# PROPOSALS TO BUILD A MEXICO WITH VISUAL HEALTH 2024-2030

## Ten Strategies to Build a Future without Blindness and Visual Disability

Blutitude

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## Executive Summary

Mexico is among the ten countries with the highest number of people with vision loss (Bourne 2020). Currently, it is estimated that there are 16 million people in Mexico living with vision impairment, representing 12.1% of the total population, of whom 540,000 are blind. Of these cases, 55% are girls and women, and 70% occur in people aged 50 and older (Burton 2021). Our own estimates indicate that the annual productivity loss in Mexico attributable to moderate to severe visual impairment and blindness among the working-age population (15 to 64 years) amounts to 50.007 billion pesos, equivalent to 0.21% of the 2019 Gross Domestic Product (GDP). If current conditions persist, the prevalence of vision loss in the Mexican population is projected to increase by 72%, reaching 18.9% of the total population (27.5 million people) by the year 2040, mainly as a result of population aging.

The proposal to build a Mexico with visual health 2024–2030 aims to include visual health in the national health policy agenda by encouraging public sector action to establish a universal, integrated, and high-quality visual health service system. To achieve this, ten public policy strategies are proposed to improve visual health in Mexico through the various functions of the health system: governance, financing, service delivery, and resource generation.

## Public Policy Proposals for a Mexico Without Blindness and Visual Disability

01
Strengthen the rectorship of the public sector in visual health

02
Develop intersectoral policies linking visual health with education, poverty and economic development

03
Strengthen the rectorship of the public sector in visual health

04
Integrating visual health into primary health care

05
Ensure sufficient financial resources for visual health programs

06
Strengthen the training and qualification of visual health professionals

07
Guarantee comprehensive, quality and person-centered visual health care

08
Promote digital transformation in visual health care and research processes

09
Incorporate new treatments, technologies and tele ophthalmology to improve visual care

10
Foster collaboration between the public and private sectors to maximize resources and coverage

## Introduction

Vision plays a crucial role at every stage of life. In a society where the ability to see is essential, vision problems significantly affect not only individuals but also their families and caregivers. Vision impairment or loss impacts autonomy, safety, and physical and mental health, reducing quality of life and creating lasting effects on family and community environments.

Eye health is defined as the optimization of vision, ocular health, and the functional capacity of the eyes, contributing to overall health and well-being, social inclusion, and quality of life for the population (Burton 2021). Eye health services range from the promotion of healthy habits and awareness about the importance of eye care to preventive actions, treatments, and visual rehabilitation programs.

Issues related to eye health have gained relevance in public health policy discussions and have become an international priority. However, with limited budgets, eye health care is often deprioritized in health systems. By 2019, it was estimated that 1.106 billion people worldwide were living with vision loss. Among them, 43 million were blind, 553 million had mild, moderate, or severe visual impairment, and 510 million experienced difficulty seeing up close. Of these cases, 55%—preventable or untreated—were among girls and women, and 90% lived in low- and lower-middle-income countries (Bourne 2020).

Vision loss has serious implications for individuals, families, and society as a whole. The global economic burden associated with productivity loss due to visual impairment or blindness amounts to USD 411 billion annually (Marques 2021). However, the investment required to prevent this loss is much smaller. The total cost of treating cataracts and uncorrected refractive errors is estimated at around USD 14.3 billion (WHO 2023), an amount that represents only 3.5% of the associated productivity loss. This means that investment in eye health is highly cost-effective for society. Moreover, without investment in eye health today, it will be unlikely to meet the population's future needs. According to the World Health Organization (WHO), the demand for eye care services will increase due to current epidemiological and demographic transitions.

In Mexico, it is estimated that 16 million people live with visual impairment—12.1% of the total population—of which 540,000 are blind (Bourne 2020). Furthermore, visual disability is the leading cause of disability among the Mexican population (INEGI, 2024b). A total of 45.4% of the population with a disability in Mexico (3.7 million people) report having a visual disability, of which 55% are women and 64% are aged 50 or older. If current trends continue, the number of cases of blindness and visual impairment in Mexico will increase by 71.6% between 2019 and 2040, mainly as a result of population aging. Consequently, it is urgent to integrate access to preventive, treatment, and rehabilitation eye care services into Mexico's health priorities.

The objective of this proposal is to document the needs for eye care, as well as the human, financial, and infrastructure resources required to provide it in Mexico. Based on this assessment, a series of proposals are presented to include eye health in the national health policy agenda. The goal is to elevate eye health within health priorities and to encourage public-sector action to ensure universal, high-quality eye care services to reduce unmet needs.

This document is organized as follows: Section 1 describes international initiatives to reduce the prevalence of visual impairment and blindness, while Section 2 documents the global burden of these conditions. Section 3 presents information on prevalence and years lived with visual disability in Mexico, the main causes, risk factors, and their distribution by sex and age groups. It also estimates the productivity loss associated with moderate-to-severe visual impairment and blindness in Mexico in 2019. Section 4 proposes ten public policy strategies to reduce vision loss in the country, based on the diagnosis of visual health needs and the capacity of the national health system. Finally, the document concludes with a closing statement.

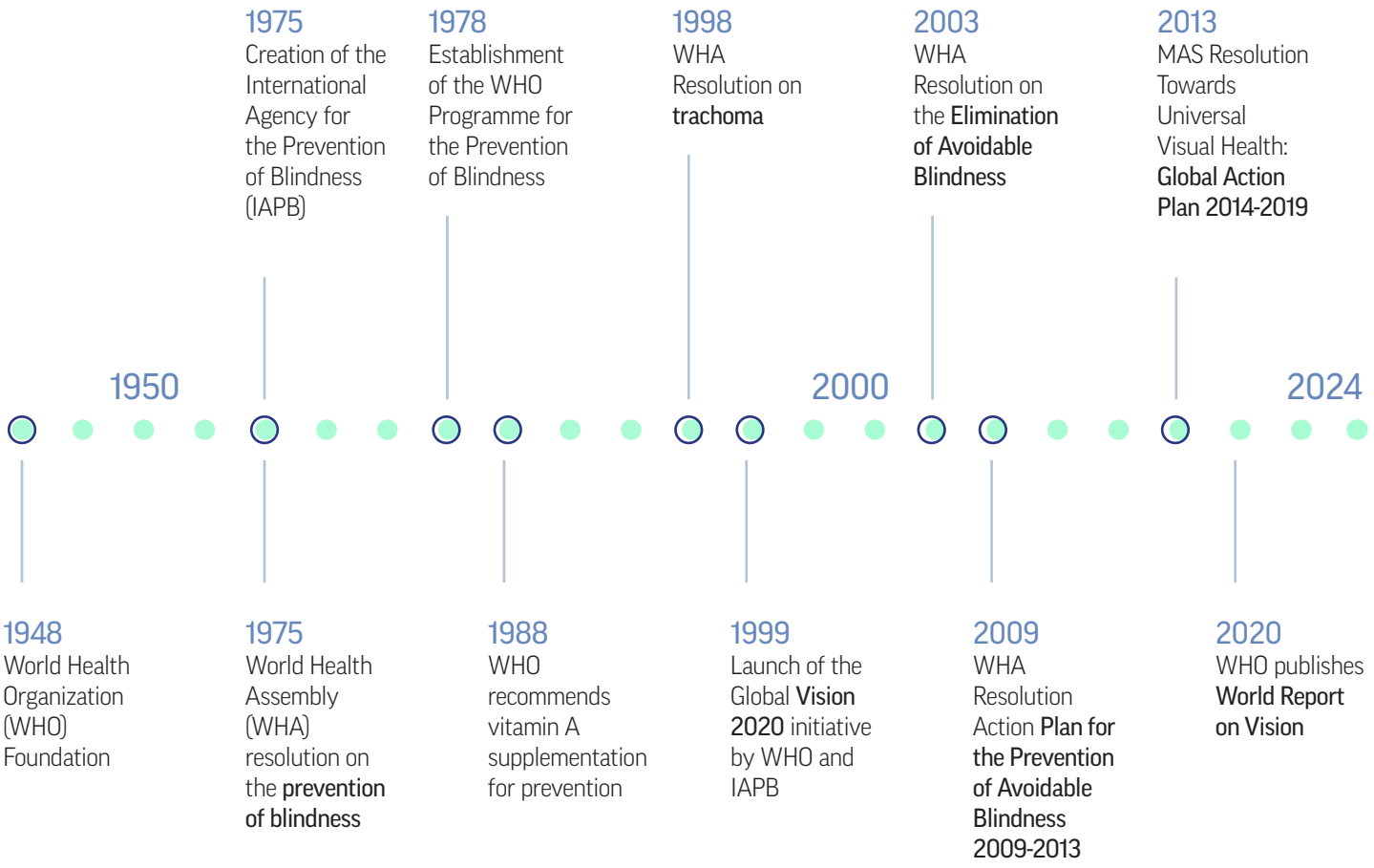
# 1. Legal and Policy Framework Relevant to Eye Health

## 1.1. International Framework

Over the past thirty years, the World Health Organization (WHO) has promoted several resolutions to integrate eye care into health system planning, with the goal of preventing blindness worldwide. These efforts have led to significant progress and provide valuable lessons for the future of eye health, where important challenges still remain (see Figure 1).

The year 2020 marked the conclusion of the global initiative to eliminate avoidable blindness, Vision 2020: The Right to Sight, launched in 1999 by WHO and the International Agency for the Prevention of Blindness (IAPB). This initiative provided the framework for national programs to improve eye health over the past two decades. Among the World Health Assembly (WHA) resolutions relevant to these efforts, WHO highlights the following: WHA 56.26 (2003), WHA 59.25 (2006), WHA 62.1 (2009), and WHA 66.11 (2013) (see Table 1). These promoted the standardization of visual scales to establish common definitions, as well as the collection of higher-quality data. Public health priority eye diseases were identified and addressed through public-private partnerships—including private-sector and non-profit organizations. However, global implementation did not always include sufficient participation and leadership from health authorities to integrate eye health into national health plans (Burton 2021, WHO 2019).

*Figure 1.* **Evolution of WHO Resolutions for the Reduction of Preventable Visual Impairment and Blindness Worldwide.**




*Source: Author's elaboration based on IAPB (2014) and Burton (2020).*

In 2020, WHO published the World Report on Vision, endorsed by the 73rd World Health Assembly. This report and resolution call for the promotion of eye health as an integral part of universal health coverage, through the implementation of integrated, people-centered eye care within a broader health services framework.

Finally, in the 74th World Health Assembly of 2021, WHO Member States—including Mexico—approved resolution WHA 74.12, which set targets for 2030: a 40% increase in effective coverage for refractive error correction and a 30% increase in effective coverage for cataract surgery (WHO 2019).

**Table 1. Milestones in the Prevention of Visual Impairment and Blindness Worldwide**

- World Health Assembly, 28th (1975). Prevention of Blindness. World Health Organization. Resolution WHA28.54

In this resolution, the WHA called on the Director-General of the WHO to take action against the problem of blindness and to establish initiatives targeting trachoma, xerophthalmia, cataracts, onchocerciasis, ocular trauma, and glaucoma. This resolution laid the foundation for the establishment of the WHO Programme for the Prevention of Blindness in 1978.

In 1978, the WHO Programme for the Prevention of Blindness was officially established in Geneva. Since the creation of the programme, the WHO has promoted, in cooperation with Member States, the establishment of national blindness prevention programmes based on primary health care. WHO works closely with a network of non-governmental organizations dedicated to blindness prevention. These organizations provide financial or other assistance to a number of countries. WHO places special emphasis on training various categories of personnel in eye care and the implementation of techniques.

- World Health Assembly, 51st (1998). Global Elimination of Blinding Trachoma. Resolution WHA 51.11

In 1993, WHO adopted the SAFE strategy for the elimination of trachoma. In 1996, WHO launched the Alliance for the Global Elimination of Trachoma by 2020. This alliance supported Member States in implementing the SAFE strategy and strengthening national capacity through epidemiological studies, disease monitoring and surveillance, project evaluation, and resource mobilization.

In 1998, the WHA adopted Resolution WHA 51.11, which aimed to eliminate trachoma as a public health problem by 2020. The 2021–2030 roadmap for neglected tropical diseases, adopted by the WHA in 2020 through decision 73(33), extended the target for global elimination of the disease to 2030.*

- WHO and the International Agency for the Prevention of Blindness (IAPB) officially launch the global initiative Vision 2020 in 1999

The objective of the initiative was to intensify and accelerate blindness prevention activities to achieve the goal of eliminating avoidable blindness by 2020, focusing on causes of blindness for which cost-effective interventions exist.

- World Health Assembly, 56th (2003). Elimination of Avoidable Blindness. Resolution WHA 56.26

In May 2003, the WHA approved a resolution on the elimination of avoidable blindness, calling on all Member States to commit to the Vision 2020 plans by 2005.

- World Health Assembly, 59th (2006). Prevention of Avoidable Blindness and Visual Impairment. Resolution WHA 59.25

In May 2003, the WHA approved WHO's resolution on the elimination of avoidable blindness, urging all Member States to commit to Vision 2020 plans by 2005.

In 2006, stakeholders in Vision 2020 developed an action plan for the period 2006–2011, expanding the mandate to focus not only on avoidable blindness but also on visual impairment, particularly that caused by uncorrected refractive errors.

- World Health Assembly, 62nd (2009). Resolution WHA 62.1: Prevention of Avoidable Blindness and Visual Impairment

The 2009–2013 Action Plan for the prevention of avoidable blindness and visual impairment was approved by the 62nd World Health Assembly.

- World Health Assembly, 66th (2013). Universal Eye Health: A Global Action Plan 2014–2019 (GAP). Resolution WHA 66.11

In 2013, the WHA launched the plan Towards Universal Eye Health: A Global Action Plan 2014–2019 (GAP). This plan set a global target of reducing the prevalence of avoidable visual impairment (cataracts and uncorrected refractive errors [visual acuity <6/18]) by 25% compared to the 2010 baseline.**

The WHA defined cataracts and refractive errors as avoidable causes of visual impairment because they can be effectively treated with surgery and eyeglasses, respectively. The plan highlighted the importance of reducing the prevalence of avoidable visual impairment in people aged 50 and older, as most cases occur in this age group. The plan builds on and replaces previous plans: Vision 2020 and the 2009–2013 action plan.

- World Health Assembly, 74th (2021). Integrated People-Centred Eye Care, including Prevention of Visual Impairment and Blindness. Resolution WHA 74.12

At the 74th WHA, two new global targets for eye health by 2030 were approved. These targets focus on the two main causes of blindness and visual impairment: cataracts and refractive errors.

By defining these targets, the goal is to monitor global progress in eye health and hold national governments accountable for meeting them. To address the growing unmet need for eye care, all Member States committed to:

- Increasing effective coverage of refractive error treatment by 40% by 2030.
- Increasing effective cataract surgical coverage by 30% by 2030.

*Source: Own elaboration based on information from WHO and IAPB.*

* WHO has validated the elimination of trachoma as a public health problem in Mexico.

** According to The Lancet Global Health (2021) and Burton (2021), estimates of the prevalence of blindness and visual impairment in the general population and in those aged 50 and over show that the WHA GAP target was not met.

## 1.2. National Framework

The legal framework relevant to visual health in Mexico is primarily based on the **General Health Law (LGS),** which regulates the right to health protection as established in **Article 4 of the Political Constitution of the United Mexican States.** This law defines visual health as a matter of **general public health concern** (Article 3, Section IV Bis 1). This means that, in terms of the distribution of responsibilities between the federal government and the states, visual health falls under the **services organized, operated, supervised, and evaluated by state governments** (Section I, Subsection B of Article 13).

Additionally, visual health is listed among the **topics subject to guidance and training** as part of health education (Article 112, Section III). Within the maternal and child healthcare framework, visual health is explicitly mentioned among the **child healthcare actions** (Article 61, Section II), and includes the **application of a neonatal eye screening** (ophthalmologic screening) during the **fourth week after birth** to detect early malformations that could lead to blindness, as well as their treatment at any stage (Article 61, Section IV).

In the case of **social security institutions**, visual health is covered through **in-kind benefits** granted in the event of illness by the **Mexican Social Security Institute (IMSS)** (Article 91 of the Social Security Law), and through the **preventive, curative, and rehabilitative health care components** of the **Health Insurance Plan of the Institute for Social Security and Services for State Workers (ISSSTE)** (Article 27 of the ISSSTE Law).

