

# The Value of Vision

The case for investing in eye health – Full Report

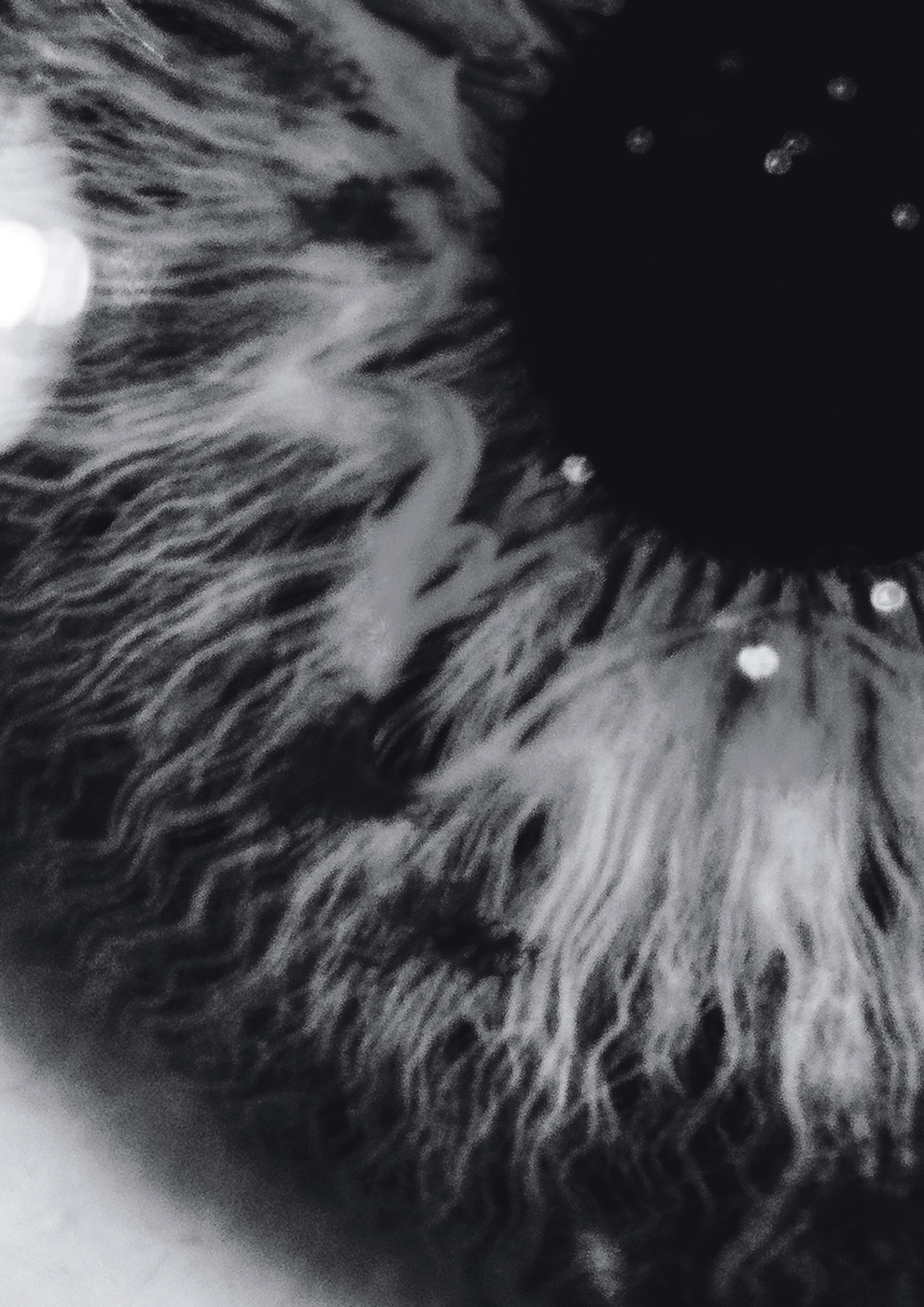


A report by



Available on the





# **The Value of Vision**

The case for investing in eye health

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## Foreword

Almost everyone, everywhere will be affected by an eye health or sight issue in their life. It is one of the truly universal issues, yet it is often overlooked, deprioritised and under-funded. The consequences are far-reaching - unemployment, poor academic performance, mental ill health, social isolation, and increased risk of injury and illness.

Globally there are over 2 billion people living with a vision impairment. Shockingly, over 1 billion of these people live daily with sight loss that could have been avoided or could still be treated. And as the world's population grows and ages, lifestyles continue to be more sedentary with less time spent outdoors, and there is further reliance on screens by younger generations, the crisis is only set to worsen.

The cost of this issue is huge. It costs every family, every community, and every government. It robs families of time, memories and income. It stops individuals of all ages contributing to their communities. And it negatively impacts national economies in reduced employment and lost productivity.

Unlike many complex health or development issues, we know the solutions. The interventions already exist and are proven, affordable, and easy to implement - as straightforward as a pair of glasses, as cost effective as a cataract operation. And this new Value of Vision Investment Case shows that the economic and societal impact of investing in them is profound.

The investment case has identified six accelerator interventions that can be implemented quickly and would deliver a rapid impact within 1-3 years. They are achievable, low cost and will also strengthen the eye health workforce, setting the foundations for better systems in the long term.

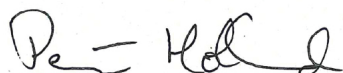
This roadmap shows the incredible value that can be generated, with every \$1 dollar invested returning \$28 dollars back. A focus on implementing just these six accelerators would deliver \$199 billion in economic gains in low-and-middle-income countries. It would result in extra learning for children, more jobs for adults, and increased productivity for economies.

While these accelerators offer a powerful starting point, the potential is even greater. If leaders went further and action was taken to reach the 1 billion people living globally with avoidable sight loss, rather than just 255 million with refractive error and cataracts, the boost to the world economy would increase to \$447 billion annually. Even more lives transformed, futures unlocked and economies boosted.

This document sets out a shared big vision but with an achievable approach to kickstart the change that is needed. It has the ambition to solve this issue once and for all, but it also includes a deliverable plan that will ensure that impact starts quickly.

Now is the time to act. The evidence is clear, the solutions are ready, and the benefits are undeniable. By committing to invest in vision, leaders have the chance not only to restore sight but to unlock human potential, strengthen economies, and transform societies.

I am deeply grateful to all those who have contributed their knowledge, insight, and energy to shaping this investment case, not least the authors and our colleagues at the Seva Foundation and the Fred Hollows Foundation. Their work clearly demonstrates the profound value of investing in sight and shows that, by working together, we can turn evidence into action.

A handwritten signature in black ink, appearing to read "Peter Holland". The signature is fluid and cursive, with a long horizontal stroke at the end.

Peter Holland CEO, IAPB

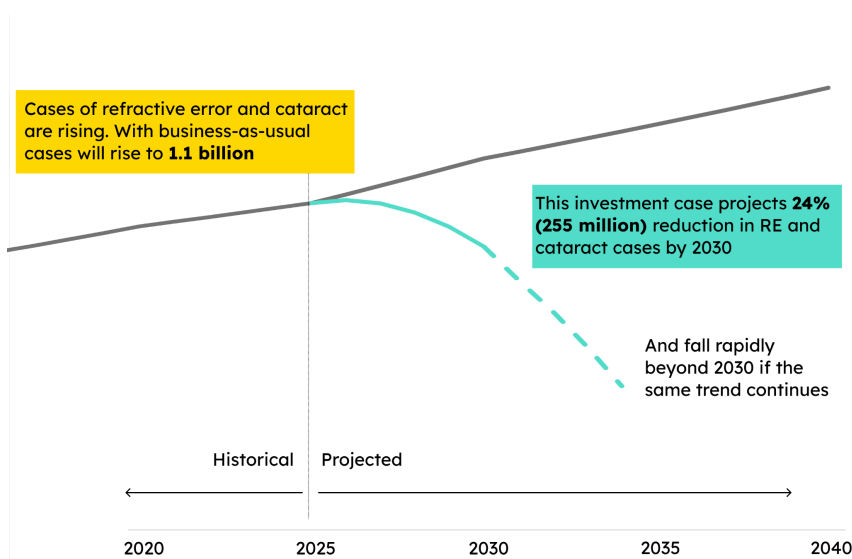
# Executive Summary

## The challenge

1.1 billion people around the world live with avoidable vision loss, 90% of them are in low-and-middle income countries. Sight loss has profound impacts across the lifecycle - reducing learning in school, productivity at work, and straining caregiver responsibilities in the home - leading to substantial economic and social costs. Without action, the problem is expected to worsen: 1.7 billion will have vision loss by 2050.

## The opportunity

By 2030, transform **255 million lives** & deliver **\$199 billion** in economic benefits.

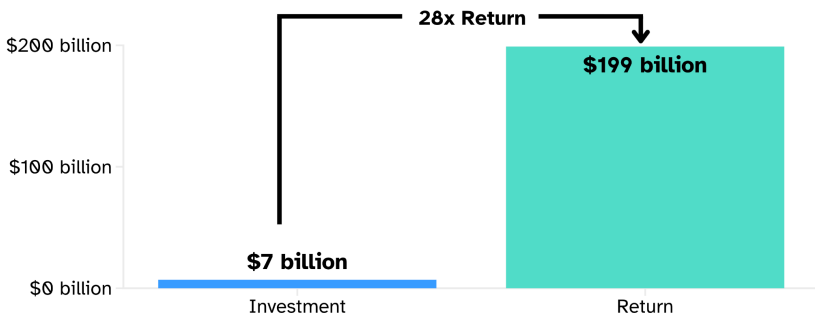


**A historic opportunity to reduce the burden of avoidable vision loss for the first time in generations.**

## The return-on-investment

One of the best buys in global health and development - socially and economically transformative, and highly cost effective.

**Every dollar invested returns \$28 in benefits.**



**\$1 : \$28**

**every \$1 invested in eye health can yield a \$28 return in low- and middle-income countries**

## The strategic investment

This investment case recommends six achievable accelerator interventions designed for rapid impact within 1-3 years at low cost, while also strengthening the eye health workforce and setting the foundations for sustainable systems in the long term.

|  |   |  |
|--|---|--|
|  <p><b>Screenings in the community</b></p> <p>Integrate simple vision and eye screenings into existing community infrastructure and processes, with an emphasis on school children, professional drivers and adults over 40 years old.</p>  |  <p><b>Give out reading glasses on the spot</b></p> <p>Empower these same community screeners to hand out ready-made reading glasses if needed, right after the screening. They can be fitted and dispensed by people with minimal training and no medical experience.</p>                   |  <p><b>Increase capacity in the workforce</b></p> <p>For eye exams and dispensing glasses - Increase capacity in the existing workforce to provide eye exams and dispense glasses. As well as training more optometrists, there should be an emphasis on training up existing mid-level eye care professionals, deploying mobile units and using tele-refraction.</p> |
|  <p><b>Boost surgical productivity and teams</b></p> <p>Streamline and strengthen existing cataract surgery workflows, the division of tasks between surgeons and allied health workers, and the provision of optimal equipment. This has the potential to increase surgical productivity by 40-50%</p> |  <p><b>Remove barriers to access</b></p> <p>Reduce blockers like cost, distance and stigma that stop people from accessing the care they need. Subsidies for procedures, support with travel to facilities, and information campaigns significantly increases usage and surgical output.</p> |  <p><b>Make cataract surgery even better</b></p> <p>Ensure cataract operations are delivering the same high-quality vision for everyone, everywhere. Innovative training techniques, biometry and better post-op care can all lead to better vision and fewer complications.</p>  |

## Beyond 2030

Eliminating vision impairment would generate annual benefits at least as large as...

- **\$447 billion** in economic gain annually
- **22 million people** gaining employment,
- **304 million people** relieved of caregiving,
- **13 million** equivalent **school years** gained,
- **79,800 deaths averted** from traffic crashes or older adults
- **1.2 million** non-fatal traffic injuries prevented,
- adding **~320,000 years of life**, and
- **12.2 million cases** of depression averted.

## A Call to Action: Act, Allocate and Accelerate

| <b>Act</b>   | <b>Allocate</b>  | <b>Accelerate</b>  |
|--|--|--|
| <ul style="list-style-type: none"><li>• Leadership and commitment from the highest levels of Government.</li><li>• Activate nationally owned plans to deliver change and an integrated approach.</li><li>• Implement policy changes to address vision, recognising it as a whole-of-life issue that needs a holistic, whole-of -government approach.</li></ul> | <ul style="list-style-type: none"><li>• Increase resources, recognising the return of investment that is possible both nationally and internationally.</li><li>• Explore innovative funding mechanisms and new ways to fund eye health.</li><li>• Foster partnerships with the private sector.</li></ul> | <ul style="list-style-type: none"><li>• Collaborate across the public and private sector and wider society to harness the educational and societal benefits of addressing poor vision.</li><li>• Implement the 6 accelerator interventions quickly and as a minimum and scale these up as progress is made.</li><li>• Harness technology and fast-track research and development in this area.</li></ul> |

# 1. Overview

Vision impairment is one of the most prevalent yet underappreciated health conditions globally. Today, **1.1 billion people** - 90% of whom live in low-and-middle-income countries (LMICs) - are affected by some form of sight loss.<sup>1</sup> Poor vision affects one in every seven people in LMICs, more than the number impacted in any given year by malaria, tuberculosis, HIV/AIDs, heart disease and cancer combined.<sup>2</sup>

The consequences of this hidden crisis are far-reaching and extend well beyond health. Sight loss disrupts everyday life - in homes, schools, workplaces and communities - and places a significant burden on caregivers, productivity and public systems. Building upon previous estimates of employment<sup>3</sup> and education-related losses<sup>4</sup>, a recent study places the total **annual productivity loss** from vision impairment in LMICs at **\$1.1 trillion (PPP)** - 1.2% of gross national income.<sup>5</sup>

The societal impact is similarly large. Sight loss significantly increases the risk of road crashes, the leading cause of death among people aged 5-29.<sup>6</sup> It is also closely linked to mental health and cognitive health: one in four people with eye pathologies and vision impairment experiences depression,<sup>7,8</sup> and it is estimated to contribute to 5% of global dementia burden.<sup>9</sup> Moreover, vision impairment is associated with nearly double the risk of premature death and consistently undermines overall quality of life.<sup>10</sup>

Without urgent action, the situation is expected to deteriorate further. **By 2050, an estimated 1.7 billion people** will be living with uncorrected vision impairment.<sup>1</sup>

And yet, the solutions to address this enormous public health issue are **available, affordable and ready to scale**. The leading causes of vision impairment - presbyopia, distance refractive error and cataract - could be addressed with two proven interventions: eyeglasses and cataract surgery. This report demonstrates that if the global community can deploy a suite of evidence-based cost-effective strategies, **substantial progress is achievable within the next five years**.

Using the latest available evidence on the impacts and costs of vision restoration, this investment case charts a series of strategic investments for governments, multilateral institutions, NGOs, the private sector and funders to reduce vision impairment in LMICs. These investments - which we call accelerators - are projected to reduce vision impairment globally by 24% in 2030 - **restoring clear vision to an extra 255 million people**. The returns are substantial with **\$199 billion in economic benefits** over the period 2026-2030

from higher employment, improved occupational productivity, increased caregiver productivity and future income from better learning outcomes in children.

The social benefits are equally significant. Between 2026 and 2030, this investment in eye care is estimated to lead to a learning on par with **3.3 million additional equivalent years of schooling, prevent more than 5,800 traffic deaths and 211,000 injuries, avert 1.7 million cases of depression, save more than 12,000 lives in older ages, generating nearly 80,000 years of extra life**-years lived.

All of this is possible with an **investment of just \$7 billion** over the next 5 years. **Every dollar invested returns \$28 in benefits**, with impacts that would be realized now and in the future.

If countries build on this foundation **beyond 2030**, the payoff from closing the remaining gap in LMICs would be transformative. Fully eliminating vision impairment would generate **annual** benefits at least as large as:

- **\$145 billion** for **22 million people** gaining employment,
- **\$141 billion** in occupational productivity gains,
- **\$62 billion** in productivity gains for **304 million relieved of caregiving**,
- **13 million** equivalent school years gained, translating into **\$99 billion** in future learning-linked income,
- **35,800** road traffic deaths averted and **1.2 million** non-fatal traffic injuries prevented,
- **~44,000** deaths averted among older adults, adding **~320,000** years of life, and
- **12.2 million** cases of depression averted.

Successfully tackling the eye health challenge is the global good news story waiting to happen.

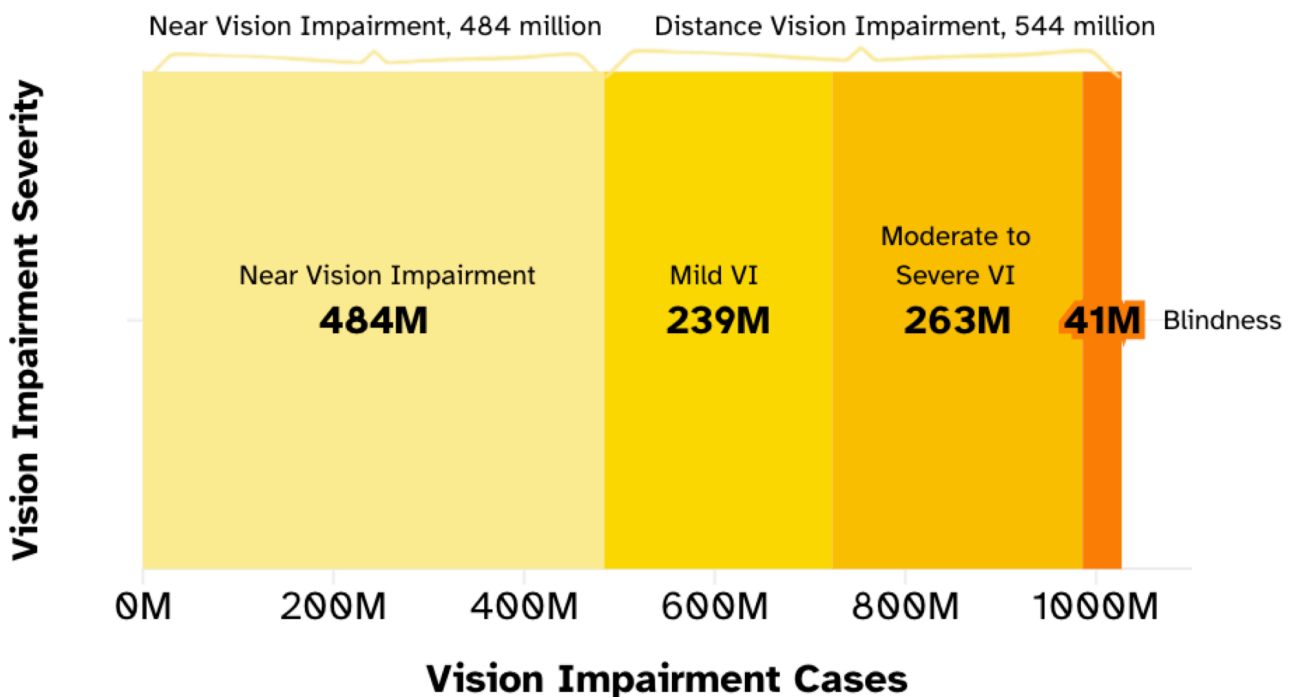
# One billion people in LMICs live with vision impairment

According to the Vision Loss Expert Group’s most recent estimates,<sup>1</sup> adjusted to 2025 population projections, an estimated **one billion people in LMICs live with uncorrected vision impairment**. Nearly half a billion people in LMICs are affected by near vision impairment, while another 544 million live with some form of distance vision impairment, including 239 million with mild vision loss, 263 million with moderate or severe vision impairment (MSVI), and 41 million who are blind.<sup>1</sup>

**Figure 1.1** illustrates the full distribution of these categories, highlighting the magnitude and composition of vision impairment in LMICs. The chart underscores that while blindness is the most severe form, it represents a small fraction of the overall burden compared to less severe but more prevalent forms of sight loss (See Panel in this chapter for definitions of visual impairment).

**1.1**

## One billion people in LMICs live with vision impairment.



**Notes:** LMICs, low-and-middle-income countries.

## **The focus of this investment case is on addressing refractive error and cataracts in LMICs**

This investment case focuses on LMICs because they account for 90% of the global burden of vision impairment,<sup>1</sup> have the lowest levels of eye care coverage,<sup>11,12</sup> and collectively lose an estimated \$1 trillion (PPP) in productivity every year due to unaddressed vision loss.<sup>5</sup> The scale of the challenge in LMICs is broad and systemic, suitable for population-wide, universal health coverage approaches that can drive efficiency and equity. While the majority of people living without adequate eye health services live in low-and-middle-income countries, vision impairment has a disproportionate impact on vulnerable populations in every single country in the world, including high income countries. We leave analysis of underserved populations in high income countries for future investment cases. See Annex A for all 111 LMICs included in this investment case.

This investment case considers interventions to address **refractive error and cataracts**. These conditions account for the **vast majority - around 90%<sup>13</sup> - of avoidable vision impairment worldwide** and can be addressed through **proven, cost-effective interventions** such as eyeglasses and cataract surgery. Prioritizing these conditions allows us to demonstrate the scale of benefits achievable with **relatively modest investments, providing a strong foundation for broader action**. This focus does not imply that other causes of vision loss - such as glaucoma, diabetic retinopathy, and macular degeneration - are any less important. These conditions also demand urgent attention, and future research and investment cases should include them. By starting with refractive error and cataracts, we aim to unlock immediate, large-scale gains while laying the groundwork for tackling the full spectrum of eye diseases.

## Definition Panel: Severity vs Causes of Vision Impairment

The International Classification of Diseases 11th Revision (2025) classifies vision impairment into five categories based on severity and functional impact:<sup>14</sup>

**Blindness** is classified as visual acuity below 3/60. This means a person can only perceive from 3 meters or less what someone with normal eyesight could see at 60 meters or beyond. This definition also encompasses total blindness, where no perception of light remains, or a visual field of 10° or less in the better eye.

**Severe vision impairment** is defined as visual acuity less than 6/60 and equal to or above 3/60. At this level, people can see only at 3 to 6 meters what a person with normal sight can distinguish at 60 meters, indicating a marked loss of distance vision.

**Moderate Visual Impairment** encompasses those with visual acuity worse than 6/18 but not poorer than 6/60. Individuals with this level of impairment are only able to see objects clearly at 6 meters that others can see from 18 meters to as far as 60 meters. Moderate and severe vision loss are often brought together as moderate to severe visual impairment (MSVI).

**Mild vision impairment** refers to a visual acuity below 6/12 but no worse than 6/18. A person in this range must stand 6 meters away to discern what someone with typical vision could identify from 12 to 18 meters.

**Near Vision Impairment** describes difficulty seeing clearly at close range, typically due to uncorrected presbyopia. This condition is common in adults over 40 and results in the inability to focus on objects within arm's length, such as reading text, threading a needle, or viewing a mobile phone screen. Unlike distance visual acuity, which measures clarity at 6 meters or more, near vision impairment affects everyday tasks that require fine focus at 40 centimeters or closer.

Parallel to visual acuity categorization, vision impairment can be linked to the underlying cause of sight loss such as refractive error, cataracts, glaucoma, macular degeneration and others. These categories are distinct but interrelated. In this investment case, the **severity of visual acuity** largely determines the scale of benefits, as restoring more severe vision loss generates greater gains. By contrast, the **cause of impairment** determines the type of intervention required and therefore a substantial share of the costs.

## Time for Action: Strategic Investments for Better Vision 2026-2030

This investment case sets out a clear roadmap for how to substantially reduce this large yet addressable burden of vision impairment. We recommend a suite of **six concrete, actionable accelerator interventions**: the first two are universally applicable across all settings, and the remaining four are tailored for middle-income countries. These interventions have been strategically considered to deliver significant short-term impacts within just 1-3 years, at relatively low cost. Simultaneously, they support the development of necessary eye health workforce over 5 years, and lay robust foundations for sustainable long-term eye care systems beyond 2030.

### Accelerator Interventions

**1. Early detection through screenings in the community** - Large numbers of people, especially in rural and vulnerable communities, never enter the eyecare pathway simply because nobody checks their vision. Vision and eye screening is a simple, low-cost process that can be carried out effectively by community members with minimal training and equipment. Mirroring successful programs around the world, our investment scenario envisages a large expansion of screening capacity to rapidly reach underserved populations. Moreover, scale-up of screening will expand the pipeline of eyecare consumers, improving overall financial sustainability of the eyecare system.

**2. Give out reading glasses on the spot** - Presbyopia is the single largest cause of uncorrected vision loss, yet it is among the easiest and cheapest conditions to treat. Ready-made near-vision glasses, which can cost less than \$3 per pair, can be fitted on the spot by trained community screeners. Our investment case mirrors successful programs globally and recommends enabling existing community workers to screen and dispense ready-made near vision spectacles. To realize its full impact, specific legislation will be required in some countries to authorise non-clinical personnel to provide this service.

**3. Increase capacity in the workforce for eye exams and dispensing glasses** - As screening volumes increase, it will reveal more individuals who require refraction, and examination for possible cataract. Current shortages in eye care professionals should be addressed immediately to meet this growing demand.

We recommend a multi-faceted strategy:

- a) Rapid mid-level personnel training & deployment** - Train mid-level eye care professionals such as vision technicians in ~12 months to provide quality refraction services and eye health exams at community level at a substantially lower cost;
- b) Mobile eye exams** - Redeploy and incentivize mobile screenings and services to include the provision of on-the-spot refraction exams and glasses dispensing, to increase ease of access, efficiency and uptake;
- c) Tele-refraction** - Deploy tele-refraction, serviced by remote optometrists, to extend clinical reach and boost patient volumes;
- d) Increase training of optometrists** - Begin immediate additional optometrist training so qualified professionals enter the workforce in 3-5 years for more complex care.

**4. Boost surgical productivity and teams** - Surgeons are one of the scarcest and most valuable cadres in eye care. The productivity of the existing surgeons can be significantly enhanced through more streamlined workflows. Evidence from successful programs show a 40-50% increase in surgical productivity through interventions such as task-shifting of suitable functions to allied health personnel, optimizing surgical workflows to promote specialization, and ensuring optimal level of equipment and consumables.<sup>15</sup> Training enough allied health workers will be essential to support these changes. Additionally, we need to begin training more surgeons and ophthalmologists today to meet growing demand for eye surgeries in the medium and long term.

**5. Remove barriers to access** - Even when eye care services are available, many people do not access them due to barriers such as cost, distance, and stigma. Evidence shows that uptake of eye care increases when cataract surgery and glasses are provided free or at subsidized rates. Bringing services closer via community screening, community-based cataract surgery, subsidized transport, delivery of glasses and tele-health also improves access. Barriers such as fear or stigma should be addressed through health promotion and in some contexts through tailored counselling. Hence, our investment case envisages the effectiveness of financial and transport support alongside culturally appropriate counselling to expand access to eye care.

**6. Make cataract surgery even better** - Cataract surgery is generally safe and effective, but a certain number of patients do not achieve clear vision after surgery. In many cases, this is due to residual refractive error, which can be easily addressed with a pair of glasses after surgery. This is a low-cost and achievable approach to ensuring cataract surgery leads to improved visual outcomes. More broadly, visual outcomes after surgery can be improved through strategies implemented across the full-cycle of surgery including better training and pre-operative biometry. Our investment case projects the potential impact of these strategies in improving surgical quality and visual outcomes.

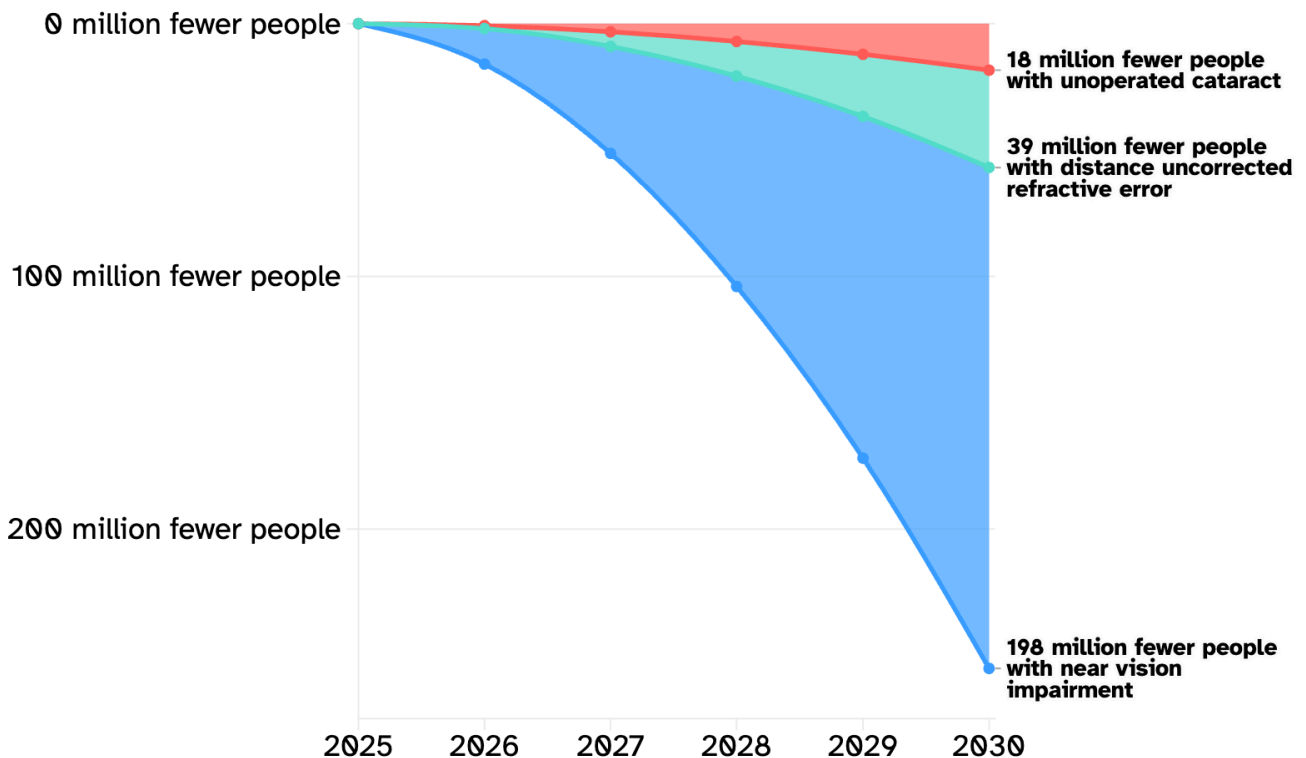
## The Benefits of Investment

The proposed investment is projected to substantially reduce the burden of sight loss globally. Compared to continuing with a business-as-usual scenario, we anticipate a **255 million cases (24%)** of averted sight loss by 2030, including:

- 198 million fewer people with near vision impairment
- 39 million fewer people with distant vision impairment
- 18 million fewer people with cataract

### 1.2 The investment case interventions will reduce the number of people with sight loss by 24%.

By 2030 there will be 255 million fewer people with sight loss.



