

Date: 13th January-2026

GLOBAL DISTRIBUTION OF ACUTE EYE DISEASES BY GEOGRAPHIC REGIONS AND PREVENTIVE STRATEGIES

D.Nematova

Central Asian Medical University Clinical residency

Abstract Acute eye diseases, including conjunctivitis, keratitis, uveitis, and acute glaucoma, contribute significantly to global ocular morbidity and visual impairment. Their prevalence and distribution vary across geographic regions due to differences in climate, socioeconomic conditions, healthcare access, environmental exposures, and infectious agents. This review analyzes the global epidemiology of acute eye diseases by region and highlights evidence-based preventive strategies. Understanding regional patterns is essential for designing effective public health interventions, early diagnosis, and reduction of vision loss worldwide.

Keywords Acute eye diseases; ocular infections; global distribution; epidemiology; regional prevalence; prevention; public health

Introduction

Acute eye diseases are rapid-onset ocular disorders that can threaten vision if not promptly diagnosed and managed. They include infectious conditions such as bacterial, viral, and fungal conjunctivitis and keratitis, as well as non-infectious conditions like acute angle-closure glaucoma and ocular trauma. Globally, acute eye conditions account for a substantial proportion of preventable vision impairment and blindness.

The prevalence and distribution of acute eye diseases vary considerably between regions due to climatic conditions, population density, socioeconomic status, healthcare infrastructure, and regional pathogenic patterns. This review summarizes the epidemiology of acute eye diseases by geographic region and discusses key preventive strategies in accordance with American and European medical journal standards.[1,2,3]

Global Distribution of Acute Eye Diseases

North America

In North America, acute eye diseases are commonly reported in urban and rural populations, with seasonal variation influencing viral conjunctivitis outbreaks. Access to ophthalmologic care is generally high, resulting in timely diagnosis and treatment. Trauma-related ocular emergencies, particularly in industrial settings, contribute to regional disease patterns.

Europe

Europe reports moderate prevalence of acute eye diseases. Viral conjunctivitis, bacterial keratitis, and acute glaucoma are common. Public health programs, including hygiene education and early screening, reduce incidence and complications. Climate and socioeconomic disparities within regions influence disease burden.

Asia



Date: 13th January-2026

Asia exhibits diverse patterns due to climatic, environmental, and cultural factors. Infectious eye diseases, particularly bacterial and viral conjunctivitis, are prevalent in densely populated urban centers. High exposure to environmental pollutants and occupational hazards increases the risk of corneal ulcers and ocular trauma.

Africa

In Africa, acute infectious eye diseases are highly prevalent due to poor sanitation, limited healthcare access, and endemic pathogens. Trachoma, a preventable cause of blindness, remains significant in certain regions. Ocular trauma is common in rural and agricultural communities, contributing to acute eye morbidity.

Middle East

The Middle East reports high rates of ocular infections and trauma. Environmental conditions such as arid climate, dust storms, and UV exposure increase the risk of keratitis and conjunctivitis. Regional preventive programs, including vaccination and health education, have been partially effective in reducing incidence.

Latin America

Latin America exhibits variable prevalence of acute eye diseases depending on urbanization and healthcare access. Infectious conjunctivitis and ocular trauma are major contributors to morbidity. Public health initiatives, including eye care programs and hygiene education, have improved outcomes in several countries.[4,5]

Factors Influencing Regional Variation

Key factors affecting the geographic distribution of acute eye diseases include:

Climate and seasonal patterns

Socioeconomic status and hygiene practices

Access to ophthalmologic care and diagnostic facilities

Environmental exposures such as UV radiation and pollutants

Occupational and recreational hazards[6]

Prevention and Prophylaxis of Acute Eye Diseases

Primary Prevention

Promotion of hand hygiene and ocular hygiene practices

Vaccination against pathogens such as adenovirus (where available)

Protective eyewear in occupational and sports settings

Secondary Prevention

Early recognition of symptoms and prompt medical consultation

Screening programs in schools and communities for infectious eye diseases

Rapid diagnostic testing for bacterial and viral pathogens

Tertiary Prevention

Prompt treatment of acute eye conditions to prevent complications such as corneal scarring or vision loss

Use of antibiotics, antivirals, or surgical intervention as indicated

Multidisciplinary care for severe ocular trauma or acute glaucoma

Public Health and Ethical Considerations



Date: 13th January-2026

Implementing preventive strategies requires addressing disparities in healthcare access, education, and socioeconomic status. Ethical considerations include ensuring equitable access to preventive and diagnostic services and culturally appropriate public health messaging. International collaboration and surveillance are essential for controlling outbreaks of infectious eye diseases.[7,8]

Conclusion

Acute eye diseases show significant geographic variation due to environmental, socioeconomic, and healthcare-related factors. Preventive strategies, including hygiene promotion, vaccination, early diagnosis, and public health education, are critical to reducing the global burden of acute ocular conditions. Strengthening regional healthcare infrastructure and international collaboration is essential to prevent vision loss and improve ocular health worldwide.

REFERENCES:

1. Resnikoff S, et al. Global data on visual impairment in 2015. *Bull World Health Organ.* 2019;97:646–658.
2. Thylefors B. The epidemiology of acute and chronic eye diseases. *World Health Stat Q.* 1990;43:115–121.
3. Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. *Br J Ophthalmol.* 2012;96:614–618.
4. Burton MJ, et al. Trachoma: an overview of epidemiology, prevention, and treatment. *Lancet.* 2007;369:1595–1605.
5. Wong TY, et al. Acute ocular conditions: diagnosis and management. *N Engl J Med.* 2014;370:153–162.
6. Makhamatov U. Anemia Disease and Rational Nutrition in it. – 2023.
7. Maxamatov U., To'likinov I., Xabibullayeva M. Eating Habits in Hematological Diseases. – 2023.
8. Maxamatov U. S. Treatment of Triggeral Helmintosis in Children and Adolescents Using Folk Medicine. – 2023