Regarding the regulation of health professionals, the **LGS** stipulates that, to practice professional, technical, or auxiliary activities in the medical field (including the clinical specialty of ophthalmology) and optometry, a **professional degree, specialization certificates, or legally issued and registered diplomas** from competent educational authorities are required (Article 79).

As for **governance bodies or intersectoral collaboration**, the LGS does not establish a specific mechanism for visual health. However, **in 2005, the National Council for the Prevention and Treatment of Visual Diseases (CNPTEV)** was created with the mission of coordinating the implementation of a national strategy to improve visual and eye health, including sectoral and multisectoral policies. There is no publicly available evidence regarding the recent functioning of this council.

With respect to the **inclusion of visual health in planning or policymaking**, the most recent sectoral health program does not identify any specific policies or actions related to visual health. There is historical precedent (2016) for a **National Program for the Prevention of Disability due to Blindness**, but no **publicly available official documentation** supporting its existence can be found.

On the other hand, some Official Mexican Standards (NOMs) related to visual health have been identified. These standards are mandatory for the public, social, and private sectors, and non-compliance may result in sanctions:

- **NOM 034-SSA2-2013, for the prevention and control of birth defects.**
  It states that every newborn must be examined for the prevention, diagnosis, treatment, and control of birth defects, including those related to visual health.

- **NOM 015-SSA3-2012, for the comprehensive medical care of persons with disabilities.**
  It establishes specifications for the comprehensive care of individuals with visual impairments.

- **NOM 005-SSA3-2018, which establishes the minimum infrastructure and equipment requirements for outpatient medical care facilities.**
  This standard outlines the specific requirements that an optometry clinic must meet.

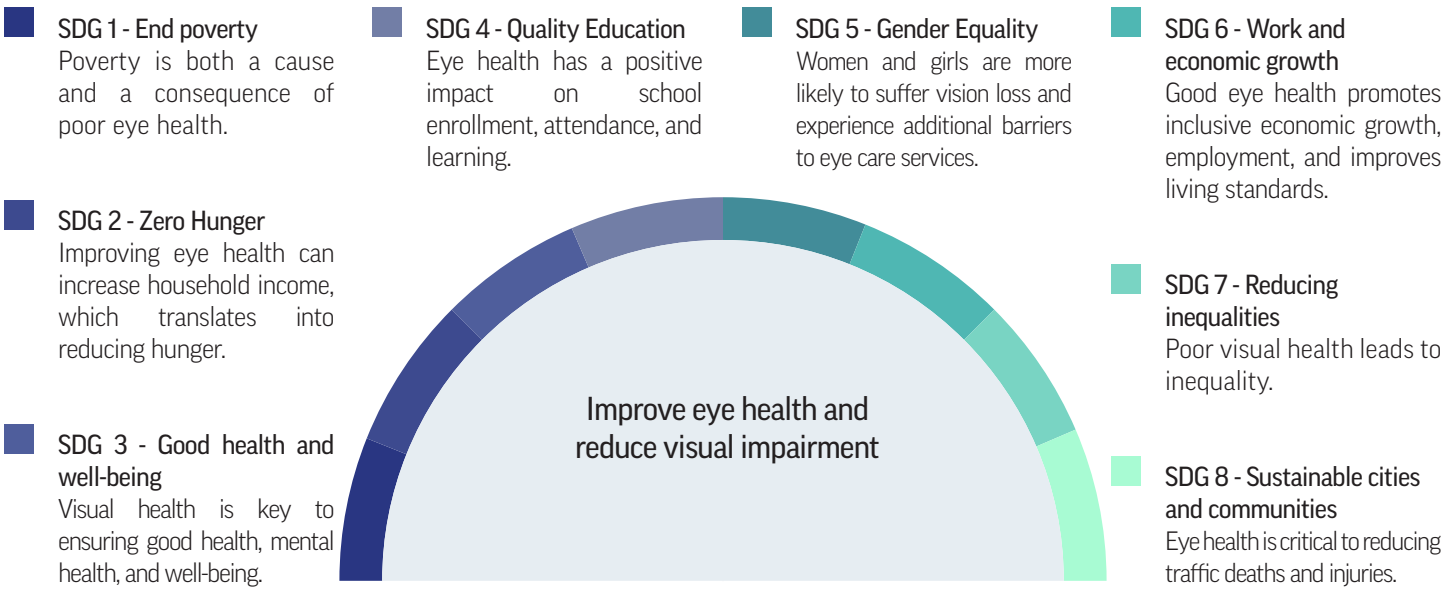
All these elements are a good starting point to support the health system's response to the growing needs in visual health. However, they **do not take a comprehensive approach to visual health**, nor do they clearly define **funding mechanisms or responsibilities** in service provision, including all actors in the national health system. Furthermore, there is a significant gap in the **legal framework's scope to support visual health** promotion and to enable **effective intersectoral collaboration** in the prevention and care of visual health problems.

## 2. The Importance of Visual Health Globally

Visual health is essential to achieving the **Sustainable Development Goals (SDGs).** In the study by Burton et al. (2021), the relationship between visual health and the SDGs is explored. The authors document that visual impairment not only reduces mobility and affects mental health, but also increases the risk of **dementia, falls, and traffic accidents**. It also increases the demand for healthcare, which can overwhelm health systems and increase mortality.

They conclude that improving access to **eye health services** has a **significant impact** on achieving several SDGs (see Figure 2). Visual health is a key factor in **reducing poverty** and **increasing labor productivity,** thus promoting more **equitable economic development**. Access to quality eye care improves **overall health, facilitates inclusive and equitable education, and promotes gender equality, as women and girls often face additional barriers to accessing these services.**

*Figure 2*. **Relevance of eye health in the Sustainable Development Goals (SDGs) 2030**




*Source: Prepared by the authors with information from WHO (2020) and Burton (2021).*

Moreover, progress toward many SDGs has a positive effect on eye health. Poverty reduction and improvements in living and working conditions contribute to better eye health by decreasing exposure to risk factors and increasing access to health services. This creates a virtuous cycle in which better eye health and progress toward the SDGs mutually reinforce each other, promoting sustainable and equitable development for the entire population (WHO 2019; Burton 2021).

## 2.1. Magnitude of Visual Impairment and Blindness Worldwide

The importance of good vision for overall health is increasingly evident. Vision loss not only affects the ability to see but also influences an individual's physical, cognitive, and mental health, and can widen gaps in employment opportunities, access to healthcare, and income (Swenor 2021).

According to the World Health Organization (WHO), visual impairment occurs when an eye disease, defect, or refractive error affects the visual system and the functions associated with vision. It refers to any reduction in visual capacity, including partial or total vision loss. Visual disability, in turn, implies that this impairment has a significant impact on the ability to carry out daily activities, affecting people's quality of life. Throughout life, it is likely that everyone will experience at least one eye condition that requires timely access to quality eye care and rehabilitation (WHO 2023; WHO 2019).

*Every person in the world, if they live long enough, will experience at least one eye condition in their lifetime that will require quality eye care. (WHO 2023)*

Over the past three decades, significant changes have been observed in the main causes of visual impairment. While infectious diseases such as trachoma and onchocerciasis have declined, chronic eye diseases such as glaucoma, age-related macular degeneration, and diabetic retinopathy now account for a greater proportion of blindness and visual impairment worldwide (GBD 2019/VLEG 2021).

La OMS, la Agencia Internacional para la Prevención de la Ceguera (IAPB, por sus siglas en inglés) y la Comisión de Salud Ocular de *The Lancet Global Health*, entre otras instancias internacionales, destacan la necesidad de una respuesta de salud pública y clínica adaptada a las necesidades de salud visual resultado de las transiciones epidemiológica y demográfica en el mundo (Burton 2021; WHO 2019).

*90% of vision loss cases are preventable or treatable with cost-effective interventions. (IAPB 2023)*

WHO, the International Agency for the Prevention of Blindness (IAPB), and The Lancet Global Health Commission on Global Eye Health, among other international bodies, emphasize the need for a public health and clinical response adapted to the eye health needs resulting from global epidemiological and demographic transitions (Burton 2021; WHO 2019).

In its World Report on Vision, WHO proposes developing and scaling up a model of care based on integrated, people-centered eye care, embedded in health systems and grounded in quality primary health care, to address current challenges in eye health. To support member states in implementing this model of eye care, WHO highlights three enabling factors:

(i) improving the delivery of eye care services, especially through primary health care;
(ii) optimizing health information systems for eye care; and
(iii) strengthening the specialized eye health workforce (WHO 2019).

### 2.1.1. Eye Health in Numbers

Currently, at least **2.2 billion people worldwide** have visual impairment. It is estimated that in **50% of these cases (over one billion people)**, visual impairment could have been prevented or has not yet been addressed. Of these, approximately **43 million people are blind (3.3%), 295 million have moderate or severe visual impairment (26.8%), 258 million have mild visual impairment (23.5%), and 510 million suffer from uncorrected presbyopia (46.4%).** More than half of the cases are women, and people aged 50 and above are the most affected (WHO 2019; Burton 2021).

*Data on visual impairment and blindness in children and adults —particularly those under 40— remain scarce. (Burton 2021)*

In terms of regional differences, the prevalence of untreated distance visual impairment is **four times higher in low- and middle-income regions** compared to high-income regions. Furthermore, the number of blind people in low- and middle-income regions of sub-Saharan Africa and South Asia is more than **eight times higher** than in high-income regions (WHO 2019).

Many diseases affect eye health, and even those that do not cause visual impairment can significantly reduce quality of life. The main causes of visual impairment in adults are: uncorrected refractive errors, cataracts, glaucoma, age-related macular degeneration, diabetic retinopathy, corneal scarring, and trachoma. Among children, the leading causes of moderate to severe visual impairment and blindness include uncorrected refractive errors, cataracts, retinopathy of prematurity, congenital eye anomalies, and cerebral visual impairment.

**Cataracts and uncorrected refractive errors account for nearly 50% of global blindness.** Glaucoma, age-related macular degeneration, and diabetic retinopathy contribute to **17% of blindness cases**. Regarding **moderate to severe visual impairment (MSVI)**, uncorrected refractive errors and cataracts are the underlying causes, generating about **80% of all MSVI cases worldwide** (Burton 2021; GBD 2019/VLEG 2021).

Different estimates of the prevalence and relative contribution of preventable causes of blindness and MSVI worldwide show that, although age-adjusted rates have decreased in the last 30 years, the **total number of cases has increased** (Burton 2021). This suggests that international efforts to improve eye health have reduced prevalence rates but have not been sufficient to meet the growing demand for eye care due to population growth and accelerated aging.

By 2050, a significant increase in cases of visual impairment and blindness is projected, underscoring the urgent need to integrate eye health into **universal health coverage** and develop effective strategies to address this growing global vision crisis. According to the IAPB Vision Atlas, visual impairment and blindness are expected to increase by **55% (an additional 600 million people affected)** over the next 30 years (Burton 2021).

*The World Health Assembly of WHO defines cataracts and uncorrected refractive errors as avoidable causes of visual impairment and blindness, as they can be very effectively treated with surgery and eyeglasses, respectively. (Burton 2021)*

Regarding the impact of visual impairment and blindness on people's quality of life, these conditions currently rank among the **top ten causes of years lived with disability (YLDs)** per 100,000 population worldwide—after mental disorders (depression and anxiety), musculoskeletal disorders (low back pain and headache), and diabetes.[1]

With respect to the conditions that cause visual impairment and blindness, presbyopia, refractive errors, and cataracts cause **315 years lived with disability per 100,000 population worldwide** (see Figure 3). To put this indicator into perspective, type 2 diabetes mellitus causes **487 YLDs per 100,000 population worldwide.** Living with disability has a direct and significant impact on individuals, their families, and society as a whole.

*Figure 3*. **Years lived with disability due to visual impairment and blindness worldwide**

Rate per 100,000 population, both sexes, all ages

| | 2000 | 2021 | |
|---|---|---|---|
| 01. | Presbyopia<br>90.56 YLDs x 100,000 pop. | Presbyopia<br>147.02 YLDs x 100,000 pop. | 01. |
| 02. | Refractive disorders<br>78.65 YLDs x 100,000 pop. | Refractive disorders<br>84.33 YLDs x 100,000 pop. | 02. |
| 03. | Cataracts<br>71.5 YLDs x 100,000 pop. | Cataracts<br>83.52 YLDs x 100,000 pop. | 03. |
| 04. | Another loss of vision<br>34.54 YLDs x 100,000 pop. | Another loss of vision<br>38.23 YLDs x 100,000 pop. | 04. |
| 05. | Glaucoma<br>8.79 YLDs x 100,000 pop. | Glaucoma<br>9.66 YLDs x 100,000 pop. | 05. |
| 06. | Age-related macular degeneration<br>5.99 YLDs x 100,000 pop. | Age-related macular degeneration<br>7.19 YLDs x 100,000 pop. | 06. |

YLDs = Years Lived with Disability

*Source: Own elaboration based on Global Burden of Disease Study 2021 (IHME 2024).*

Finally, the **global economic impact of vision loss is significant**. The annual productivity loss associated with visual impairment is estimated at **USD 411 billion**. This figure is much higher than the estimated global investment required to cover the unmet needs of preventable visual impairment, calculated at around **USD 14.3 billion** (USD 6.9 billion for cataract surgery and USD 7.4 billion for refractive error care) (WHO 2019).

*Economic impact studies on visual impairment and blindness, as well as cost-effectiveness evaluations of interventions for the main causes, are scarce, face significant limitations, and carry great uncertainty. (Burton 2021)*

[1] Years lived with disability are an important measure for understanding the impact of non-fatal diseases and injuries on a population. They allow for determining public health priorities and comparing the impact of different diseases and injuries on the disability they cause, facilitating informed decision-making to improve population health (WHO 2024).

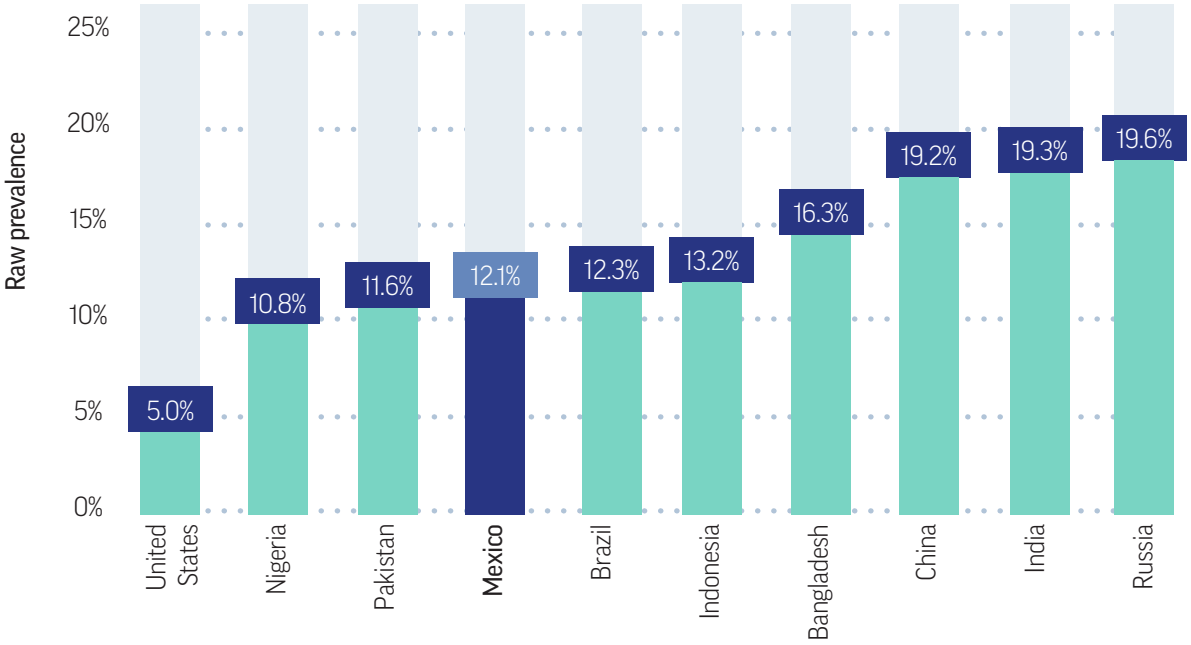
# 3. Magnitude of Visual Impairment and Blindness in Mexico

According to the IAPB Vision Atlas, Mexico is currently among the 10 countries with the highest number of cases of visual impairment and blindness worldwide (Bourne 2020).