When disaggregated by severity of vision impairment, this investment is expected to result in:

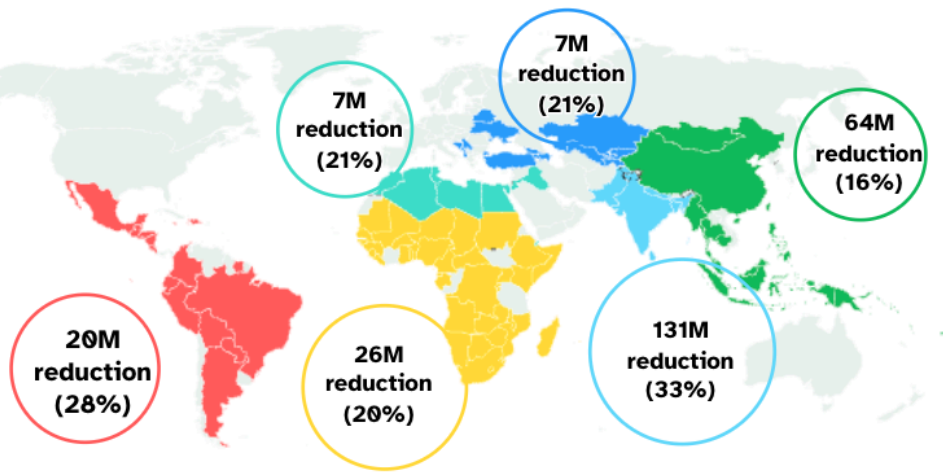
- 198 million fewer people with near vision impairment
- 24 million fewer people with mild vision impairment
- 30 million fewer people with moderate to severe vision impairment

- 3 million fewer people living with blindness

### 1.3 Investment is expected to yield the highest impact in regions where vision impairment burden is greatest.

By 2030 there will be 255 million fewer people with sight loss.

■ Europe & Central Asia ■ Middle East & North Africa ■ Sub-Saharan Africa ■ Latin America & Caribbean ■ South Asia ■ East Asia & Pacific



**Notes:** 111 low-and-middle income countries included in this analysis.

These projected improvements in the number of people with vision impairment would translate into extensive socio-economic benefits positively affecting individuals, families and entire communities. **Specifically, these benefits span seven key domains: employment, occupational productivity, caregiver productivity, education, road safety, mental health and longevity.** A summary is provided below, while Chapters 3-8 lay out the evidence for each of these benefits in more detail.

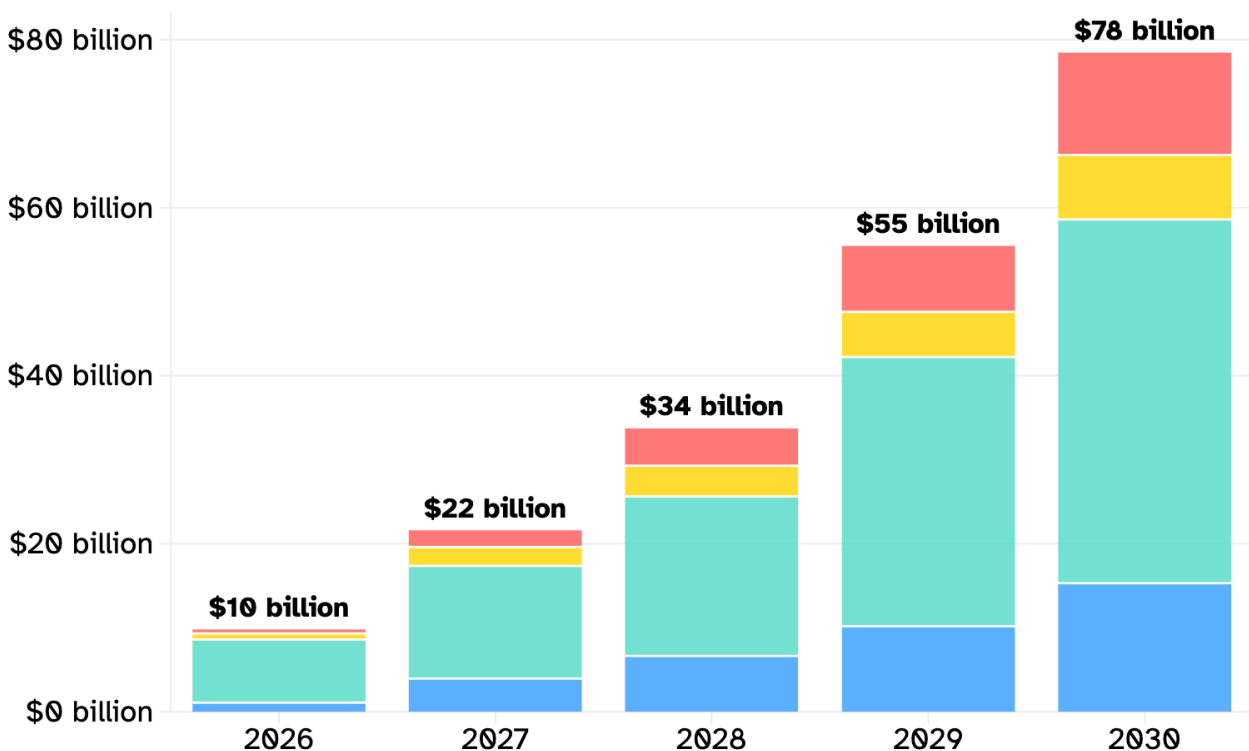
## Economic Productivity Benefits

The economic productivity benefits of this investment case reveals **substantial gains of \$199 billion over 2026–2030**, beginning at \$10 billion in 2026 and rising to \$78 billion by 2030.

### 1.4 Economic productivity benefits of this investment case reveals substantial gains of \$199 billion over 2026–2030.

Economic benefits of investment

■ Employment ■ Occupational Productivity ■ Caregiving ■ Learning



For each specific benefit the gain included are:

**1. Increased Employment** - Individuals with MSVI or blindness are approximately 30% less likely to secure employment compared to those with unimpaired vision.<sup>3</sup> Our analysis suggests that, following the recommended investments, approximately **2.1 million more people** could gain employment, resulting in **\$37 billion additional income** over the period of 2026-2030, increasing from \$1.1 billion in 2026 to \$15 billion by 2030.

**2. Enhanced Occupational Productivity** - for individuals with mild and near vision impairment. Our comprehensive review of evidence across diverse contexts shows that correcting near vision impairment can significantly boost productivity or income - by anywhere from 6% up to 67%, often with nearly immediate effects. Adopting a conservative

estimate of 10%, we expect this intervention to generate income gains totaling **\$115 billion** during 2026-2030, starting from \$7.5 billion in 2026 to \$43 billion by 2030.

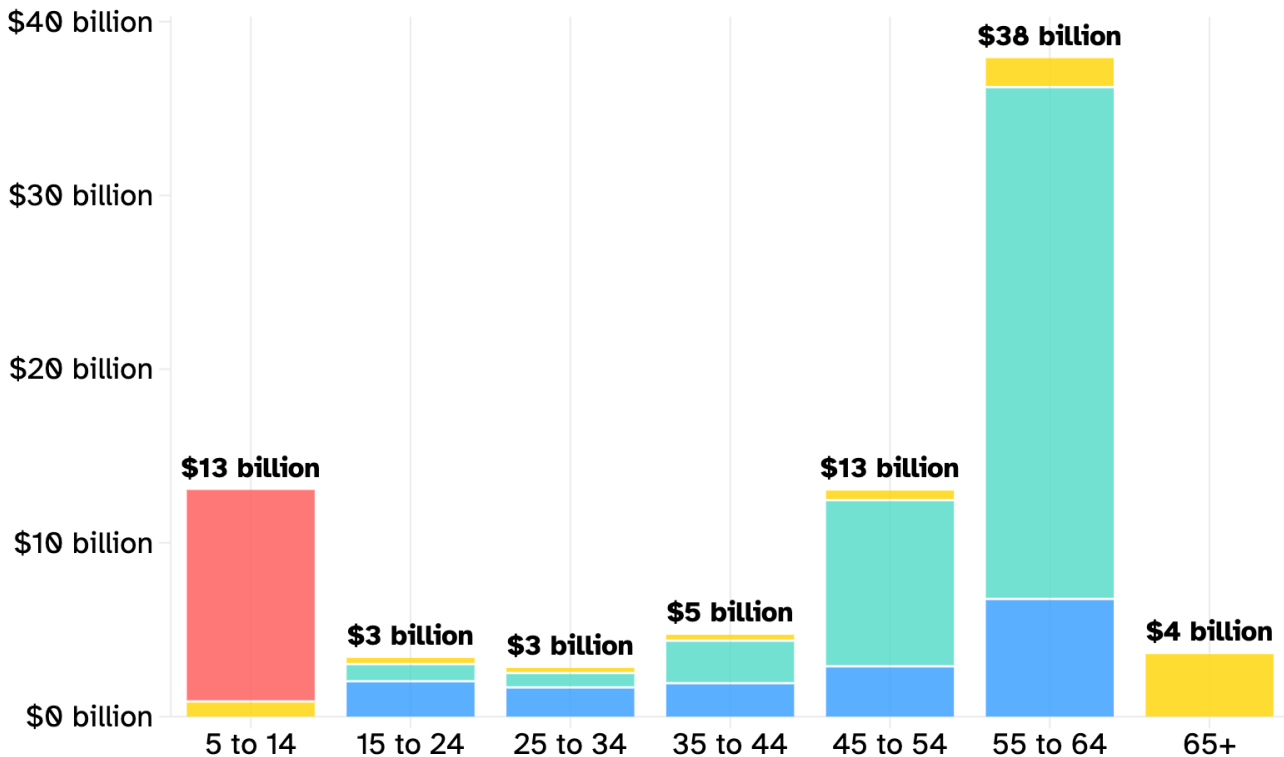
**3. Improved Learning for Children** - Children experiencing vision impairment in school settings achieve only half the learning gains of their peers with good vision.<sup>4</sup> Addressing vision impairment among these children could yield an additional **3.3 million equivalent school years over the next five years**, starting from around 50,000 in 2026 to 1.5 million years in 2030. These learning benefits translate into **\$27 billion in lifelong productivity gains** over 2026-2030, starting from \$473 million in 2026 to \$12 billion by 2030.

**4. Reduced Caregiving Burden** - Individuals living with MSVI or blindness frequently require caregiving support, predominantly provided by working-age women whose own productivity and well-being are thereby significantly compromised. By restoring vision, this burden can be eased by freeing caregiver time for employment and other productive activities. Employing conservative impact assumptions, we estimate that improved vision could unlock a total of **\$20 billion additional productivity**, starting from \$726 million in 2026 to \$7.7 billion by 2030.

**1.5 Eye health investment delivers benefits across the entire lifespan.**

Eye health investment benefits across all age groups (2030)

■ Employment ■ Occupational Productivity ■ Caregiving ■ Learning



## Social Benefits

**5. Fewer Road Crashes** - Poor vision increases the risk of road traffic accidents by nearly 50%.<sup>16</sup> Traffic-related mortality is the leading cause of death among individuals aged 5–29 in LMICs with profound consequences for individuals and their families. Our analysis suggests vision correction could reduce this burden **saving an extra 5,847 lives and preventing more than 211,000 traffic injuries** over 2026–2030.

**6. Improved Mental Health** - Sight loss is closely linked to mental health. Approximately 25% of individuals with vision impairment experience depression or depressive symptoms,<sup>7,8</sup> and similarly caregivers are affected by depression.<sup>17</sup> Evidence indicates that about one in five of these cases associated with vision impairment can be alleviated through vision correction.<sup>18</sup> By 2030, we estimate **the avoidance of 1.7 million cases of depression**.

**7. Increased Longevity** - vision impairment is associated with a heightened risk of mortality, particularly among older adults. The risk is nearly doubled in individuals with MSVI, and is compounded by comorbidities, cognitive decline and an increased risk of falls and injuries. Focusing on the 65–74 age group, our analysis indicates that improved visual health could **prevent approximately 12,300 deaths and yield nearly 80,000 additional years of life** within the next five years.

Together, these benefits clearly illustrate the profound and wide-reaching impact of investing in eye health. Simple, affordable and scalable interventions can deliver immediate and enduring positive outcomes by enabling individuals to see clearly and live fully. **This investment presents a powerful opportunity to deliver high-value returns across multiple sectors-strengthening economies, improving lives and advancing sustainable development.**

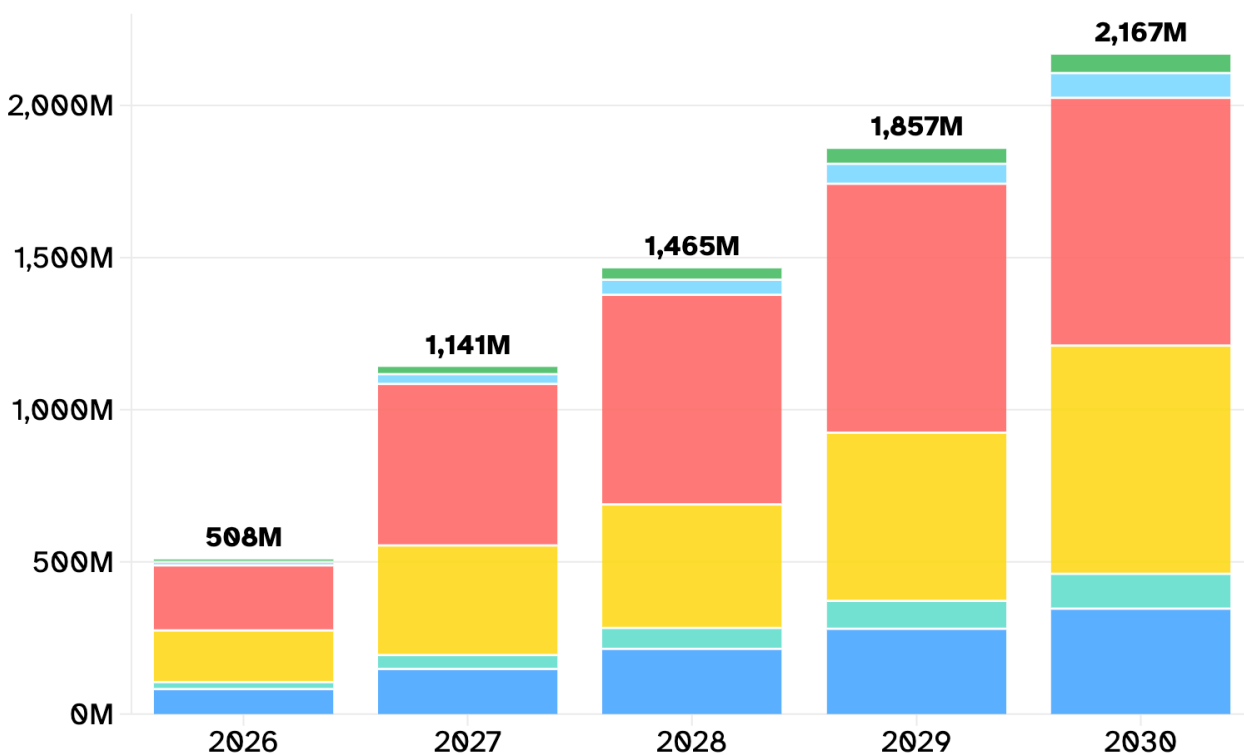
## Investment Required

Delivering the benefits outlined in this investment case will require an additional **\$7.1 billion over the next five years** - beginning at \$508 million in 2026 and scaling up to \$2.2 billion by 2030 - across LMICs.

### 1.6 A total of \$7.1 billion investment is required over 5 years.

Investment required by Accelerator

- Expand community screening
- Have screeners dispense near vision glasses
- Expand refraction and optometrist capacity and productivity
- Expand surgeon capacity
- Address patient barriers
- Improve cataract surgical quality



The bulk of this investment reflects the need to rapidly expand the eye health workforce and service capacity: approximately **\$2.0 billion for workforce development**; training community screeners, mid level personnel, optometrists, and surgeons; **\$2.0 billion for additional cataract** surgeries and surgical capacity; and **\$1.4 billion for eyeglasses**. Smaller but still critical investments include \$991 million for community screening, \$220 million for eye exams, and \$418 million for patient incentives and improved surgical outcomes.

Each depends on, and reinforces, the others. Taken together, the six accelerators form **an integrated package of interventions**, designed to unlock impact at scale and ensure sustainable improvements in eye health.

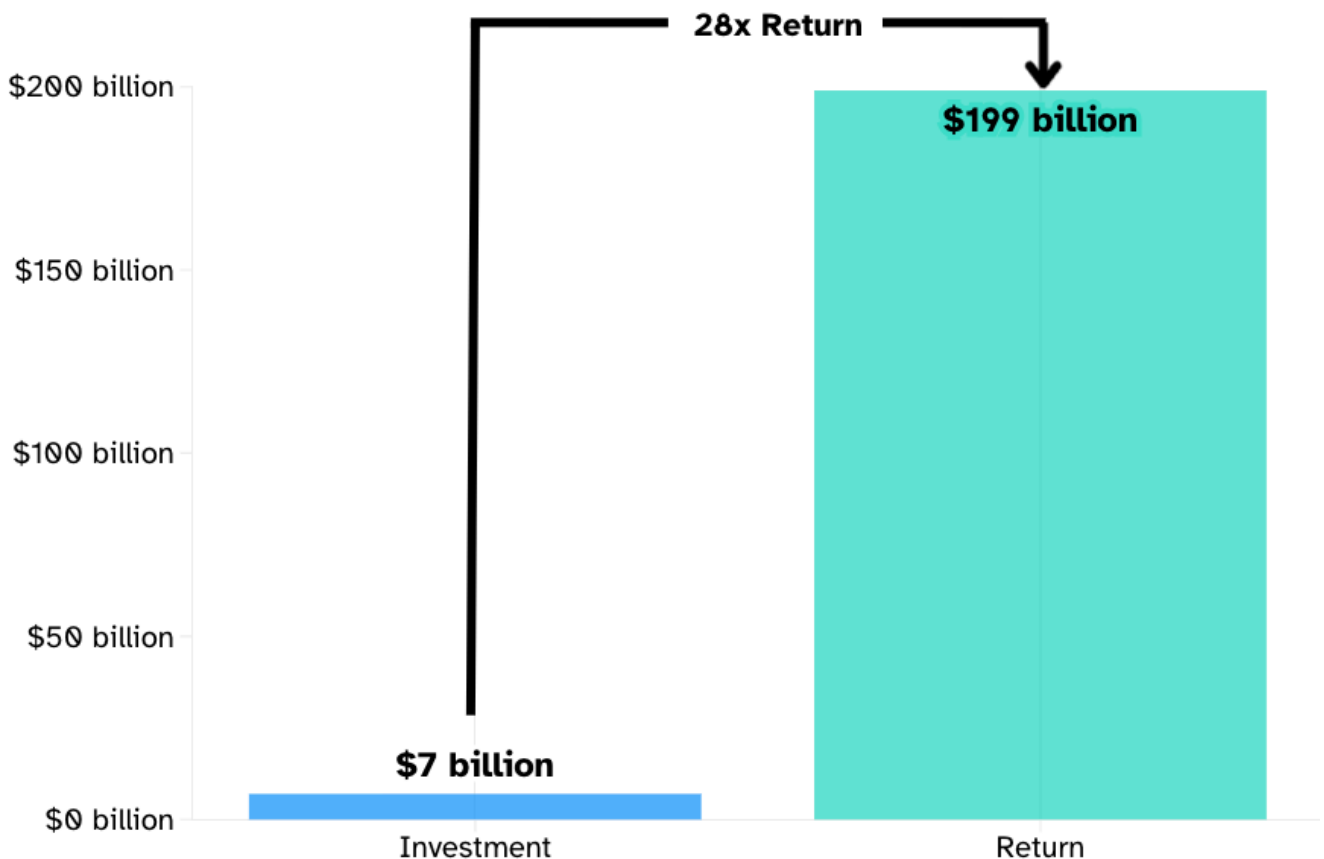
## A \$28 to \$1 Return on Investment in LMICs

Comparing the projected economic benefits with the costs demonstrates the exceptional value of investing in eye health. Over five years, the return on investment is estimated at \$28 for every \$1 spent. Put simply, **each dollar invested generates \$28 in economic value in LMICs**. These benefits directly contribute to economic growth and output, increasing GDP - a politically salient and widely recognized measure of development progress. In this sense, eye care is not only a health intervention but a **critical development imperative**.

Our findings position eye care as **one of the best buys in global health and development**<sup>19,20</sup> - an investment that is socially and economically transformative, highly cost-effective, and urgently needed.

### 1.7 Every dollar invested returns \$28 in benefits.

\$7 billion investment generates \$199 billion benefits



In summary, restoring vision is one of the simplest, most powerful actions we can take to unlock human potential. Few investments in global health and development can deliver such immediate, life-changing impact at such low cost. With the right leadership and commitment, millions of children will learn more in school, millions of adults will work more productively and with dignity, and millions of families - especially women - will be freed from the invisible burden of caregiving. **Investing in eye health means creating a future where people everywhere can see their world, seize opportunity, and shape brighter lives for themselves and their communities.**

## 2. How Do We Address the Problem? Strategic Investments for Eye Care 2026-2030

Treatments for the most common causes of vision impairment - eyeglasses and cataract surgery - have existed for centuries, and have been delivered to billions of people since their invention.<sup>21,22</sup> Unlike many health and global development challenges we know 'what works' when it comes to addressing vision impairment.

The primary challenge lies in ensuring individuals with vision impairment are identified and linked to care, with many remaining untreated due to various factors. On the supply side, there is often a shortage of trained eye care professionals, particularly in rural and underserved areas.<sup>23</sup> On the demand side, factors such as limited awareness of treatable eye conditions, stigmas surrounding modern eye care, low adherence to prescriptions and referrals, and financial constraints prevent individuals from seeking or adhering to treatment, or achieving effective treatment outcomes.<sup>24-26</sup>

While these constraints are real and persist widely, the good news is that we have seen many instances where these factors have been successfully addressed. We can efficiently and cost-effectively address the shortage of eye care workers by rapidly training community screeners and vision technicians, who can perform many key tasks traditionally reserved for optometrists. Additionally, task-shifting and telehealth technologies can optimize the existing workforce, significantly enhancing productivity and expanding access to essential eye care services. Addressing patient barriers through education, community engagement, and financial support has been demonstrated to improve uptake of eyecare services. Furthermore, developing effective policies to incentivize the involvement of NGOs and the private sector can mobilize additional resources and innovation.

This report recommends six actionable, cost-effective interventions aimed at delivering significant improvements in eye health. Collectively, our analysis shows that these interventions have the potential to bring life-changing clarity to 255 million more people over the next five years and set the world on a path toward dramatically reducing vision impairment by 2050.

This would represent a remarkable achievement in the context of population growth and aging, which continue to drive up the total number of cases. Since global tracking began in 1990, the absolute number of individuals with vision impairment consistently risen.<sup>1</sup> Projections indicate that, without significant intervention, this number could rise to 1.7 billion by 2050.<sup>1</sup> However, with concerted global effort, it is possible to reverse this trend. By implementing the accelerators outlined in this report, we can deliver a historic reduction in the prevalence of vision impairment despite the pressures of population growth and aging.

The six interventions, which we are calling accelerators, are:

- 1. Early detection through screenings in the community**
- 2. Give out reading glasses on the spot**
- 3. Increase capacity in the workforce for eye exams and dispensing glasses**
- 4. Boost surgical productivity and teams**
- 5. Remove barriers to access**
- 6. Make cataract surgery even better**

Each of these interventions plays a crucial role in our comprehensive strategy to combat vision impairment. The goal is to build a system where community workers stay closely linked with primary health providers - using clear referral pathways and regular feedback - so that patients move smoothly through care without falling through the cracks. In the following sections, we delve into each intervention, exploring its significance, implementation strategies, and anticipated impact.



## Accelerator 1: Early Detection Through Screenings in the Community

The first and fundamental step of addressing the challenge is to identify the vast number of individuals with vision impairment so that they can be connected to integrated people-centred care. Approximately one billion people in LMICs - roughly one in seven - live with unaddressed vision impairment.<sup>1</sup> Many are unaware they have a correctable vision problem, and the vast majority are yet to engage with the eye care pathway.

Vision screening is the standard way of testing for vision impairment, and is typically accomplished by assessing how well people can see charts at distance or close up.<sup>27</sup> The process is simple and can be effectively conducted by individuals within the community after minimal training, typically one to two weeks.

Community health workers are one such cadre of individuals - though not the only type - who are well-positioned for this role. In Rwanda, community health workers, primarily general nurses, trained under a WHO customised primary eye care curriculum, have conducted 2.4 million basic eye examinations and referred over 200,000 individuals to secondary-level eye services over five years.<sup>28,29</sup> In Bangladesh, the NGO BRAC screened more than 12 million people over the past eighteen years, supplying affordable glasses to 2.5 million of them. Today, over 32,000 community health workers carry out preliminary eye examinations, distribute spectacles and refer more complex cases to the higher level.<sup>30</sup> In India, Mission for Vision (MVF) collaborates with several cadres of community health workers to deliver primary eye care for different populations: Anganwadi workers screen for refractive errors among children aged 0-6; Accredited Social Health Activists (ASHAs) perform door-to-door eye checks and organize community outreach for adults aged 50 and above; and Mahila Arogya Samiti workers, a community-based women's group assist with referring local residents to MVF's Vision Centres and support patient follow-up.<sup>31</sup>

Community screening is a proven way to identify individuals with vision impairment and get them to seek care. In China, the extent of community outreach was the most important factor for the amount of cataract surgeries done in the base hospital.<sup>32</sup> In India, community outreach targeted at poorer members of society increased the flow of *paying* customers, demonstrating that outreach activities have spillover benefits,<sup>33</sup> impacting care seeking behavior beyond the individuals that attended the outreach events.

To maximize the impact of community screening, it is essential to integrate these services into existing health and government services. The integration can take various forms such as community outreach with dedicated screening days, co-location at community health centers and businesses, school-based programs and door-to-door visits. Whatever the modality, the key is to leverage existing infrastructure and processes to ensure broad and effective

coverage. Importantly, we recognize that community health workers have substantial existing responsibilities in other health domains,<sup>34</sup> and our recommendation and investment requirement calls for **additional community screening resources** to offset the increased load from vision screening - and not merely adding more work to the existing cadre. Moreover, our model is agnostic to whether the screeners are health workers or another other form of screening personnel such as teachers or social workers.

Specifically, our investment case recommends an increase to 1 full-time equivalent (FTE) community screener per 10,000 adults over aged 40 by 2030, gradually ramping up from 2026 onwards. This would be a feasible stretch target for most countries. For example, in India, this would imply approximately 46,000 full time community screeners - a large, but not unreasonable expansion beyond their existing workforce of one million community health workers.<sup>35</sup> Overall, our investment case envisages an extra 232,270 community screeners across all LMICs by 2030. Our model prioritizes screening for adults over 40 but also includes a substantial focus on schoolchildren who stand to gain substantial benefits from vision correction.



## **Accelerator 2: Give Out Reading Glasses on the Spot**

Presbyopia is the single largest cause of uncorrected vision loss. Despite being the easiest to fix and cheapest to treat, it remains largely unaddressed in LMICs. In 2015, approximately 1.8 billion people worldwide were affected by presbyopia, with half of those experiencing vision impairment due to inadequate or absent correction.<sup>36</sup>

The solution is straightforward: ready-made reading glasses. These glasses can be easily fitted and dispensed by community screeners with minimal training, with no medical experience necessary.<sup>37</sup> With assistance from the community screener, individuals with presbyopia can self-fit near vision spectacles, also known as “readers”, on-the-spot. This approach mirrors practices in many high-income countries, where over-the-counter reading glasses are readily available in pharmacies and retail stores.<sup>38</sup>

This model has been successfully deployed across a number of LMICs. For instance, VisionSpring’s Clear Vision Workplace program brings in reading and prescription glasses while conducting on-site screening for more than 475,000 factory workers, weavers and artisan workers in India, Bangladesh and Vietnam. Among those who received glasses, more than 70%-80% of the workers received their first pair of glasses through the program.<sup>39</sup> Additionally, a recent independent evaluation found that the Liberia Ministry of Health effectively leveraged the existing health system to enable Liberia’s Community Health Assistants to provide basic vision screenings, dispense near-vision glasses to adults with presbyopia, and provide referral pathways for advanced eye care. In the initial pilot,

Community Health Assistants met 100% of the need for reading glasses in one county. The country is now rolling out the intervention to all 14 other counties.<sup>40</sup>

Evidence suggests that clinical outcomes from this approach are comparable to using clinical personnel. In India, nearly 100% of people receiving ready-made spectacles reported improved vision at the time of dispensing, comparable to those receiving custom spectacles. Notably, these ready-made spectacles, when purchased in-volume, can cost as little as \$US0.5 per pair.<sup>41</sup>

To scale this intervention effectively, policy support is essential. Governments can facilitate access by reducing or eliminating tariffs on imported spectacles, making them more affordable. Additionally, regulatory frameworks should permit trained non-clinical personnel to conduct vision screenings and dispense near-vision glasses, reflecting current policy in many high-income countries.



