Terminating TRACHOMA

How Myanmar eliminated blinding trachoma
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### Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>MoHS</td>
<td>Ministry of Health and Sports</td>
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<tr>
<td>MDA</td>
<td>mass drug administration</td>
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<tr>
<td>MVEHE</td>
<td>model village eye health examination</td>
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<tr>
<td>PEC</td>
<td>primary eye care</td>
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<td>SEC</td>
<td>secondary eye care</td>
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<tr>
<td>TC&amp;PBL</td>
<td>Trachoma Control and Prevention of Blindness</td>
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<tr>
<td>TEO</td>
<td>tetracycline eye ointment</td>
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<td>TF</td>
<td>trachomatous inflammation – follicular</td>
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<td>TT</td>
<td>trachomatous trichiasis</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>VEHE</td>
<td>village eye health examination</td>
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<tr>
<td>SAFE</td>
<td>surgery, antibiotics, facial cleanliness, environmental improvement</td>
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<td>SEHE</td>
<td>school eye health examination</td>
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<td>WASH</td>
<td>water, sanitation and hygiene</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Eliminating diseases on the verge of elimination is one of the South-East Asia Region’s eight Flagship Priorities. In 2005, trachoma – an easily preventable disease – was responsible for 4% of all cases of blindness in Myanmar. By 2018 the population prevalence of trachoma was down to a mere 0.008%. Across Myanmar, trachoma is no longer a public health problem.

To eliminate trachoma, Myanmar adopted a multi-pronged approach that promoted access to good hygiene infrastructure and clean water, and which strengthened the country’s multi-tiered eye care system to enhance prevention and treatment. These interventions, coupled with behavioural change campaigns that achieved widespread buy-in, rapidly reduced the impact of the disease, ensuring that people of all ages could look towards a trachoma-free future with less poverty and enhanced development and well-being.

Myanmar’s three-phase approach to eliminating trachoma has been a great success, which I am certain will continue. The country’s visionary National Eye Health Plan 2017-2021, which is closely aligned with international policies for prevention of blindness, makes me confident that Myanmar will maintain its elimination status and will continue its winning trajectory in other areas of health.

It is with great joy that I extend my sincerest greetings and congratulations to the people and leadership of Myanmar on this momentous milestone.

Dr Poonam Khetrapal Singh
Regional Director
WHO, SEARO
Myanmar overview

676 578 square km

Three distinct geographical features:
- Western hills
- Central belt
- Shan plateau in the east

54 339 766
Population estimated to grow in 2019

US$ 1 210
Gross national income per capita in 2017

Reduction in the percentage of poverty:
- 2005: 24.8%
- 2017: 48%

Household WASH facilities:
- Access to improved drinking water source
- Access to improved sanitation facilities

- Urban: 93%
- Rural: 77%

- Urban: 76%
- Rural: 59%

*Source: NDHS, 2014–15
**Source: WHO-UNICEF JMP report

1 NDHS report 2014
Introduction

In a small village lying in the farthest end of the Ayeyarwady river plain, loud slogans by children can be heard reverberating through the sunlit corridors of the government school. They are chanting collectively – “clean hands, clean feet and clean faces for good health.”

With preschool-aged children being very susceptible to a particular form of conjunctivitis known as active trachoma, Myanmar adopted community engagement as an effective tool to tackle it, sowing the seeds of behavioural change among children in schools. The bacterium that causes trachoma is transmitted through personal contact as infective discharges from the eyes and nose pass from an infected person to a healthy one. Flies also carry the infection from one person to another, so the disease thrives in areas that are less hygienic. Ensuring good hygiene practices in communities is, therefore, an effective method of reducing transmission. But the question arises, why is trachoma such a dreaded disease?

The answer, very simply, is that trachoma can lead to blindness if it is not treated at an early stage. After years of recurrent infection, severe scarring occurs inside the eyelid. Once the disease reaches the stage of “in-turning” of the eyelashes, known as trachomatous trichiasis, surgery is the only available recourse. Globally, trachoma has caused blindness and visual impairment in about 1.9 million people.

Health education in schools ensures that common modes of transmission are prevented through the adoption of basic sanitation and hygiene practices. The School Eye Health Programme for disease prevention also means that children can be regularly monitored for signs of active trachoma, which enables timely intervention. Such effective strategies led to a remarkable reduction in the incidence of trachoma cases in Myanmar.

The Rapid Assessment of Avoidable Blindness Survey of 2018 estimated that the all-population prevalence of blindness for 2017–2018 was a mere 0.58%. This translates to an all-population prevalence of blindness attributable to trachoma of 0.008%, which is a remarkable achievement given that the Meikhtila Eye Study (2005) showed that trachoma was responsible for 4.7% of all cases of blindness in Myanmar a mere 15 years ago.