When comparing the prevalence of vision loss among these countries, Mexico's prevalence is higher than that of the United States, Nigeria, and Pakistan, while lower than the estimated prevalence for Brazil, Indonesia, Bangladesh, China, India, and Russia (see Figure 4).

*Nationally representative studies describing the magnitude of visual impairment and blindness in the general population of Mexico are limited. (Madueña-Angulo 2023)*

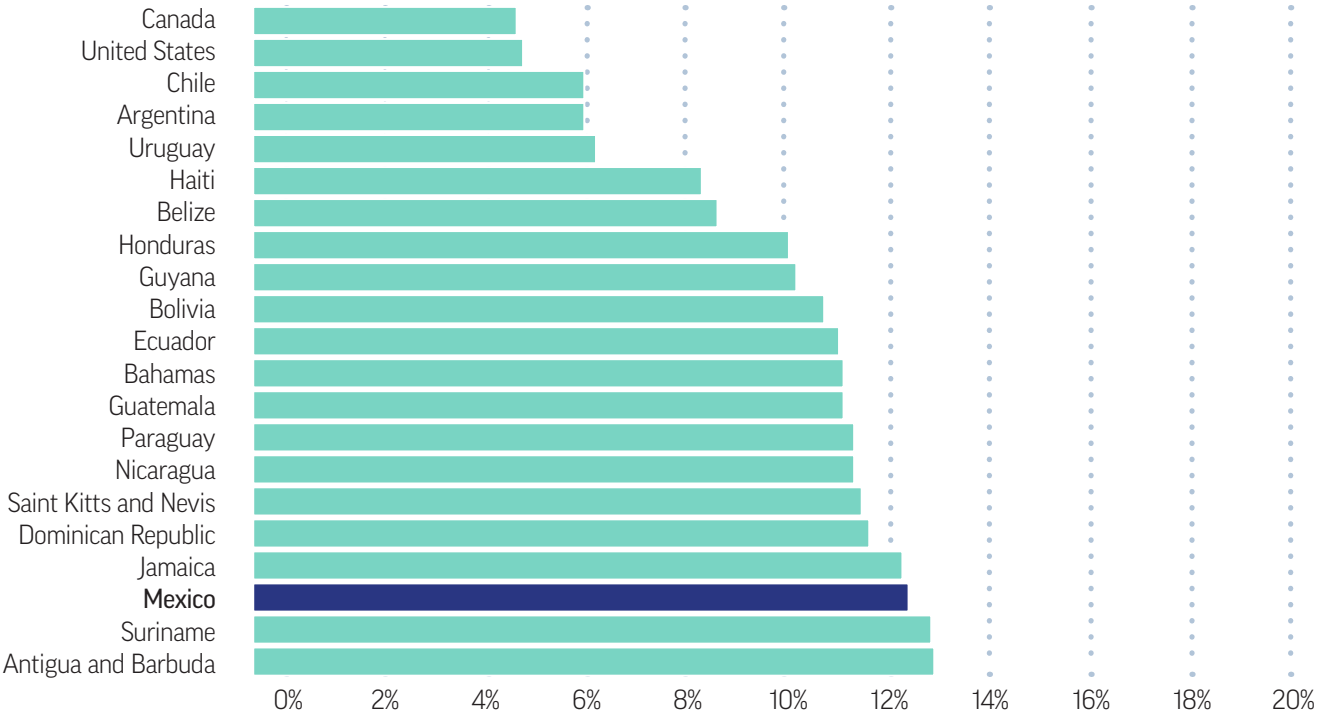
*Figure 4*. **Estimated prevalence for the 10 countries with the highest number of people with vision loss* in the world, 2020**

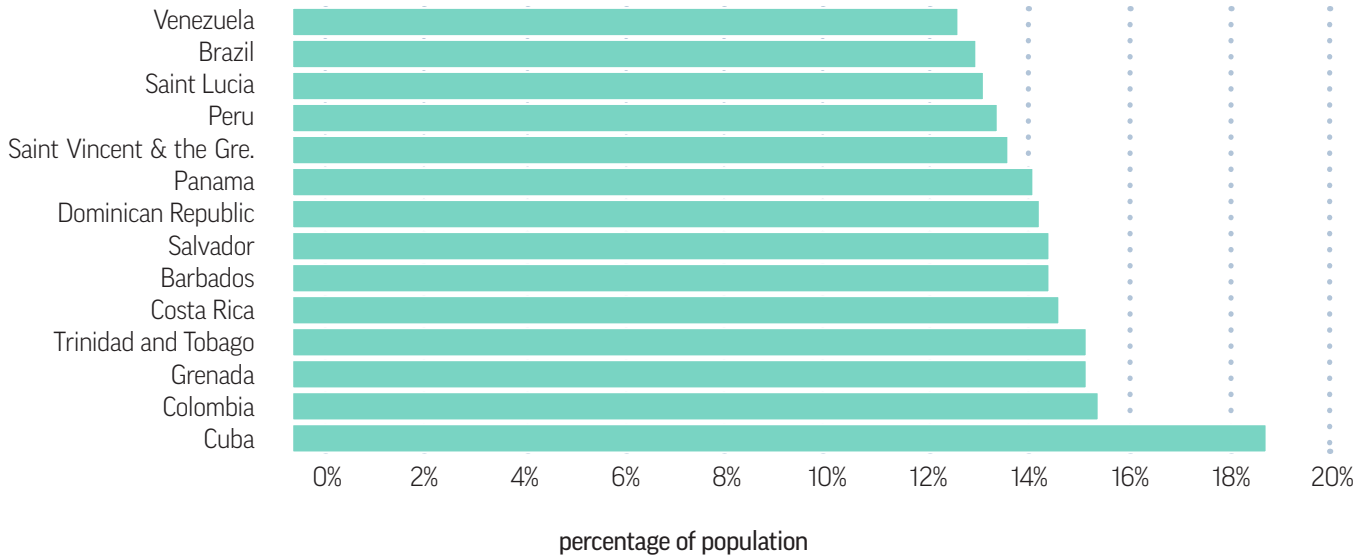



* Vision loss refers to difficulty seeing up close, mild visual impairment, moderate to severe visual impairment, and blindness. Prevalence is measured as the percentage of cases relative to the population. It does not consider any adjustment or standardization by sex or age.

*Source: Own elaboration with information from Bourne (2020).*

*Figure 5*. **Estimated prevalence of vision loss in Latin American countries, 2020**






Source: Own elaboration with information from Bourne (2020).

## 3.1. Current Overall Status of Vision Loss Among the Mexican Population

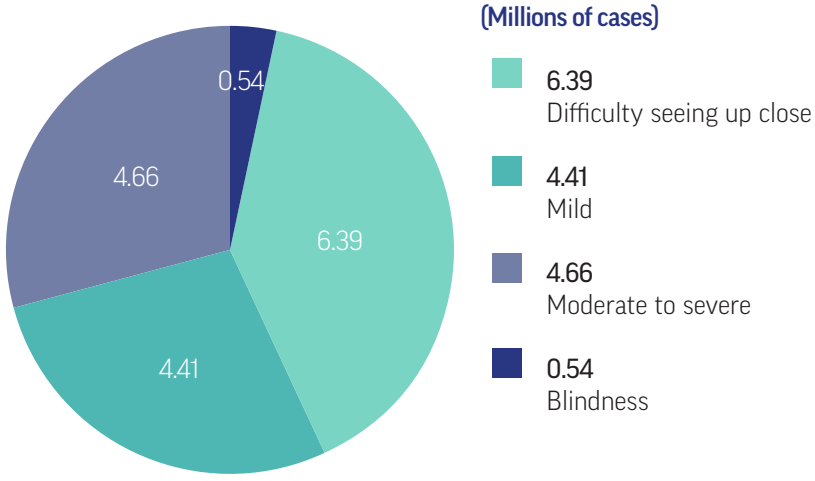
Documenting the current prevalence of visual impairment and blindness in Mexico is not an easy task. There are no registries or data from official sources, and ophthalmological epidemiological studies for Mexico are scarce. The National Institute of Statistics and Geography (INEGI) reports data on visual disability—understood as the population that reports having great difficulty seeing or being unable to see even when using glasses—based on the 2020 Population and Housing Census and the 2023 National Survey on Demographic Dynamics (ENADID). On the other hand, the National Health and Nutrition Survey (ENSANUT) estimates the percentage of the total population with type 2 diabetes in Mexico who report having reduced vision as a complication.

*In Mexico, there are no official data sources on the epidemiology of visual impairment, blindness, and their main causes.*

According to the IAPB Vision Atlas, slightly more than 16 million people have vision loss in Mexico. Of these, 540,000 people are blind. Considering Mexico's total population in 2024[1], this implies that the overall prevalence of vision loss is estimated at 12.1%. In the specific case of blindness, 0.41% of the country's population is blind (see Figure 6) (Bourne 2020; CONAPO 2024).

*Other sources estimate a prevalence of 11 million people with visual impairment and blindness in Mexico (prevalence 8.7%) (Madueña-Angulo et al.).*

*Figure 6*. **Total burden of vision loss by severity level, Mexico 2020 (Millions of cases)**




**16 million**
prevalent cases of vision loss in Mexico.

Source: Author's elaboration with data from Bourne (2020) and CONAPO (2024).

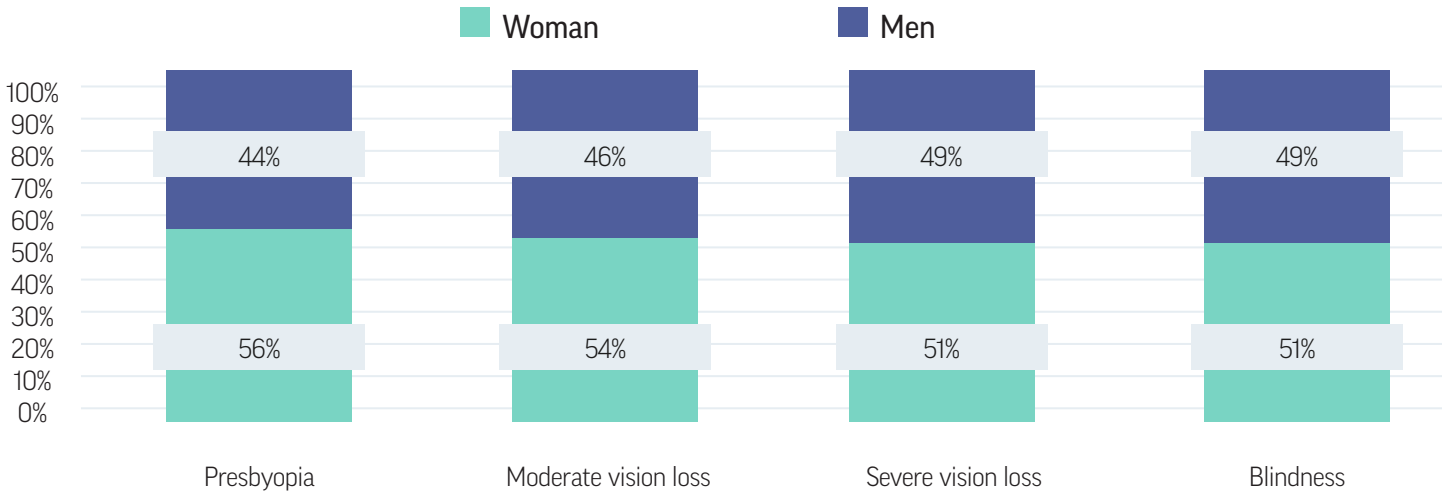
[1] According to the National Population Council (CONAPO) population projections, Mexico's mid-year population in 2024 is 132,274,416.

In Mexico, near vision difficulty accounts for 40% of prevalent cases of vision loss. This result is consistent with global reports indicating that most cases of vision loss are attributable to near vision impairment.

Regarding the distribution of the burden of vision loss by sex, girls and women contribute the largest percentage (55%) of the total estimated prevalent cases. These figures are estimates derived from the model developed by international eye health experts and the Global Burden of Disease 2020 study group (VLEG/GBD 2020), designed to estimate and analyze the global burden of vision loss.

By severity of visual impairment, uncorrected presbyopia and moderate vision loss were more prevalent among women than men, accounting for 56.2% and 54.3% of the total estimated cases, respectively (see Figure 7). In contrast, severe vision loss and blindness affected women and men at similar rates, and as we will see later, similar trends were found for years lived with disability.

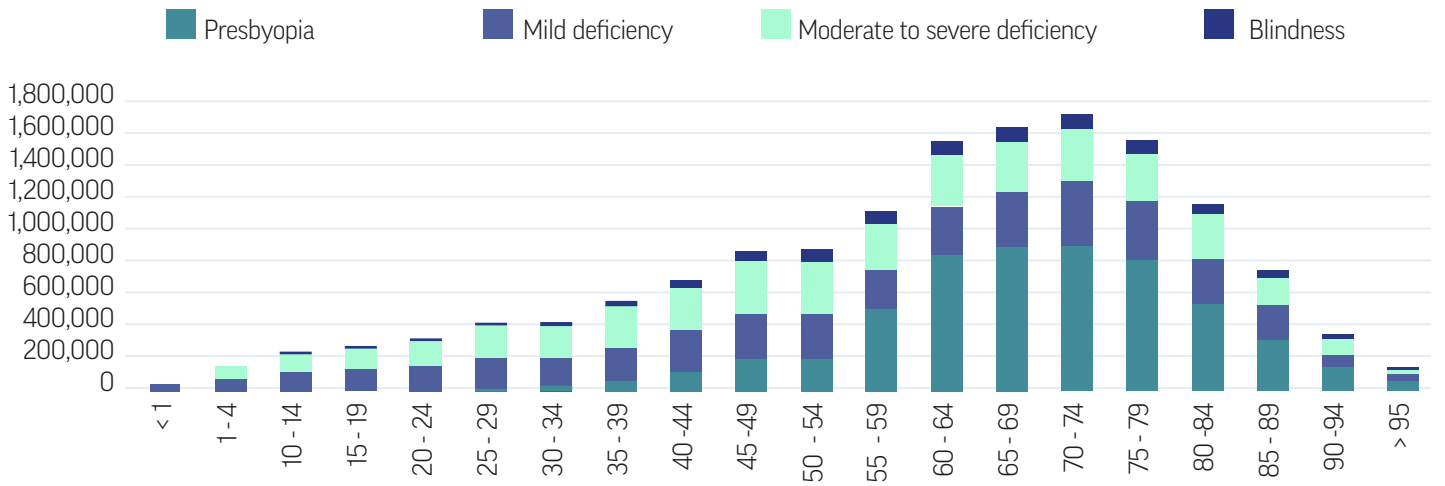
*Figure 7*. **Total burden of vision loss by sex and severity level, Mexico 2020**




Source: Author's elaboration with information from Bourne (2020) and Madueña-Angulo (2023).

In terms of age distribution, 70% of prevalent cases correspond to people aged 50 years and older (Figure 8). The most affected group is people between 70 and 74 years old, with 1.7 million prevalent cases. Meanwhile, uncorrected presbyopia primarily affects individuals aged 45 and older, with more than 50% of cases in each age group. Among younger groups (<39 years), moderate to severe visual impairment and blindness are less common. However, despite being a relatively smaller number of cases, moderate to severe impairment accounts for about half of the cases among children and adolescents. Causes such as refractive errors, retinopathy of prematurity, congenital cataract and other congenital ocular anomalies, and cerebral visual impairment may underlie this. Some of these causes are highly treatable, such as refractive errors and retinopathy of prematurity, and addressing them can make a significant difference in the future lives of this population group (Table 3).

*Figure 8*. **Population with vision loss by age group and severity level, Mexico 2020 (Number of cases)**




Source: Author's elaboration with information from Bourne (2020) and Madueña-Angulo (2023).

### Table 3. Retinopathy of Prematurity in Mexico

Retinopathy of prematurity (ROP) is the leading cause of childhood blindness. It is a retinal vascular disease that affects preterm newborns and, depending on its severity, can cause severe visual damage or blindness. Its main risk factors are birth weight and gestational age. The incidence and severity of ROP increase as gestational age and birth weight decrease.

All newborns under 34 weeks of gestation (GW) are at risk, and this risk increases with lower birth weight and gestational age.

In Mexico, the prevalence and burden of ROP have not been estimated in detail and vary according to the source. It is estimated that the average prevalence of ROP is 50% among premature babies, of which 1.5% present stage 3 (advanced ROP).