### **Accelerator 3: Increase Workforce Capacity for Eye Exams and Dispensing Glasses**

Increased screening volumes will reveal a growing number of individuals with distance vision impairment who require refraction, and examination for possible cataract. However, many LMICs face significant workforce shortages in eye care professionals. For instance, in Sub-Saharan Africa, one optometrist serves approximately 50,870 persons, which is substantially lower than the same metrics in high-income countries.<sup>42</sup> Training optometrists requires approximately 3-5 years, which highlights the need for interim solutions to bridge this gap.

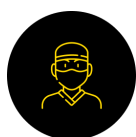
To address immediate needs, several measures can be used to meet this need and expand existing capacity. First, training mid-level eye care professionals such as vision technicians, ophthalmic assistants, and opticians offers a viable solution. These roles can be trained in significantly less time - often 1 year - and are capable of conducting refractions and identifying common eye conditions including cataracts, with comparable clinical outcomes at lower costs.<sup>43-45</sup>

Second, new and existing optometrists and opticians can be redeployed in mobile screening units to provide on-the-spot eye exams, which could greatly reduce the drop-off often seen when patients are referred to distant clinics. In many settings, only 30%-40% of individuals follow through such referrals due to barriers like cost and time constraints.<sup>46-48</sup> If vision exams can be conducted simultaneously with screening, we can significantly improve patient retention and treatment uptake, though this requires investment in personnel and transport.

Third, tele-refraction with the existing cadre of optometrists can expand the capacity of optometrists, allowing them to see a greater number of patients. Our analysis suggests that the average optometrist in LMIC has capacity to conduct more eye exams, with many currently averaging 10 or fewer vision exams per day. By implementing tele-refraction - where trained technicians conduct initial assessments and consult remotely with optometrists - we can better utilize existing optometrists' time and enable them to reach more patients effectively. A study in India found tele-refraction were comparable to in-person examinations, with 92% of cases achieving similar visual acuity results.<sup>49</sup> While they may incur approximately 10% higher operating costs than a vision center without tele capability,<sup>50</sup> these are often offset by savings from broader system efficiencies.<sup>51</sup>

While these measures could provide immediate relief to workforce shortages, they are not complete substitutes for a fully trained optometrist workforce. To sustainably meet the growing demand for comprehensive eye care services, especially for complex cases, we will need to start training more optometrists now, so that they can enter the workforce in 3-5 years.

Our investment case models an increase in the number of vision technicians, optometrists and opticians by 10% of the existing optometrist cadre annually. If we start training immediately, the first cohort can be operational in 2027 - the second year of the investment case. Half of the cadre is assumed to join community screening events to provide on-the-spot vision exams, while the other half is assumed to be stationed at healthcare facilities. Overall, the investment case models an extra 70,053 mid-level and optometrist workforce by 2030.



## **Accelerator 4: Boost Surgical Productivity and Teams**

Ophthalmic surgeons are among the most important but one of the scarcest cadres in eye care, particularly in LMICs. As of 2015, the density of ophthalmologists is estimated to be 3.7 per one million population in low-income countries - approximately one ophthalmologist per 270,000 people.<sup>23</sup> In Sub-Saharan Africa, this figure was even lower, at one ophthalmologist per 446,000 population.<sup>52</sup>

Despite these shortages, existing surgical capacity is often underutilized. For example, a survey of 129 surgeons in several Southern and Eastern African countries showed that the average number of surgeries performed was only 188 per year.<sup>53</sup> However, in the same study, the most productive surgeons conducted 1700 annually - more than 8 times the average. Similarly, in East Africa, the average productivity was 243 surgeries per year (i.e. about one per working day) across 88 surgeons,<sup>54</sup> whereas high-performing surgeons can conduct up to 25 surgeries per day.<sup>55</sup>

Higher rates of productivity can be accomplished by task-shifting of non-essential functions to allied health personnel, optimizing the surgical workflow to encourage specialization and ensuring optimal level of equipment and consumables.<sup>53,54,56</sup> These interventions can increase surgical productivity by 40-50%.<sup>56</sup>

The Aravind Eye Hospital in India exemplifies an efficient, high-volume cataract surgery model. Central to Aravind's approach is the task-shifting to mid-level ophthalmic personnel, who are trained to handle non-surgical tasks such as basic eye exams, patient preparation and instrument sterilization. This task allows ophthalmologists to concentrate exclusively on performing surgeries, which increases a single ophthalmologist's productivity by four times.<sup>56</sup> As a result, each surgeon at Aravind performs more than 2,000 surgeries annually, compared to the national average of 400 surgeries per ophthalmologist in India.<sup>57</sup> Additionally, Aravind streamlines the surgical process through an assembly-line system, where operation rooms are equipped with multiple surgical tables. This setup allows the surgeons to move from one surgery to the next immediately.<sup>58</sup> Consequently, Aravind conducts 1,500 surgeries daily across its network.<sup>59</sup> Importantly, this model has been expanded across other hospitals in Asia, Africa and South America showing a ~70% average increase in surgeries conducted.<sup>60</sup>

That said, surgeons cannot conduct more surgeries if there is insufficient case finding to deliver a steady pipeline of patients requiring surgery. Global evidence indicates that cataract surgical output is closely linked to the extent of outreach services.<sup>32,53,54,61</sup> Accelerator 1 (substantially expanding community eye screening) is designed to ensure that more people with cataracts are found and linked to care, while Accelerator 3 (expand capacity to conduct to provide refraction and eye exams) provides additional capacity to deliver appropriate clinical diagnoses.

Besides improving the productivity of existing surgeons, we will need to train more surgeons and ophthalmologists to meet increased demand for surgeries in the medium term. If we start training more now, the first additional surgeons will be available in 2029 - the fourth year of the investment case.

Our investment case assumes a 5% annual increase in the number of surgeons starting in 2029 and 2030 - for a total 12,480 more by the end of the investment case timeline - coupled with a 50% productivity enhancement among existing surgeons in middle-income countries or a 20% productivity increase in low-income countries, aiming for each to perform a maximum of 800 surgeries per year or 600 surgeries per year, respectively.



## Accelerator 5: Remove Barriers to Access

Even when eye care services are available, barriers such as cost, distance and personal factors can prevent individuals from accessing services.

Costs represent a significant obstacle to access to eye care. However, evidence shows that when cost burden is lifted - through subsidies for surgeries and glasses - uptake and usage increase significantly.<sup>26</sup> In Thailand, the implementation of a national insurance scheme was able to more than double the cataract surgical rate from 352 surgeries per 100,000 to 765 surgeries per 100,000 over a period of just 10 years.<sup>62</sup> In India, the uptake of glasses increased from 29% when they were priced at 150 rupees, to 81% when they were provided for free.<sup>63</sup> Similarly, offering free cataract surgeries has led to a high acceptance rate of more than 90%.<sup>64</sup> In rural China, offering free cataract surgery led to an uptake rate of 28%, compared to 14% when low-cost surgery was offered.<sup>65</sup>

Distance to eye care facilities is another critical barrier. In rural Papua New Guinea, distance to eye care services was reported as the strongest barrier preventing people from seeking eye care.<sup>66</sup> Similarly, In Upper East Ghana, up to 31% of people identified distance to eye care facilities as a key obstacle.<sup>67</sup> Providing transport subsidies has been shown to increase surgical output.<sup>53</sup> Moreover, reducing distance to services via community screening, delivery of glasses and tele-health may also address the challenges of distance.

Fear and stigma also play a role. A study in Ethiopia found that 19% of the patients attending cataract outreach sites did not accept cataract surgery because they were waiting for the cataract to be “mature”, while 17% cited fear of complications as a leading barrier to undertaking the surgery.<sup>25</sup> In suburban Mozambique, cultural beliefs posed a significant barrier, with 18% of individuals experiencing eye symptoms opting not to seek formal care due to reliance on traditional treatments.<sup>24</sup> Culturally sensitive health education could significantly increase patients’ acceptance of cataract surgery by addressing fears and culturally-based misunderstandings. In Nigeria, 92% of patients receiving structured education reported its influence on their decision to undergo surgery.<sup>68</sup>

Our investment case models the deployment of financial support for glasses and cataract surgery, transport and counselling. This increases the uptake of cataract surgery from as low as 30% to 65% on average, and the use of glasses from as low as 24% to 70% in adults, and 12% to 40% in children on average (see Methods Annex for further detail).



## **Accelerator 6: Make Cataract Surgery Even Better**

While cataract surgery has become increasingly safe and effective, the clarity of vision achieved after surgery can vary substantially. In a recent systematic review of cataract surgery outcomes, the quality gap - the percentage of surgeries that do not lead to clear vision ranged from 44% in Africa to 28% in South-East Asia. Country-specific data reveal even greater disparities: in Guinea-Bissau, the quality gap was 73% compared to 11% in Argentina.<sup>11</sup> However, it is important to note that in almost all these cases vision is likely better than if the cataract surgery never happened, even if the outcomes do not result in 6/18 visual acuity or better.

Surgical quality can be improved with a range of strategies. For instance, providing in-service training to surgeons - such as wet-lab sessions or simulator-based training - has been shown to significantly reduce complication rates.<sup>69</sup> Using biometry to guide the selection of intraocular lenses can also enhance outcomes by ensuring more accurate visual correction.<sup>69</sup> Moreover, pre-surgery risk assessment of co-morbidities and potential complications can help ensure that more complex cases are matched with more experienced surgeons - an approach that can lead to better visual outcomes and fewer surgical complications.<sup>69</sup> Postoperative care also plays a vital role. Ensuring patients without clear vision receive proper refractive assessments and fitting of glasses can effectively boost visual outcomes. Our investment case models an improvement in surgical quality from training, biometry and post-operative refraction, increasing the proportion of patients with 6/18 vision from a regional baselines reported in the recent systematic review up to 80%.

## Estimating Impacts, Benefits and Costs: A Quantitative Model for 111 Low-and-Middle-Income Countries

For this investment case, we developed a comprehensive quantitative model to estimate the vision impairment impacts, socio-economic benefits, and associated costs of scaling up these six eye care accelerators. Covering 111 low- and middle-income countries, (98% of the LMIC population) the model provides detailed, country-specific projections using country-level data on vision impairment prevalence, costs and benefit drivers such as Gross National Income, economic growth, labor force participation, school enrolment, and population structures. Recognizing that the benefits of improved vision differ across the life cycle, the model also segments each country's population into 5-year age cohorts to provide age-specific projections.

The model timeline begins with a baseline year of 2025, projecting the impacts of scaled interventions over a five-year implementation period (2026-2030). While vision impairment reductions and intervention costs are modeled through 2030, socio-economic benefits are projected further into the future to capture the full, lifetime advantages of investments that occur within the 2026-2030 timeline. For example, correcting vision for school-age children results in long-term productivity and income gains extending throughout their lives, benefits fully reflected in our projections. The model accounts for near vision refractive error (presbyopia), distance vision refractive error and cataracts - which comprise 90% of all vision impairment. Impacts are also modelled for different types of visual acuity, mild, moderate, severe and blindness.

The model has three components:

1. **An epidemiological impact module** estimates the effects of scaling up various interventions on refractive error and cataract prevalence. The interventions include:
  - **Expanding the eye health workforce and effort:** i) community screeners, ii) mobile refractionists iii) vision technicians and optometrists in fixed facilities iv) ophthalmologist surgeons. The module factors in country specific eye workforce productivity constraints when estimating impacts.
  - **Improving the productivity** of vision technicians, optometrists, and surgeons
  - **Incentives and program choices** that improve patient uptake of eyecare services - e.g. the module increases the referral uptake rate when refractionists join community screening activities for 'on-the-spot' eye exams and increases the referral and uptake rate if treatment is subsidized.
  - **Improvements in visual outcomes** after cataract surgery

2. **A socio-economic benefits module** which translates reductions in vision impairment prevalence into quantifiable benefits across seven socio-economic categories:
  - **Employment gains** for individuals previously limited by moderate-to-severe vision impairment and blindness
  - **Increased occupational productivity** for those with mild or near vision impairments actively employed.
  - **Enhanced caregiver productivity** freeing family members from caregiving responsibilities related to MSVI and blindness.
  - **Improved educational outcomes for children** whose vision is corrected, resulting in long-term increases in lifetime earnings.
  - **Reductions in road traffic crashes**, separately estimating lives saved and injuries prevented due to improved mild and moderate vision impairment.
  - **Mental health improvements** among visually impaired individuals and their caregivers.
  - **Longevity increases for individuals aged 65-74** by reducing mortality risk associated with vision impairment.
  
3. **A cost module** which calculates detailed financial costs of the interventions, using unit costs for 15 unique service-location combinations (e.g. community vision screening, facility vision exams, hospital cataract surgery). This cost module draws upon primary data collected from 55 providers across 29 LMICs. The cost module incorporates the costs of equipment, consumables, medicines, eyeglasses, workforce, transport, training and overhead or “above-service-level” costs.

The rest of this chapter describes the results of the epidemiological impact module. Chapters 3-9 provide results of each of the seven benefits. Chapter 10 provides the results of the investment required. Further details of the model are provided in the accompanying methods annex.

## The Impact: 255 Million Lives Transformed by 2030

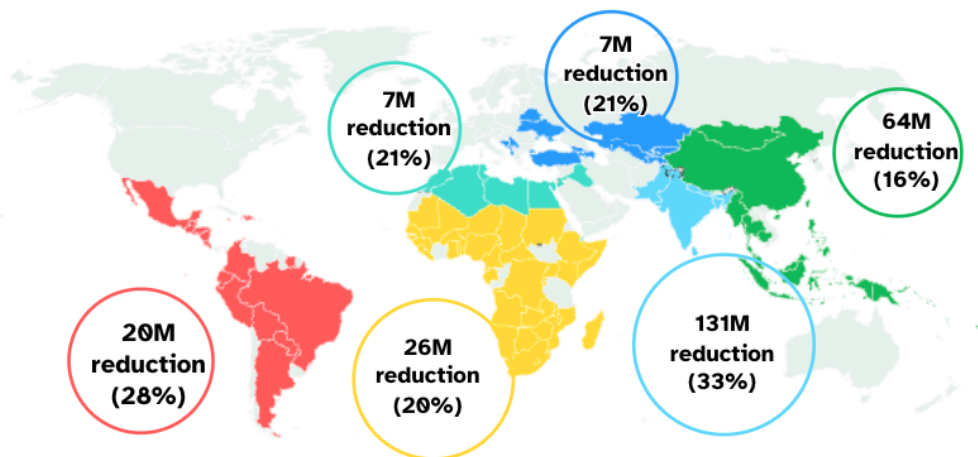
Applying our epidemiological impact module across all 111 low- and middle-income countries, our model demonstrates unprecedented improvements to vision globally. Under our assumptions, low-income countries implement community-based screening and immediate provision of glasses for presbyopia, without further expansion of eye care personnel, patient incentives, or improvements in surgical quality. Lower-middle and upper-middle-income countries, in contrast, are modeled as implementing the full suite of six accelerators.

By 2030, the model projects **255 million fewer people** living with vision impairment compared to continuing on our current trajectory. Breaking this figure down by condition, the 255 million individuals who avoid vision loss include 198.3 million with averted near vision impairment, 38.5 million with averted distance vision impairment, and 18.4 million with averted cataracts. Categorized by severity, the reductions include 23.9 million fewer people with mild impairment, 26.7 million fewer with moderate impairment, 3.4 million fewer with severe impairment, and 2.9 million fewer experiencing blindness, alongside the 198.3 million with corrected near vision impairment. Geographically, the largest impacts will occur in regions currently most affected by vision impairment—East Asia and the Pacific, and South Asia (Figure 2.1).

### 2.1 Investment is expected to yield the highest impact in regions where vision impairment burden is greatest.

By 2030 there will be 255 million fewer people with sight loss.

■ Europe & Central Asia 
 ■ Middle East & North Africa 
 ■ Sub-Saharan Africa 
 ■ Latin America & Caribbean 
 ■ South Asia 
 ■ East Asia & Pacific



**Notes:** 111 low-and-middle income countries included in this analysis.

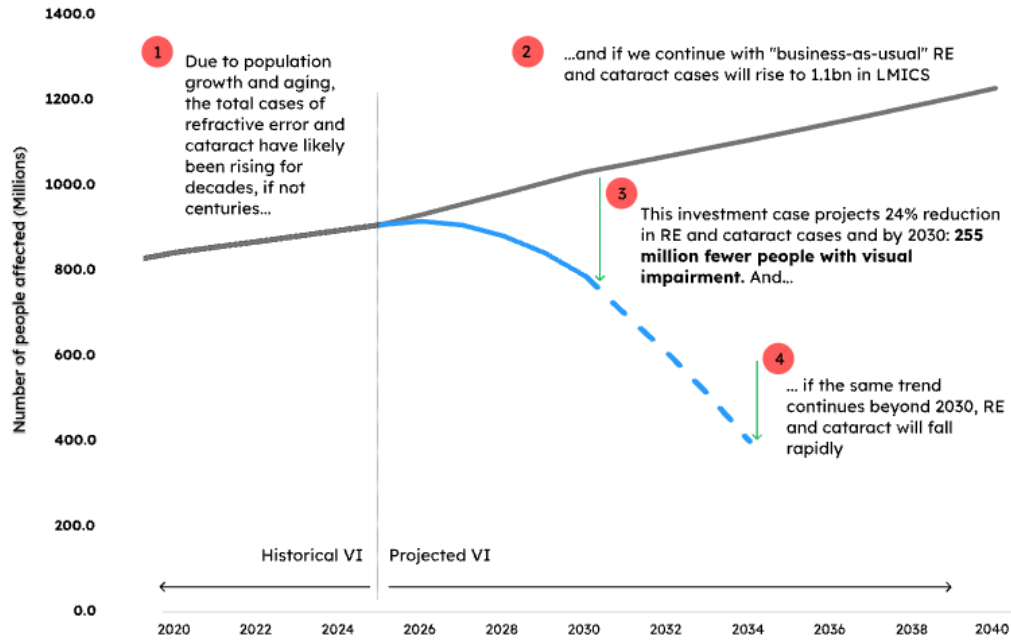
Collectively, these improvements represent an extraordinary **24% reduction** in the expected global burden of vision impairment by 2030, placing the world firmly on track to significantly lower the prevalence by 2050. The largest immediate benefit in our model comes from reducing near vision impairment, reflecting the ease of addressing presbyopia through cost-effective community screening and immediate eyeglass provision - one of our foundational recommendations. However, beyond 2030, reductions in distance vision impairment will become increasingly important. Therefore, our investment case emphasizes initiating strategic investments now, such as training optometrists and surgeons, improving patient uptake, and enhancing visual outcomes after cataract surgery. These early investments not only generate immediate progress but also lay the groundwork for effectively responding to the large-scale screening recommended here, which will identify many more individuals requiring vision correction now and in the future.

Achieving this 255 million prevalence reduction would represent a historic improvement in vision impairment. Addressing vision impairment has been like swimming against the current: even with significant progress, improvements have often been offset by rapid population growth and demographic aging. For example, India has made enormous strides in scaling up cataract surgery through the National Programme for Control of Blindness - first established in 1976 - and the World Bank-assisted Cataract Blindness Control Project initiated in the mid-1990s,<sup>70</sup> leading to substantial reductions in population and age standardized prevalence of cataract. However, because the country has gotten larger and older since the 1990s the number of people with cataract has increased from an estimated 12.7 million in 1990 to 29.5 million in 2021.<sup>71</sup>

Indeed, comprehensive analysis of hundreds of surveys reveal a consistent global increase in vision impairment since 1990.<sup>1</sup> Implementing the recommendations outlined in this investment case offers the world a unique opportunity to reverse this decades-long upward trajectory. While our projections formally end at 2030, these investments and commitments beyond this horizon would likely yield continued reductions in vision impairment prevalence. **This progress would represent a turning point, creating - for the first time in generations - a future with fewer rather than more individuals living with avoidable vision impairment.**

## 2.2 A historic opportunity to reduce the burden of refractive error and cataract for the first time in generations.

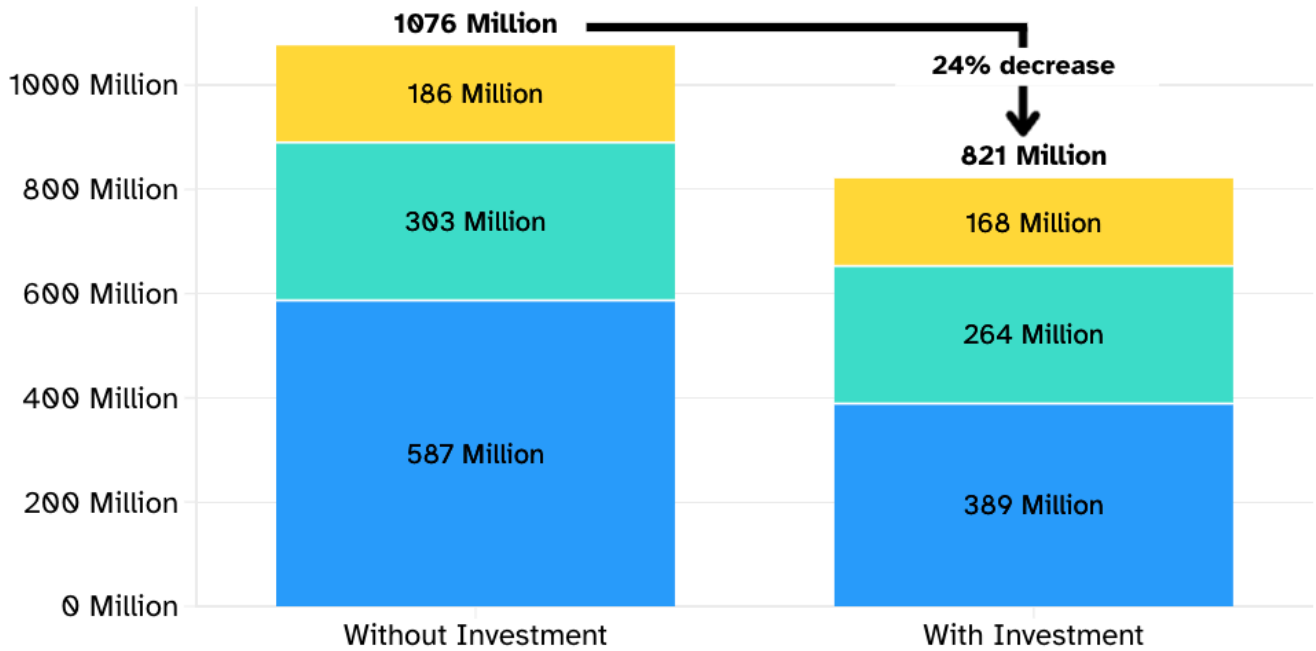
Number of people with uncorrected refractive error and unoperated cataract



Notes: VI, vision impairment.

**2.3** The investment case intervention will reduce the projected number of people with slight loss by 255 million by 2030.

■ Near Refractive Error ■ Distance Refractive Error ■ Cataract



### 3. Employment Benefits

Moderate to severe vision impairment and blindness present significant barriers to employment opportunities in low-middle income countries. Economic theory proposes that employers typically hire individuals when the expected productivity from employment outweighs the associated hiring and training costs. Therefore, individuals with MSVI or blindness may face lower employment prospects because employers, rightly or wrongly, perceive them as less productive and incurring higher costs related to specialized training or workplace accommodations. Although anti-discrimination protections can help counteract these biases, such regulations are frequently absent or weakly enforced in LMICs, intensifying the barriers faced by visually impaired individuals in the labor market.

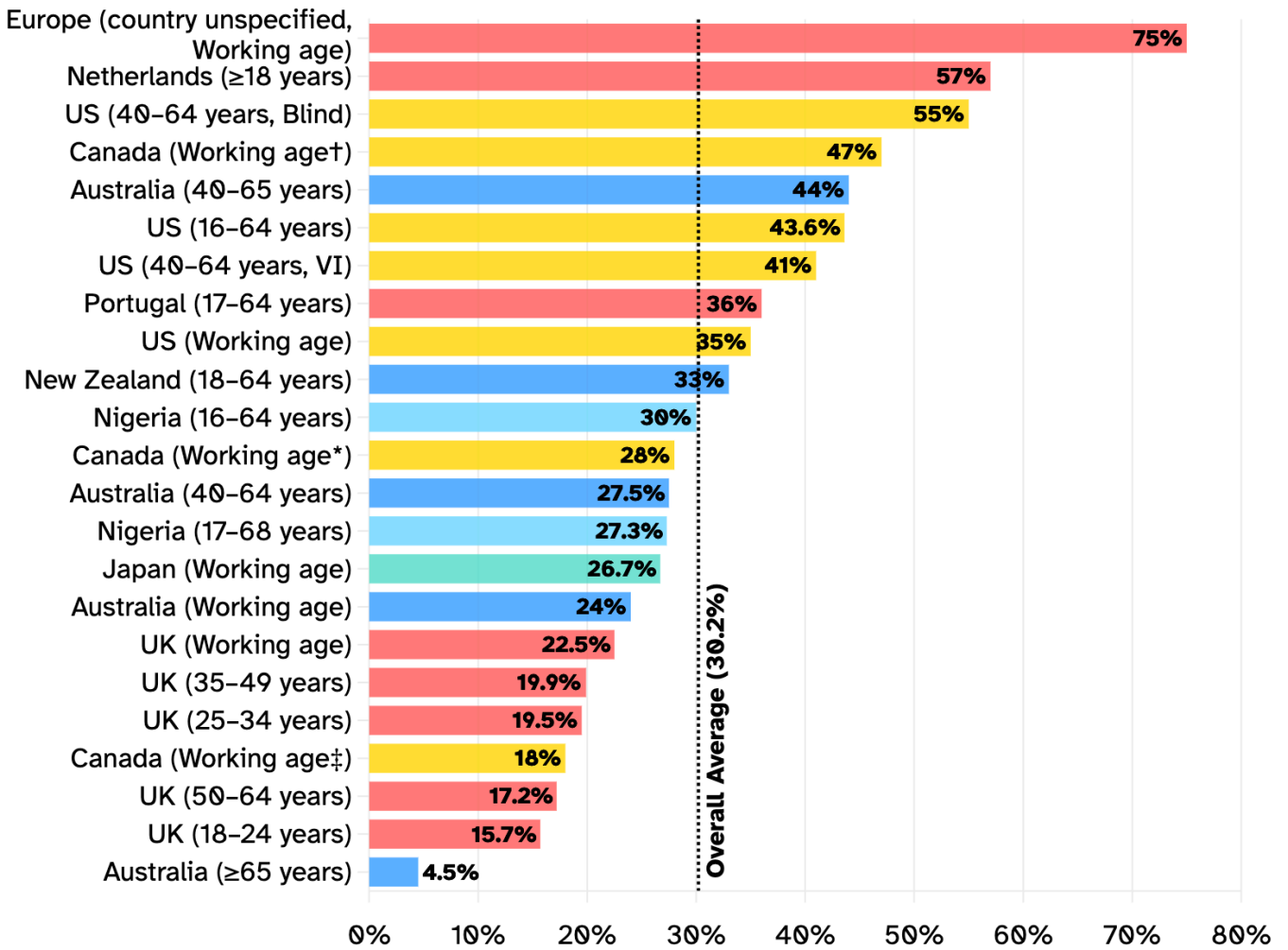
Beyond formal employment, vision impairment also hinders self-employment prospects, particularly in sectors prevalent in LMICs such as agriculture and small-scale manufacturing. In agriculture, people may struggle with identifying pests, handling machinery safely, or accurately selecting the right plant parts during harvesting.<sup>72-74</sup> In small-scale manufacturing, vision impairment can make precision work such as sewing, cutting, and quality control challenging and unmanageable.<sup>75</sup> More broadly, self-employed individuals may face limitations in accessing information, struggling with reading, writing, or administrative tasks. These challenges, along with physical discomfort, social isolation and psychological stress from constant visual strain, may cause them to leave the workforce altogether.<sup>72</sup>

Evidence reveals that vision loss limits individuals' ability to access and retain employment contributing to substantial society-wide economic productivity losses. A review of 11 studies and 5 reports estimated that people with MSVI or blindness experience, on average, a 30% reduction in employment rates, with country variations ranging from 4.5% to 75% (see Figure 3.1). These employment losses have wide-reaching consequences on global economic productivity with the same study placing the global cost of lost productivity from MSVI and blindness at approximately \$411 billion annually (in purchasing power parity).<sup>3</sup>

### 3.1 Sight loss reduces the probability of employment by 30.2%.

Relative reduction in employment for people with blindness or moderate to severe sight loss (%).

**GBD Region:** ■ Australasia ■ High-income Asia Pacific ■ High-income North America ■ Western Europe ■ Western Sub-Saharan Africa



**Note:** VI=visual impairment. \* study by Blind Foundation. ‡ study by Gordon et al. † study by Gordois et al and Access Economics.

