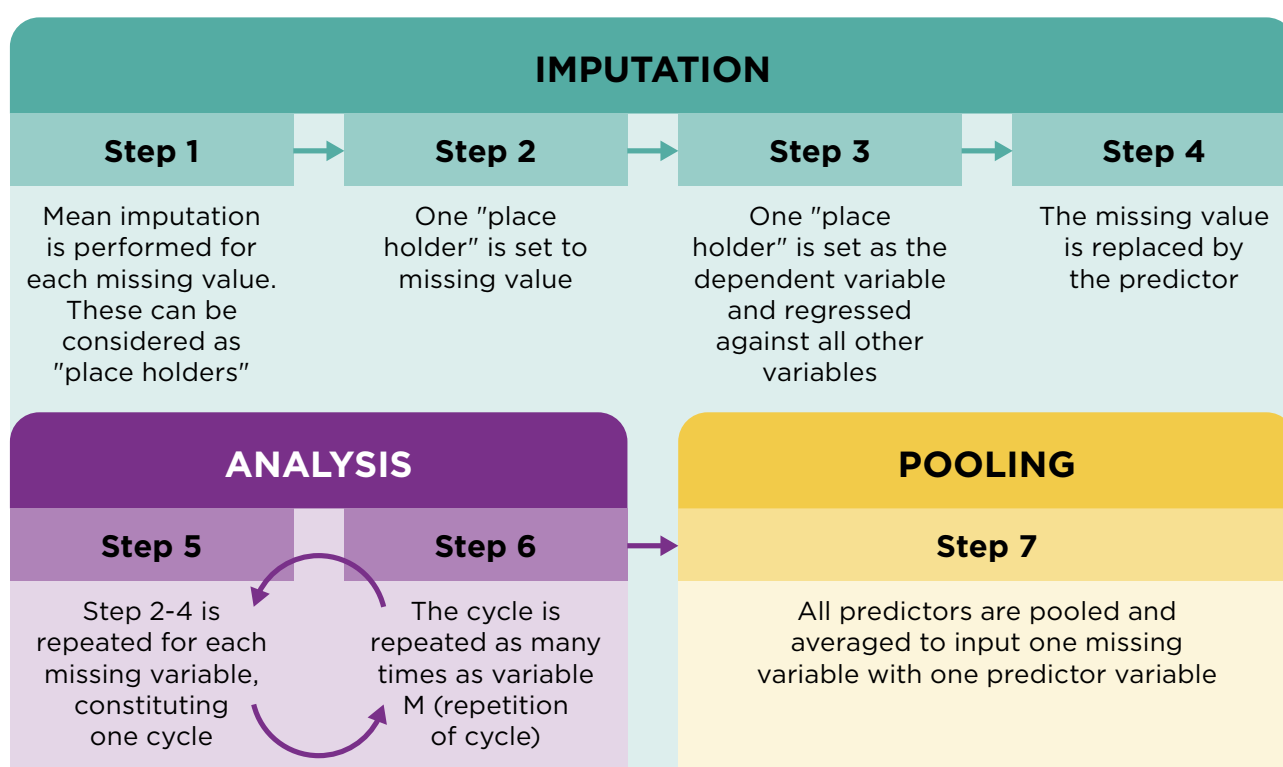
Appendix 1: 2022 Report Methodology

The overarching aim of the study was to create a comprehensive and valid act and database on the value and benefits of self-care on a global level.

The applied methodology and conceptual framework focused on the analysis of the scientific evidence, combined with a decision-analytic model to form the basis for the health economic approach to assess the social and economic impact of self-care which was published in a peer reviewed article (May et al., 2023)

The seven steps were:

Figure 17: Three Major Stages of Multiple Imputation



Appendix 2: Framework and Calculation of QALYs in the 2022 Report

Considerable gains in health-related quality of life can be achieved when treatment becomes possible through self-care in the first place, especially through access to non-prescription medicines.

In this context, self-care does not replace medical treatment but instead often represents an alternative to delayed action or a “wait and see” approach. Earlier initiation of symptom management therefore reduces both the intensity and duration of illness, resulting in a net improvement in health-related quality of life.