Among the recommendations to prevent the progression of ROP, screening and close ophthalmological follow-up of babies with risk factors—birth weight under 1,750 grams and gestational age of 34 weeks or less—are essential to enable timely treatments within the first 72 hours. This is particularly important for babies with a postmenstrual age between 36 and 38 weeks, considered the average age for the disease stages that require timely intervention.

Source: Author's elaboration with information from Acevedo-Castellón (2019); Medina-Valentón (2016); and Rivera-Rueda (2020).

Beyond the figures presented above, little is known about how vision loss affects the Mexican population. The burden of the disease is often underestimated mainly due to the scarcity of studies and because the few available analyses are limited to certain causes, a restricted number of years covered, regions, and age groups. For example, based on data from the Rapid Assessment of Avoidable Blindness (RAAB) repository, it is possible to document the burden of vision loss at the subnational level for the population aged 50 and older in Mexico. RAAB is a public database of survey-based studies reporting on vision loss in developing countries. In Mexico, five studies have been conducted (see Table 4).

### Table 4. RAABs available for Mexico

| State | Principal Investigator, Year | Diabetic Retinopathy Module | Data Available | Report Available |
|---|---|---|---|---|
| Querétaro | Bethania López, 2024 | Yes | No | No |
| Querétaro | Van Charles Lansingh, 2015 | Yes | Yes | Yes |
| Nuevo León | Pedro A. Gómez Bastar, 2014 | Yes | Yes | Yes |
| Chiapas | Sarah Polack, 2010 | Yes | Yes | Yes |
| Nuevo León | Pedro A. Gómez Bastar, 2006 | No | Yes | Yes |

Source: Author's elaboration with information from RAAB (2024).

From the RAAB studies available, some subnational data can be obtained. In Nuevo León (northern region), it was estimated that 1.5% of people over 50 years suffer from blindness, with cataracts, diabetic retinopathy, and glaucoma as the main causes. The age-adjusted prevalence of mild, moderate, and severe visual impairment was estimated at 6.5%, 4.2%, and 0.9% of the state's population, respectively.

In contrast, in Querétaro (central region), the age-adjusted prevalence of mild, moderate, and severe visual impairment was estimated at 12.8%, 3.6%, and 1.9%, respectively, with 1.1% of people aged 50 and older affected by blindness. Finally, in Chiapas (southern region), 2.1% of the population over 50 years was estimated to be blind, with diabetic retinopathy as the leading cause. Furthermore, 7.6% of the state's population suffers from moderate to severe visual impairment, with higher prevalence in rural areas (10.2%) compared to urban areas (3.9%).

The heterogeneity of this information highlights the need for a national-level study for the general population that covers the main causes of vision loss by age group and gender. Having national estimates would help better measure the magnitude of the problem and understand the patterns of the burden of vision loss in Mexico, thereby supporting the development of specific public health policies to prevent vision loss among the population.

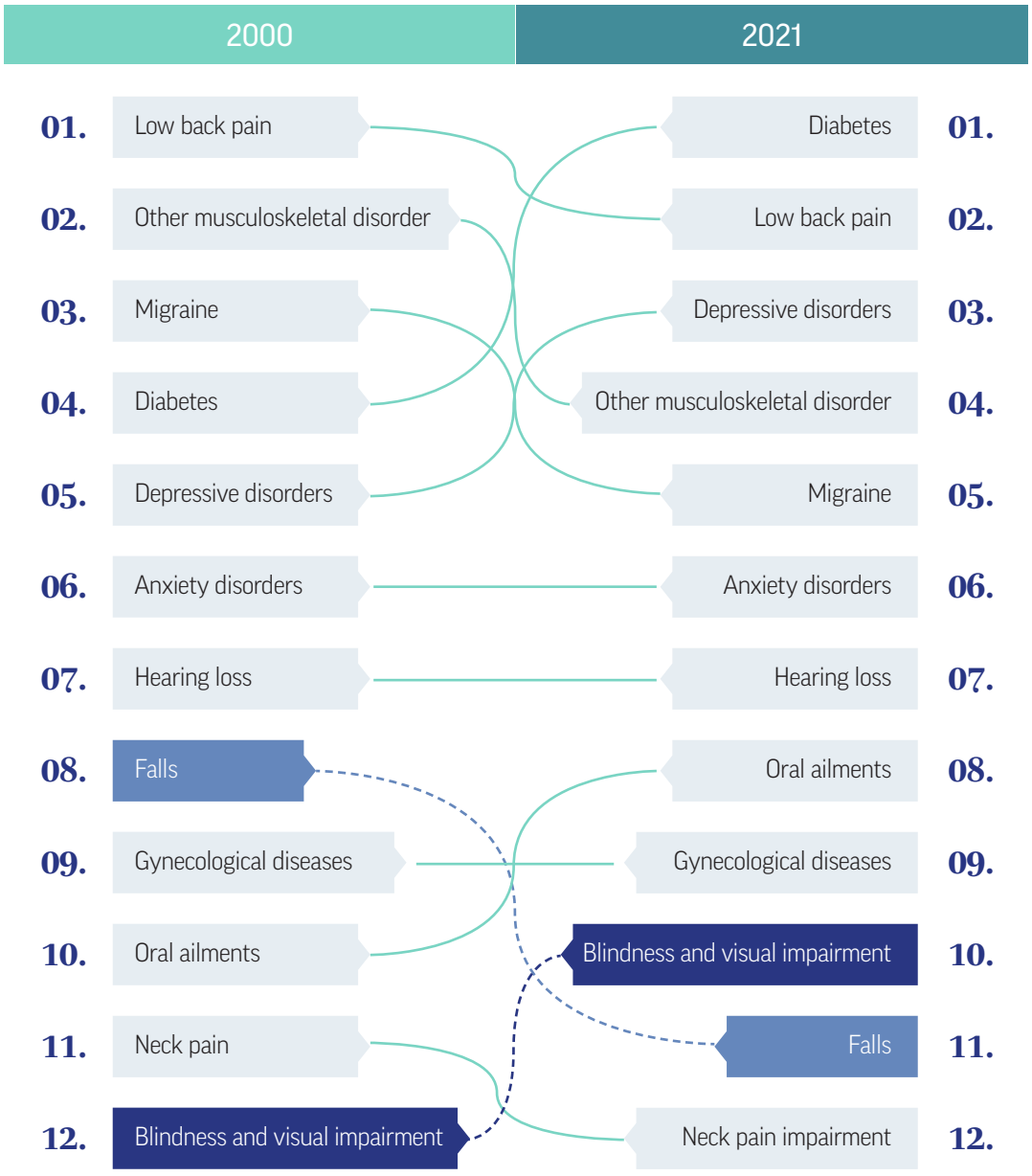
*A comprehensive national study is essential to understand and address vision loss in Mexico, documenting specific health policies for its prevention.*

## 3.2. Burden of Disease from Visual Impairment and Blindness in Mexico

To document the burden of disease from visual impairment and blindness in Mexico, we use public information from the Global Burden of Disease (GBD) 2021 study (IHME 2024) and Madueña-Angulo et al. (2023), employing the indicator Years Lived with Disability (YLD)[1] due to visual impairment and blindness.

Currently, visual impairment and blindness are among the top 10 causes of years lived with disability in the general population in Mexico (Figure 9). Over the past decade, the burden of visual impairment and blindness in the general population has increased by 34%, rising from 314,000 YLDs in 2010 to 420,000 in 2021.

*Figure 9*. **Leading causes of years lived with disability in Mexico, 2000–2021**

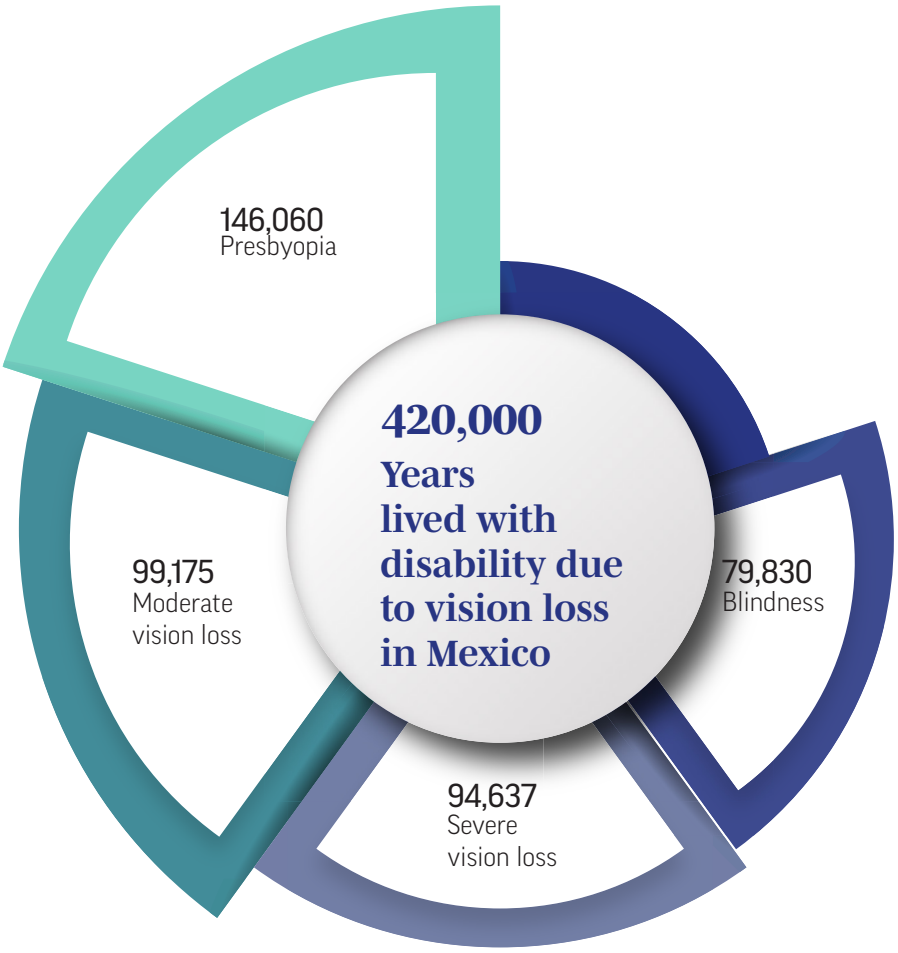



Source: Author's elaboration with information from IHME (2024).

In Mexico, prevalent cases of visual impairment and blindness are estimated to cause a total of **420,000 YLDs** in the general population, equivalent to **324.7 YLDs per 100,000 people**. Of these, presbyopia (difficulty seeing up close) is the leading cause of disease burden, with 146,000 YLDs, representing 35% of the total YLDs due to visual impairment and blindness (IHME 2024). This is followed by moderate visual impairment with 99,000 YLDs (24%) and severe visual impairment with nearly 95,000 YLDs (23%). Finally, blindness is estimated to cause 80,000 YLDs, accounting for 19% of the total YLDs due to visual impairment and blindness (Figure 10).

[1] For its estimation, the GBD study defines a series of disability weights (0: no health loss to 1: death) for sequelae caused by a specific disease, and these are multiplied by the prevalence of that disease.

*Figure 10*. **Years lived with disability by severity of vision loss in the general population, Mexico 2021**



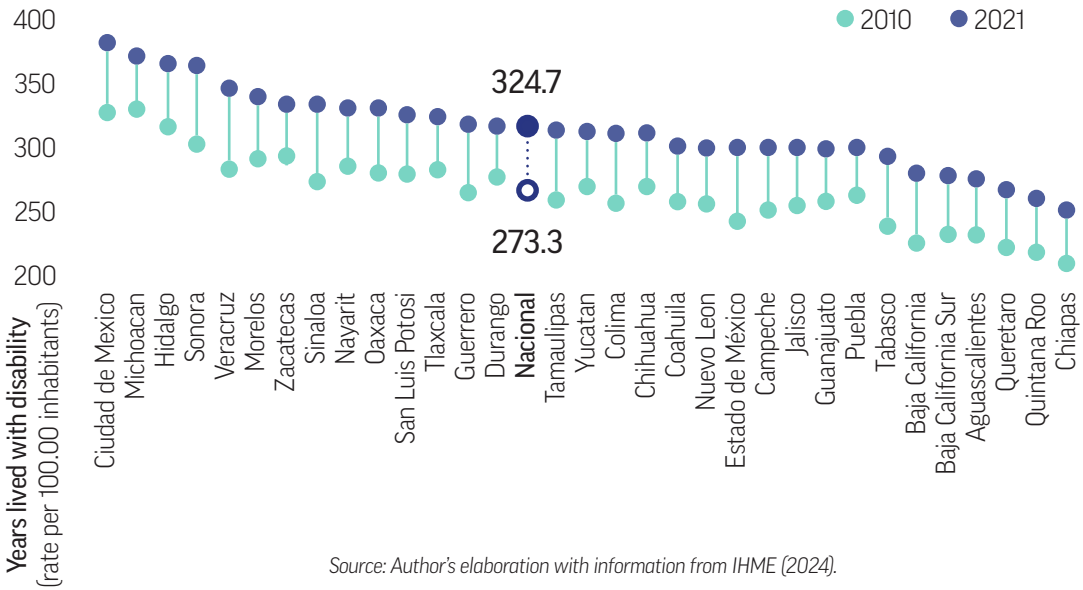

*Source: Author's estimation with information from IHME (2024) and Madueña-Angulo (2023).*

Women of all ages are the population group most affected by the burden of visual impairment and blindness in Mexico. Girls and women contribute 53% of the total years lived with disability (221,600 YLDs). According to Madueña-Angulo et al. (2023), uncorrected presbyopia and moderate visual impairment affect women and girls in greater proportion, while severe visual impairment and blindness impact women and men similarly.

*53% of total YLDs due to vision loss in Mexico occur in girls and women.*

Finally, over the last decade there has been a general increase in YLDs due to visual impairment and blindness at the subnational level, with significant variations between regions. Figure 11 shows that central states (such as Mexico City, Hidalgo, and Morelos) have higher levels of disease burden compared to some southern states (such as Chiapas and Quintana Roo). This indicates significant gaps in the burden of visual disability between regions, which may suggest the need for specific, localized strategies to address these differences.

*Figure 11*. **Burden of disease from visual impairment and blindness at the subnational level, Mexico 2010–2021**




*Source: Author's elaboration with information from IHME (2024).*

The information presented in this section outlines the epidemiology of vision loss in Mexico, documenting the data available from international sources. With an estimated prevalence of 12.1% and nearly 420,000 years lived with disability among the general population today, vision loss in the country represents a public health problem that requires attention and greater awareness from the sector for adequate prevention and treatment.

## 3.3. Main Causes of Visual Impairment and Blindness in Mexico

Understanding the epidemiology of eye diseases in the country is key to informing decision-makers about the eye health services required to reduce the burden of vision loss in Mexico. For this reason, this section analyzes the distribution of moderate to severe visual impairment and blindness by attributable cause, based on available disease burden information for the general population and the cause-specific distribution estimated in Madueña-Angulo (2023).