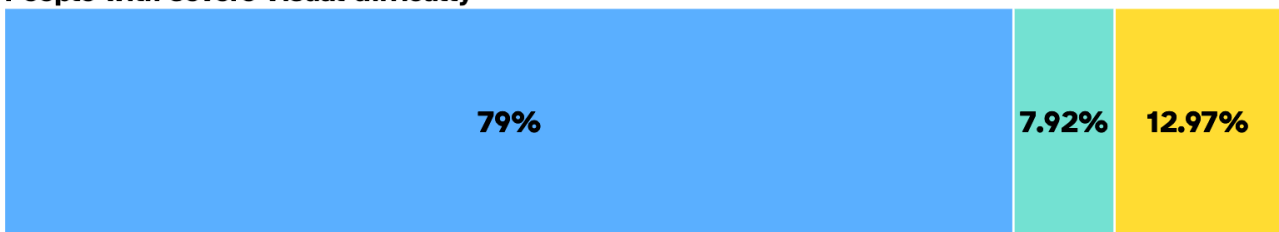
While these findings are from a relatively small number of contexts, with a skew towards high-income countries, they are supported by self-reported survey data of 276,647 individuals from 70 countries. This survey found that more than one in five people with severe vision difficulty, and over a third of those with extreme difficulty, are out of work, despite wanting a job (Figure 3.2). The risk of being unemployed due to barriers such as an inability to find suitable work or being limited by ill health is approximately 50% higher among people with moderate or severe vision loss, and 2 to 3 times higher for those with extreme visual difficulty.<sup>76</sup>

**3.2 Over one in five (21%) people with severe visual difficulty and more than one in three (36%) with extreme visual difficulty are out of the workforce.**

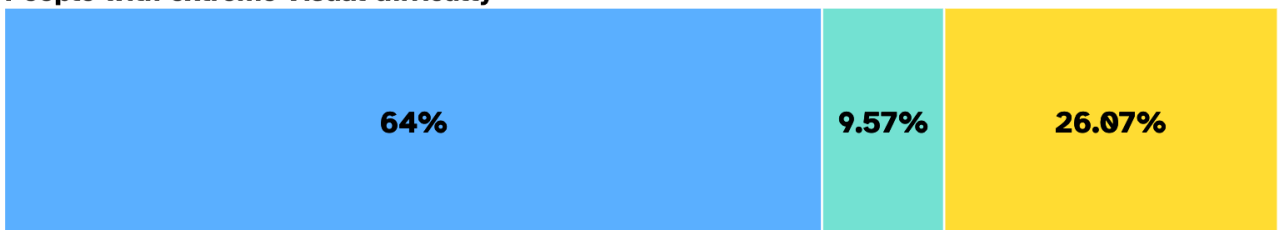
Employment status in people with severe and extreme visual difficulty.

■ Working ■ Not working due to inability to find a job ■ Not working due to ill health

**People with severe visual difficulty**



**People with extreme visual difficulty**



While vision impairment significantly reduces employment opportunities and economic productivity, evidence indicates that straightforward interventions, such as cataract surgery, can swiftly and sustainably reverse these effects. For example, evidence from the Cataract Impact Study, conducted in Kenya, Bangladesh, and the Philippines, demonstrates that cataract surgery significantly enhances individuals' engagement in productive activities. At the start of the study, individuals with cataract-related vision impairment were less involved in tasks such as paid work, self-employment, household chores, and spent more time inactive compared to those with normal vision. However, one year after surgery, the proportion of

individuals participating in productive activities increased markedly by 13-35% across the three countries. On average, participants spent 1 to 2 more hours per day on productive activities (See Figure 3.3).<sup>77</sup> These improvements were largely sustained over the long term. A six-year follow-up study in Bangladesh and the Philippines found that the proportion of individuals engaging in productive activities remained higher than at baseline, despite the natural decline in activity levels due to aging.<sup>78</sup>

### **Case Study Panel: How Cataract Surgery Gave an Engineer His Sight and Water for His Community**

Edward Okot is a man of service - an engineer who brings safe drinking water to his community in Apac, Uganda. When cataracts blinded Edward, everything came to a halt. "You become a dependent [person]," he remarked. "You rely on others to do everything." He worried about paying the bills and putting food on the table. He feared his children would drop out of school. Most of all, he dreaded that he couldn't be the father- or provider- his family needed. Edward was diagnosed with cataracts during one of the Seva Foundation's community screening events in the country.

After cataract surgery, Edward's vision was restored. His once-dim outlook has now transformed into unbridled optimism.

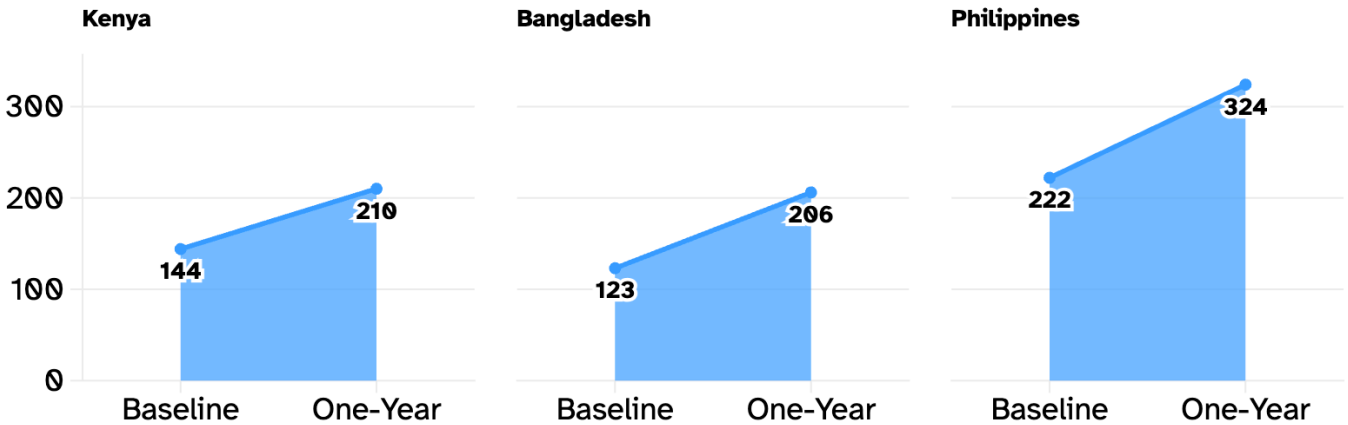
"After they took the bandage off, it was as if I was in a new world. I was excited!"

Now, he's back to work. Back to supporting his family. And back to building wells for his community. One surgery changed Edward's life, and in the process, gave his family and community a chance at their own success.



### 3.3 Time spent on productive activities increased significantly after receiving cataract surgery.

Time spent on productive activities at the baseline and one-year follow-up in operated cataract cases



**Note:** Those who did not receive surgery did not experience any significant change in time spent on productive activities for Kenya and Philippines, and were 12% lower in Bangladesh

Importantly, the Cataract Impact Study focused on individuals aged 70 and above, who are naturally less likely to be engaged in the workforce even if they have good vision.<sup>77,78</sup> This implies that the results of this study are likely a conservative estimate of the potential employment gains in younger, working-age populations.

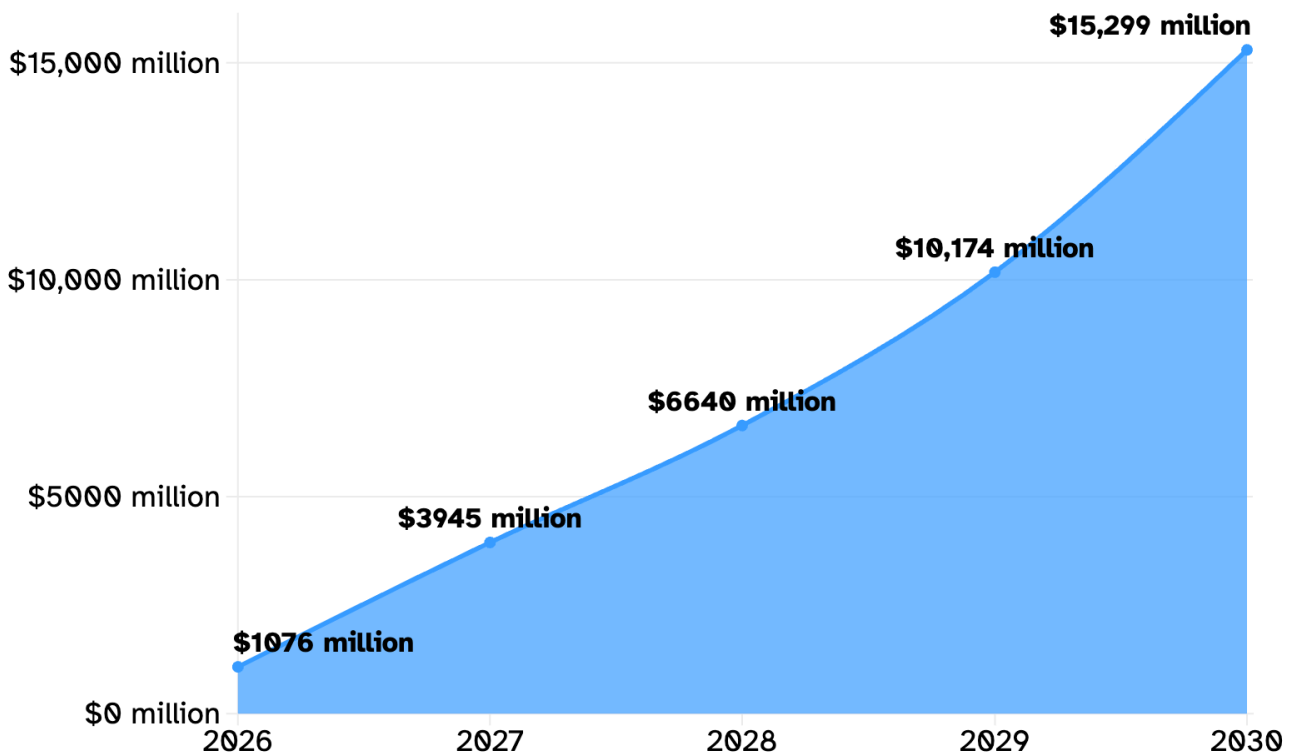
Lastly, it is critical to emphasize that employment is much more than merely earnings. Being employed is often linked to an individual's sense of self-worth, dignity and overall quality of life. In the Cataract Impact Study, participants reported significant enhancements in health-related quality of life and a notable reduction in the need for assistance with daily activities one year after surgery - gains that largely persisted over a six-year period.<sup>78</sup> This underscores the broader value of restoring vision: not only can it improve employment, but it allows people to live a fuller and dignified life.

## Benefits from Investment

Following the review by Marques and colleagues,<sup>3</sup> we model a scenario where those who are of working age (15-64), and no longer have MSVI or blindness following the investment case recommendations, increase their probability of employment by 22% to 43% depending on the region. These effects are adjusted to account for the natural employment-to-population ratio in the population. The model results indicate that the recommendations would lead to approximately 2.1 million more people employed by 2030 with employment benefits totaling \$37 billion over 5 years, starting at \$1.1 billion and rising to \$15.3 billion by 2030.

### 3.4 Investment will lead over \$37 billion in employment benefits over 5 years.

Employment benefits (USD)



## 4. Occupational Productivity Benefits

Individuals working with uncorrected vision impairment experience reduced productivity compared to their colleagues with good vision. Vision impairment impacts workplace productivity through multiple interconnected pathways, significantly diminishing both individual effectiveness and overall organizational output. These pathways include:

1. **General Ocular Limitations:** Workers frequently experience blurred or distorted vision, sensitivity to light, difficulties distinguishing colors, and challenges adapting to changes in lighting conditions. Such impairments hinder their ability to perform basic visual tasks effectively, causing frequent interruptions and errors in routine activities.
2. **Occupational Limitations:** In sectors like agriculture and manufacturing, poor vision can severely restrict performance. For instance, agricultural workers with impaired vision face challenges identifying pests, managing agricultural inputs, and safely operating machinery. Manufacturing workers similarly experience difficulties with precision tasks, leading to increased error rates and reduced product quality.
3. **Limitations in Access to Information:** Poor vision impedes workers' ability to read and interpret essential workplace information such as manuals, instructions, digital displays, and labels, directly reducing their operational effectiveness.
4. **Physical Discomfort:** Vision impairment often leads to physical discomfort symptoms, such as squinting, headaches, dizziness, eye strain, and pain, which can distract employees, reducing their sustained productivity and potentially leading to higher absenteeism.
5. **Limited Social Interactions:** Vision impairments can isolate employees, impairing their participation in teamwork, meetings, and collaborative tasks, thus negatively impacting their workplace engagement and productivity.
6. **Psychological Symptoms:** Workers with poor vision frequently can experience heightened stress, anxiety, depression, and fear, which can significantly undermine their motivation and mental health at work.
7. **Limitations in Business Administration:** Tasks such as writing, reading calendars and signing documents - essential for daily administrative responsibilities, become cumbersome, leading to inefficiencies and administrative errors.

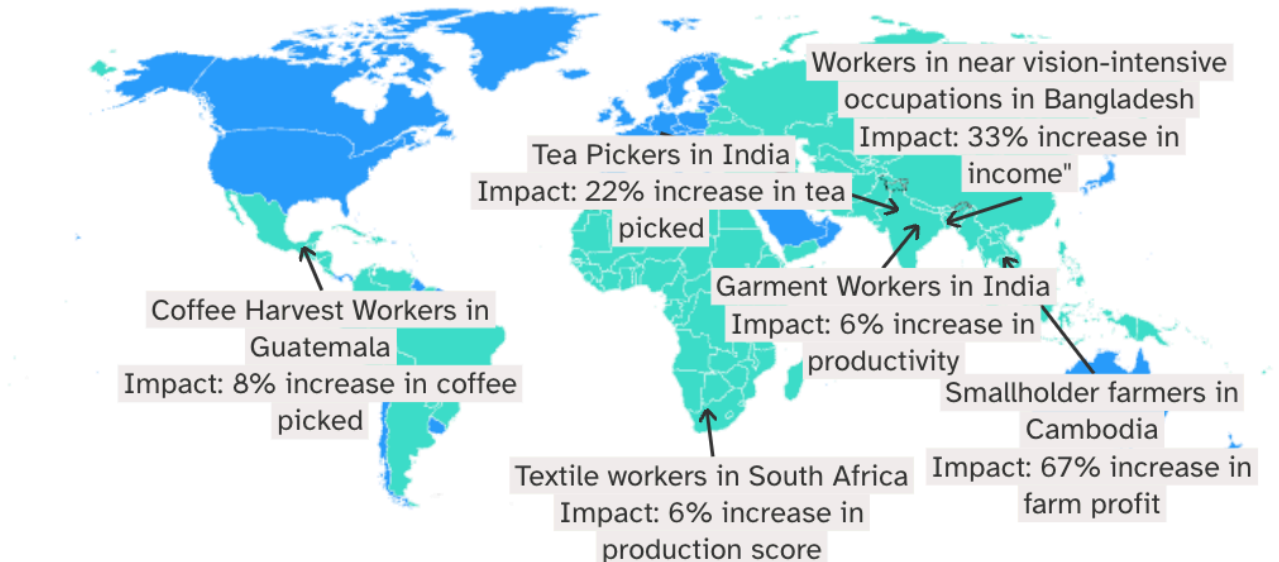
A robust and expanding body of evidence<sup>37,72,79-82</sup> underscores that correcting vision impairment through the provision of glasses enhances workforce productivity in diverse manufacturing and agricultural contexts across Asia, Latin America, and Africa (See Figure 4.1).

For example, when researchers screened tea-pickers aged 40 and above in Assam, India<sup>79</sup> they identified that 58% of them had presbyopia. Tea picking is an occupation with high near-vision demands: workers must quickly identify and pluck only the youngest two leaves and a bud from each leaf stem. The leaves sit among foliage where all leaves are similar in shape, size, and color. When the researchers gave glasses to the treatment group they picked 5.6kg more tea per day than the control group - a 22% increase in productivity. These effects were economically meaningful. At the time of their study the wholesale price of tea was at least \$2.30 per kg<sup>83</sup>, implying that tea pickers with better vision generated an extra ~\$12.90 in farm revenue per day. This far exceeded the one-time cost of providing glasses, which was just \$10.20.

### 4.1 Providing glasses to correct visual impairment has been shown to boost workforce productivity across diverse sectors.

Evidence of productivity and income impacts from glasses provision in working adults

■ Low and middle income ■ High income



Despite the diverse context and results from these studies, some common themes emerge:

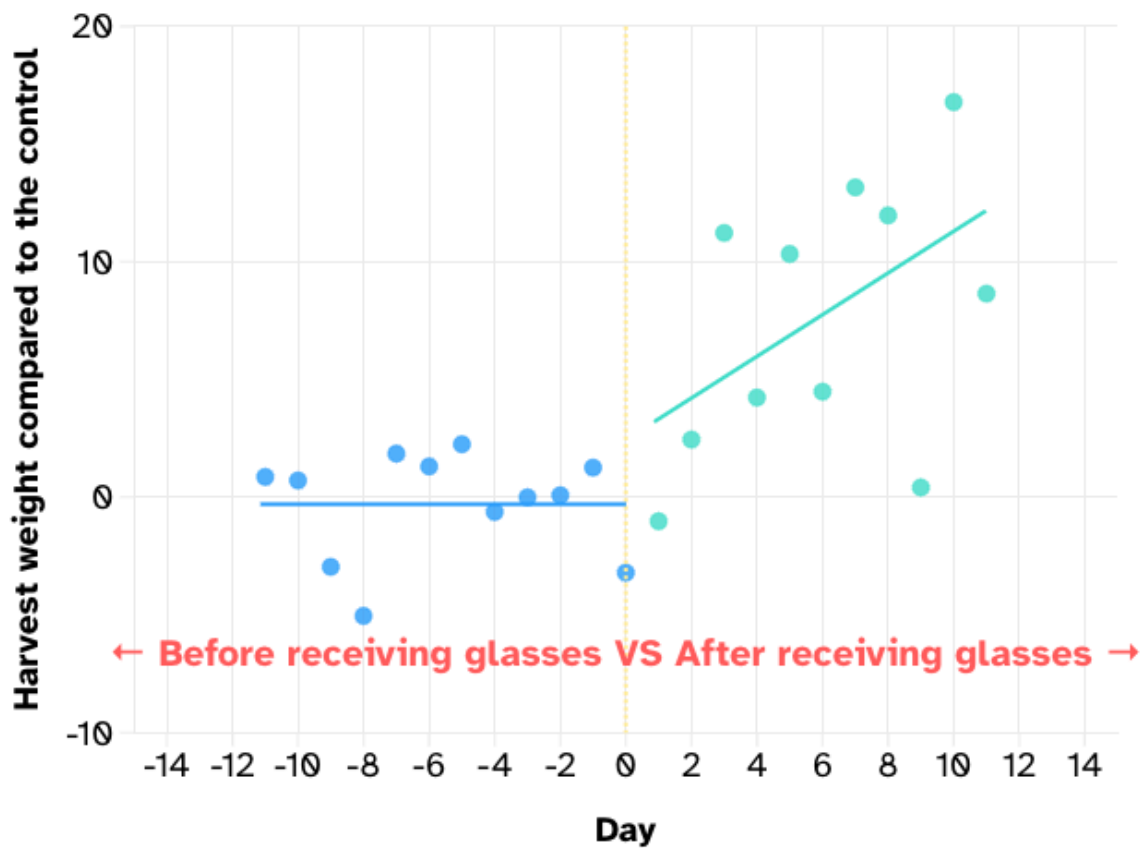
- 1. There is consistent evidence that providing glasses improves productivity and income** - While there is significant variation in impacts - from 6% increase in Indian and South African manufacturing contexts to a 67% improvement in Cambodian agriculture, all studies show positive effects. A meta-analysis synthesizing these studies yields an average productivity or income improvement of approximately 12.5% from providing glasses (see Methods Annex).
- 2. There is a high rate of undetected vision impairment in workers** - the studies show remarkably high rates of undetected vision impairment in workforces, ranging from 18% in an Indian manufacturing setting<sup>82</sup> to 58% in 40 year old women tea pickers in Assam.<sup>79</sup> In the two studies that targeted all adults - rather than just those aged above a certain cutoff - rates of vision impairment were 30%.<sup>72,81</sup> Given these results, a substantial number of workers in LMICs are likely laboring under impaired vision.
- 3. There is a viable business case for companies to invest in the eye health of their workers** - In at least two examples, researchers estimated the returns to the employers of the workers who had their vision corrected. In the Guatemalan coffee industry, farm owners would see a 2.5x return-on-investment from worker eye screening, based on a modest 8% increase in harvest productivity.<sup>81</sup> In Indian garment factories, employers would experience a remarkable 15x return-on-investment from eye screening - driven by a 6% increase in productivity.<sup>82</sup> These high returns are possible because impacts are non-trivial while the cost of screening and glasses are inexpensive. Businesses can profitably invest in their workers' eye health.
- 4. Vision correction uplifts some of the most vulnerable in society** - workers in the studies represent some of the most vulnerable in society. In the Guatemalan context, a significant share of coffee harvesters are migratory, traveling out of financial necessity from regions with high levels of poverty. They are more likely to be indigenous and of lower socioeconomic status. Since their wages are tied to their harvest productivity, improvements brought about by glasses boost the livelihoods of these vulnerable groups, not to mention delivering important benefits in other aspects of their lives. Garment workers, particularly in South Asia, are often women whose livelihoods, education attainment and social outcomes are closely tied to the financial opportunities afforded by manufacturing.<sup>84</sup>
- 5. The benefits materialize in a matter of days and weeks** - all studies were able to document these improvements over relatively short time intervals, with most measuring impacts after a few months. In the Guatemala study the researchers were able to measure impacts over days, noting that workers experienced benefits almost immediately. While there were no significant differences prior to providing glasses compared to the control group, within three days of vision correction worker productivity was already higher, and increased over two weeks. This enhances the case

for action - unlike other productivity interventions that may take years (infrastructure) or even decades (education) to materialize, worker eye screening can deliver gains almost immediately.

## 4.2 Vision correction led to measurable productivity gains within just days.

Harvest weight compared to the control group after receiving glasses

● Before receiving glasses ● After receiving glasses



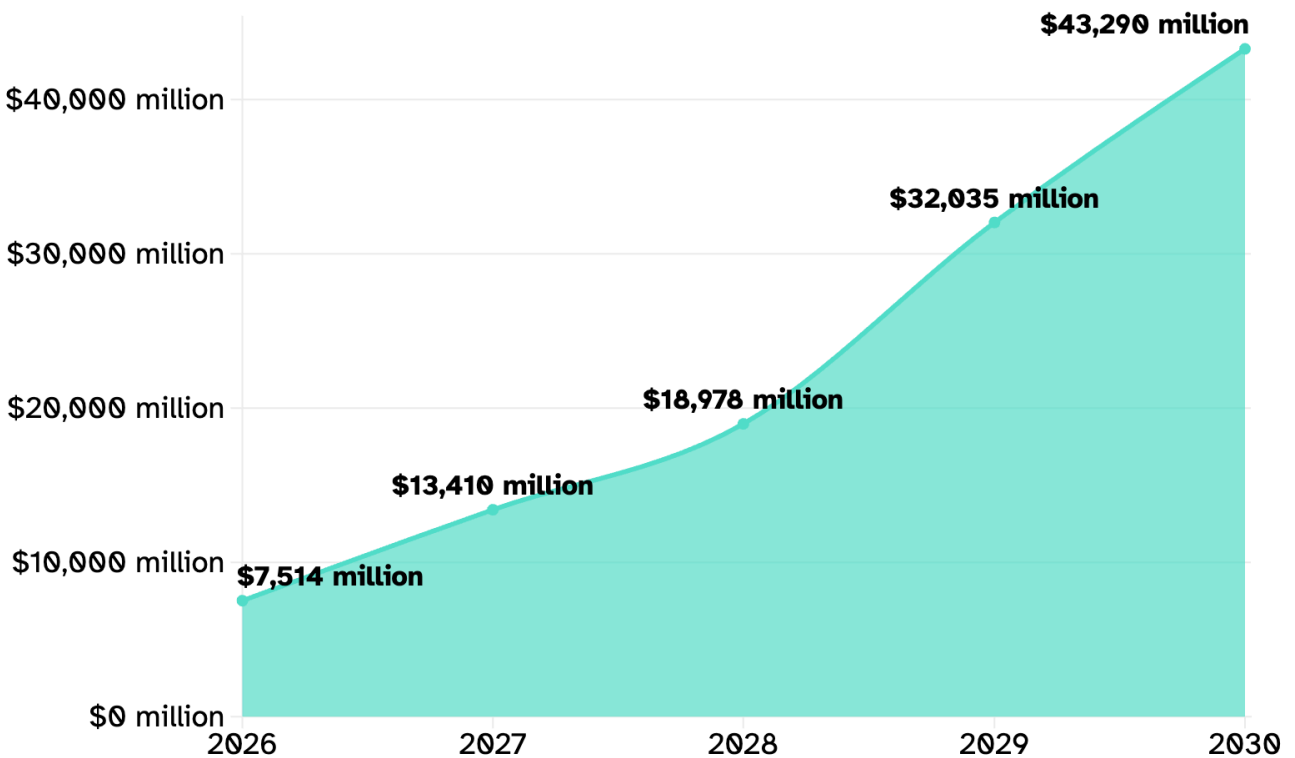
Source: Adapted from Everett et al. (2025) - a study on harvest worker productivity in the Guatemalan coffee sector following refractive error correction.

## Benefits from Investment

To maintain a conservative estimate for policymakers and stakeholders, this report assumes a productivity increase value of 10% when correcting all forms of near or mild vision impairment, even though the meta-analysis of productivity or income impacts reveals a 12.5% average effect. Benefits are reported in Figure 4.3. The benefits start at \$7.5 billion in 2026, rising to \$43.2 billion by 2030. Occupational productivity benefits represent the largest monetized benefit in the investment case.

### 4.3 Investment will result in \$115 billion in occupational productivity benefits over 5 years.

Occupational Productivity (USD)



## 5. Caregiver Productivity Benefits

Caregivers of individuals with vision impairment face substantial demands that affect both their productivity and quality of life. Many of these caregivers - the majority of whom are women - would otherwise be active in the workforce. However, balancing caregiving duties with employment can lead to reduced working hours, unexpected absences, or even withdrawal from the labor force.<sup>85</sup> These employment effects can be further compounded by emotional strain and increased stress, leading to reduced overall well-being among caregivers.<sup>86</sup>

### Evidence from High Income Countries

The most comprehensive evidence on caregiving burdens comes from high-income countries, consistently demonstrating that the time and economic demands associated with caregiving are substantial, increase progressively with the severity of vision impairment, and fall primarily upon family members (Figure 5.1).

#### **Visual impairment reshapes household dynamics through increased caregiving needs.**

A study in Portugal found that people with vision difficulties required an average of 470 hours of informal care per year, with half needing more than 390 hours.<sup>87</sup> An Australian study estimated an average of 152 hours annually, with some cases reaching up to 851 hours.<sup>88</sup> In the United States, caregivers of older adults with VI reported spending an average of 111 hours per month on caregiving - over 50% more time compared to those caring for individuals without VI.<sup>89</sup> A review of 22 studies from high-income countries found that caregivers of individuals with VI or blindness spent between 5.8 and 94.1 hours per week on caregiving tasks, equivalent to a weekly cost ranging from US\$ 263 to US\$ 55,062 (in purchasing power parity), depending on the level of vision loss.<sup>90</sup>

**The caregiving burden increases with the severity of vision loss.** Several studies show a clear trend: as vision worsens, the proportion of individuals needing help rises.<sup>91,92</sup> Around 24% of people with mild-to-moderate vision loss needed caregiving support, rising to 71% among those with more severe impairment.<sup>92</sup> Another study in the US shows that compared to individuals without VI, people with VI require an average 1.2 additional days per month of informal caregiving, while those with blindness require approximately 4 times as much at 5.2 excess days per month.<sup>93</sup> Similar findings in France shows that average caregiving time is 2.14 hours per day for individuals with low vision, and 4.45 hours daily for those with

blindness.<sup>94</sup> Portuguese data also shows that a decline in visual ability significantly increased the likelihood of needing informal care.<sup>87</sup>

**Informal care remains the primary source of care.** Across studies, most people receive informal care from spouses and other relatives. In high income countries such as Australia and the United States, 72-77% of those relying on unpaid family support, with only a few of them had access to paid care.<sup>88,91</sup> These findings underline the often-unseen economic and emotional cost of informal caregiving.

## Evidence from Low-and-Middle-Income Countries

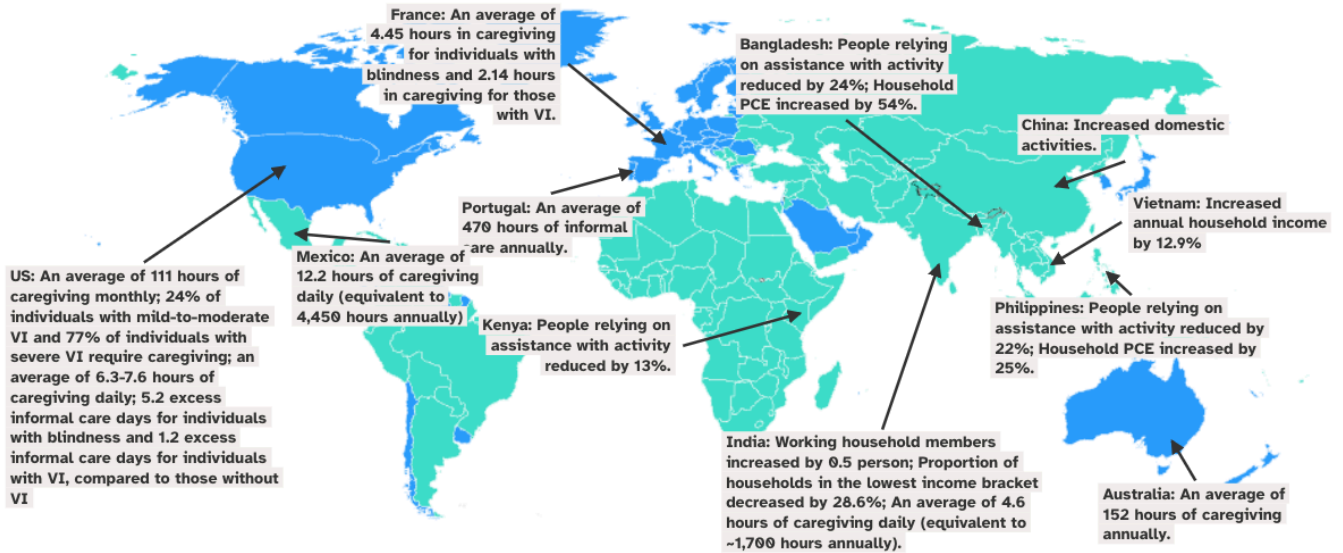
### Direct Evidence

Caregiving burdens could be even greater in low- and middle-income countries, where formal care services are often limited or unaffordable compared to high-income countries.<sup>95</sup> In these settings, informal care providers are more likely to shoulder primary caregiving responsibilities.<sup>96</sup> In India, one study estimated that caregivers of people with VI spent an average 4.6 hours per day on caregiving tasks, equivalent to almost 1,700 hours of care per year. Notably, 82% of the caregivers were family members, the majority of whom were of working age, with up to 59% reported as unemployed.<sup>86</sup> Similarly, in Mexico, family caregivers provided an average of 12.2 hours of daily care (~4,450 hours per year) that were often sustained over long periods, with the average caregiving duration of more than 2 years (Figure 5.1).<sup>97</sup> Both of these studies report caregiving burdens that are on upper end of equivalent values reported in high-income countries.