In the 2022 report, these effects were quantified using Quality-Adjusted Life Years (QALYs), a standard metric for assessing population-level health-related quality of life. Within this modelling framework, self-care was estimated to contribute to a proportional improvement in QALYs, with an illustrative assumption of up to a 10% increase in QALYs associated with effective self-care for self-treatable conditions, based on expert input and supporting literature (Watson et al., 2015; Dineen-Griffin et al., 2020).

At the micro level, this is operationalised as an average gain of approximately three quality-of-life days per non-prescription product pack in the context of self-treatable conditions (STCs), reflecting reduced symptom duration and improved symptom control during the course of illness.

While individual outcomes vary depending on condition type, health system context, and patterns of use, the overall direction of effect is consistent: earlier and appropriate self-care is associated with reduced symptom burden and improved health-related quality of life at population level.

CALCULATING THE MONETARY VALUE OF SELF-CARE-GENERATED QALYS IN THE 2026 REPORT

In the original study, the health-related quality-of-life gains associated with self-care interventions and non-prescription products were quantified in terms of QALYs. The objective of the new analysis is to expand this approach by estimating the corresponding monetary value of these QALYs across different countries and healthcare settings.

To account for cross-country differences in economic capacity, country-specific thresholds were estimated using three GDP-based threshold scenarios:

Table 10: GDP-Based Threshold Scenarios Used for Monetary Valuation of QALYs

Threshold Scenario	Calculation
Conservative Scenario	1× GDP per capita
Base-Case Scenario	2× GDP per capita
Upper-Bound Scenario	3× GDP per capita

The multiplier of 2x GDP per capita was used as the primary assumption throughout the analysis because it represents the midpoint of the historically applied WHO threshold range and because it allows greater comparability across countries and regions while avoiding reliance exclusively on either highly restrictive or highly permissive valuation assumptions.

The monetary value of QALYs generated through self-care was calculated by multiplying the estimated QALYs by the corresponding country-specific threshold value.

Using this approach, three separate monetary valuation scenarios were calculated for each country based on the 1×, 2×, and 3× GDP-per capita thresholds.

Importantly, the analysis maintained the original QALY methodology from the first study to ensure comparability across countries and regions.

The resulting calculations provide an estimate of the monetary value currently generated through self-care interventions under existing healthcare conditions. In addition, the same methodological framework allows estimation of the potential future monetary value associated with additional QALYs that could be generated through expanded access to self-care interventions and non-prescription products.

The valuation results are presented separately for:

- global regions, using World Bank regions due to source data used in the analysis of the study.
- high-income countries (Group A).
- middle-income countries (Group B).
- and low-income countries (Group C).

Table 11: Monetary Valuation of QALYs Generated Through Self-Care by Global Region

Region	Total QALYs Gained Through Self-Care Annually	Monetary Value
North America	1 million	\$ 208.9 billion
Europe and Central Asia	4 million	\$ 223.3 billion
East Asia and Pacific	6 million	\$ 165.0 billion
Latin America and the Caribbean	3 million	\$ 41.0 billion
Middle East and North Africa	2 million	\$ 26.6 billion
South Asia	7 million	\$ 32.0 billion
Sub-Saharan Africa	2 million	\$7.5 billion

Note: Minor regional differences compared to global QALY totals are due to rounding. Monetary value was calculated as (2× GDP) i.e. WHO Recommendation

Regions with higher GDP per capita, particularly North America and Europe and Central Asia, show markedly higher monetary valuations due to higher willingness-to-pay thresholds and greater economic capacity. In contrast, lower monetary values observed in regions such as Sub-Saharan Africa and South Asia primarily reflect lower GDP-based thresholds rather than lower societal relevance of self-care interventions. These findings illustrate the strong influence of economic context on the monetary valuation of health-related quality-of-life gains.

Appendix 3: Methodological Approach to the Economic Valuation of Self-Care-Generated QALYs

This analysis builds on the QALY estimates developed in first edition (GSCF Socio-Economic Research Report, 2022; May et al., 2023b). In the original framework, health-related quality-of-life gains from self-care and OTC medicines were quantified in QALYs. The present analysis extends this work by translating those QALY gains into monetary values across countries and regions.