This book chronicles how a combination of good leadership, effective partnerships, health-care facilities and hardworking health-care personnel helped Myanmar eliminate trachoma as a public health problem.

SIGNIFICANT EVENTS

1964
The Trachoma Control Project initiated in Myanmar by the MoH, with funding from WHO and UNICEF

1960s–1970s
Mass Drug Administration (MDA) against trachoma implemented using the tetracycline eye ointment (TEO)

1980s
Active trachoma reduced in the central Ayeyarwady River plain due to construction of wells there

1990s
- 400 staff employed and 15 million people covered by TC&PBL
- Trachoma screening and treatment included in routine primary eye care activities

2000s
- A surveillance phase in trachoma control through successful SAFE interventions
- 80% of households with access to an improved drinking water source
- 48% of households with improved sanitation facilities

2014–2015
- 80% of households with access to an improved drinking water source
- 48% of households with improved sanitation facilities

2017
The National Eye Health Plan launched on 23 March 2017 to reduce avoidable blindness and address vision impairment in Myanmar

2018
Oral azithromycin made available as an alternative therapy for patients diagnosed with active trachoma

2019
Active trachoma no longer a public health problem in Myanmar
Working together

The political: The political leadership of Myanmar has, through various departments under the Ministry of Health and Sports (MoHS), enabled the establishment of services through a three-tiered eye-care system, regular surveillance, outbreak investigation and capacity-building for identifying and managing trachomatous trichiasis (TT). Political leaders have also supported the training of health personnel, starting from basic health-care staff under primary eye care.

The geographical: Consistent efforts have been made to increase access to adequate drinking water supply and public health networks, even in the remotest parts of rural Myanmar. The Demographic and Health Survey of 2014–2015 revealed that across the 70,838 villages in the country, 77% of rural households had access to an improved water source, while 42% had improved sanitation facilities. Rural areas have also been connected to public health services with 1,684 rural health centres, 8,700 rural sub-health centres and 80 school health teams.

The administrative: Treatment and prevention of diseases such as trachoma require a holistic and collaborative approach from all tiers of social, political and economic entities. The Trachoma Control and
Prevention of Blindness (TC&PBL) Programme coordinates eye-care services within the Disease Control Division and Central Epidemiology Unit, which functions under the aegis of the Ministry of Health and Sports, constituting one of the ministry’s six administrative departments.

The social: Nongovernmental organizations, such as the Myanmar Maternal and Child Welfare Association, the Myanmar Red Cross Society, and local community-based organizations and religion-based societies, contribute substantially to the provision of health services. Schools in Myanmar have introduced correct sanitation practices as part of their curriculum to equip children to protect themselves and their families against transmission. Teachers, school health counsellors and field workers undergo training to help educate their communities. Eye-care assistants are routinely supervised by senior ophthalmologists to ensure optimal outcomes for TT patients.

The ‘Trachoma Control Project’ was initiated in Myanmar in 1964 by the MoHS, with support from WHO and the United National Children’s Fund (UNICEF). Based on surveys undertaken in the 1960s and 1970s, the programme covered 11 districts with high levels of disease in the central regions of Myanmar, serving a population of 6.2 million people. Its interventions consisted of surgical repair of TT, topical antibiotic treatment with tetracycline eye ointment (TEO) for active trachoma, and health education. The programme has also expanded to accommodate several secondary eye care (SEC), and primary eye care (PEC) interventions through village eye health examination (VEHE), model village eye health examination (MVEHE), school eye health examination (SEHE) and outpatient department services that can be accessed by rural residents.

A decline in the prevalence of trachoma after the successful implementation of surgery, mass drug administration (MDA) and health education led to the programme evolving to accommodate surveillance of trachoma and also the prevention and management of other causes of blindness. In 1985 the programme was renamed ‘Trachoma Control and Prevention of Blindness’ (TC&PBL).

Three phases of the Myanmar trachoma control programme

**ATTACK PHASE:**
TEO given to the entire population in areas with prevalence of active trachoma was 

\[ \geq 30\% \]

**CONSOLIDATION PHASE:**
TEO courses repeated whenever prevalence of active trachoma was 

\[ \geq 15\% \]

**MAINTENANCE PHASE:**
Only selective treatment for active trachoma was undertaken
Commitment

Political commitment to eliminate trachoma is critical. Three-tiered eye-care services – primary, secondary and tertiary – were put in place to ensure that the complete spectrum of eye-care services are accessible to all residents of endemic areas. Through the PEC interventions, a team of basic health staff including health assistants, lady health visitors, auxiliary midwives and community health workers provide access to eye care in rural areas. There are about 345 ophthalmologists, 221 ophthalmic nurses, 51 optometrists and approximately 5000 basic health staff working in PEC.