## 5.1 Caregiving for people with visual impairment places a heavy burden on families—often exceeding thousands of hours annually

Global evidence of indirect gains from cataract surgery through improved caregiver productivity

Low and middle income High income



## Indirect Evidence from Cataract Surgery Studies

Another form of indirect evidence on the substantial productivity impacts of caregiving come from cataract surgery studies. These studies show that household income and consumption increase after the provision of cataract surgery, even though in most cases the surgery was provided to older household members who were out of the workforce. This points to a likely reallocation of caregiving responsibilities, where working-age household members previously engaged in caregiving can resume employment or increase their productive activities. In other words, when older adults regain independence through vision restoration, it reduces the caregiving burden on other family members, leading to measurable gains in household economic well-being and overall productivity (Figure 5.1).

The Cataract Impact Study - in Kenya, Bangladesh and Philippines - showed that older adults experienced a significant reduction in the need for assistance and fewer difficulties in self-care after cataract surgery,<sup>77</sup> likely indicating a meaningful alleviation of the caregiving burden. This improvement was accompanied by an increase in household per capita expenditure by US\$5-8, which is 25-54% increase over the pre-surgery level.<sup>78</sup> Similarly, a clinical trial conducted in Vietnam found that cataract surgeries resulted in an annual increase in household income of \$58 - a 13% increase over pre-surgery levels.<sup>98</sup> Importantly, as both studies focused on cataract impaired individuals with a mean age of 70 and above - typically beyond working age - these household economic gains are likely attributable to the

release of working-age caregivers, enabling them to return to paid employment or other productive activities.

In another study from India, following cataract surgery in people with a mean age of 60, the number of working household members increased significantly by an average of 0.5 per household, leading to a notable rise in household income. These findings suggest that relieving caregiving demands can enhance overall household productivity.<sup>99</sup> Lastly, the SUCCESS trial in China found that individuals who underwent cataract surgery (mean age = 70+) substantially increased their time spent on domestic activities. This shift is particularly meaningful in multigenerational households where such tasks are often taken on by younger, working-age family members when older adults are limited by VI. By regaining the ability to contribute to household responsibilities in older adults, it potentially allows younger caregivers to reallocate their time toward paid work.<sup>100</sup>

## **The Gender Dimension of Caregiving**

Importantly, the caregiving challenge has a clear gender dimension that compounds existing workplace inequalities for women. Women bear a disproportionate share of caregiving responsibilities, which creates additional barriers to their participation in the workforce. For example, a study in Mexico reported that 64.3% of caregivers were women, compared with 35.7% who were men.<sup>97</sup> Similarly, data from a recent study of 718 caregivers across five Latin American countries found that 69% of caregivers were women and 88% of them were of working age. Following cataract surgery, sentiment analysis revealed a marked improvement in caregivers' outlook on their daily lives and employment prospects. These findings reinforce the need to consider gender when designing interventions and policies to support caregivers.

## Evidence Panel: The Experience of Caregivers - A Survey Across Five Latin American Countries

Benjamin Alemán-Castilla and Brad Wong

In 2024, seven eyecare providers across five Latin American countries (Instituto Mexicano de Oftalmología, APEC Hospital de la Ceguera and Instituto de la Visión at La Carlota Hospital of Morelos University in Mexico, Visualiza in Guatemala, Fundación Visión in Paraguay, Hospital Cristiano de Especialidades in Ecuador and, Instituto Nacional de Oftalmología in Peru) surveyed 718 caregivers of patients presenting for cataract surgery. This survey represents one of the largest studies ever conducted in LMICs focusing on caregivers of visually impaired individuals. Caregivers were asked to reflect on how cataract surgery had changed their own lives as well as the lives of the individuals they cared for.

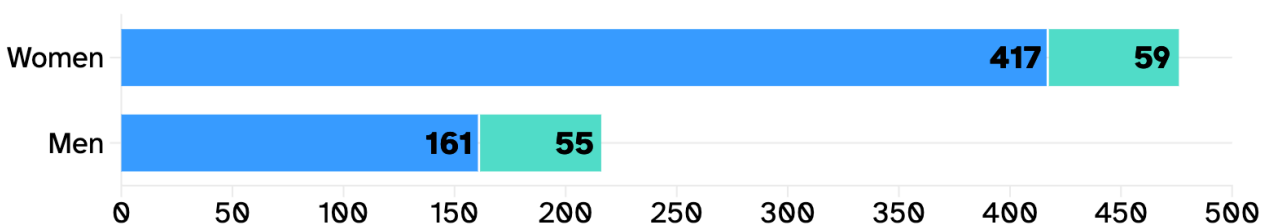
One striking finding was the overwhelming presence of working-age women among caregivers. Around 70% of respondents were women, and nearly 90% were within the working-age population. This clearly illustrates the gendered dimension of caregiving: responsibilities disproportionately fall on women who would otherwise likely participate more fully in the workforce, thereby exacerbating existing gender inequalities.

Prior to surgery, 70% of caregivers agreed or partially agreed that they regularly performed tasks for the visually impaired person, while 63% confirmed the patient was economically dependent on them or others in the household. After cataract surgery, caregivers reported significant improvements. Many noted reduced responsibilities, with less frequent need to provide economic support or perform daily tasks for the patient. Importantly, 72% fully agreed with the statement that they "no longer felt worried, sad, or depressed" about the person they cared for.

### 5.2 Most caregivers of cataract patients are women of working age.

Number of women and men caregivers of patients presenting for cataract surgery across seven eyecare providers in Latin America

Working Age Not Working Age



Notes: 69% are women, and 88% of them are at working age.

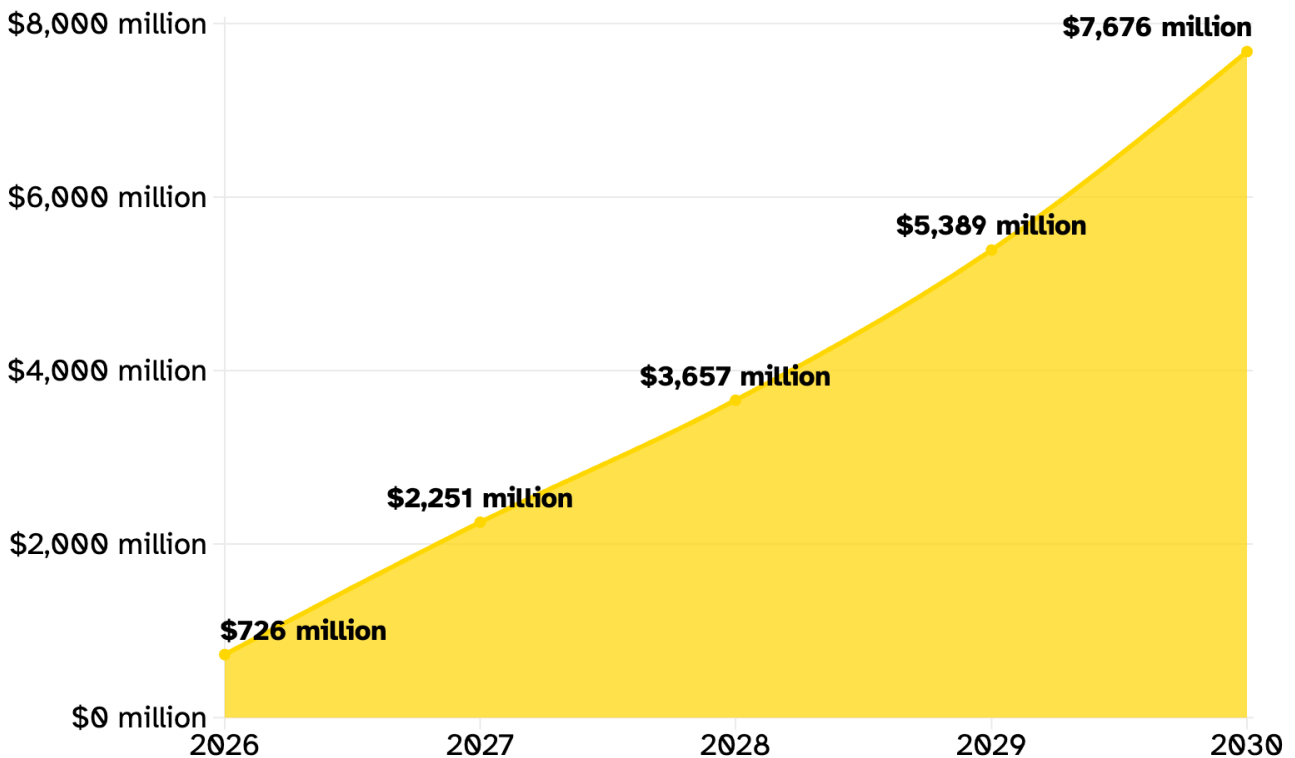


## Benefits from Investment

Following previous literature, we assume that every person with moderate and severe vision impairment has one caregiver who experiences a 5% reduction in their income, while for every person who is blind their caregiver experiences a 10% reduction in income. Caregiver productivity benefits from the investment case are presented in Figure 5.4. Across the investment case timeline, total caregiver productivity benefits are **\$19.7 billion**, starting at **\$726 million** and rising to **\$7.7 billion** by **2030**. Overall, the investment case recommendations would reduce the vision impairment caregiving burden for **36 million people**.

### 5.4 Caregiver productivity benefits from the investment will total \$20 billion over 5 years.

Caregiver Productivity (USD)



## 6. Learning Benefits for School Children

Children with poor vision experience significant challenges in the classroom compared to their peers with clear vision. Conditions such as myopia can prevent children from clearly seeing the blackboard (as illustrated in Figure 6.1), while hyperopia can hinder their ability to read books and conduct near work essential for learning. These challenges can lead to reduced class participation and overall lower academic performance.<sup>46,101-103</sup>

### 6.1 Comparison of clear vision (left) and blurry vision (right) associated with myopia of -2 dioptres.

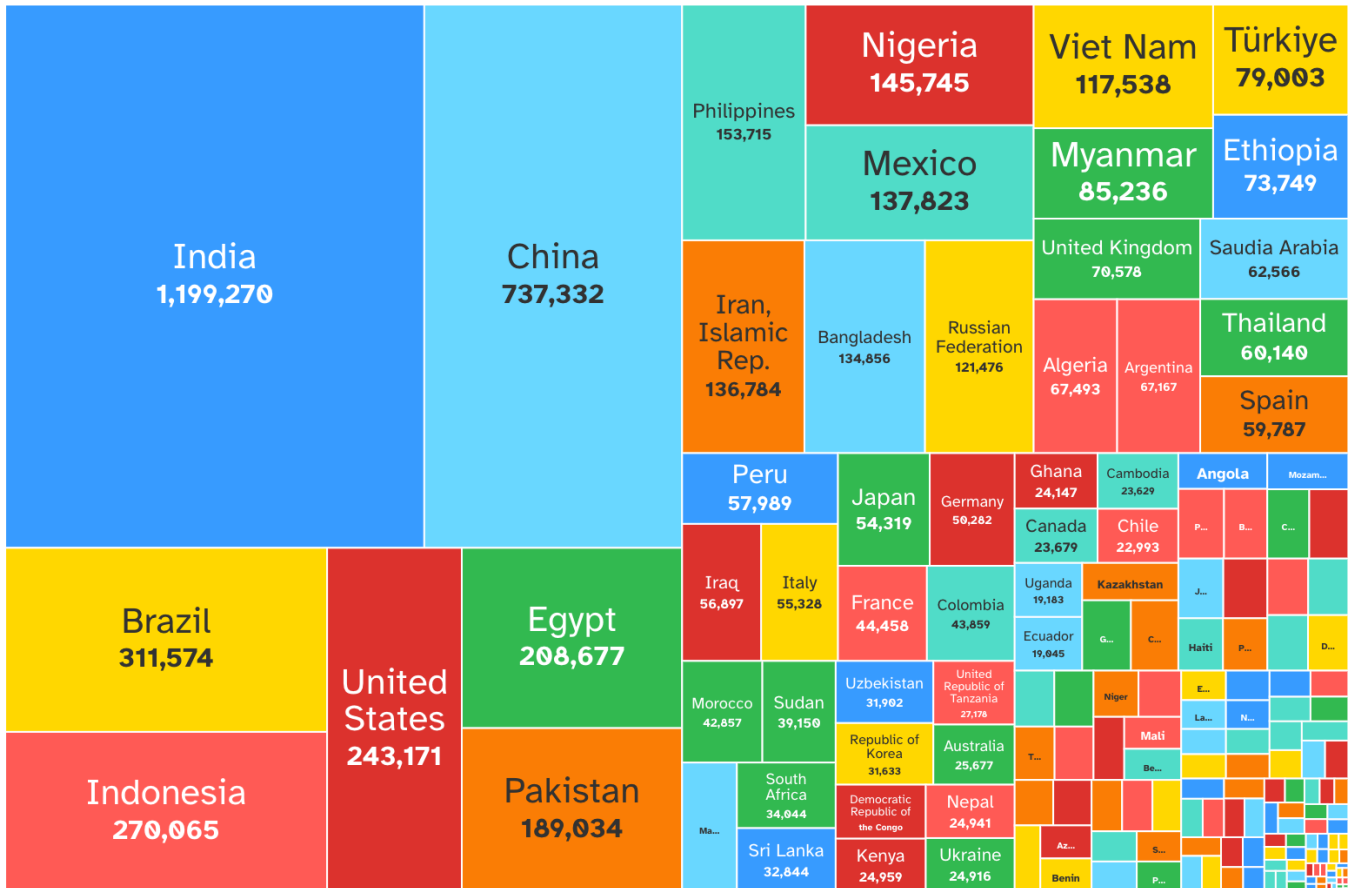


Source: CooperVision, <https://coopervision.com/myopia-simulator>.

According to a recent systematic review of clinical trials conducted in LMICs, children with poor vision learn only half as much as their peers with good or corrected vision.<sup>101</sup> This learning gap translates into an estimated 6.3 million equivalent years of schooling lost globally every year (Figure 6.2).<sup>101</sup> Encouragingly, providing visually impaired children with a pair of glasses could yield substantial improvements in educational outcomes with a series of randomized clinical trials consistently showing that such intervention leads to meaningful gains in learning as measured by academic performance.

## 6.2 One year of sub-optimal learning due to uncorrected refractive error results in 6.3 million equivalent years of schooling loss annually.

Estimated annual schooling loss (equivalent years of schooling) by country from uncorrected refractive error



Source: Dhakwa et al. 2024

In one study conducted in Gansu Province, China, Glewwe and colleagues found that delivering free glasses to students in grades 4-6 resulted in an additional 0.16 standard deviation improvement in test scores in Chinese, Mathematics and Science. This value is approximately equal to the amount of learning experienced over one-third of a normal school year.<sup>103</sup> Similarly, Ma and colleagues demonstrated that providing glasses increased test scores by 0.11 standard deviations compared to control.<sup>46</sup> Another study in Shaanxi Province, China, evaluated the impact of providing free glasses to junior high school students, compared to prescription-only following vision screening by trained refractionists. Students receiving free glasses demonstrated an additional 0.14 standard deviation increase in math scores, approximately one-third of a school year's learning,<sup>88</sup> aligning with the results found in primary school students.<sup>87</sup> Similarly, another study in western China compared early referral versus late referral to a local vision center for refraction and free glasses after teacher-led

screening among students in grades 4-6. Findings showed that students who received early referral in the middle of the school year achieved a 0.25 standard deviation improvement in mathematics test score - equivalent to about half a year of additional schooling - compared to those referred at the end of the school year.<sup>102</sup> Note that in all these studies, the learning gains were assessed in comparison to a control group with uncorrected, poor vision. This means that the reported benefits were in addition to what they otherwise would have learned in school if they did not have their vision corrected.

A systematic review and economic modelling study based on these clinical trials demonstrated that school-based vision screening - used as a platform to dispense or refer children for eyeglasses - is economically attractive. The analysis estimated large benefit-cost ratios ranging from 13 to 41, indicating that every dollar invested in these interventions could yield 13 to 41 dollars in future income benefits for the children when they reach working age.<sup>19</sup> Notably, these substantial returns occurred even though low adherence to eyeglasses among children reduced the intervention's full potential impact.

For example, Ma and colleagues found only 41% of the students in the free glasses group were observed wearing them at the end of the study.<sup>46</sup> This pattern is consistent across broader evidence: a meta-analysis of 20 studies showed that on average, only 40% of children who receive glasses actually wear them. Common barriers to adherence included insufficient follow-up at school, loss or damage of glasses, forgetfulness, social influences such as parental disapproval or peer pressure,<sup>105</sup> and the incorrect view among children, teachers and parents that wearing glasses will weaken the eyes.<sup>106</sup>

This implies that the actual impact and return on investment of providing glasses could be even greater if adherence could be improved. Promising evidence on boosting spectacle adherence comes from a randomized controlled trial conducted in China, which evaluated a multi-component intervention consisting of free eyeglasses, health education, and teacher incentives - specifically, a tablet computer awarded to teachers if over 80% of eligible students were observed wearing glasses during two unannounced visits. At six months, 68% of children in the intervention group were wearing their glasses, compared to 24% in the control group. Additionally, 40% of intervention schools achieved over 80% adherence, while none in the control group did.<sup>107</sup>

## **Eye Health Can Help Address the Learning Crisis in LMICs**

Among education policymakers, there is growing consensus that LMICs are facing a 'learning crisis'. Despite high rates of primary school enrollment, learning outcomes have remained persistently low - many children are in classrooms but not acquiring basic literacy or numeracy skills.<sup>108,109</sup> Alarmingly, 7 in 10 children in low-and-middle-income-countries cannot read a simple text by age 10.<sup>110</sup>

In this context, school eye health programs offer a simple, scalable, and cost-effective solution that can complement other effective approaches to boost learning.<sup>108</sup> As discussed above, providing glasses to children who need them can boost learning equivalent to half a year of business-as-usual schooling.<sup>4</sup> School-based programs delivering glasses will likely need to check and potentially update glasses power to maximize educational impact, at a frequency determined by local rates of myopia progression.

Conjunctivitis is another highly prevalent eye disease among children. Emerging evidence shows that having conjunctivitis can lower school performance, and quality of life for the child and parents.<sup>111</sup> Allergic conjunctivitis can be effectively treated with affordable eye drops. Lastly, children with vision impairment, especially uncorrected refractive error, have substantially higher risk of anxiety and depression<sup>112</sup> - both risk factors for lower school performance and dropout.<sup>113,114</sup>

In this way, eye health screening and timely access to treatment can help unlock a child's ability to engage with the curriculum and succeed in school. When delivered early and equitably, it can make a powerful contribution to improving learning outcomes, reducing inequality, and advancing the right to education for all.

## **Strategies to Prevent and Slow the Onset of Myopia: A Growing Global Challenge**

Myopia is arising at alarming rates, particularly in East Asia, where up to 80% of children are affected by 18.<sup>115</sup> Besides providing glasses to children who already need them, preventative strategies are essential to prevent the onset and slow the progression of myopia. This is especially important in view of the rising global prevalence of pathologic myopia, vision loss which cannot be managed with glasses and is generally difficult to treat. Prevention is the best strategy to manage this growing burden.

One of the simplest yet most effective prevention strategies is increasing the amount of time children spend outdoors. A large trial in Guangzhou, China, demonstrated that adding just 40

minutes of outdoor time to the school day - about the length of one typical class - reduced new myopia cases by 23% over three years.<sup>116</sup> Additional studies have shown that the more outdoor time children have, the greater their protection from developing myopia - with an ideal amount of 120 minutes per day.<sup>117</sup>

Limiting the amount of time children spend looking at screens is another important prevention measure. Analysis from 45 studies found that each extra hour children spend on digital devices raises their risk of developing myopia by 21%. This risk nearly doubles when screen time reaches four hours a day or more.<sup>118</sup>

A medical intervention also shows promise. Low-dose atropine eye drops, also used in higher doses for pupil dilation, can significantly slow myopia progression. Research combining data from 19 studies found these drops reduce the worsening of myopia by about half or more each year, enough to noticeably delay the need for stronger glasses.<sup>119</sup> In a detailed five-year study from China, scientists found that a low concentration (0.05%) of atropine eye drops was particularly effective.<sup>120</sup> Other widely-used approaches to prevent or delay myopia include contact lenses that reshape the surface of the cornea, glasses that reduce defocused light falling on the peripheral retina<sup>121</sup> and low-dose red light, whose mechanism is not yet well understood.<sup>122</sup>

## Benefits from Investment

For this investment case we modelled eye screening and provision of glasses in schools, assuming the relatively limited adherence rate from existing evidence of up to 40%. We did not model any interventions to improve adherence among children or strategies to prevent the onset of myopia, leaving these for future research.

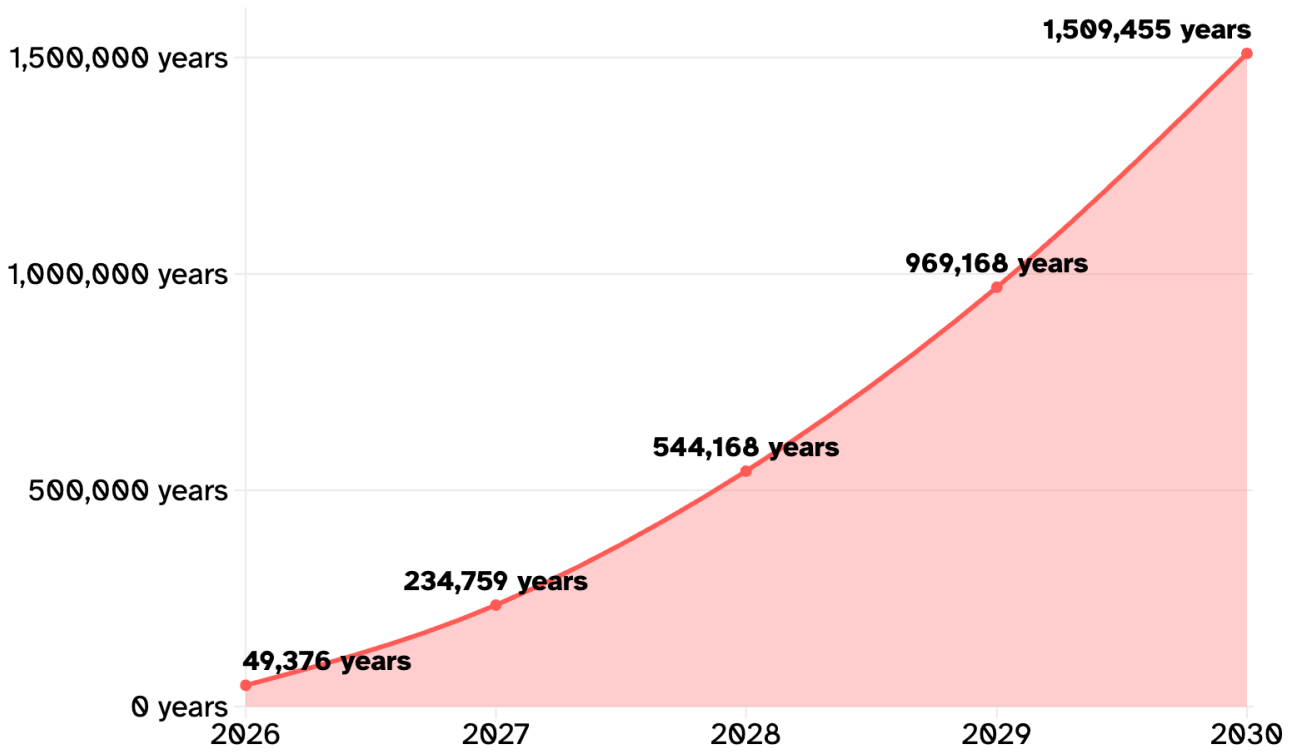
A key limitation in the current literature is that all clinical trials evaluating the impact of vision correction on learning in LMICs have been conducted in only one country: China (other trials have been conducted in the USA, a high-income country). This presents a challenge when generalising the results to other LMICs. For instance, in one country, a 0.5 standard deviation improvement in test scores might represent a full year of learning, while in another, it may be completed in a term due to differences in curriculum quality and pace of learning. To address this, we estimate an “equivalent years of schooling” metric,<sup>123</sup> which translates improvements in test scores from the glasses RCTs into the number of school years required to see the same learning gains typically experienced in China.<sup>101</sup> We then apply this equivalent years of schooling figure, rather than the test score improvements, to model the impacts of giving children glasses in other countries.

As noted above, a recent systematic review estimated that the equivalent years of schooling gained from the provision of glasses is half a year.<sup>101</sup> We then translate these learning gains into future income gains using country-specific expected returns from schooling, projected income and school enrolment rates in each country.<sup>124</sup> Collectively, these steps standardize the results from the China studies into country specific impacts, returns and income benefits, mitigating some of the challenges of translating evidence from just one country. Each child with corrected vision is assumed to experience a half year of learning (rather than a constant increase in test scores), and those equivalent years of schooling have differential impacts tied to country-specific conditions: i.e. the typical wage boost seen in that country from a half year of education, and the income this represents for the specific country.

Learning benefits from the investment case recommendations are illustrated in Figure 6.3. Overall, the interventions are expected to improve the vision of nearly 4 million 5-14 year olds around the world by 2030. This would lead to an additional 3.3 million equivalent years of schooling over 5 years, starting at 49,000 in 2026 and rising to 1.5 million by 2030 after adjusting for enrolment (Figure 6.3). The learning benefits will translate into significant improvements in future productivity, estimated at \$473 million in 2026 and climbing to \$12.2 billion by 2030 (Figure 6.4).