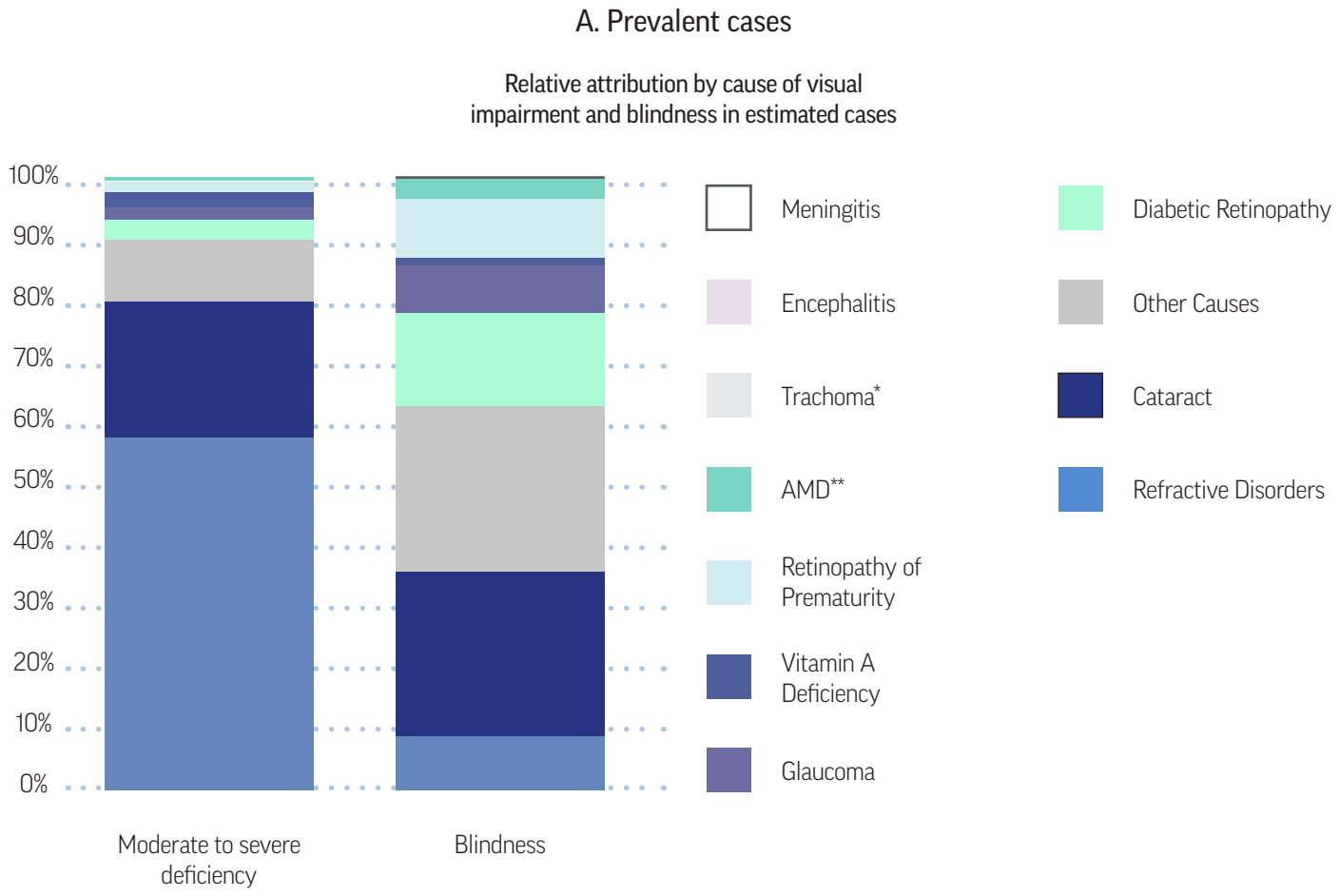
By volume, the leading causes of visual impairment and blindness among the general population in Mexico are refractive disorders and cataracts (see Figure 12a). Refractive disorders are estimated to account for 58% of the cases of moderate and severe visual impairment and 10% of blindness in Mexico. Cataracts, on the other hand, are the leading cause of blindness in Mexico, responsible for 22% of the estimated cases of moderate and severe visual impairment and 27% of the estimated cases of blindness–even though this condition can be treated safely and relatively easily.

Among the causes of blindness, diabetic retinopathy (14%) and retinopathy of prematurity (10%) also stand out. These are highly relevant causes in the Mexican context, considering the epidemiology that characterizes its population.

The pattern of cause-specific contribution to years lived with disability (YLDs) estimated for moderate to severe visual impairment and blindness is similar to that observed in prevalence (see Figure 12b). Refractive disorders are the leading cause of YLDs among people with moderate to severe visual impairment, followed by cataracts (22%); while in the case of blindness, the leading cause of YLDs is cataracts, followed by diabetic retinopathy and retinopathy of prematurity, with 26%, 14%, and 10% of contribution, respectively.

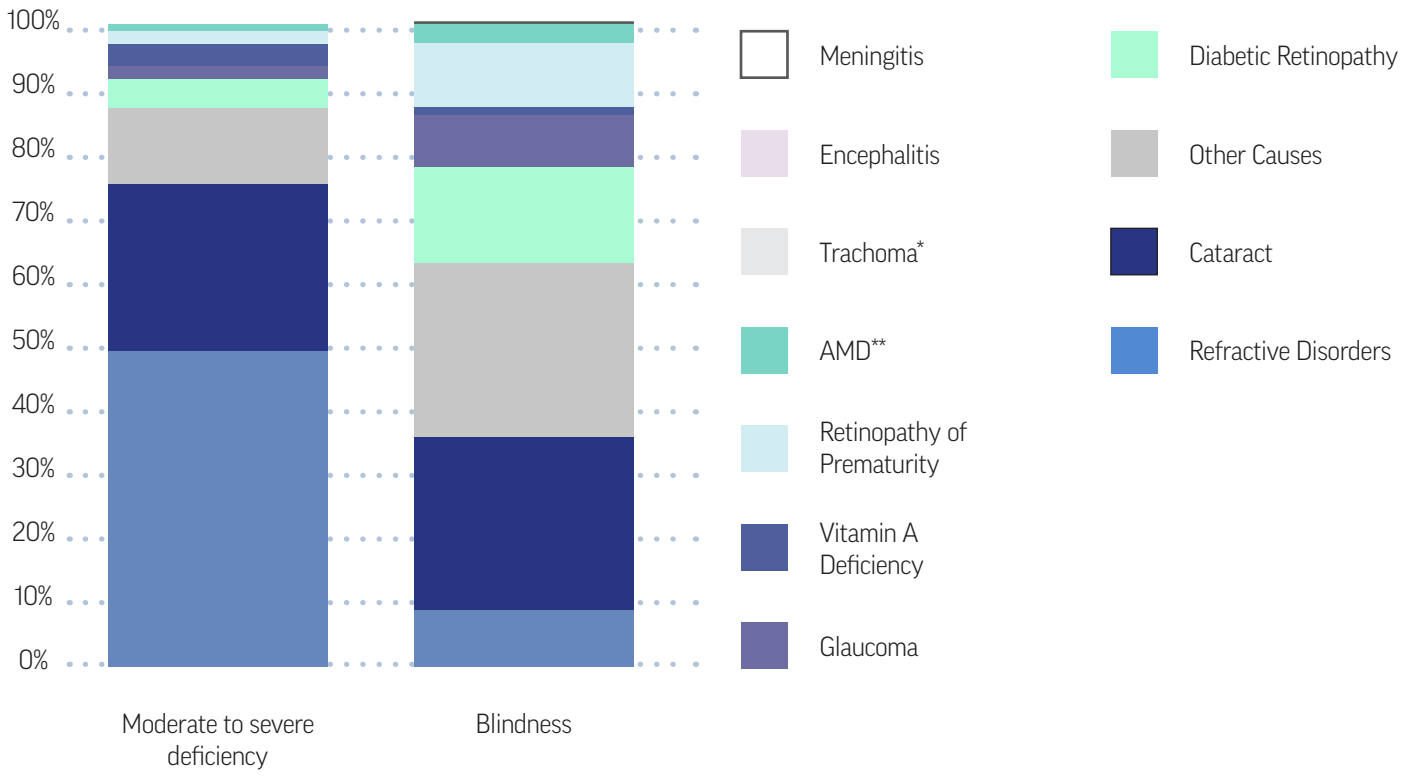
Overall, refractive disorders and cataracts together are estimated to cause 75% (just over 12 million of the estimated cases) of the prevalence of visual impairment and blindness, and 64% (268,000 YLDs) of the years lived with disability in Mexico. In turn, diabetic retinopathy and retinopathy of prematurity together represent 6.4% of the total estimated cases but 11% of the total YLDs due to visual impairment and blindness.

*Figure 12*. **Relative attribution by cause of visual impairment and blindness, Mexico 2020**



## B. Years Lived with Disability

Relative attribution by cause of visual impairment and blindness in the estimated YLDs

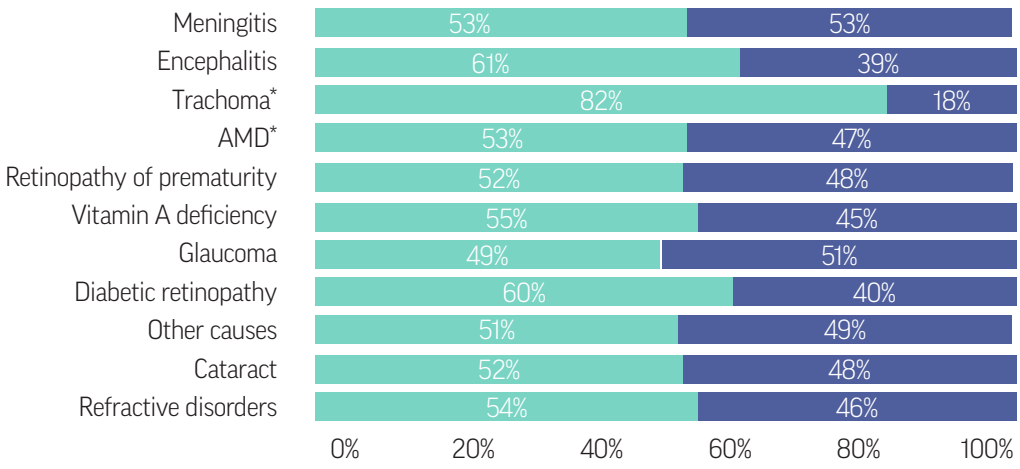



*Although Trachoma was eliminated in Mexico in 2016, the data sources used in Madueña-Angulo (2023) to estimate the distribution of the burden of vision loss by cause are from before that year, which is why it is still reported.
** AMD = Age-related macular degeneration.

*Source: Own elaboration based on Bourne (2020) and Madueña-Angulo (2023).*

Finally, the attribution of the causes of visual impairment and blindness in the distribution of estimated prevalence by sex in Mexico indicates that most causes of vision loss are higher among girls and women, with the exception of glaucoma (Figure 13). Regarding the attribution of years lived with disability, Madueña-Angulo (2023) conclude that the greatest gender disparities in YLDs are observed in diabetic retinopathy, and that, overall, girls and women bear a greater burden of vision loss compared to men (in 9 out of the 12 causes considered).

*Figure 13*. **Relative attribution by cause of visual impairment and blindness in total prevalent cases by sex and severity, Mexico 2020**




*Although Trachoma was eliminated in Mexico in 2016, the data sources used in Madueña-Angulo (2023) to estimate the distribution of the burden of vision loss by cause are from before that year, which is why it is still reported.
**AMD = Age-related macular degeneration.

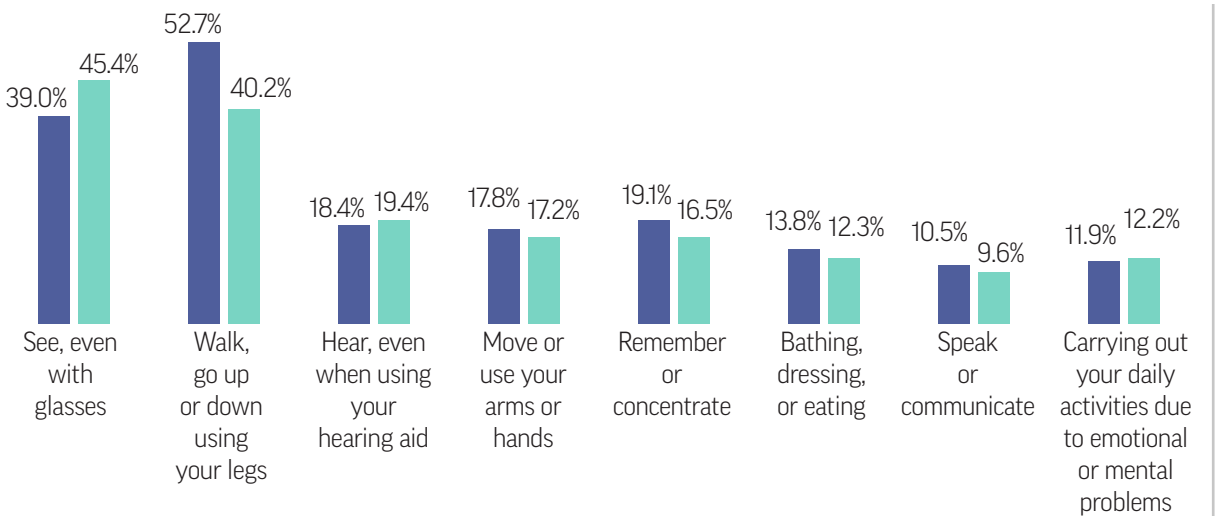
*Source: Own elaboration based on Bourne (2020) and Madueña-Angulo (2023).*

## 3.4. Magnitude of Visual Disability in Mexico

In Mexico, 8.9 million people have some form of disability, of whom 45.4% (3.7 million people) suffer from visual disability. This is concentrated mainly among the adult population aged 50 years and older (64%) and affects girls and women to a greater extent (55%) (INEGI, 2024b).

Currently, visual disability is the leading cause of disability among the Mexican population. In the last five years, the proportion of the population reporting great difficulty seeing even when wearing glasses–or being unable to see at all–has increased by 16.4%, rising from 39.0% to 45.4% between 2018 and 2023 (Figure 14) (INEGI, 2024b).

*Figure 14*. **Population with disability by activity with difficulty, 2018 and 2023 (Percentage)***

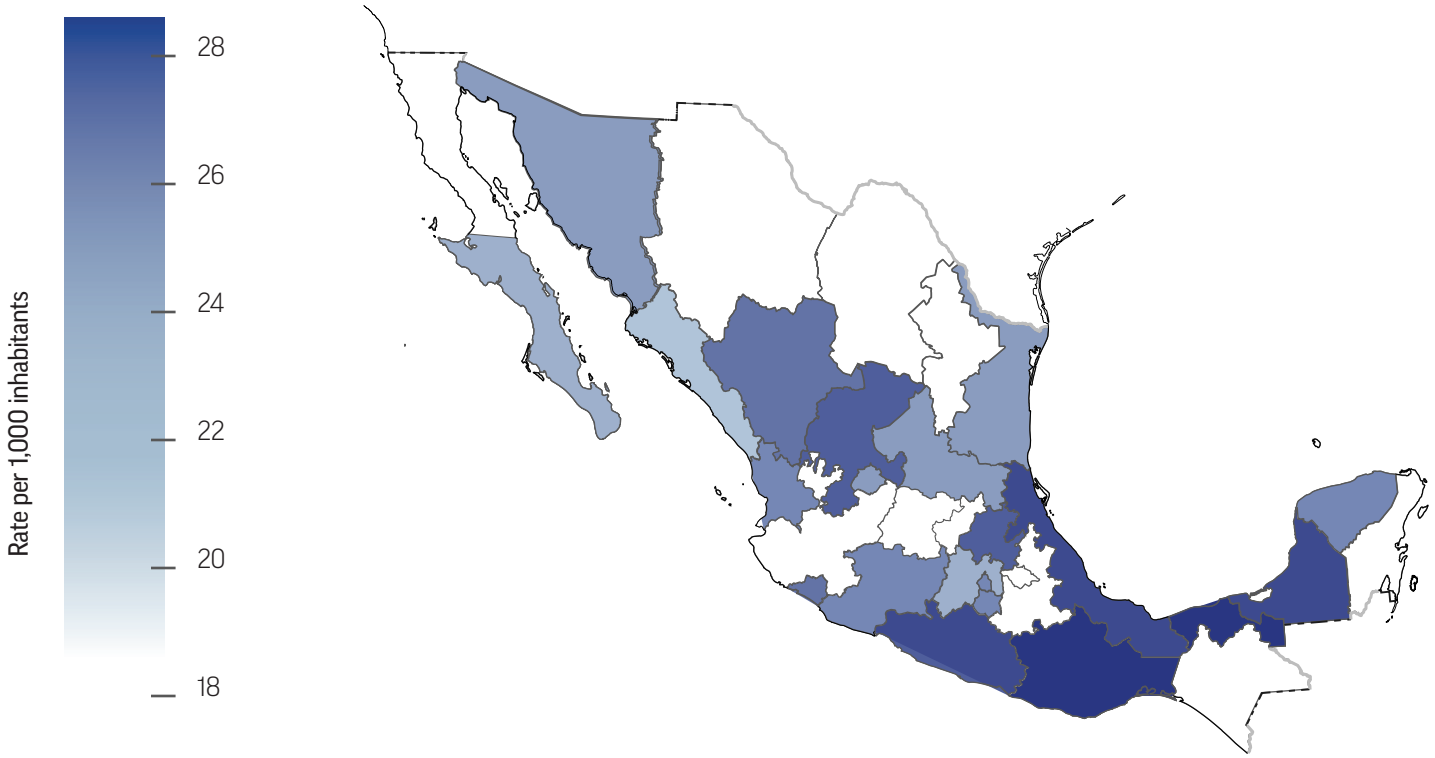



*Visual impairment is the leading cause of disability in Mexico.*

*Source: Figure replicated based on ENADID 2023 (INEGI, 2024b).*

At the subnational level, gaps are observed in the burden of visual disability (Figure 15). The states that concentrate the highest percentage of people with visual disability in Mexico are Oaxaca, Tabasco, Veracruz, Campeche, and Guerrero, with rates of 3.0%, 2.9%, and 2.6% per 1,000 inhabitants in the state, respectively. Nuevo León is the state with the lowest rate of visual disability in the country–1.6% per 1,000 inhabitants in the state (INEGI, 2024a).