Monetary valuation is based on **willingness-to-pay (WTP)** thresholds, commonly used in health economics to express the maximum value placed on one additional QALY. For comparability, this study applies GDP-based threshold scenarios derived from the historically used WHO range of 1–3× GDP per capita (Robinson et al., 2017). While these thresholds have been criticised for not fully reflecting opportunity costs or affordability constraints—particularly in low-income settings (Woods et al., 2016; Ochalek et al., 2018)—they remain widely used in international comparative analyses.

The Incremental Cost-Effectiveness Ratio (ICER) was estimated for each country by comparing the treatment costs associated with self-care interventions with the monetised value of the corresponding QALY gains. Three threshold scenarios were applied: a conservative (1× GDP per capita), a base case (2× GDP per capita), and an upper-bound (3× GDP per capita). The 2× GDP scenario is used as the central estimate, as it represents the midpoint of the WHO range and provides a balanced reference point between more conservative and more permissive assumptions. Therefore this is the figure which is presented in this GSCF report.

The monetary value of QALYs generated through self-care was calculated by multiplying estimated QALYs by the relevant country-specific threshold under each scenario. This produced three valuation outputs per country, enabling sensitivity analysis across different willingness-to-pay assumptions.

Importantly, the underlying QALY estimates from EcoSoc 1.0 were applied consistently across all countries and regions. This ensures methodological comparability but does not adjust for differences in healthcare access, disease burden, or system capacity. As a result, observed variation in monetary values is driven primarily by differences in GDP-based thresholds rather than differences in underlying health effects.

The results are presented by global region and by income group (Groups A–C), reflecting World Bank classifications.

Table 12: Country Classification Based on ICER Relative to Cost-Effectiveness Threshold

Category	ICER / Threshold	Interpretation
4	< 0.25	Very cost-effective
3	0.25 – 0.5	Cost-effective
2	0.5 – 1	Borderline
1	> 1	Not cost-effective

The results indicate a clear and consistent relationship between national income level and the estimated cost-effectiveness of self-care interventions, driven primarily by differences in GDP-based willingness-to-pay thresholds rather than differences in the underlying health benefits generated.

High-income countries in North America, Europe, and parts of East Asia were predominantly classified as “very cost-effective” or “cost-effective.”

This reflects higher willingness-to-pay thresholds, greater healthcare expenditure, and stronger healthcare infrastructure, allowing interventions to remain well within acceptable economic ranges.

Middle-income countries displayed more heterogeneous patterns, reflecting differences in healthcare financing, healthcare access, pricing structures, and national threshold levels. Regions such as Latin America and parts of Asia showed a mixture

of cost-effectiveness categories, indicating transitional healthcare system characteristics and varying economic capacity.

In contrast, many low-income countries, particularly in Sub-Saharan Africa, were concentrated in the “borderline” or “not cost-effective” categories. This pattern is primarily driven by substantially lower cost-effectiveness thresholds resulting from low GDP per capita and severe healthcare budget constraints. Consequently, interventions in these settings must generate very large health gains at extremely low cost to remain below national thresholds.

Table 13: Global Cost-Effectiveness Classification of Self-Care Interventions,

Figures by May und Bauer GmbH & Co KG

Region	Countries	Average Threshold	Average ICER	Median ICER / Threshold	Orange countries
Sub-Saharan Africa	44	4.24	4.46	132.5%	25
South Asia	6	4.01	2.99	45.8%	2
Latin America and the Caribbean	22	20.64	6.88	33.1%	2
East Asia and Pacific	18	41.72	5.98	27.3%	3
Europe and Central Asia	45	60.30	9.88	21.7%	1
Middle East and North Africa	18	37.88	5.83	21.6%	2
North America	2	136.21	15.57	12.5%	0