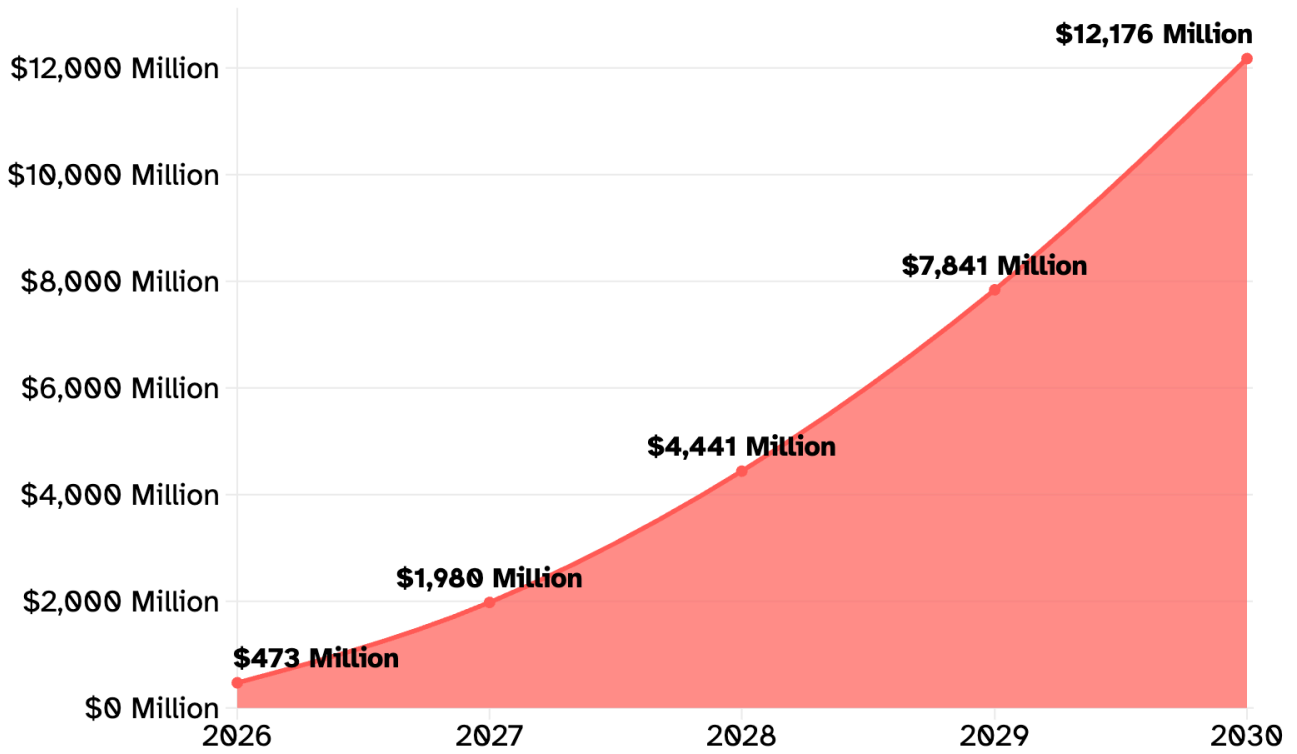
**6.3 Learning benefits from the investment case will lead to an additional 3.3 million equivalent years of schooling over 5 years.**

Estimated annual equivalent years of schooling gained by region from investment case recommendations



**6.4 The learning benefits will translate into \$27 billion in future productivity over 5 years.**

Estimated future productivity gains (USD) associated with improved learning from investment case recommendations



## 7. Road Safety Benefits

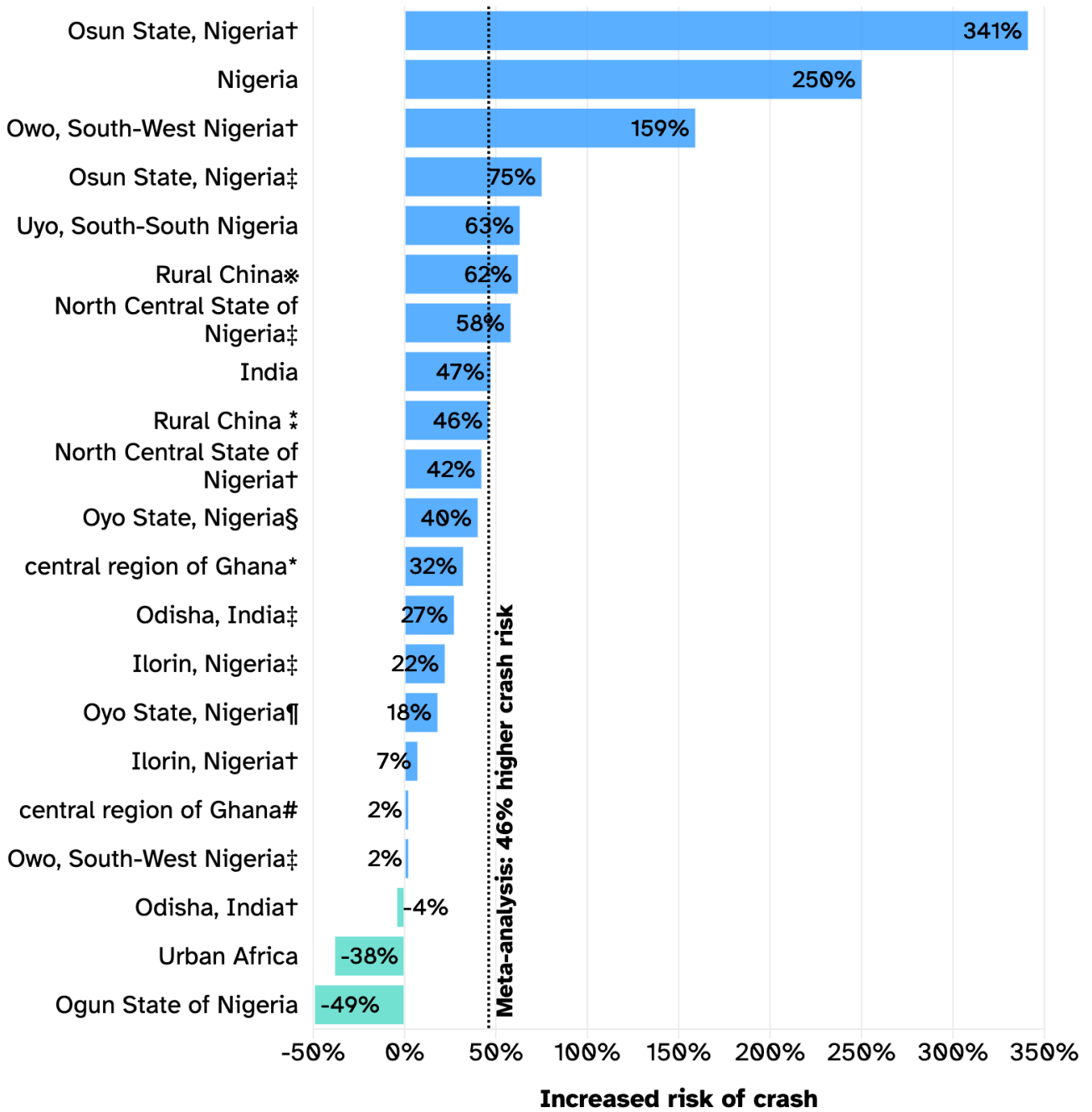
When people can't see, they can't drive safely. That's why in most countries, good vision is necessary to receive a driver's license. But in LMICs, driving license systems are often poorly enforced or widely informal. Studies show that between 10% and 85% of drivers received licences without any eye test, and in India nearly half of drivers bypassed licence renewal altogether, with fewer than half of those needing glasses actually wearing them.<sup>16</sup>

Every year, around 1.2 million people die in road traffic crashes. Although low- and middle-income countries (LMICs) account for only about 60% of the world's vehicles, they experience 92% of the deaths.<sup>6</sup> Road traffic injuries are the leading cause of death for people aged 5-29 years, cutting lives short at their most promising and productive years.<sup>6</sup> Beyond the tragic loss of life and public health burden, road traffic crashes also result in significant economic losses such as healthcare costs and productivity losses for those injured. According to the World Bank, the cost of road traffic injuries is estimated to range between 2-6% of gross domestic product (GDP) in LMICs.<sup>125</sup>

Poor vision is a significant but overlooked contributor to these statistics. A meta-analysis found that drivers with central acuity vision impairment are at 46% increased risk of being involved in road traffic crashes (Figure 7.1).<sup>16</sup>

## 7.1 Drivers with poor vision have a 46% higher crash risk.

Association between visual impairment of road users and risk of road traffic crashes



**Notes:** † indicates by visual acuity in the better-seeing eye, ‡ indicates by visual acuity in the second eye, \* indicates myopia, # indicates astigmatism, § indicates longsightedness, ¶ indicates either longsightedness or shortsightedness, \* indicates baseline visual acuity worse than 6/18 in the better-seeing eye, and † indicates spherical equivalent worse than -4.0 D in both eyes.

Accessible vision screening and basic vision correction offer a simple, scalable solution that significantly enhances road safety and driver well-being.

### **Case Study Panel: Making Roads Safer Through Clear Vision, India**

VisionSpring, India Vision Institute, Mission for Vision, Sightsavers India

Commercial drivers and transport workers are the backbone of India's large and growing logistics sector. Yet a recent study found that 55% of truck drivers have impaired vision – a critical issue that puts them and others at serious risk. In fact, drivers with uncorrected vision are 46% more likely to be involved in traffic crashes than those with clear sight.

In 2021, four organizations formed a unified alliance to increase awareness about the link between road safety and clear vision and leverage shared expertise to correct the vision of drivers across India. The alliance has now screened the vision of more than 2 million commercial drivers and transport workers worldwide, and dispensed 419,912 eyeglasses in India alone.

The alliance share a six-step strategy to boost the take up of eyeglasses:

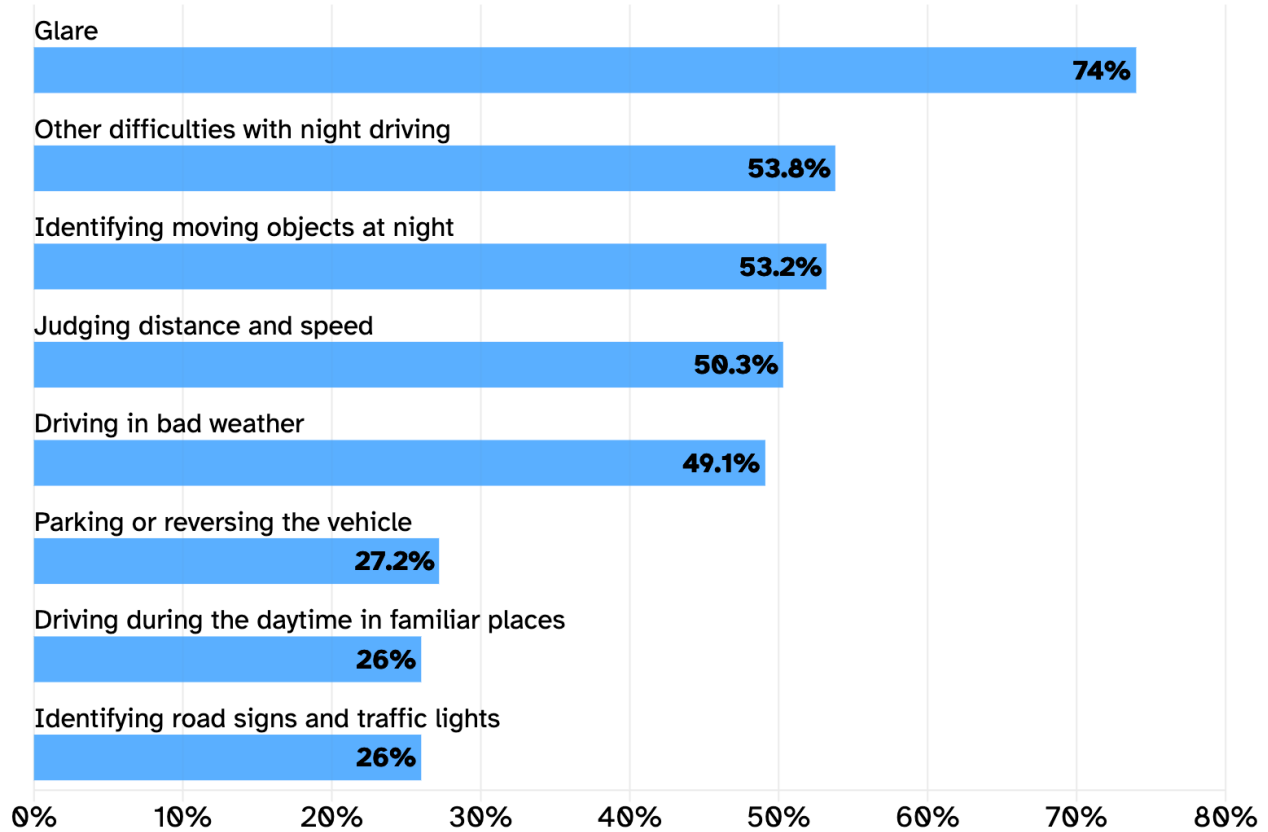
1. Ensure immediate availability of ready-made prescription glasses at key driver destinations.
2. Generate demand among drivers through targeted outreach, sensitization, and individual counselling.
3. Build strategic partnerships with drivers' associations, government transport, health authorities, industry partners and road safety advocates.
4. Position services strategically at high-traffic locations including national corridors, ports, toll plazas, truck depots, break-bulk centers, and border crossings.
5. Establish referral pathways for higher level eyecare, as some drivers may have eye conditions that require specialized care.
6. Mobilise corporate partnerships by engaging key industry stakeholders to sponsor driver vision screenings and the provision of treatment.

An assessment of 385 commercial drivers in the program revealed that 25% failed a basic visual acuity test. Forty-three percent of the participants reported blurred vision and 29% were experiencing difficulty with night-time glare, both known risk factors for unsafe driving. Provision of glasses showed remarkable and measurable impacts in improving driver vision and safety. At endline, 74% of commercial drivers reported reduced difficulty with glare, and over half of the participants experienced easier night driving (54%), better ability to identify moving objects (53%), and improved judging of distance and vehicle speed (50%). Nearly half (49%) also reported enhanced performance while driving in bad weather, and 26-27% of drivers reported gains in tasks such as parking, reversing, recognition of road signs and traffic signals as well as improved daytime driving in familiar areas (Figure 7.2).<sup>126</sup>

Through leveraging their collective expertise and working toward bold targets, the alliance has accomplished far more than any one organisation could have alone. The initiative has committed to reach another 1 million drivers by 2026.

## **7.2 Provision of glasses led to significant improvements in driver vision and safety.**

Improvement in driving difficulties after delivery of eye care



## Emerging Evidence Panel: STABLE Trial in Vietnam

STABLE (Slashing Two-wheeled Accidents by Leveraging Eyecare) is the first randomized trial in an LMIC designed to examine whether vision care can improve road safety. STABLE assesses whether providing spectacles to young myopic motorcycle drivers in Vietnam can reduce crash and near-crash events. In collaboration with the Vietnamese Ministry of Transportation from 2024-2026, the study aims to recruit 625 university students aged 18-23 years in Ho Chi Minh City. Innovative Data Acquisition Systems fitted to motorcycles are used to objectively measure crash and near-crash events. Initial screening using the WHOeyes smartphone app is used to identify participants with uncorrected myopia requiring spectacles. In a stepped-wedge design, driving data before and after receiving glasses will be analysed to evaluate the impact of vision correction on road safety.<sup>127</sup>

Growing evidence highlights the visual health challenges faced by commercial drivers - including truck, bus, and taxi drivers - in LMICs, who spend extended hours on the road and rely on their vision for livelihood. A review of 26 studies involving over 15,000 drivers found the prevalence of vision impairment ranged from 1.2% to 26%.<sup>16</sup> Even more concerning is that 1-5% of drivers were blind in one eye in Nigeria and Ghana.<sup>16</sup> Specifically, common causes of vision impairment included uncorrected refractive error (prevalence ranging from 1.5% to as high as 60%), color vision defects (0.5%-17%), and visual field defects (2%-37%).<sup>16</sup> Evidence concerning general drivers in LMICs is more limited but still concerning. Among a cohort of glaucoma clinic attendees who drive in India, 69% had early visual field deficits and 2% had advanced defect.<sup>16</sup>

Commercial and professional drivers spend significantly more time on the road than the general population, often working long shifts under challenging conditions. When combined with their higher prevalence of vision impairment - likely driven by socioeconomic disadvantage and limited access to quality eye care - these drivers may contribute disproportionately to road crash mortality, injury, and economic losses.<sup>128</sup> This creates a concerning public health scenario where those high-intensity road users are also those least likely to receive the vision care they need to drive safely.

## Benefits from Investment

To estimate how the investment case recommendations would reduce road crash deaths and injuries, we separately model impacts for two distinct driver categories: **professional drivers** (e.g., truck, bus, taxi drivers) and **non-professional drivers** (general motorists). According to the Global Burden of Disease, there are ~9 million transport injuries and ~265,000 deaths annually associated with professional driving in LMICs. Driving by general motorists contributes to ~28 million injuries and ~759,000 deaths annually. While professional drivers constitute only a small share of the population, they generate an outsized share of traffic related injury and mortality. Note that these figures include deaths from pedestrians and passengers who may or may not be the drivers of the vehicles involved in the transport crashes.

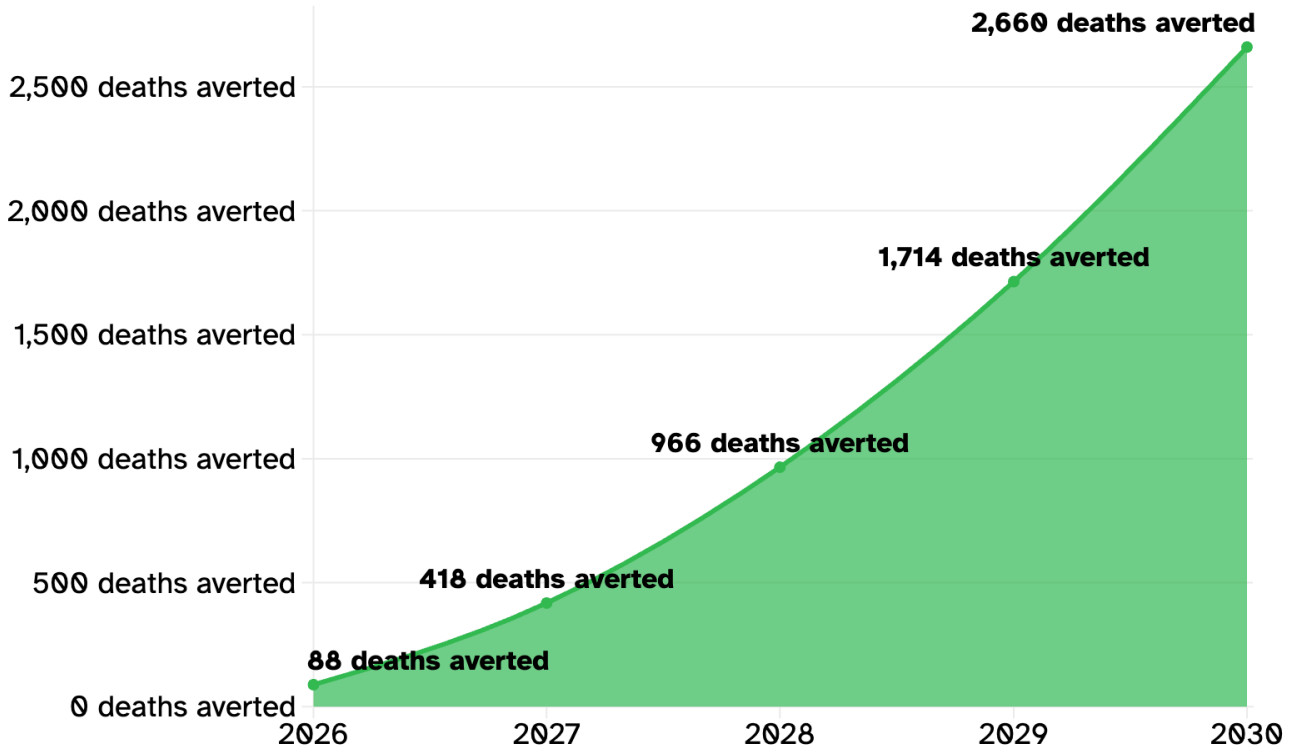
For **professional drivers**, we assume they share the average vision impairment prevalence reported by a meta-analysis for this occupational group (13.2%).<sup>16</sup> The reduction in their vision impairment is assumed to mirror the prevalence reduction from the investment case for men aged 20-54, who constitute almost all professional drivers. We estimate the benefit using the 46% increased crash risk associated with vision impairment,<sup>16</sup> the total injuries and deaths related to professional driving and standard epidemiological approaches to estimating health outcomes from reductions in exposure to risks (in this case vision impairment - see Methods Annex for further details).

For **non-professional drivers**, we assume vision impairment prevalence matches that of the 20-74 year old population, excluding those with severe vision impairment and blindness who we assume self-select out of driving. Additionally, we conservatively assume that individuals with near vision impairment continue driving but that near vision impairment alone does not elevate crash risk. We then use reductions in vision impairment from the investment case for 20-74 year olds, GBD data for non-occupational traffic deaths and injuries and the same crash risk from vision impairment of 46% to estimate averted traffic related injuries and deaths. This methodology ensures our estimates accurately capture the potential reduction in road crash mortality and morbidity from improved vision across both driver groups.

Overall the results show that the number of averted injuries is ~211,000 over 5 years, starting at ~3,300 and rising to ~96,000 by 2030. Similarly, 5,847 deaths are averted over 5 years starting at 88 and rising to 2,660 by 2030. Approximately one third of the benefit relates to improving vision in professional drivers, while two thirds of the benefit relate to improving vision in the general population.

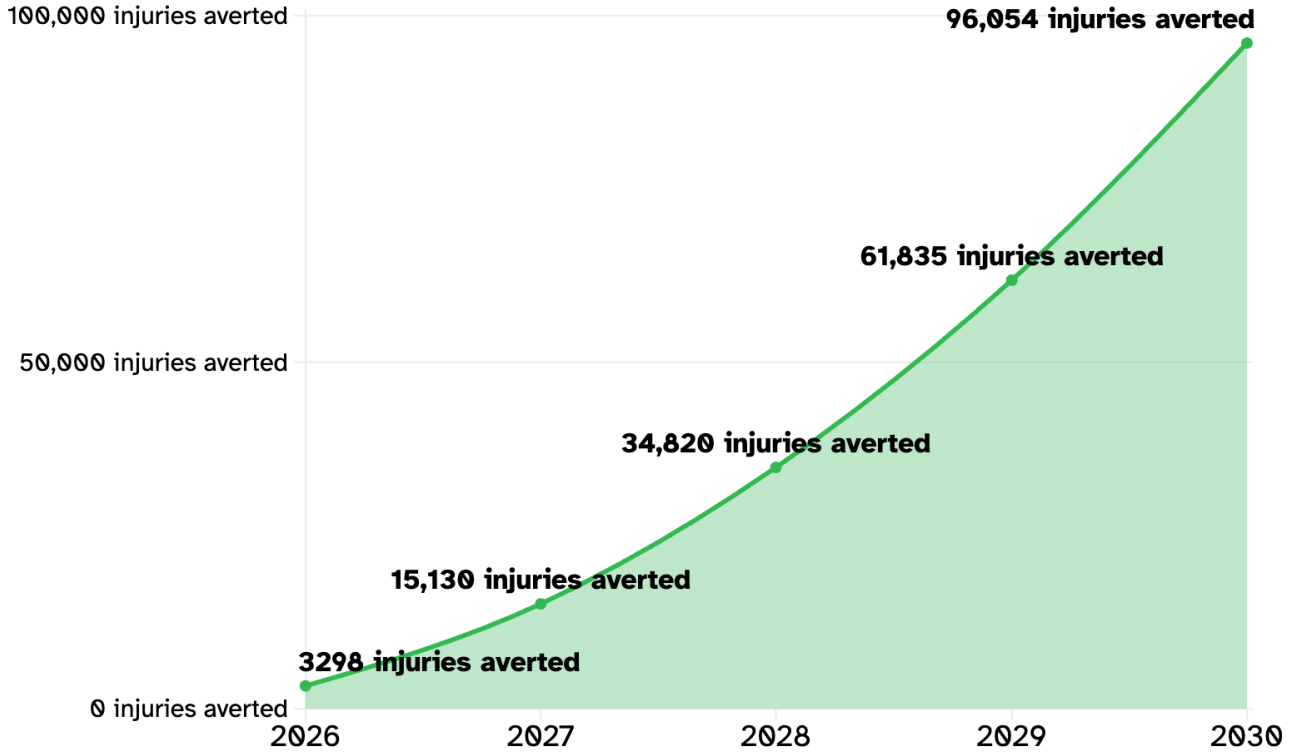
**7.3** Nearly 6,000 traffic deaths will be averted from investment over 5 years.

Number of traffic deaths averted



**7.4** Around 211,000 traffic injuries will be averted over the 5 years from investment.

Number of traffic injuries averted



## 8. Mental Health Benefits

Mental health disorders cause more disability globally than any other type of illness, responsible for around 50 million years lived with disability in 2015.<sup>129</sup> Notably, more than 80% of the disease burden falls in LMICs.<sup>129</sup>

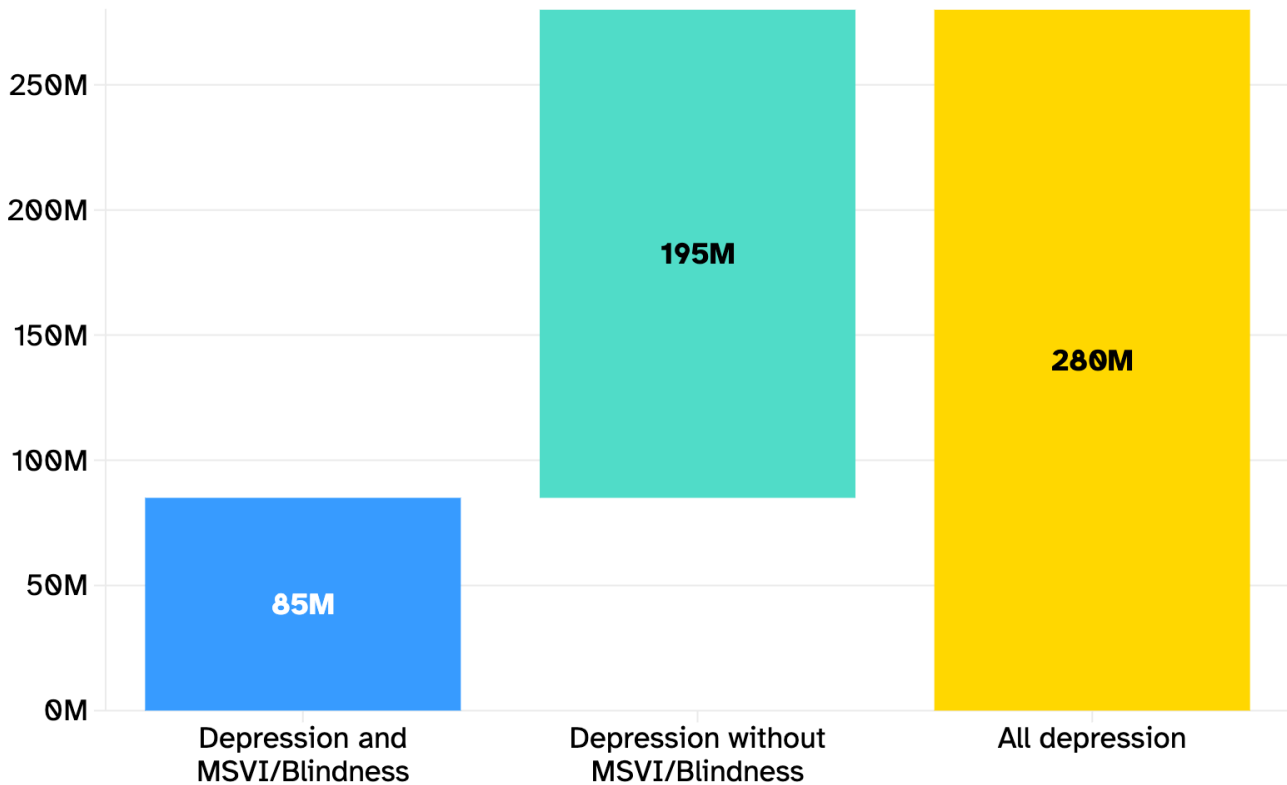
Depression - one of the most widespread mental health challenges - is characterized by persistent low mood, disturbed sleep, loss of appetite, feelings of worthlessness, hopelessness about the future, and in some cases, thoughts of death.<sup>130</sup> These symptoms can significantly reduce a person's quality of life, impair their work productivity and make it difficult to carry out everyday activities.<sup>131</sup> Approximately 280 million people around the world live with depression.<sup>132</sup>

There is consistent evidence that losing sight or living with eye disease significantly increases the risk of depression. Several reasons contribute to this relationship, including loss of independence, reduced ability to carry out everyday tasks, poorer perceived health, and increased loneliness due to impaired vision.<sup>133</sup>

A systematic review of 28 studies found that on average one in four individuals (25%) with eye disease also experienced depression, with some studies showing rates as high as 57%.<sup>7</sup> Another global review of 27 studies found that depression affected about 25% of individuals attending eye clinics,<sup>8</sup> five times higher than in the general population (5%).<sup>132</sup> A survey of more than 34,000 people across six LMICs showed that people with moderate vision impairment had 2 times increased risk of attempted fatal self harm, while people with severe vision impairment had 12 times increase in attempted fatal self harm.<sup>133</sup>

**How much of the global burden of depression could be linked to vision impairment?** In 2020, there were approximately 340 million people living with moderate or severe vision impairment and blindness.<sup>1</sup> Based on the 25% depression prevalence found in the above meta-analyses, a reasonable estimate would be that 85 million people are living within the vision impairment-depression-nexus. To put this into perspective, given the global total of 280 million people with depression,<sup>132</sup> it is plausible that up to 30% of those living with depression also experience sight loss (Figure 8.1).

**8.1 Up to 30% of those living with depression also experience sight loss.**



**Notes:** MSVI, moderate-severe vision impairment

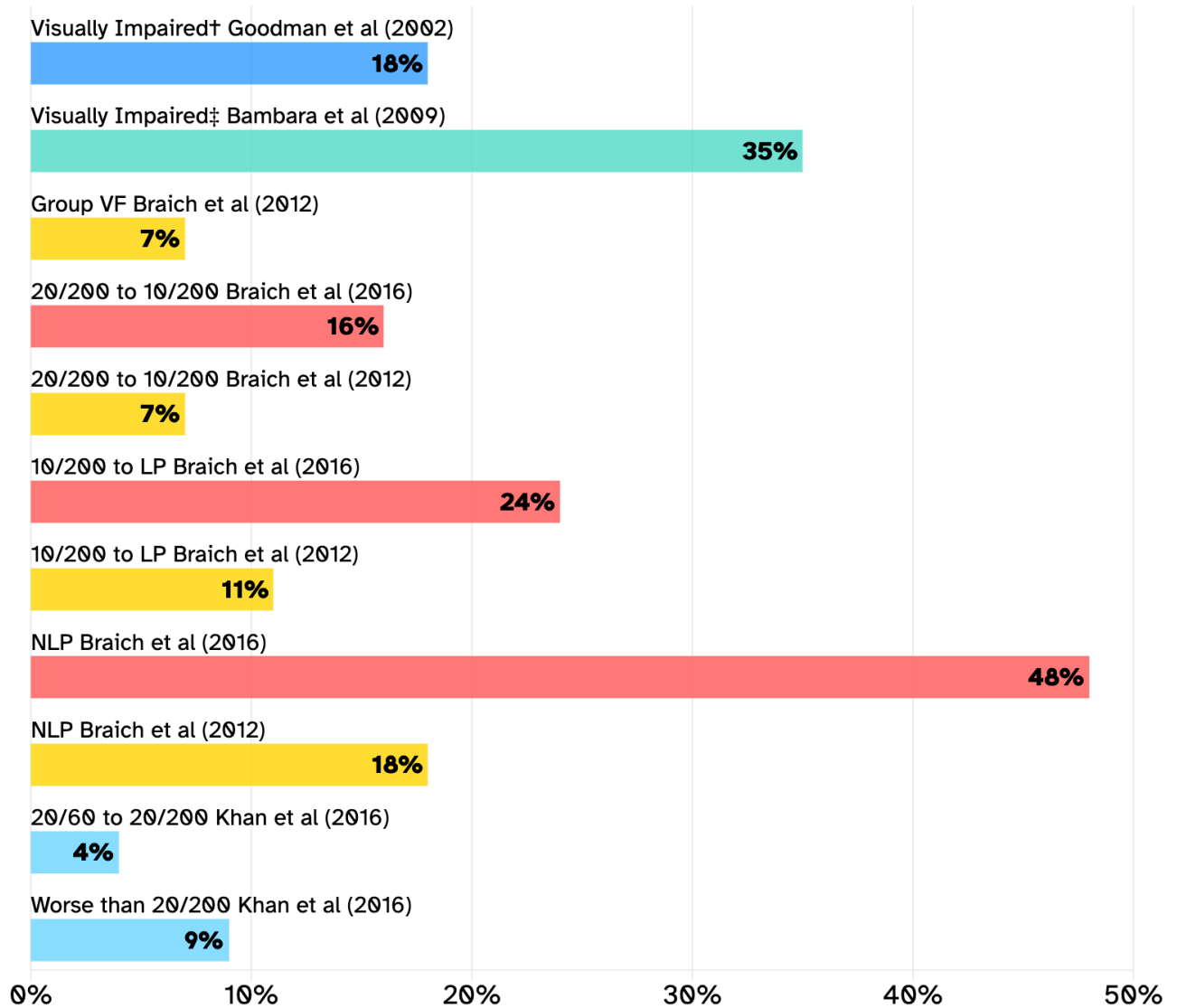
But the impact of depression doesn't stop with the person who has sight loss. Their caregivers - mostly family members - are also deeply affected (as discussed in Chapter 5). Caregiving responsibilities often require substantial time commitment and can last for years.<sup>134</sup> This heavy and sustained responsibility can increase caregivers' level of stress and depression and contribute to poorer overall well-being compared to non-caregivers. Moreover, a caregiver's mental health is closely tied to the well-being of the care recipient - as the severity of the disease increases, so does the mental burden on the caregiver.<sup>134</sup>

A systematic review of studies on the mental health of caregivers for visually impaired individuals found that 4%-48% of caregivers have experienced symptoms of depression. While the exact proportion varied across different studies, there was a consistent trend that the proportion of caregivers at risk of depression increases with the severity of the care recipient's vision impairment (Figure 8.2).<sup>135</sup> Specifically, a study in Mexico found male caregivers of older age were more likely to experience severe depression. Parents caring for their children with sight loss were found to bear a disproportionately high burden of depression.<sup>97</sup> This is particularly concerning given that the number of affected caregivers may

be potentially as large as the population of people with moderate to severe vision impairment. This suggests an extended impact of vision loss on the population’s mental health, with an additional 85 million people potentially living with depression or at risk of developing not because of their own vision loss, but as a result of caring for someone with sight loss.