*Figure 15.* **Incidence of visual disability by federal entity, Mexico 2020**

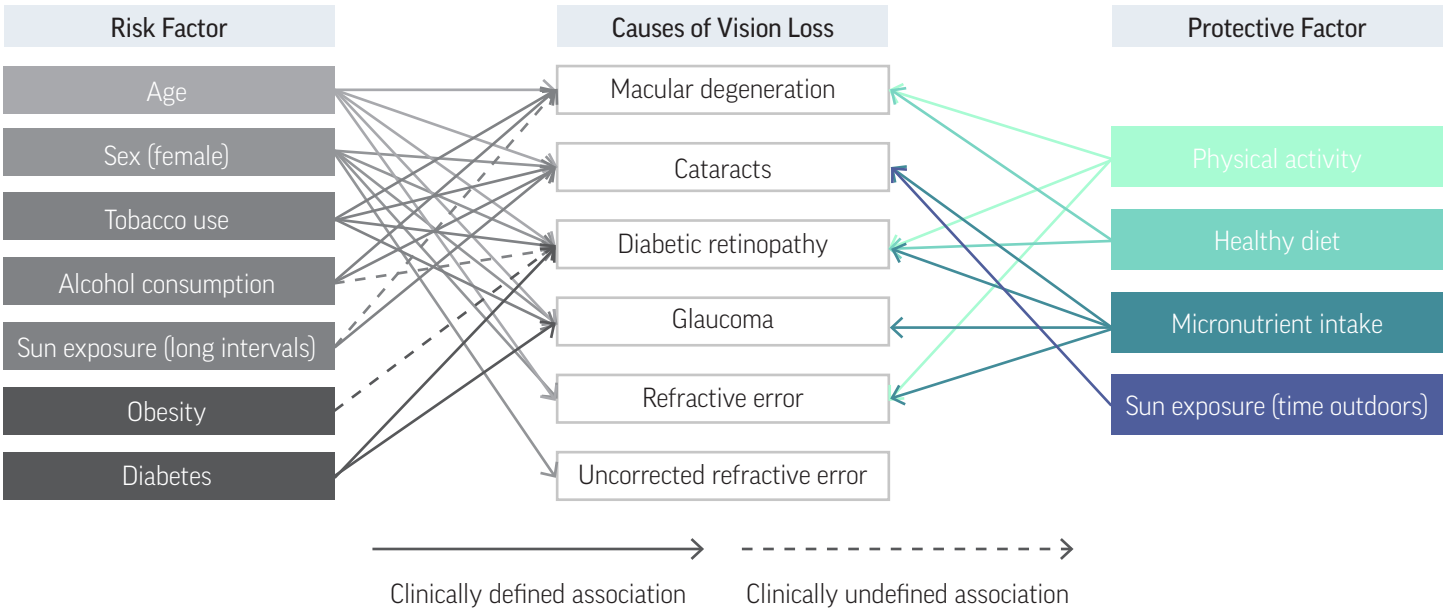



*Source: Own elaboration based on data from the 2020 Population and Housing Census (INEGI, 2024b).*

## 3.5. Risk Factors Associated with Visual Loss

A rapid literature review was conducted to identify and document the risk factors associated with the main causes of visual loss. Most of the identified studies report on non-modifiable risk factors—such as age and sex—and modifiable risk factors, including social determinants, and their relationship to the general well-being of the population. In addition, several studies coincide in analyzing these risk factors across five eye disorders: refractive error (including uncorrected refractive error), cataract, age-related macular degeneration, glaucoma, and diabetic retinopathy, which are the leading causes of vision loss burden worldwide and in Mexico—as noted in the previous section (Keay, 2022; Burton, 2021).

*Figure 16*. **Risk and Protective Factors Related to the Causes of Vision Loss**




*Source: Author's elaboration based on Keay (2022).*

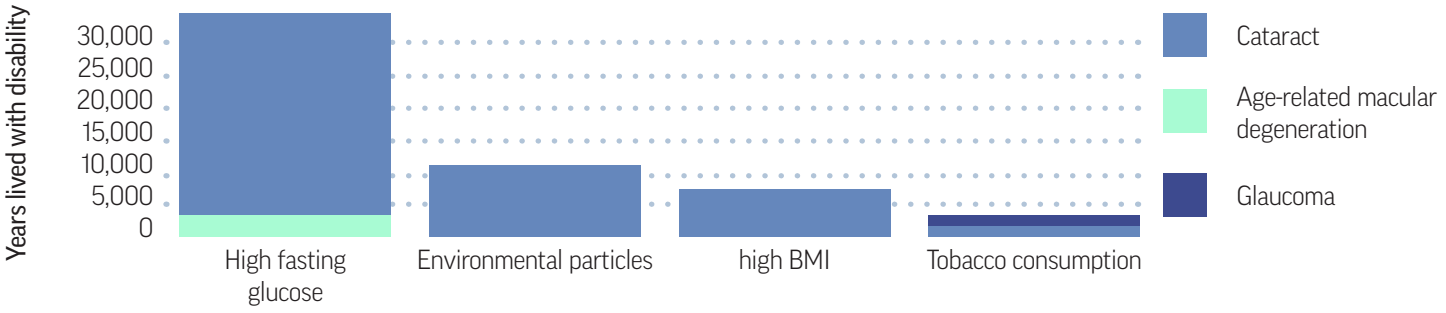
The findings of this rapid review indicate that the main causes of vision loss and chronic noncommunicable diseases share many risk factors. Among the most common is advanced age, which is associated with a higher likelihood of age-related macular degeneration (AMD), cataracts, diabetic retinopathy, glaucoma, and refractive error; it is also strongly linked to cancer, cardiovascular diseases, chronic obstructive pulmonary disease (COPD), and dementia (Figure 16) (Keay, 2022; IHME, 2024).

*Population aging and epidemiological changes are altering the causes of visual impairment and will lead to a significant increase in the number of people with visual impairment and blindness in the coming years.*

Tobacco use is associated with several eye disorders, including cataract, AMD, diabetic retinopathy, and glaucoma (IHME, 2024). Sun exposure has been associated with cataracts; however, there is clinical evidence that outdoor activities help prevent their development. Poor diet, obesity, and lack of physical activity are common factors across eye diseases. Conversely, the consumption of vegetables, fruits, and micronutrients can help protect against diabetic retinopathy, glaucoma, and AMD (Burton, 2021).

In Mexico, the leading risk factors attributable to the burden of certain causes of visual impairment and blindness are high blood glucose, ambient particulate matter, high body mass index (BMI), and tobacco use, according to GBD 2021 data (Figure 17) (IHME, 2024).

*Figure 17*. **Risk factors attributable to the burden of visual impairment and blindness, Mexico 2021**




*Source: Author's elaboration based on GBD 2021 (IHME, 2024).*

Therefore, given the correlation between the risk factors attributable to chronic noncommunicable diseases and certain eye disorders, preventive initiatives aimed at reducing tobacco consumption, improving diet, and promoting physical activity among the population would benefit both general and eye health. In Mexico, an important area for future research would be to analyze whether preventive interventions to improve visual health also have an impact on overall health.

## 3.6. Economic Impact of Visual Impairment and Blindness in Mexico

In Mexico, it is estimated that in 2020, **2.8 million people with moderate-to-severe visual impairment or blindness** belonged to the working-age group (15–64 years). According to Burton et al. (2021), the reduction in employment among individuals aged 15 to 64 years with moderate-to-severe visual impairment or blindness is estimated at **30.2%**. Considering these factors, the annual productivity loss attributable to moderate-to-severe visual impairment and blindness in Mexico is estimated at **50,007 million pesos**, equivalent to **0.21% of the 2019 Gross Domestic Product (GDP)**[1]. This is considered a conservative yet robust estimate of the annual productivity loss caused by visual impairment and blindness, underscoring the significant economic burden of vision loss in the country.

*In Mexico, the productivity loss attributable to moderate-to-severe visual impairment and blindness is estimated at 50 billion pesos, equivalent to 0.21% of GDP 2019.*

For this estimate, the number of individuals with visual impairment and blindness in the working-age group (15–64 years) was calculated using prevalence data from the VLEG-GBD group for Mexico in 2020, as well as the age distribution provided by Madueña-Angulo et al. (2023). The estimate also incorporated the employment reduction rate for this group (Burton et al., 2021) and the employment rate of the economically active population for 2019 provided by INEGI (INEGI, 2024c).

It is important to note that the estimate does not include additional components of productivity loss due to limited availability of robust data at the national, regional, and international levels. Excluded components include absenteeism and presenteeism (reduced productivity at work), premature mortality, individuals over 64 years, productivity losses of caregivers, and the value of time lost in unpaid or informal work. Moreover, the data do not differentiate between employment reduction due to blindness and moderate-to-severe visual impairment or other causes. Therefore, only components with sufficient evidence were considered, resulting in an underestimation of the potential magnitude of productivity loss.

In summary, this estimate demonstrates that moderate-to-severe visual impairment and blindness have a significant economic impact at the national level. This highlights the importance of maximizing the capacities of this population group by addressing avoidable vision impairment and blindness and by providing rehabilitation services that enable individuals to remain in the workforce. It further emphasizes the need for effective public policies that prioritize prevention and treatment of these conditions in order to improve both quality of life and economic productivity.

## 3.7. Demand for Eye Health Services in Mexico

In Mexico, during 2022, a little over **94,000 hospital discharges** in the public health sector were registered due to diseases of the eye and its adnexa (Figure 18). Of these, **76% were treated in hospitals of the Mexican Institute of Social Security (IMSS)**, reflecting disparities in eye health care among public sector institutions (Figure 19).

The main cause of hospital discharges for ocular conditions in the public sector was **cataracts and other disorders of the eye's crystalline lens**, accounting for **56% of total discharges**. This aligns with the leading causes of vision loss previously mentioned, highlighting the importance of implementing prevention and treatment programs to improve the visual health of the Mexican population.

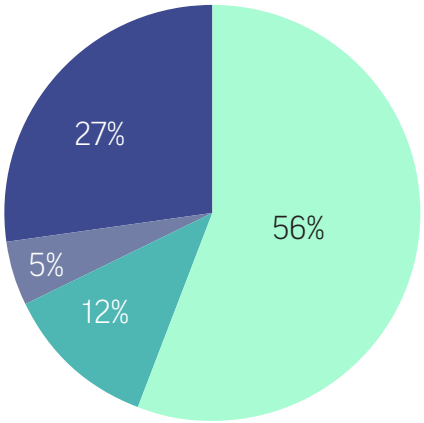


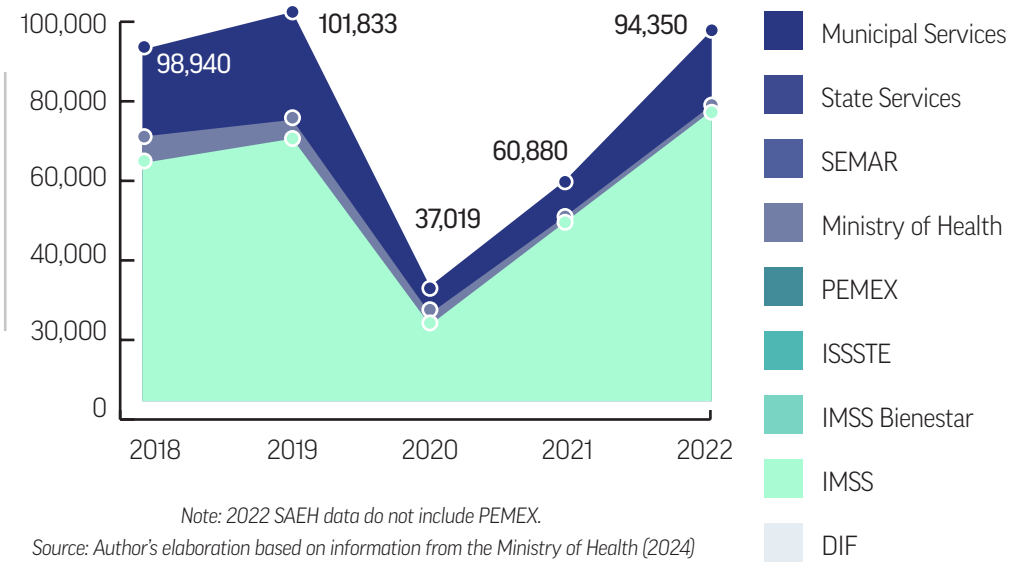

*Figure 18*. **Hospital discharges for diseases of the eye and its adnexa in public health sector hospitals, Mexico 2022**

**94,350** *hospital discharges for diseases of the eye and adnexa in public sector hospitals in 2022*

[1] The 2019 GDP is used to express the economic burden in relative terms, since the 2020 GDP is considered an outlier as a result of the COVID-19 pandemic.

*Figure 19*. **Hospital discharges for diseases of the eye and its adnexa by public health institution, Mexico**

**76%** *of hospital discharges occur in IMSS hospitals*

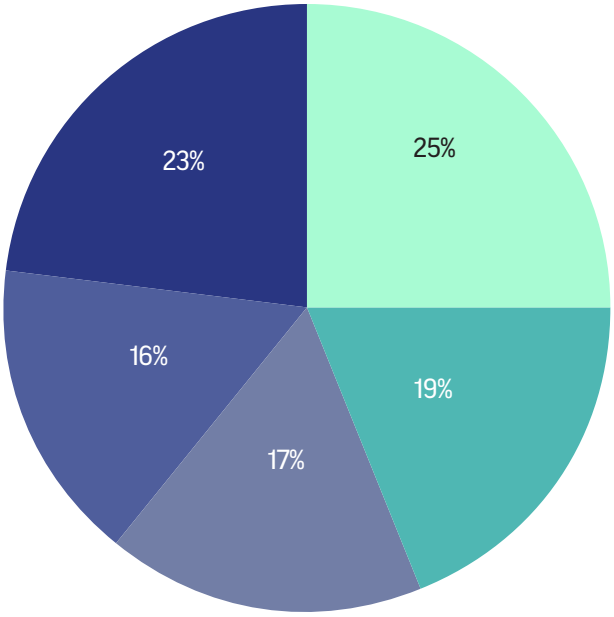



*Note: 2022 SAEH data do not include PEMEX.*
*Source: Author's elaboration based on information from the Ministry of Health (2024)*

On the other hand, according to hospital morbidity statistics for the private sector from INEGI—which includes private assistance institutions—slightly more than 122,000 patients received care in private facilities for ocular disorders and their adnexa in 2022. Of these, 25% were treated for cataracts and other lens disorders (31,000 patients), 19% for retinal detachment and/or retinal tears (23,000 patients), and 17% for glaucoma (20,800 patients) (Figure 20).