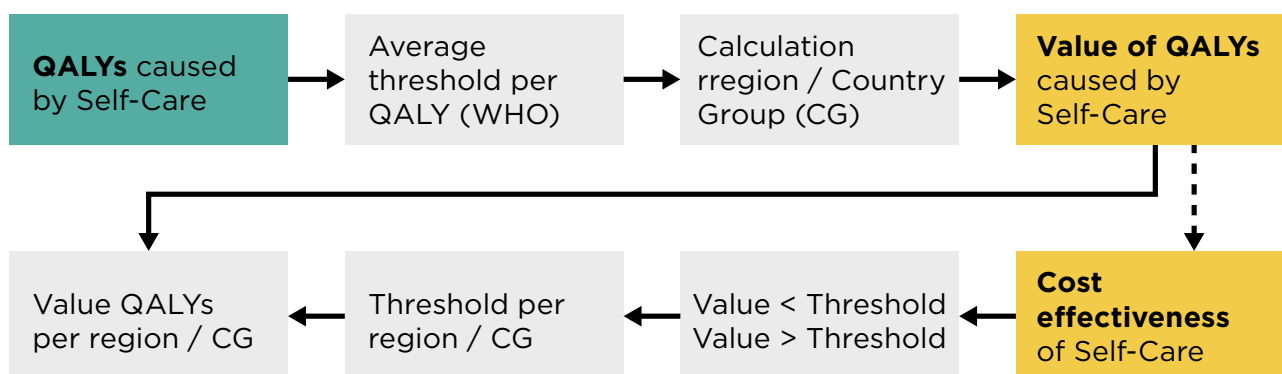
Appendix 4: Cost-Effectiveness of Self-Care Interventions

Cost-effectiveness analysis shifts the perspective from absolute value to relative efficiency, comparing the costs of generating health gains through self-care interventions against the value of those gains, assessed against international willingness-to-pay benchmarks. This approach allows us to assess whether self-care and non-prescription products represent an efficient use of both individual and societal resources across different healthcare settings.

The ICER represents the additional cost required to achieve one additional unit of health benefit, such as one QALY or DALY gained.

The following figure summarises the methodological framework for the valuation of QALYs outlined in the preceding subsection and the corresponding conceptual approach used to assess and calculate the cost-effectiveness of preventive self-care interventions.

Figure 18: Methodological Approach to the Monetary Valuation of QALYs in the Context of Self-Care Interventions and the Assessment of Cost-Effectiveness



RESULTS: COST-EFFECTIVENESS OF SELF-CARE WITH NON-PRESCRIPTION PRODUCTS

A further step in the health economic analysis is to relate the health benefits generated through self-care interventions to the costs required to achieve them. This is done by comparing the monetised value of the health gains described above with the corresponding costs of the intervention. Such cost-benefit comparisons are widely used in health economics because they help decision-makers assess whether the health improvements achieved by an intervention justify the resources invested. In healthcare systems around the world, similar

analyses form an important part of Health Technology Assessment (HTA), providing policy-makers with an evidence-based framework for deciding whether particular healthcare interventions represent **good value for money**.

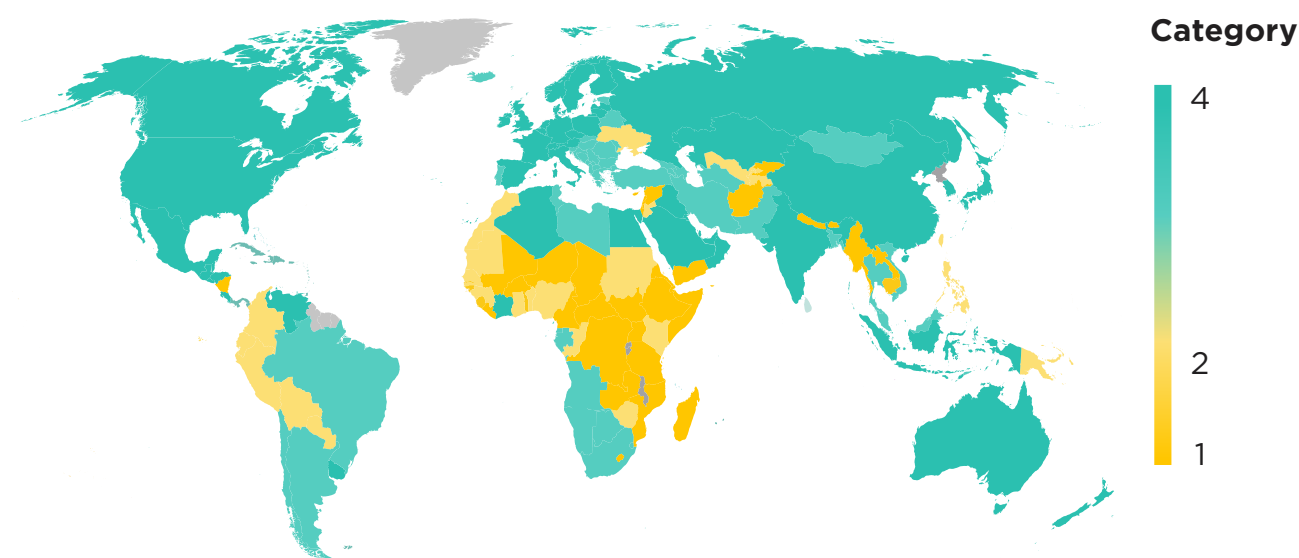
A fundamental principle of these evaluations is that they focus on **incremental costs and incremental benefits**. Rather than considering the total costs or total health outcomes of an intervention, the analysis examines the additional costs required to achieve the additional health gains compared with an appropriate alternative. This approach ensures that the value created by an intervention is assessed relative to what would have occurred in the absence of the intervention.