**8.2 4%-48% of caregivers for people with visual impairment experience symptoms of depression.**

Proportion of caregivers at risk of depression



**Notes:** VF legally blind due to restrictions in their visual field ( $\leq 20^\circ$ ), LP light perception, NLP no light perception. Visually Impaired was defined differently in the studies by Goodman and Bambara.

**Source:** Adapted from Kuriakose et al.

## Restoring Vision Improves Mental Health

Evidence consistently shows that restoring vision significantly improves an individual's mental health. A study in China found that people who underwent cataract surgery experienced a 17% decrease in depression scores, bringing them in line with peers of similar age who had normal vision.<sup>136</sup> Another study in Iran found a 23% decrease in depression scores following cataract surgery.<sup>137</sup> Similarly, a multisite study in Vietnam found a 58% reduction in the psychological stress score in cataract patients 12 months after surgery,<sup>138</sup> while another study in Vietnam found that depression decreased significantly after the first-eye surgery and improved even further following surgery on the second eye.<sup>139</sup> Overall, the results of the entire body of evidence - summarized in a systematic review and meta-analysis<sup>18</sup> - show that individuals who undergo cataract surgery have 20% lower prevalence of depression compared to control groups. Restoring vision improves mental health.

Research on the mental health benefits for caregivers is still emerging, though given the close association between caregiver and patient wellbeing, it is very plausible that caregivers also experience positive mental health outcomes when vision is restored for the person they care for. Supporting this, a recent survey of 718 caregivers across five Latin American countries found that 72% reported no longer feeling worried, sad, or depressed after the patient they cared for underwent cataract surgery (see Emerging Research Panel in Chapter 5: Caregiver Productivity).

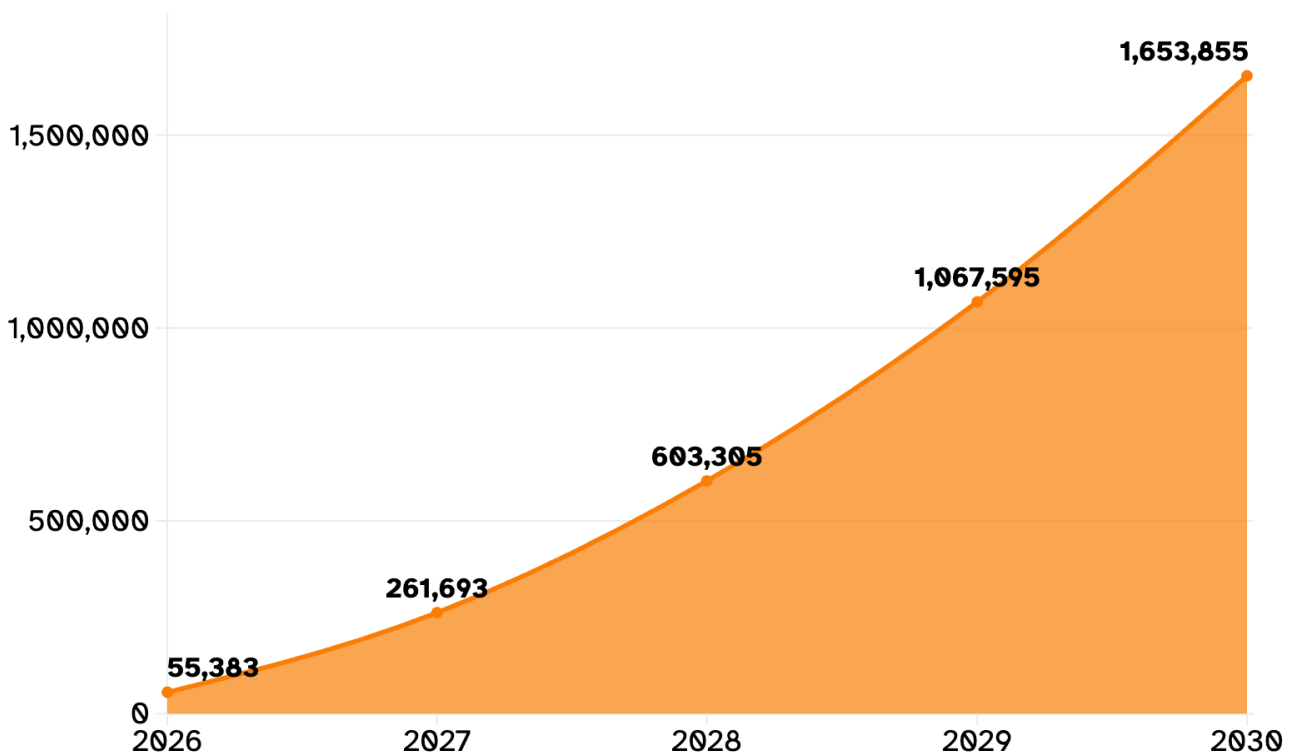
In this context, eyecare could be a powerful and cost-effective tool to address a component of the global depression burden. Depression can be complicated to address, requiring treatments that are lengthy, expensive, and not always fully effective. In contrast, restoring vision can plausibly improve mental health for some by addressing circumstantial factors that drive depression such as reduced independence and social isolation.<sup>133,140</sup> Given their low cost, eyeglasses and cataract surgery likely represent a cost-effective strategy to address depression.

## Benefits from Investment

To remain conservative we focus only on individuals with MSVI and blindness, though we note that the systematic review by Paravanno also included people with mild vision impairment who were depressed. We assume that 25% of individuals with MSVI or blindness have depression,<sup>8</sup> and that 20% of those with depression and vision impairment could have their symptoms alleviated with vision correction.<sup>18</sup> The results indicate that the investment case recommendations will avert **1.7 million cases of depression by 2030** for individuals who have improved vision (Figure 8.3).

### 8.3 The investment will avert 1.7 million cases of depression over 5 years.

Cumulative Cases of Depression Averted (Visually Impaired)



## 9. Improved Health, Longevity and Dignity in Old Age

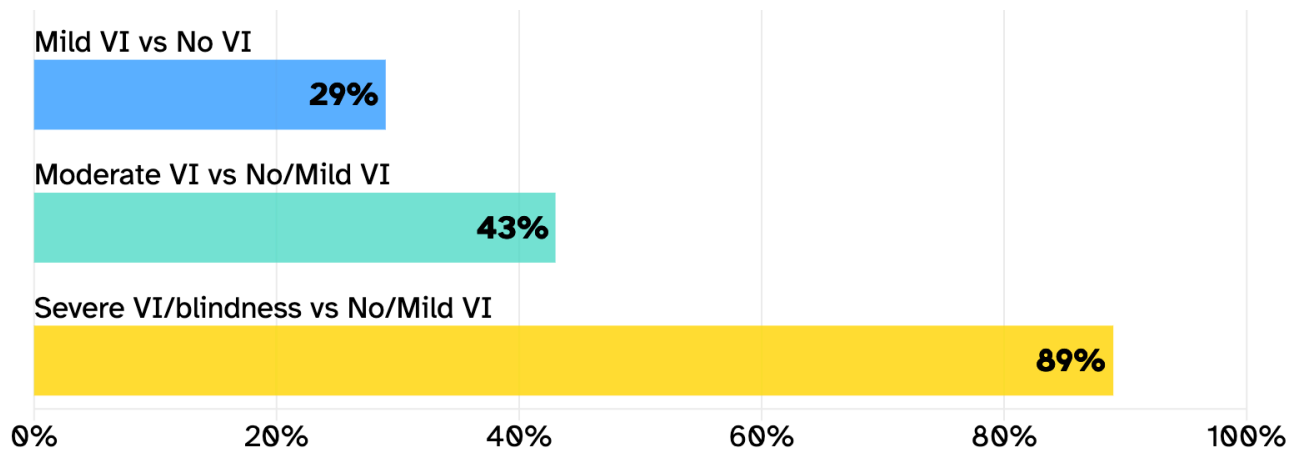
As the population ages, the burden of age-related conditions grows rapidly. By 2050, it is estimated that more than 2.1 billion of the world population will be aged 60 and over, with 80% living in LMICs.<sup>141</sup> Among these, sight loss is a major but often overlooked issue that sharply increases with age. Almost everyone will experience some degree of presbyopia - difficulty seeing up close - after the age of 40. In 2015, it affected 1.8 billion people, roughly 1 in 4 people globally.<sup>142</sup> Cataracts are also highly common with age and remain the leading cause of blindness worldwide. A meta-analysis found while only 3% of people under 40 have cataracts, the number rises sharply to 54% among those aged 60 and above.<sup>143</sup> Of note, the disease burden of cataract in LMICs is 5 times the burden in higher-middle income countries.<sup>144</sup> Other common age-related eye diseases such as glaucoma, age-related macular degeneration, and diabetic retinopathy also become more prevalent with when people age.

### Health and Longevity

Vision impairment not only affects the eye, but exacerbates health, longevity and quality of life challenges as people age. A meta-analysis of 17 studies showed that people with mild vision impairment had 29% increased risk of mortality.<sup>10</sup> The risk increased to 43% in people with moderate vision impairment, and to 89% in those with severe vision impairment or blindness, compared to those with no or mild vision impairment (Figure 9.1).<sup>10</sup>

## 9.1 People with mild VI face a 29% higher risk, rising to 89% for those with severe VI or blindness compared with no/mild VI.

Increased mortality risk in association with severity of visual impairment



**Notes:** VI, vision impairment.

There are several possible reasons under this connection. First, many of the underlying risk factors for poor vision, such as diabetes or stroke, which can lead to conditions like diabetic retinopathy or retinal vascular occlusions, are also major causes of mortality. Moreover, age-related eye diseases themselves are increasingly recognized as potential biomarkers of ageing, further supporting the role of vision impairment in overall health and risk of death.<sup>10,145,146</sup>

Visually impaired individuals are often restricted in mobility and have difficulties with daily tasks, which could lead to increased risk of falls, fractures and frailty. A meta-analysis of 35 studies found that the prevalence of falls is up to 18% in people with low vision. In studies conducted in LMICs, the prevalence ranged from 5% to as high as 57%.<sup>147</sup> People with moderate to severe vision impairment were found to be up to 5 times more likely to fall than those with mild impairment.<sup>147</sup> In one study from Ethiopia, people with moderate and severe vision impairment has 3-4 fold increased risk of fall-related injuries including fractures, compared to those with mild vision impairment. People with cataract or diabetic retinopathy had 10-15 fold increased risk of falls, while glaucoma and AMD showed 2-3 fold increased risk of falls.<sup>148</sup> Vision impairment has also been linked to increased risk of frailty - a clinical syndrome in older adults characterised by heightened vulnerability and reduced physiological function. A meta-analysis found that individuals with vision impairment had over two-fold increased risk of developing frailty.<sup>149</sup>

Another important contributor to reduced longevity is the increased risk of comorbidities. One of the established domains is brain health. Individuals with sight loss often experience sensory deprivation, reduced visual stimulation and increased social isolation, all of which could contribute to cognitive decline overtime.<sup>150</sup>

Vision impairment has been found to be a risk factor for developing future dementia (see Evidence Panel in this Chapter). A meta-analysis of more than 6 million people found that people with vision impairment have a 49% higher risk of developing dementia compared to those with normal vision.<sup>9</sup> Vision impairment alone is estimated to account for 5% of dementia burden globally, with notable regional variation: 7% in Africa, followed by 5% in Asia and 4% in Latin America and Caribbean.<sup>9</sup> Similar findings were observed between vision impairment and the other age-related neurodegenerative diseases such as Parkinson's disease, where the risk of developing the condition almost doubled in those with impaired vision.<sup>151</sup>

Studies have shown that vision restoration, such as correction of refractive errors or cataract surgery could significantly reduce the risk of mortality. For example, the Beijing Eye Study which included more than 15,000 Chinese adults aged 45 and above found that people with vision impairment had a 22-36% higher risk of mortality. However, this elevated risk was not observed among those whose vision impairment had been corrected - whether previously or recently - with eyeglasses, contact lenses, or cataract surgery. Their mortality risk was comparable to individuals with normal vision.<sup>152</sup>

This benefit is likely achieved by improved visual function, which enhances mobility, reduces the risk of injuries and morbidities, and contributes to better overall health and quality of life. A meta-analysis of six studies reported a 32% reduction in the risk of falls following cataract surgery, consistent with findings from a randomized controlled trial that observed a 34% risk reduction.<sup>153</sup> Another meta-analysis of 4 controlled studies found significant improvement in cognitive function in people who underwent cataract surgery compared to those who didn't.<sup>18</sup>

## **Evidence Panel: Vision Impairment as a Risk Factor for Dementia**

Joshua Ehrlich and Nathan Congdon

Untreated vision loss is recognized as a key modifiable risk factor for dementia. The number of people worldwide living with dementia is projected to increase by 170% between 2019 and 2050, with most new cases occurring in low- and middle-income countries. Consequently, there is a pressing need to leverage readily modifiable risk factors to slow cognitive decline and prevent new onset dementia.

### **Dementia costs & inequities**

The WHO estimates that dementia costs the global economy \$1.3 trillion annually. Around 50% of dementia costs are due to informal care giving, 70% of which is provided by women. Compared to men, women also experience larger quality-of-life declines and greater mortality due to dementia.

### **Vision loss & dementia: what is known?**

There is ample evidence that poor vision increases the rate at which cognitive function declines as we age and that it increases the future risk of new onset dementia. In fact, the number of dementia cases globally that may be attributable to vision loss is similar to other well-established risk factors like smoking, diabetes, and hypertension. In settings, where vision loss is very common in later life, such as India, it is one of the strongest risk factors, accounting for up to 14% of dementia cases.

### **On the horizon**

To date, no randomized trials have been completed to determine whether improving vision will slow cognitive decline or prevent dementia. However, the first such study, The Cognitive Level Enhancement through Vision Exams and Refraction (CLEVER) trial, is underway in south India. This trial, along with other studies that are underway, will clarify the value of intervening on vision to maintain cognitive health and the mechanisms by which poor vision affects cognition in later life.

## Dignity and Quality of Life

Vision impairment could also profoundly affect the quality of life, social connection and emotional well-being. When individuals can no longer recognize faces, read messages, or follow conversations, they often withdraw from social interactions, which further undermines their sense of belonging and mental-health wellbeing. In a survey of more than 400 people with vision impairment, although only 16% of them were living alone, more than 80% reported a moderate or higher level of loneliness.<sup>154</sup>

Loss of vision also diminishes independence in even the most basic daily tasks. With vision impaired, everyday activities - such as cooking, shopping, reading medication labels, or driving - can become unsafe or impossible. This loss of autonomy frequently forces older adults to rely on others, which can erode their sense of self-worth and dignity. In the same survey, 33.8% of the individuals with vision impairment reported being unable to act independently in daily life. When participants were asked to rank four types of social support - emotional or appraisal support, instrumental or tangible support, companionship or belonging support, and self-esteem support - self-esteem support was ranked highest. This highlights that, for people living with vision impairment, preserving dignity and self-respect may be even more important than receiving practical help or social companionship.<sup>154</sup>

As discussed in earlier sections on Employment (Chapter 3) and Caregiving (Chapter 5), restoring sight through cataract surgery significantly increases the time individuals spend on productive and domestic tasks, reducing their reliance on family members or caregivers and improving overall well-being.<sup>78,98-100</sup> With improved vision, people are often able to return to previous roles in the household, workforce, or community, regaining a sense of purpose, independence, and dignity. This renewed autonomy also releases the burden on caregivers, contributing to increased household income and overall family resilience.

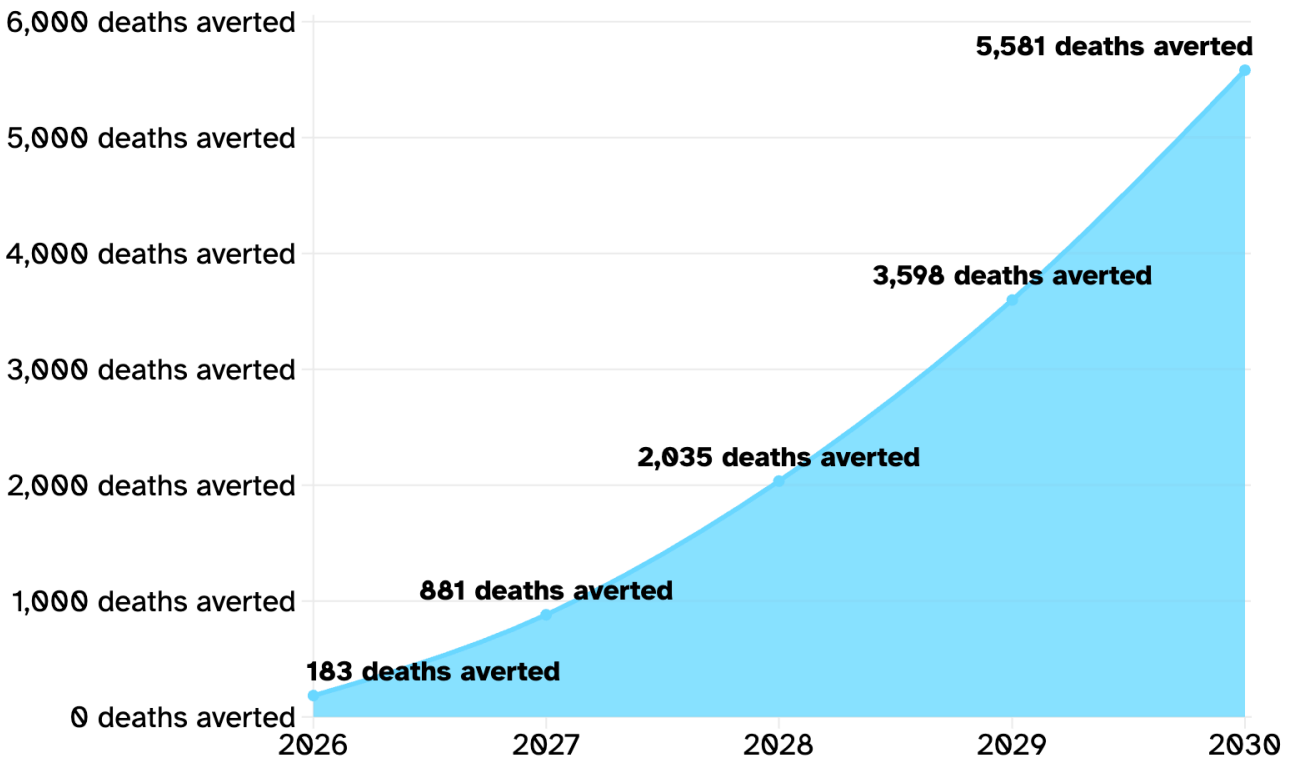
## Benefits of Investment

For this investment case, while many benefits are expected, we only modelled the longevity benefits using the meta-analysis by Ehrlich and colleagues.<sup>10</sup> By combining the expected reduction in vision impairment with the reported risk ratios and normal mortality rates, we estimate the number of deaths averted through vision correction. To remain conservative, our analysis is limited to people aged 65 to 74. For each death averted, we calculate the additional years of life gained using WHO Life Tables.

The results indicate that this investment will reduce vision impairment in approximately 5.5 million individuals aged 65 to 74 by 2030. This reduction is projected to prevent 12,280 deaths and lead to 78,819 additional years of life lived over the investment period. The intervention is expected to prevent 183 deaths in 2026 and increase to 5,581 in 2030 (Figure 9.2). The number of years gained is expected to start at 1,246 in 2026 and increase to 35,737 by 2030 (Figure 9.3).

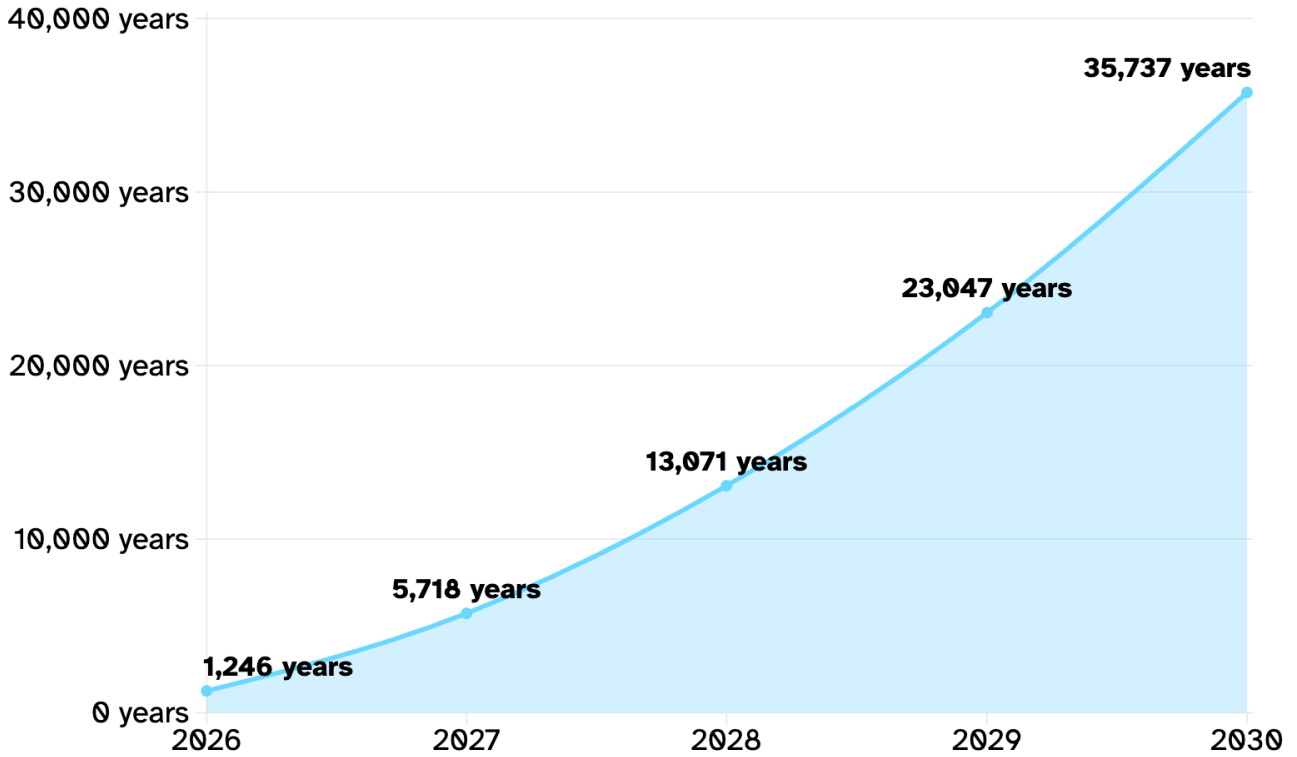
### 9.2 12,280 deaths will be averted from investment over 5 years.

Number of deaths averted for 65-74 year olds from investment case recommendations



**9.3** The investment will lead to **78,819** additional years of life lived over the investment period.

Years of Life Gained for 65-74 year olds from investment case recommendations



## 10. Investment Required

Delivering the impacts outlined in this investment case will require an additional \$7.1 billion over the next five years, above and beyond business-as-usual spending. The investment begins modestly at \$508 million in 2026, before scaling up to \$2.2 billion by 2030 as services expand and capacity builds.

A significant share of these costs reflects the large workforce expansion required. Over the next five years, approximately **\$2.0 billion** will be invested in training community screeners, vision technicians, optometrists, and surgeons. Another **\$2.0 billion** will be required to deliver additional cataract surgeries and strengthen surgical capacity. Eyeglasses - critical to addressing refractive error - account for **\$1.4 billion**, while **\$991 million** will fund community screening programs, **\$220 million** eye exams, and **\$418 million** patient incentives and measures to improve outcomes after cataract surgery.

When costs are viewed through the lens of the six accelerators, it is clear that the three workforce-related accelerators dominate. Accelerator 1 focusing community screeners requires just over \$1.0 billion over the five year time horizon. Accelerator 3, which concerns vision technicians and optometrists, requires \$2.2 billion while Accelerator 4 (surgeons) requires \$3.1 billion over 2026-2030.

This reflects the substantial upfront investment needed for training and the fact that much of the workforce's time (and salaries) are directly linked to these accelerators. The other accelerators account for smaller cost shares not because they are less important, but because they build upon the foundation laid by workforce expansion. For instance, Accelerator 2 covers the cost of near-vision glasses and dispensing time, but its impact would be limited without the community screeners trained under Accelerator 1. Similarly, Accelerator 5 (patient incentives) and Accelerator 6 (surgical quality) leverage investments already made in workforce expansion and service delivery.

It is important to emphasize that the allocation of costs across accelerators involves some judgment calls. For example, the cost of eyeglasses is included under Accelerator 2, but could just as plausibly be included under Accelerator 5, given our recommendations to subsidize glasses for affordability. Likewise, surgeries are costed under Accelerator 4 but could also be partly attributed to Accelerator 5, while some training for surgical teams could reasonably fall under Accelerator 6. **The essential point is that these investments form an integrated package** - that should be implemented together - with each accelerator reinforcing and

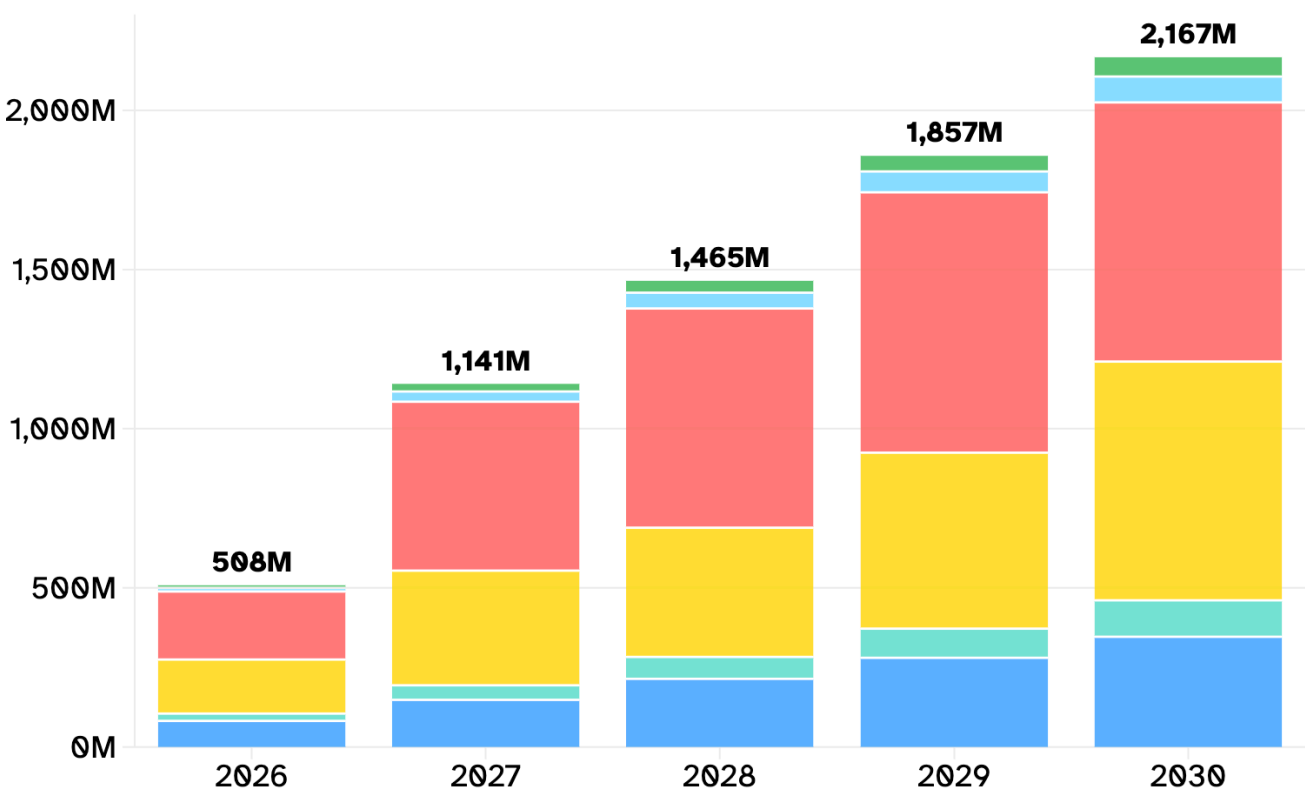
amplifying the others. Relatedly, implementing only some of the accelerators will not necessarily deliver a proportionate share of the benefits.