*Three ocular diseases accounted for 60% of all private sector care: Cataracts, Retinal detachment/tear and Glaucoma.*

*Figure 20*. **Hospital discharges for diseases of the eye and its adnexa in private health sector hospitals, Mexico 2022**




**122,454** *patients in private-sector facilities were treated for eye and related diseases in 2022.*

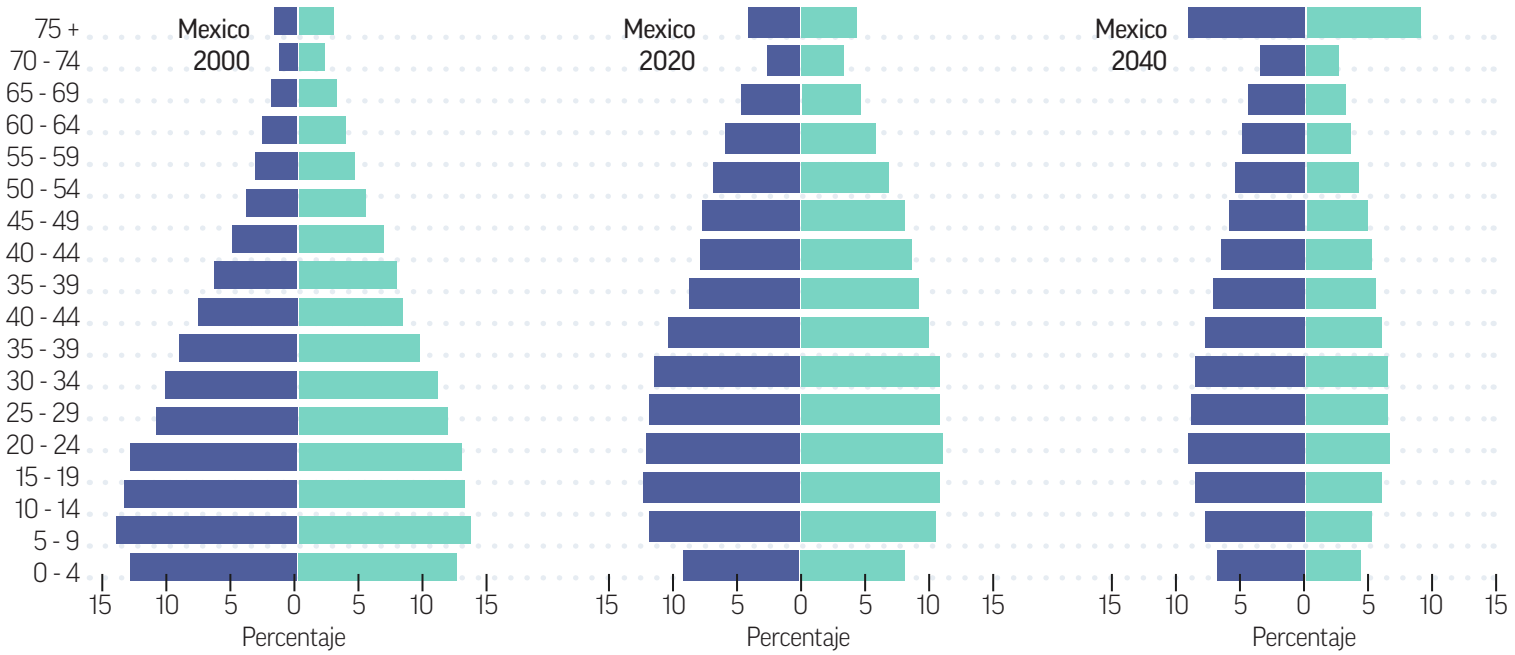
**Includes private assistance institutions.*
*** Refractive disorders, blindness and visual impairment, eyelid inflammation, conjunctivitis, and strabismus.*
*Source: Author's elaboration based on INEGI information (2024).*

Out of a total of approximately **216,000 hospital discharges** for diseases of the eye and its adnexa in Mexico in 2022, **56% were treated in the private sector**, which includes private assistance institutions, while the remaining **44% were treated in the public sector.** This reflects a significant disparity in the care of ocular disorders between the public and private sectors in Mexico. While the public sector, mainly through the IMSS, focuses on treating cataracts, the private sector addresses a broader range of eye conditions, including cataracts, retinal detachment, and glaucoma. This difference illustrates how healthcare decisions can be influenced by factors such as accessibility, perceived quality, and cost of care. It is essential to consider these disparities when designing health policies that ensure equitable, effective, and comprehensive access to ophthalmologic care for the Mexican population.

## 3.8. Aging and Eye Health

The Mexican population is aging rapidly. The population aged **65 years and older, which represented 5.1% of the total population in 2000, is projected to account for 14.4% of the total population by 2040** (Figure 21).

*Figure 21.* **Population distribution by sex and age group, Mexico 2000, 2020, and 2040**

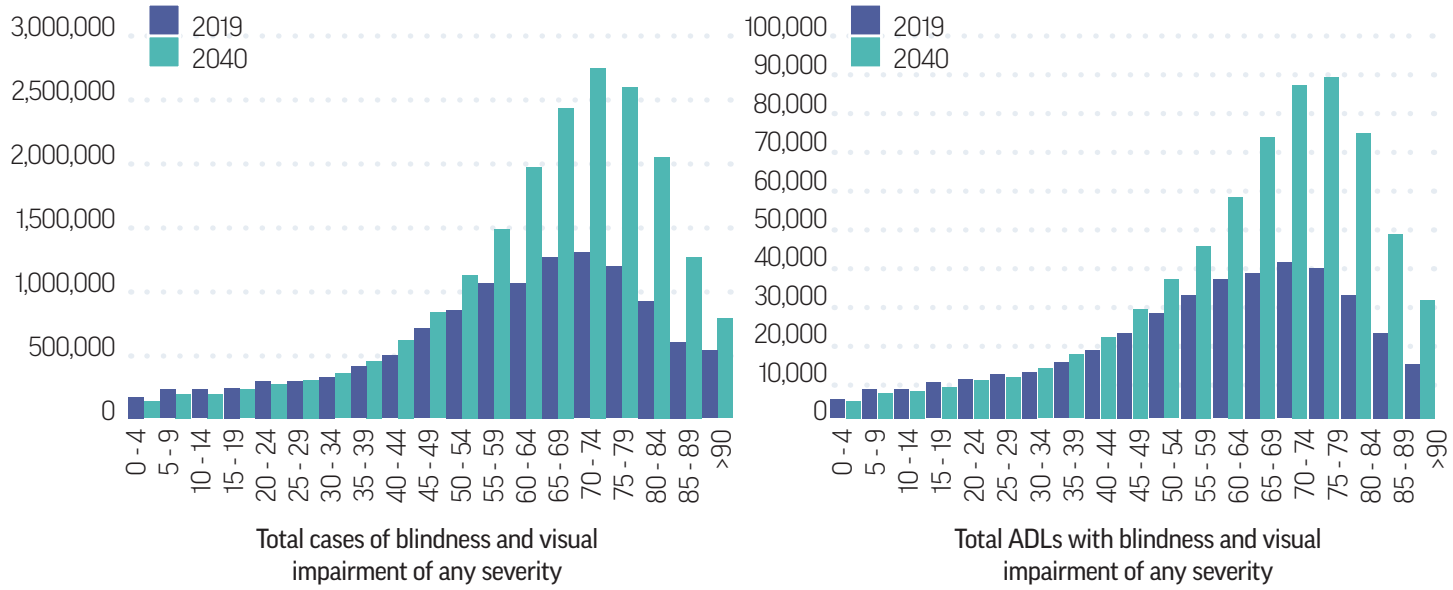



*Source: Author's elaboration based on CONAPO information, 2024.*

Using estimated prevalences from Madueña-Angulo et al. (2023), we projected the impact of population aging on vision loss in Mexico.

It is estimated that the number of **cases of blindness and visual impairment** among the Mexican population will increase by 71.6% between 2019 and 2040 due to population aging. The estimated increase in years lived with disability (YLDs) is 68.3% over the same period. This expected impact is concentrated primarily among the population age 45 years and older (Figure 22).

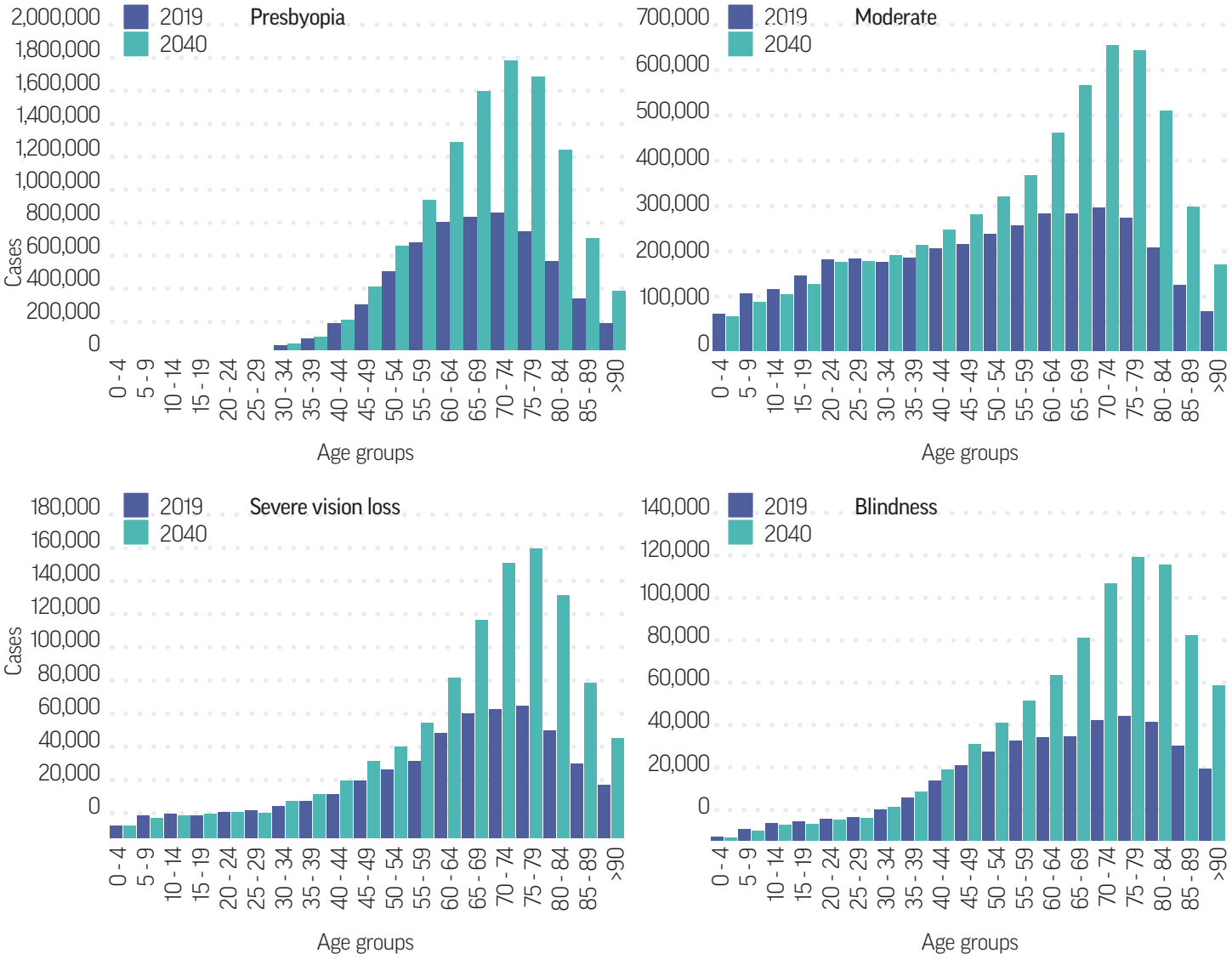
*Figure 22.* **Cases and years lived with disability due to visual impairment and blindness: distribution by sex and age group, Mexico 2019 and 2040**




*Source: Author's elaboration based on Bourne (2020) and Madueña-Angulo (2023).*

Breaking down prevalence by severity, it is expected that for the **population aged 70 years and older**, the number of cases will at **least double between 2019 and 2040** across the four categories analyzed (Figure 23).

*Figure 23.* **Cases of visual impairment and blindness by severity: distribution by sex group, Mexico 2019 and 2040**




*Source: Author's elaboration based on Bourne (2020) and Madueña-Angulo (2023)*

In addition to the risk factors presented above, population aging is the most significant driver of visual impairment in the coming years in Mexico. Beyond anticipating the necessary response capacity to meet the future increase in demand for eye health services, there is also a window of opportunity to prevent avoidable causes of impairment through preventive services and addressing risk factors that should be fully leveraged.

## 3.9. Available Supply for Eye Health Care in Mexico

The previous sections have outlined the general landscape of current and future needs regarding eye health for the Mexican population. The other side of the equation relates to the capacities of the National Health System to address such needs. At its most basic, these capacities depend on the availability of two types of resources: human resources and physical infrastructure– this latter category includes both the physical facilities of medical units and the general and medical equipment required to deliver services. More broadly, these capacities are also influenced by established operational processes and the sophistication of information technologies.

For the purposes of this document, the capacity analysis is limited to describing the state of human resources and medical units, including outpatient clinics, available for eye health care.

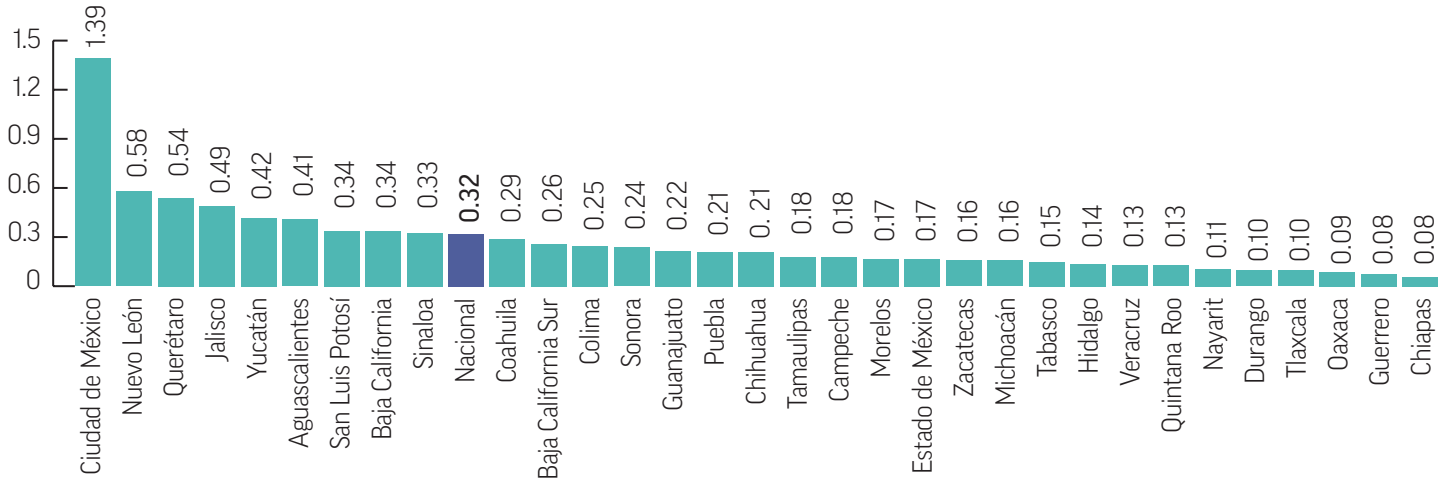
### 3.9.1. Human Resources for Eye Health

In Mexico, the human resources considered key for eye health care are ophthalmologists, licensed optometrists, and optometry technicians. While ophthalmic nursing exists in other countries, in Mexico this specialty within nursing has not yet been officially recognized.

Mexico currently has 4,052 certified ophthalmologists, which translates into a rate of 0.32 physicians per 10,000 inhabitants (Figure 24). The limited availability of visual health specialists in the country can negatively impact the capacity to provide timely care and treatment for eye diseases.

On the other hand, there are 6,493 licensed optometrists, equivalent to a rate of 0.52 per 10,000 inhabitants–also a very low figure. These health professionals play a crucial role in detecting and managing visual problems, complementing the work of ophthalmologists. In addition, there are 4,671 optometry technicians, with a rate of 0.37 per 10,000 inhabitants, who significantly contribute to primary eye health care and the provision of vision correction services (Own estimate based on CMO 2023 and INEGI 2024a).

*Figure 24.* **Subnational gap in certified ophthalmologists, Mexico 2023**




It is estimated that there is a 40-fold difference in the number of certified ophthalmologists between Mexico City and Oaxaca, Guerrero, or Chiapas.

**Eye care professionals in Mexico**

**4,000** ophthalmologists in Mexico

**6.5 thousand** optometry graduates in Mexico

**3 out of 4** ophthalmologists are **trained in public sector hospitals**

*Source: Prepared by the authors with information from CMO 2023 and INEGI (2024a).*

In 2023, 75% of all residency positions for medical specialties in ophthalmology were in public hospitals, while the remaining 25% were in private institutions. This underscores the crucial role of the public sector in training new ophthalmologists and in the capacity to meet the growing demand for specialized ophthalmic care (Secretaría de Salud 2024).