In this analysis, the relevant comparator is a **“wait-and-see” strategy, i.e. no active treatment**. Accordingly, the incremental costs correspond to the additional expenditure on non-prescription medicines compared with doing nothing, while the incremental benefits correspond to the additional health gains generated by self-care compared with the natural course of the condition. Relating these incremental costs to the incremental health benefits provides a transparent measure of the economic value created

by self-care interventions and allows its efficiency to be assessed using the same methodological principles that are routinely applied to other healthcare interventions.

The results of the cost-effectiveness analysis are summarised in the **world map below**. The different shades of green identify countries in which self-care interventions are highly cost-effective. In these countries, the monetary value of the health gains generated through self-care substantially exceeds the additional costs associated with the intervention.

Figure 6: Global Cost-Effectiveness Classification of Self-Care Interventions Based on ICER-To-Threshold Ratios



Countries shown in yellow also meet the criteria for cost-effectiveness, although with a smaller margin. Only in the countries highlighted in orange does the estimated value of the health gains, on average, remain below the willingness-to-pay threshold applied for that country.

Taken together, these findings demonstrate that, from a global perspective, **the use of non-prescription medicines for the treatment of self-treatable health conditions generally represents a highly attractive investment**. In health economic terms, it can be regarded as a **“best buy”**, meaning that **comparatively small expenditures generate disproportionately large health benefits**.

COST-EFFECTIVENESS OF SELF-CARE INTERVENTIONS IN PREVENTION

Preventive self-care interventions are consistently associated with very high levels of cost-effectiveness. By preventing disease before it occurs, they can generate substantial health gains while requiring relatively modest levels of investment. This favourable cost-benefit relationship is particularly evident in low- and lower-middle-income countries, where constrained healthcare budgets mean that even small, low-cost interventions can translate into meaningful population-level

health improvements. In these settings, prevention through self-care represents one of the most efficient opportunities to improve health outcomes and can be considered a particularly high-value health investment in resource-limited contexts.

Evidence from global health frameworks further supports this pattern, showing that simple public health interventions are among the most cost-effective available, often achieving very low costs per DALY averted. **These illustrative interventions are presented in the table below for reference and further context.**

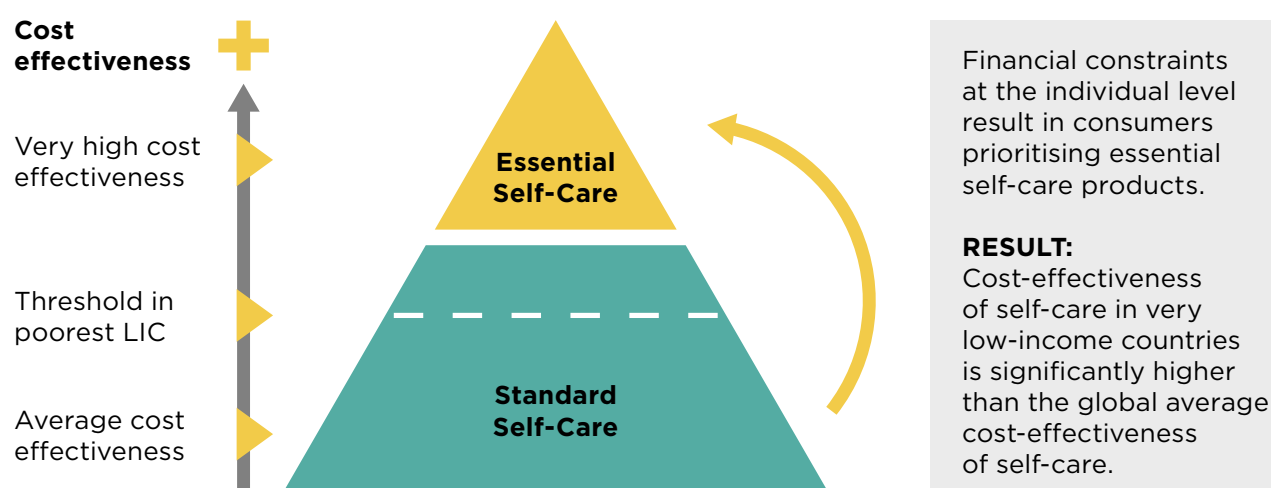
Table 14: Illustrative Cost-Effectiveness of Selected Public Health Interventions