Finally, these cost estimates rest on the largest costing exercise ever undertaken in global eye health. Data were collected from 55 eye care providers across 25 LMICs. This real-world data, combined with detailed economic modelling, enabled us to estimate service delivery costs for all 111 countries included in the investment case. As a result, the figures presented here represent one of the most comprehensive and reliable assessments to date of what it will cost to deliver a step change in eye health across LMICs.

**10.1 A total of \$7.1 billion investment is required over 5 years.**

Investment required by Accelerator

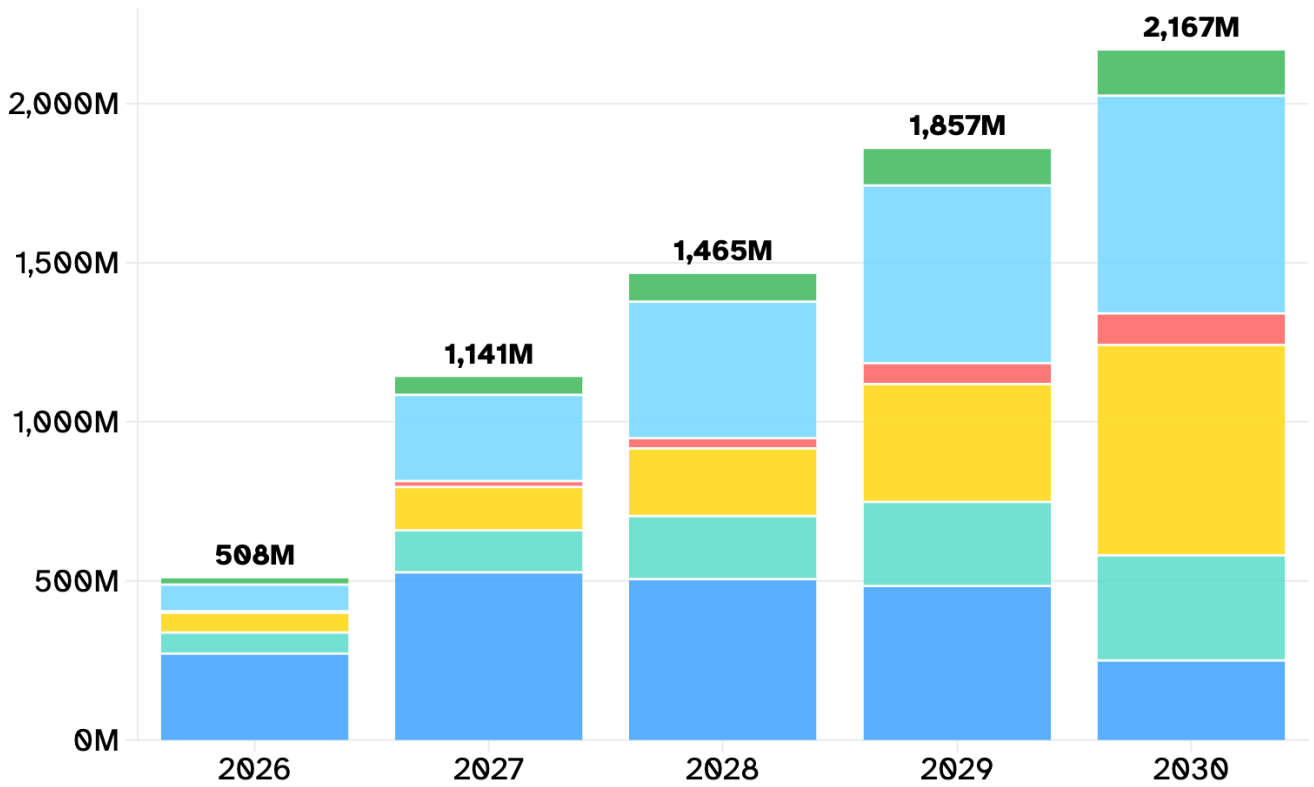
- Expand community screening
- Have screeners dispense near vision glasses
- Expand refraction and optometrist capacity and productivity
- Expand surgeon capacity
- Address patient barriers
- Improve cataract surgical quality



**10.2 A total of \$7.1 billion investment is required over 5 years.**

Investment required by Cost Category

- Training
- Screening
- Glasses
- Eye Exams
- Additional cataract surgeries and surgical capacity
- Patient incentives and improved surgical outcomes.



# 11. ROI and Way Forward

## \$28 to \$1 Return on Investment

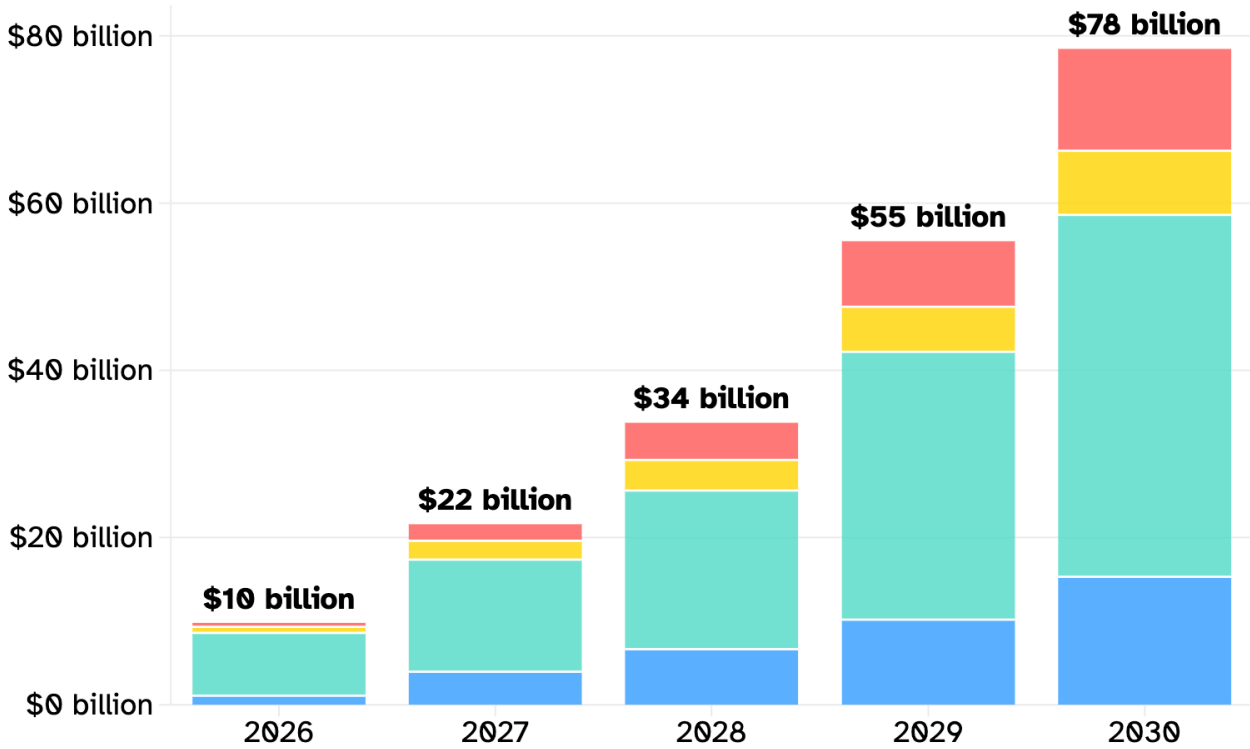
Summing up the four benefits linked to economic productivity (employment, occupational productivity, caregiver productivity and future productivity from improved learning) we estimate that the investment case will deliver **\$199 billion in benefits** over the five year investment horizon - starting at \$10 billion in 2026 and rising to \$78 billion by 2030 (Figure 11.1). The largest share, **\$115 billion**, comes from improving occupational productivity, as individuals with corrected mild or near vision impairment become more effective at work. A further **\$57 billion** arises from addressing moderate-to-severe vision impairment (MSVI) and blindness, split between **\$37 billion in direct employment gains** for affected individuals and **\$20 billion from relieving caregiver burdens**. Finally, improving vision for children in school translates into **\$27 billion in future productivity benefits**, as better learning today drives higher lifetime earnings.

Across the life course (Figure 11.2), benefits concentrate in two cohorts: **adults aged 45–64** and **school-age children aged 5–14**. Among adults, the prevalence of near and mild vision impairment (especially presbyopia) rises sharply while labour-force participation remains high. Correcting vision therefore delivers immediate, material gains in occupational productivity and earnings. The relatively large benefits for children stem from the leveraged nature of vision correction while in school. Improving vision - even for just one year - improves learning. Improving learning leads to higher earnings across the *entire working life*. So while children typically have lower prevalence of vision impairment compared to adults - and therefore screening efforts have lower 'yields' in terms of identifying individuals with vision impairment - the outsized impact per case corrected means that eye care in this crucial time delivers substantial benefits.

# 11.1 Economic productivity benefits of this investment case reveals substantial gains of \$199 billion over 2026–2030.

Economic benefits of investment

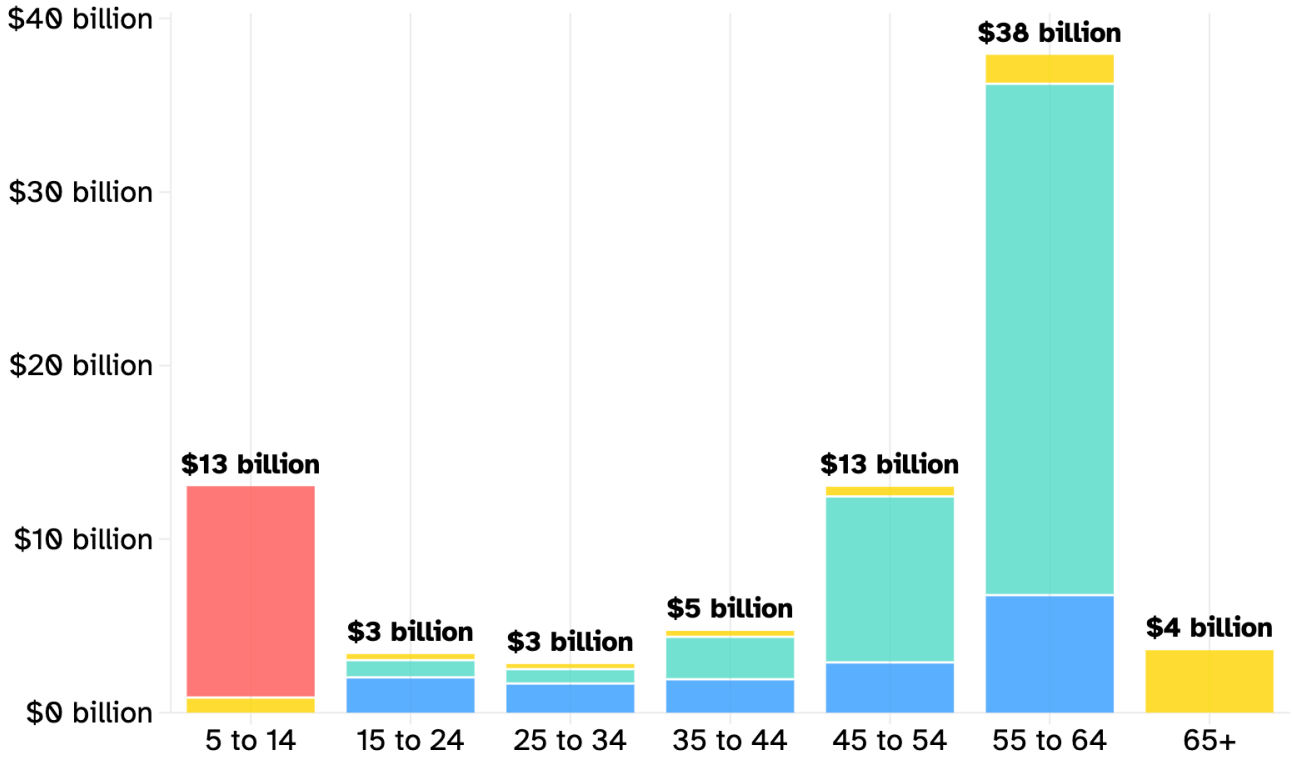
■ Employment ■ Occupational Productivity ■ Caregiving ■ Learning



## 11.2 Eye health investment delivers benefits across the entire lifespan.

Eye health investment benefits across all age groups (2030)

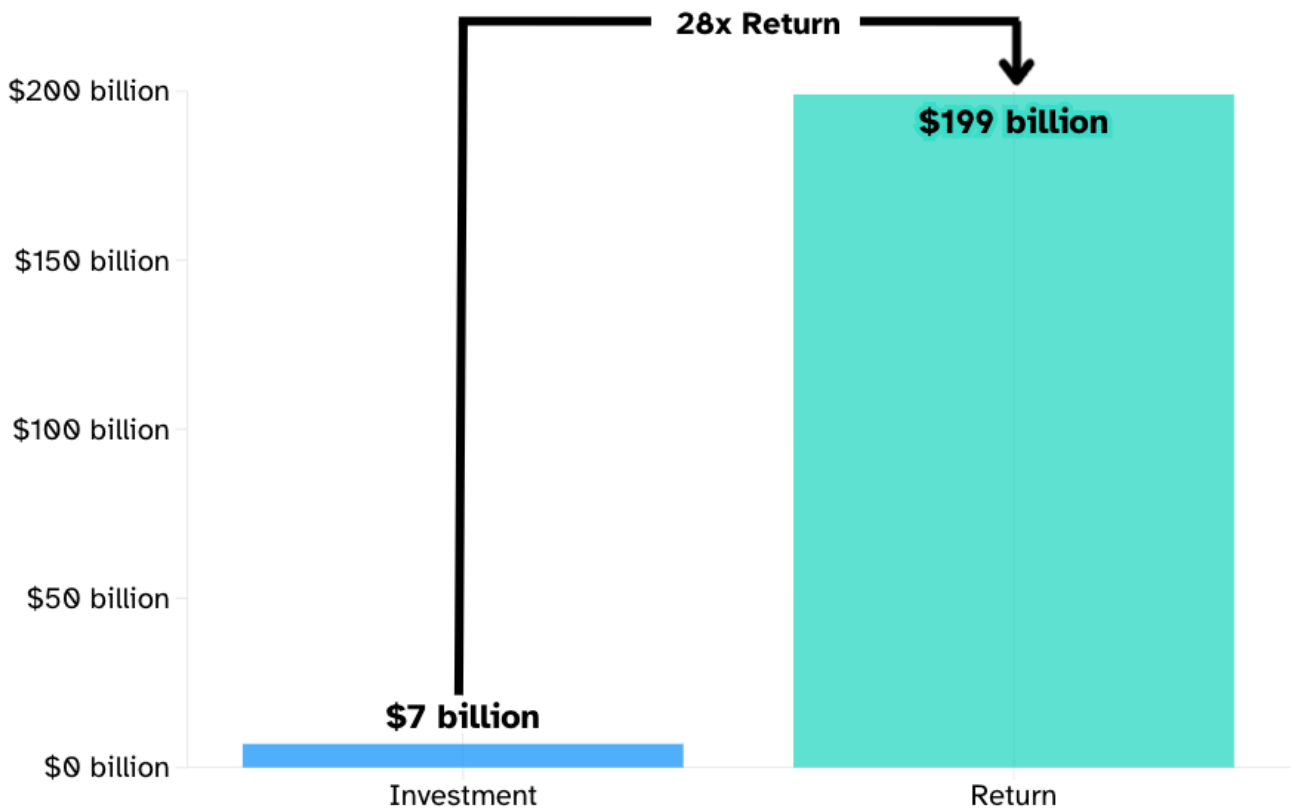
■ Employment ■ Occupational Productivity ■ Caregiving ■ Learning



Comparing the total productivity impacts to the **\$7 billion investment required** reveals the exceptional value of investing in eye health. Over five years, the return on investment is estimated at **\$28 for every \$1 spent**. Put simply, each dollar invested generates \$28 in economic value.

**11.3 Every dollar invested returns \$28 in benefits.**

\$7 billion investment generates \$199 billion benefits



For the billion people worldwide living with vision impairment, this translates into tangible improvements in daily life: the ability to perform more productively at work,<sup>37,79,81</sup> secure meaningful employment to support families and communities,<sup>3</sup> reduce the heavy burden of unpaid caregiving<sup>87,90</sup> - borne disproportionately by women - and, for children, the opportunity to learn to their full potential now and earn more in the future.<sup>4,46,102</sup> These benefits directly contribute to economic growth and output, increasing GDP - a politically salient and widely recognized measure of development progress. In this sense, eye care is not only a health intervention but a **critical development imperative**.

Yet the impact goes beyond economic indicators. Improved vision brings wide-ranging social benefits: better mental health,<sup>8</sup> longer and healthier lives,<sup>10</sup> safer roads,<sup>16</sup> and greater overall quality of life.<sup>78,98,111</sup> Taken together, these findings position eye care as one of the best buys in global health and development<sup>19,20</sup> - an investment that is socially and economically transformative, highly cost-effective, and urgently needed.

Importantly, there are a number of ways in which the \$28 to \$1 figure is potentially conservative:

- **Social benefits not captured in ROI benefits:** The social benefits documented in this report (mental health, mortality and road safety) are not monetized in our ROI estimate. Including the welfare and economic impacts of these outcomes would increase the benefits by tens of billions USD, and increase the ROI.
- **Occupational productivity benefits omitted for MSVI and blindness:** In our modelling of occupational productivity, we only considered gains for individuals with mild or near vision impairment. We did not include productivity benefits for those already employed with moderate-to-severe visual impairment (MSVI) or blindness. In the employment benefits analysis, we assumed that 30 percentage points of this group could shift from unemployment into employment from vision restoration. This implies that the remaining 70 percentage points (adjusted for baseline employment rate) are already working. Yet their occupational productivity improvements are not counted. Including these effects would plausibly add billions more in benefits.
- **Workforce training costs frontloaded:** The full cost of workforce training within the five-year investment window (\$2.0 billion) is included in the ROI calculation, even though the benefits of this training will extend well beyond 2030. If only the proportionate five-year share of these training costs were applied, the ROI would rise to 36-to-1, consistent with the median ex-post ROI of 20 small and medium scale eye care programs.<sup>19</sup>
- **Conservative counterfactual employment assumption:** For all monetized productivity benefits in this report, we have adjusted impacts by the country-level employment-to-population ratio. For example if the employment-to-population ratio is 60%, we only apply productivity benefits to 60% of the relevant population that receives restored vision, essentially assuming that the other 40% would not otherwise work and so receive no benefits. Our employment-to-population ratio parameters come from the ILO, and are based on the estimated number of people in employment divided by the **total population above 15**. The denominator in this parameter includes individuals who are generally considered outside of working age (65+), and therefore provides a conservative estimate of proportion working when applied to those of working age (15-64) as in this investment case.
- **No benefits related to non-market household productivity:** Related to the above point, we do not assign any benefits for individuals who experience productivity improvements in non-market household tasks - such as cooking, cleaning and collecting water and fuel. These generate genuine improvements in people's lives - benefits which could be readily included in the ROI. In other sectors - most notably Water, Sanitation and Hygiene - such non-market time savings are routinely included in ROI calculations.<sup>155-157</sup> By omitting them here, our estimates understate the true value of improved vision.

## Beyond 2030

The actions outlined in this investment case represent a bold step change in how the global community addresses vision impairment. By 2030, they will deliver life-changing outcomes for **approximately 255 million people**. Yet the job will not be finished: more than 750 million will still need care.

The investments proposed here lay a strong foundation for the next five years. With a substantial screening workforce in place, scaling optometrists, refractionists, and surgeons will yield the largest marginal returns, converting the surge in identified need into treated cases. Parallel efforts to stimulate patient demand - through affordability, convenience, and trusted community touchpoints - will keep patients entering the eye care pathway. And as surgical volumes rise, continued improvements in cataract surgical quality will be more cost-effective.

If countries build on this foundation beyond 2030, the payoff from closing the remaining gap in LMICs would be transformative. Fully eliminating vision impairment would generate **annual** benefits at least as large as:

- **\$145 billion** for **22 million people** gaining employment,
- **\$141 billion** in occupational productivity gains,
- **\$62 billion** in productivity gains for **304 million relieved of caregiving**,
- **13 million** equivalent school years gained, translating into **\$99 billion** in future learning-linked income,
- **35,800** road traffic deaths averted and **1.2 million** non-fatal traffic injuries prevented,
- **~44,000** deaths averted among older adults, adding **~320,000** years of life, and
- **12.2 million** cases of depression averted.

With sustained leadership and financing, the post-2030 decade can be the one in which countries move from bending the curve to finishing the job - so fewer people are living with avoidable vision loss, and more are learning, earning, and thriving.

## Way Forward: What Leaders Need to Do

Below we outline key actions for leaders worldwide to translate this investment case into reality. Success will depend on country-led plans and commitments, tailored to each nation's unique context, priorities, and strengths. These actions reflect IAPB's policy framework centered around the seven pillars of **Integration, Financing, Monitoring, Regulation, Workforce, Partnership and Inclusion**.<sup>158</sup>

### Act

**Leadership and commitment from the highest levels of Government.** Eye care is delivered by the health sector. And yet it is a cross-cutting development priority with far-reaching impacts not only for health but also for education, agriculture, manufacturing, trade, gender equality, and transport. Leadership from cross-cutting functions - planning and finance ministries, as well as the executive offices of Presidents and Prime Ministers - is essential to galvanize and coordinate the various arms of government. When governments place vision on the national agenda, it signals a commitment to human capital, productivity, and inclusive growth. Key actions include: Set national targets for vision, convene an inter-ministerial mechanism to track the targets (e.g. with planning, finance, education, transport, labor) and enable relevant agencies and ministries to deliver.

**Activate nationally owned plans to deliver change and an integrated approach.** Each country's context is unique, with different health system capacities, financing arrangements, and demographic profiles. National plans - designed and led by countries themselves - are critical to align resources, guide implementation, and ensure accountability. These plans should set ambitious but achievable targets, strengthen primary care systems for vision, and integrate eye health into universal health coverage and other national development strategies. Key actions include: Develop and fund a national eye-health plan with measurable milestones, embed the plan in universal health care and align with national strategies in related sectors such as education, labor and road-safety, scale up training of eyecare workforce.

**Implement policy changes to address vision, recognising it as a whole-of-life issue that needs a holistic, whole-of-government approach.** Eye care must be embedded into policies across multiple sectors: incorporating vision screening into school health programs, integrating workplace-based vision checks into labor and productivity strategies, and linking vision screening with driver licensing. A whole-of-government approach ensures that the full economic and social benefits of good vision are realized. Key actions include: Support life-course vision screening (schools, workplaces, communities, primary care), integrate coverage into existing health insurance schemes, ensure vision screening at driver-licensing, and remove regulatory and tariff barriers on eye care.

## Allocate

**Increase resources, recognising the return of investment that is possible both nationally and internationally.** Eye care has been chronically underfunded despite its outsized benefits. This investment case demonstrates that every \$1 invested yields \$28 in economic returns, making eye care one of the most cost-effective ways to boost GDP and accelerate human development. Governments and international partners should allocate additional resources, while also leveraging existing health insurance and public health programs to integrate vision care into mainstream delivery. Key actions include: Create dedicated domestic budget lines and mobilize international, private-sector and impact investment finance to fund workforce, eyeglasses, and surgery, leveraging existing insurance and public-health purchasing to scale efficiently.

**Explore innovative funding mechanisms and new ways to fund eye health.** Unlike many health interventions, eye care generates direct and measurable financial gains for individuals, businesses, and governments. This creates opportunities for innovative financing, such as microfinance schemes for eyeglasses, blended finance through impact investors, and cross-subsidization models where higher-income users support services for poorer populations. Such mechanisms can create sustainable, “win-win-win” solutions for households, the private sector, and public systems. Key actions include: Explore blended finance and impact investment, microfinance for glasses and surgery, and cross-subsidy social business models.

**Foster partnerships with the private sector.** In many high-income countries, the private sector already plays a leading role in delivering eye care. Harnessing this potential will be critical in LMICs as well. Governments can encourage private-sector participation by creating favorable business environments, lowering tariffs on eyecare equipment and glasses, and allowing a greater pool of personnel to provide different services within eyecare. With the right conditions, private providers can complement public systems to achieve universal access. Key actions include: Establish enabling regulation, reduce tariffs on eye care equipment and glasses, communicate compelling business cases for eye screening of company workforces.

## Accelerate

**Collaborate across the public and private sector and wider society to harness the educational and societal benefits of addressing poor vision.** Partnerships with schools, employers, civil society, and local communities are essential to maximize the benefits of clear vision - improving learning outcomes, workplace productivity, gender equality, and social inclusion. By working across sectors, countries can enhance the returns of investment in eye health. Key actions include: Formalise partnerships with schools, employers, civil society and transport authorities to maximise gains in learning, productivity, gender equality and road safety.

**Implement the 6 accelerator interventions quickly and at a minimum and scale these up as progress is made.** This investment case charts a pathway to 2030 that, if implemented, will deliver the largest reductions in vision impairment in history. Early, decisive action on all six accelerators - community screeners, near-vision correction, vision technicians and optometrists, surgeons, patient incentives, and surgical quality - will build the foundation for success. Continued investment beyond 2030 will be needed to lock in these gains and extend them even further. Key actions include: Launch all six accelerators with national roll-out tied to workforce training, patient-uptake initiatives and service delivery, plan sustained financing to extend impact beyond 2030.

**Harness technology and fast-track research and development in this area.** New technologies, especially artificial intelligence,<sup>159,160</sup> hold enormous potential to expand access to vision care by supporting diagnostics, clinical decision-making, and patient counseling at scale. Telehealth, digital screening tools, and affordable innovations in surgery and eyeglasses can bring services to millions more people at lower cost. Investment in R&D is vital to unlock the potential of these new technologies while ensuring innovations are safe, effective, and improve the patient experience. Key actions include: Create a supportive environment for R&D including but not limited to telehealth and AI-enabled screening and decision support, affordable lenses and surgical innovations, and include rigorous evaluation to scale safely, efficiently and equitably.

## Conclusion

**In short, restoring vision is one of the simplest, most powerful actions we can take to unlock human potential.** Few investments in global health and development can deliver such immediate, life-changing impact at such low cost. With the right leadership and commitment, millions of children will learn more in school, millions of adults will work more productively and with dignity, and millions of families - especially women - will be freed from the invisible burden of caregiving. Investing in eye health means creating a future where people everywhere can see their world, seize opportunity, and shape brighter lives for themselves and their communities.

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# Annex A: Countries included in the Investment Case Analysis

|                                  |               |                                  |
|----------------------------------|---------------|----------------------------------|
| Albania                          | Gambia        | Niger                            |
| Algeria                          | Georgia       | Nigeria                          |
| Angola                           | Ghana         | North Macedonia                  |
| Argentina                        | Guatemala     | Pakistan                         |
| Armenia                          | Guinea        | Papua New Guinea                 |
| Azerbaijan                       | Guinea-Bissau | Paraguay                         |
| Bangladesh                       | Haiti         | Peru                             |
| Belarus                          | Honduras      | Philippines                      |
| Belize                           | India         | Republic of Moldova              |
| Benin                            | Indonesia     | Rwanda                           |
| Bolivia                          | Iran          | Saint Lucia                      |
| Bosnia and Herzegovina           | Iraq          | Saint Vincent and the Grenadines |
| Botswana                         | Jamaica       | Samoa                            |
| Brazil                           | Jordan        | Sao Tome and Principe            |
| Burkina Faso                     | Kazakhstan    | Senegal                          |
| Burundi                          | Kenya         | Serbia                           |
| Cambodia                         | Kyrgyzstan    | Sierra Leone                     |
| Cameroon                         | Lao PDR       | Solomon Islands                  |
| Central African Republic         | Lesotho       | Somalia                          |
| Chad                             | Liberia       | South Africa                     |
| China                            | Libya         | Sri Lanka                        |
| Colombia                         | Madagascar    | Sudan                            |
| Comoros                          | Malawi        | Suriname                         |
| Congo                            | Malaysia      | Tajikistan                       |
| Costa Rica                       | Maldives      | Thailand                         |
| Cote d'Ivoire                    | Mali          | Timor-Leste                      |
| Democratic Republic of the Congo | Mauritania    | Togo                             |
| Djibouti                         | Mauritius     | Tunisia                          |

## The Value Of Vision: The case for investing in eye health

Dominican Republic

Ecuador

Egypt

El Salvador

Equatorial Guinea

Eswatini

Ethiopia

Fiji

Gabon

Mexico

Mongolia

Montenegro

Morocco

Mozambique

Myanmar

Namibia

Nepal

Nicaragua

Turkey

Uganda

Ukraine

United Republic of Tanzania

Uzbekistan

Vanuatu

Viet Nam

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### Find out more

*The Value of Vision: The case for investing in eye health* is available online.

We also provide detailed data and visualizations at both the global and country levels, which can be explored on the IAPB Vision Atlas:

<https://visionatlas.iapb.org/> offering comprehensive insights to support evidence-based investment in eye health.



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### Photo credit

Assam tea pickers; by Sarah Day Photography

# The Value of Vision: The case for investing in eye health

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