The distribution and availability of these eye health professionals are fundamental to improving access to ophthalmology and optometry services in the country, especially in rural and marginalized communities where the shortage of specialists can be most acute. Increasing the number of trained professionals and ensuring equitable subnational distribution is essential to address the eye health needs of the Mexican population and guarantee adequate access to eye care services.

### 3.9.2. Infrastructure for Eye Health Care in Mexico

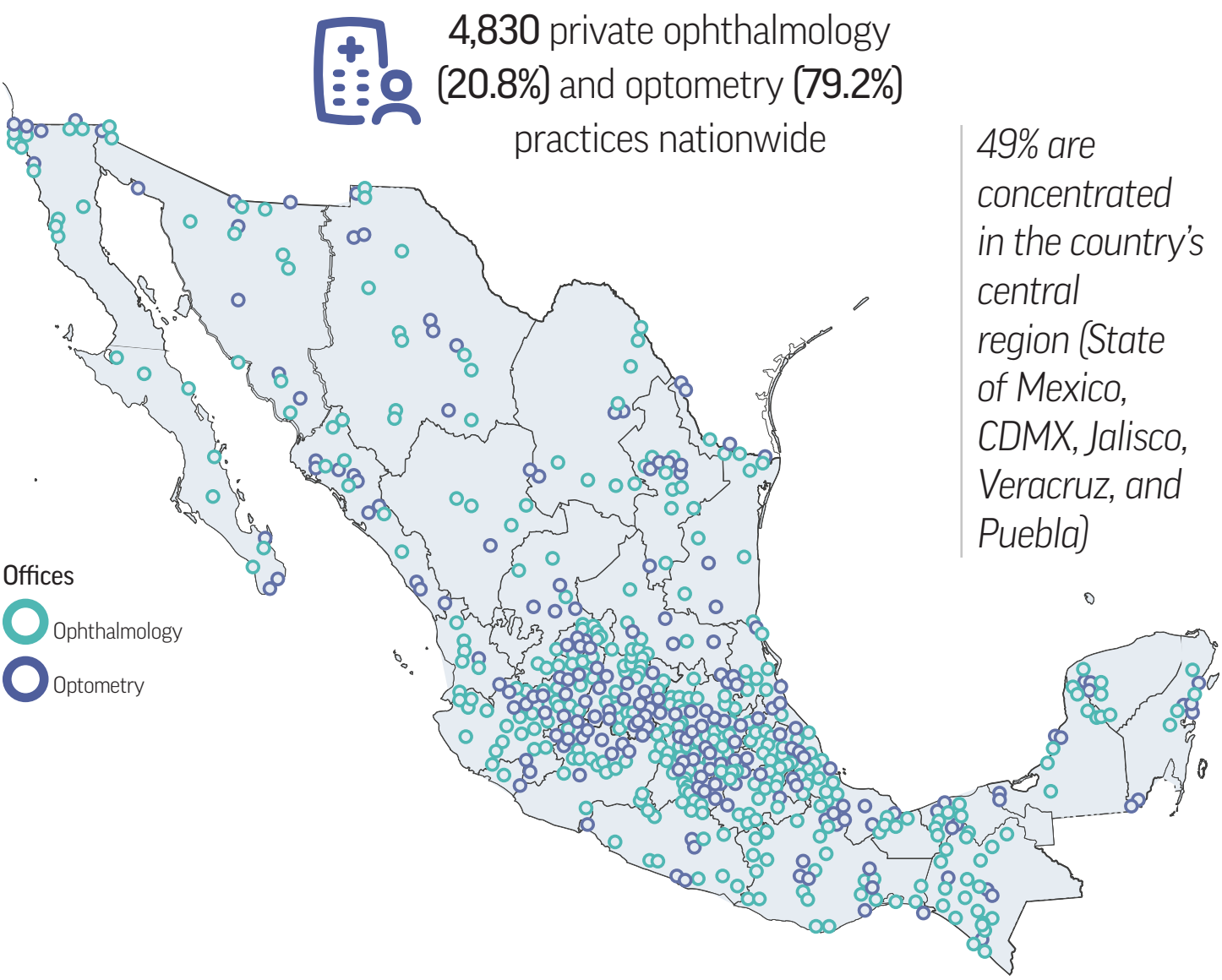
In the public sector, eye health care is delivered through a network of hospitals and clinics belonging to various public health institutions. However, the country has only two public hospitals specialized in eye health:

- **Hospital Mexiquense de la Salud Visual "Dr. Manuel Uribe y Troncoso":** operated by the State Health Services.
- **Military Hospital of Ophthalmologic Diseases:** administered by the Ministry of National Defense (SEDENA).

In contrast, the private and social sectors offer a broader and more specialized infrastructure. Nationwide, there are 101 private and social assistance hospitals and clinics dedicated to the treatment of vision-related conditions. In addition, there are 4,830 private ophthalmology and optometry practices (20.8% for ophthalmology and 79.2% for optometry).

The distribution of these private practices is not homogeneous across the national territory (Figure 25). Nearly half (48.6%) are located in the States of Mexico, Mexico City (CDMX), Jalisco, Veracruz, and Puebla. This distribution reflects a higher availability of specialized eye health services in certain regions, which may influence access to and the quality of care for the population.

*Figure 25.***Mapping of Private Ophthalmology and Optometry Practices in Mexico**




*Source: Own elaboration based on information from DENUE 2022 and CENATRA (2024).*

# 4. Ten Structural Strategies to Improve Eye Health

Eye health is an area where significant improvements are highly feasible, as effective interventions exist today to detect visual impairments, reduce the risk of developing an eye disease or visual impairment, and mitigate their effects. Moreover, investing in eye health is highly cost-effective for both the health system and society as a whole. The value of this return is directly linked to reducing the economic burden associated with eye health.

To improve eye health in Mexico, the first challenge is ensuring access to eye health interventions from a comprehensive and patient-centered perspective, better coordinating efforts across the public sector (both health and other sectors) as well as private and social sectors.

A second challenge is that each eye disease requires a different response. The range of eye conditions is diverse, and while some may cause visual impairment or blindness, others generally do not. Additionally, although several eye conditions can be prevented (e.g., trachoma and most causes of corneal opacity in children), others cannot (e.g., refractive errors).

The following are ten strategies to improve eye health in Mexico through the different functions of the health system: stewardship, governance, financing, service delivery, and resource generation.

## 4.1 Strengthen Sector Stewardship in Eye and Visual Health

Eye health is considered a matter of public health in the General Health Law. In practice, initiatives to promote eye health have resided within the Undersecretariat of Prevention and Health Promotion. However, in a fragmented health system, it is necessary to strengthen stewardship to facilitate regulatory functions and establish mechanisms for inter-institutional and intersectoral coordination. In February 2024, the Chamber of Deputies approved an initiative to promote coordinated action between the Ministry of Health, the Ministry of Education, state governments, and health sector agencies to propose, design, and implement health education programs focused on eye health[1].

It is proposed to complement this initiative by establishing mechanisms to make such coordination effective in practice through:

- Reactivating the National Council for the Prevention and Treatment of Visual Diseases (CNPTEV) with the mission of coordinating the implementation of a national strategy to improve eye and visual health, including sectoral and multisectoral policies. This would also allow inclusion of the social, scientific, and academic sectors.
- Establishing, preferably under the oversight of CNPTEV, a system of indicators to monitor the progress of eye health actions, including metrics to identify actions and public budgets related to eye health.
- Improving statistics related to vision loss by strengthening morbidity and hospital discharge registration mechanisms for visual diseases through institutional agencies responsible for health information.

## 4.2 Align Public Policies in Eye Health with International Commitments and Goals

Eye health is part of the international agenda. Being part of this agenda allows Mexico not only to benefit from knowledge, tools, best practices, and lessons learned, but also to advance its national agenda. There are international commitments and targets set to be achieved by 2030, adopted by countries at the 74th World Health Assembly (2021), regarding effective coverage for refractive error care and cataract surgery coverage, which serve as useful benchmarks for prioritizing and aligning local efforts.

It is proposed to:

- Strengthen the integration of eye care into the coverage of all public health institutions, including at minimum the interventions included in the WHO-recommended Eye Care Interventions Package (PIAO).
- Establish a monitoring and evaluation mechanism to track progress toward international targets, including a 40% increase in effective coverage for refractive error care and a 30% increase in effective coverage of cataract surgery.

## 4.3 Develop Intersectoral Public Policies Considering Links Between Eye Health and Education, Poverty, and Economic Development

The relationship between eye health and other developmental outcomes operates in two ways. On one hand, opportunities to instill preventive habits and improve early detection of vision deficiencies, especially among children and workers, extend beyond health facilities and often occur in schools or workplaces. On the other hand, poor eye health negatively affects school performance in children and worker productivity, sometimes even rendering them unable to work.

It is proposed to:

- Strengthen coordinated programs with educational authorities for early detection of visual disorders in preschool and primary schools.
- Establish referral protocols for adequate care of visual disorders identified in schools in public health institutions.

- Implement communication strategies for parents on self-care actions to prevent and detect possible visual disorders in their children.
- Make effective the authority granted by the reform of Article 113 of the General Health Law to the Ministry of Health, in collaboration with the Ministry of Education, state governments, and health sector entities, to design and implement education programs focused on eye health.
- Strengthen eye health as part of workplace health programs promoted by social security institutions and the Ministry of Labor.
- Strengthen cornea procurement mechanisms and simplify regulations and processes that may cause delays or prevent procurement.
- Establish effective coordination between different government levels in developing regulations and policies related to vision care and strengthening ophthalmological care systems.

## 4.4 Ensure Sufficient Financial Resources for the Successful Implementation of Eye Health Programs

Funding for eye health interventions competes with other health priorities. Many resources needed for eye health programs are shared with other health needs, such as promotion, extra-mural prevention, and primary care. Synergies must be found within these service platforms to provide eye health interventions. For key eye care interventions, explicit resources must be guaranteed to ensure availability of specialized human resources and necessary equipment.

It is proposed to:

- Define a budget program for investment in equipment and hiring of specialized human resources for eye health services in public institutions, prioritizing areas with the greatest backlog.
- Increase access to ophthalmology services for geographically distant populations through inter-institutional cooperation.
- Establish incentives for cornea transplants through results-based budgeting for the population without social security.
- Create mechanisms to increase transparency and accountability in spending and support explicitly aimed at ensuring access to eye health.

## 4.5 Integrate Comprehensive Eye Care into Primary Health Care

Eye health should not be seen as separate from overall health. Comprehensive care involves incorporating eye health into the broader medical care provided, particularly for key populations such as newborns, children, pregnant women, people with risk factors or chronic diseases, and older adults. Many preventive, early detection, and risk factor control interventions, as well as refractive error detection, can be provided in primary health care.

It is proposed to ensure efficient access to eye care within primary health care by:

- Promoting eye health and the prevention and early detection of eye diseases and injuries at first-level public health units.
- Including visual acuity measurement using pinhole correction in health records for all ages.
- Establishing permanent platforms and mechanisms for public education on eye disease prevention.
- Ensuring newborn screening and timely diagnosis of retinopathy of prematurity, refractive errors in schoolchildren, and early detection/referral of patients with diabetic retinopathy, hypertension, and other chronic diseases.
- Increasing the capacity of primary care for diabetic retinopathy, adult refractive services, and detection/treatment of common eye conditions like cataracts and conjunctivitis.
- Setting maximum referral times for specialized services after detection of conditions like cataracts or diabetic retinopathy, complemented with indicators to monitor referral delays.
- Strengthening clinical and epidemiological monitoring of previously neglected or eliminated diseases, such as trachoma, through community-level surveillance and maintenance of preventive and chronic care measures.

## 4.6 Ensure Integrated, High-Quality, and Person-Centered Eye Care

A comprehensive approach considering the patient pathway is essential to align eye care across service platforms. Clear responsibilities and steps must be defined from prevention and diagnosis to treatment and rehabilitation. Without good continuity, patients risk fragmented care with suboptimal outcomes and dissatisfaction due to communication failures, inadequate clinical information exchange, and duplicated evaluations.

It is proposed to:

- Establish an Integrated Care Protocol (PAI) for eye health to systematize and standardize eye care processes in public institutions and encourage adoption in private and social sectors.
- Strengthen coordination with programs addressing conditions with high comorbidity with visual disorders, such as diabetes, hypertension, and multiple sclerosis.
- Promote awareness of cornea donation through national campaigns and school sensitization programs.
- Incorporate interpersonal care and patient-centered attributes in protocols, reflecting what patients value in care and health outcomes.

## 4.7 Foster Collaboration Between Public, Private, and Social Sectors to Maximize Coverage and Optimize Resource Use

Private and social sectors cover a significant portion of demand for visual care, often complementing public institutions. Greater collaboration is needed to leverage installed capacity across the national health system.

It is proposed to:

- Establish a National Registry of Eye Health Service Providers, including professionals and facilities related to ophthalmology, optometry, and vision aid devices.
- Establish collaborative service mechanisms between public insurers and public/private providers to expand coverage and effective access.
- Implement campaigns under cross-sector agreements to provide interventions, such as cataract surgery, in vulnerable populations or communities with low access.

## 4.8 Strengthen Training and Education of Human Resources in Eye Health

Beyond having enough specialists, general and family doctors must be trained to perform preventive, detection, or control actions in primary care. Distribution of specialized human resources must also be improved.

It is proposed to:

- Strengthen human resource planning for eye health to meet expected demand over the next two decades.
- Enhance undergraduate training in eye health-related disciplines and include relevant components in curricula for general and family doctors.
- Promote continuous training for specialized and primary care doctors in eye health.
- Integrate eye health into planning for ophthalmology and optometry training.
- Explicitly incorporate optometrists into primary care, leveraging their skills for initial assessment and timely referral.
- Strengthen training in digital health tools to increase effectiveness and productivity in eye care.
- Develop hybrid (in-person and digital) care protocols to increase access to eye care.

## 4.9 Incorporate New Treatments Based on Cost-Effectiveness, Innovative Technologies, and Tele-Ophthalmology

Effective eye care requires technologies and supplies to be available to benefit patients. Tele-ophthalmology is key for remote populations or areas with limited specialized personnel. Information technologies can improve timely clinical information exchange.

It is proposed to:

- Review public sector availability of treatments and technologies for blinding eye conditions and recommend strategies to incorporate missing technologies.
- Guarantee access to prescription lenses with a fulfillment guarantee, allowing private or social sector fulfillment if not available in public institutions.
- Strengthen health technology assessment to decide on including visual health supplies in the National Health Inputs Compendium.

## 4.10 Promote Digital Transformation and Research to Better Understand Eye Diseases

Improving desired outcomes in visual health within a context of limited resources requires that the operational processes involved in the provision of visual health services be carried out more efficiently, which in turn implies the effective use of available information technologies. For example, the more efficient use of available infrastructure requires cross-service provision among public, private, and social providers, and even among different public providers of visual health services, whether through exchange agreements or traditional service procurement. In such a scenario, efficiency gains are impossible to achieve without the exchange of patient clinical information, as well as verification of rights and authorizations for cross-payment between insurance schemes.

Therefore, it is necessary to advance the digitalization of all processes involved in visual health care. In particular, it is proposed to:

- Establish and standardize the use of electronic health records in all public and private facilities providing visual health services, ensuring the necessary interoperability and portability conditions for proper shared access to each patient's record, while guaranteeing the security and protection of personal data in accordance with current legislation.
- Implement the use of electronic prescriptions for corrective lenses to ensure shared access to the prescription among different providers within the visual health care subsystem.
- Promote the development of artificial intelligence tools for the detection of eye diseases.

## Closing message

Visual health is of enormous importance within the overall health of any individual. This impact is multiplied when considering the critical relevance of visual health as an essential component of human, economic, and social development.

Moderate visual impairment places individuals at a clear disadvantage for education and mobility. Severe visual impairment or blindness often becomes a significant barrier to employment and income generation and creates a substantial caregiving burden within households. Neglecting visual health can be both an outcome and a trigger of poverty.

It is therefore essential to recognize the importance of visual health as a key focus of attention for health systems. It should be addressed as an integral part of overall health, not as a separate or isolated section.

In this sense, responsibility is shared. The health sector must take the lead in advancing better visual health for the population while coordinating efforts with those responsible for educational policies and poverty reduction.

Similarly, the private and social sectors should be included as important components in achieving a more integrated and efficient visual health care system. Resources are scarce and must be maximized through a coordinated effort in the interest of the population's well-being.

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[1] Initiative to amend Article 113 of the General Health Law, currently under review by the Senate Health Committee.

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