Intervention	Illustrative Cost per DALY Averted (USD)	General Classification	Source
Ors (Oral Rehydration Solutions)	~70–150	Very cost-effective	Robberstad et al. 2004; DCP3 RMNCH Ch. 9
Zinc Supplementation for Diarrheal Diseases	~10–100	Very cost-effective	Robberstad et al. 2004; DCP3 RMNCH Ch. 9
Deworming Treatments	~10–150	Very cost-effective	Lo et al. 2015; DCP3 NTD Ch. 17
Vitamin A Supplementation	~4–100	Very cost-effective	DCP3 RMNCH Ch. 8; GiveWell 2024
Iron/Folic Acid Supplementation During Pregnancy	~15–70	Very cost-effective	WHO MMS Technical Report 2021
Insecticide-Treated Mosquito Nets (ITNS)	~5–31	Extremely cost-effective	DCP2 Table 21.6; DCP3 rankings

An important consideration in interpreting these findings is that the role and impact of self-care interventions differ fundamentally across healthcare settings. In many low-income countries, access to non-prescription products and self-care interventions is strongly constrained by limited purchasing power and restricted healthcare access. As a result, self-care interventions are often concentrated on a relatively small number

of essential indications, treatment situations and products associated with comparatively high health gains and high cost-effectiveness.

Improving access to essential self-care interventions in these settings could further enhance the health impact of self-care by enabling broader and more timely use of effective interventions for self-treatable conditions.

Figure 19: Prioritisation and Cost-Effectiveness of Self-Care in Very Low-Income Settings

The countries in which cost-effectiveness could not be demonstrated are almost exclusively those with extremely low levels of per capita income. This finding should, however, be interpreted with caution. In these settings, overall healthcare expenditure is often limited to only a few dozen US dollars per person and year. Under such severe resource constraints, even many highly effective healthcare interventions exceed the financial capacity of the health system. Consequently, the willingness-to-pay thresholds used in this analysis are exceptionally low and reflect the limited economic resources available rather than the intrinsic value of the interventions themselves.

Moreover, it is unlikely that the use of self-care interventions in these settings resembles the average pattern observed in higher-income countries. In many low-income countries, access to non-prescription medicines is restricted and financial resources are scarce. As a result,

self-care interventions are likely to be reserved for situations in which treatment is perceived as particularly important or medically necessary, rather than for the routine management of self-treatable conditions. Under these circumstances, the average health gains generated by self-care are likely to be substantially higher than those assumed in the present global analysis.

For this reason, the findings for the lowest-income countries should not be interpreted as evidence that self-care interventions are inherently not cost-effective in these settings. Rather, they highlight the limitations of applying globally averaged assumptions to countries with fundamentally different healthcare contexts and utilisation patterns. A more context-specific evaluation of self-care in low-income countries therefore represents an important area for future research.



The Global Self-Care Federation represents associations and manufacturers in the self-care industry, promoting sustainable and better global health outcomes for all. We serve as the global voice of the self-care life sciences industry, investing in, innovating, and supplying key self-care management interventions for the diagnosis, prevention and treatment of numerous diseases and conditions.

Our focus is on evidence-based solutions that improve health outcomes and increase healthcare system optimisation. GSCF is a non-state actor in official relations with WHO.

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