Myanmar transitioned to the surveillance phase of disease elimination in the early years of this century through successful functioning of surgery, antibiotics, facial cleanliness, and environmental improvement (SAFE) interventions. People with active trachoma or conjunctivitis with a bacterial cause were (and still are) given 1% TEO, while those with TT or other eye conditions are referred to the appropriate SEC intervention for further evaluation and management. TT surgery is performed by ophthalmologists and health assistants in SEC while MVEHE includes provision of TT surgery in the field. Concerted efforts of the health workforce have ensured success through reallocation of eye-care services to tackle active trachoma and TT. The emphasis on the adoption of water, sanitation and hygiene (WASH) principles in schools, health facilities and households has also been effective in promoting behaviour change to reduce transmission.
Infrastructure

The strong community-based public health network in Myanmar ensures that villages are linked with township hospitals and other health centres. Myanmar has 1056 public hospitals providing 56,748 beds. There are 87 primary and secondary health centres, 1684 rural health centres, 8700 sub-rural health centres and 80 school health teams. These facilities together provide curative, rehabilitation and preventive services, and public health activities.

There are five tertiary eye centres in Myanmar staffed by ophthalmology subspecialists with the capacity to provide the complete spectrum of eye-care services. These centres also provide training to ophthalmic staff and conduct research conducive to public health. Twenty SEC under the TC&PBL programme are in the formerly endemic districts of central Myanmar to ensure post-validation surveillance. Outpatient clinics in secondary eye care also facilitate surgical interventions.
MINISTRY OF HEALTH AND SPORTS
Trachoma Control and Prevention of Blindness Program
Workshop on Trachoma Elimination in Myanmar
Mingalar Thiri, Naypyitaw
February 27, 2023
Partnerships

WHO has been a contributing partner in the national trachoma elimination programme since 1961, providing technical and financial support to conduct surveys, train health personnel and facilitate eye camps, as well as providing equipment and IEC materials. UNICEF collaborates with several government departments through WASH interventions to promote hygiene and sanitation as well as improved drinking water sources in both urban and rural households.

The Christoffel-Blinden Mission facilitates SEC and PEC through the provision of vehicles and medical equipment and the training of health personnel. The Fred Hollows Foundation contributes through surveys that assess impact of disease control and activities of the Trachoma Control Project. Other key supporters include Helen Keller International, Sight for All and Himalayan Cataract Project, that provide financial and technical assistance for medical equipment and training of health personnel.

Along with partnerships with international agencies, the Government of Myanmar has sustained the TC&PBL programme by building synergies between its different departments. Two examples of the successful collaboration between various ministries are the massive reduction in active trachoma in the central Irrawaddy River Plain reported by health assistants in the 1980s, soon after the Ministry of Agriculture Livestock and Irrigation prioritized the construction of wells in those areas, and a school eye health programme that included facial cleanliness, which was led by the Ministry of Education.
Interventions

The programme adopted a more integrated approach in the 1990s, and entered a surveillance phase in the 2000s. There was a need for better interventions to determine the elimination prevalence thresholds for active trachoma and TT in children, adults and the status of households with access to WASH facilities.
Surveys

Trachoma was primarily concentrated in the central ‘dry zone’ stretching through the Irrawaddy river plain. Since trachoma was considered non-endemic in the hilly, mountainous and coastal regions, the trachoma control catchment area comprised 14 townships across the central areas in Magway, Mandalay and Sagaing. Much later, in the new baseline population-based surveys conducted in 2019 to provide evidence substantiating Myanmar’s elimination claim, each of these townships was defined as a distinct evaluation unit, and urban areas were excluded from the sampling frame.

These surveys showed definitively that trachoma was not a public health problem any more. Both the prevalence of TF in 1–9-year-olds and the prevalence of TT unknown to the health system in adults aged 15 years or more were estimated for each evaluation unit and demonstrated to be below elimination prevalence thresholds. To quantify the effectiveness of WASH interventions, the proportion of households with access to WASH services was also studied.
**Antibiotics**

Myanmar implemented antibiotic MDA against trachoma in the 1960s and 1970s using TEO. It has not been used since then. The 2019 new baseline survey outcomes show that active trachoma is no longer a public health problem in the country and, therefore, antibiotic MDA is not likely to be needed again.

The TC&PBL programme now adopts a more concentrated approach in its primary eye-care activities, providing case-based treatment for patients with active trachoma or any other conjunctivitis. These specific individuals are routinely prescribed TEO, but presentations consistent with active trachoma are rare. Since 2018 oral azithromycin has been made available as an alternative therapy for patients diagnosed with active trachoma.

In the 50 years of the Trachoma Control Project, over 6.5 million people received MDA with TEO.

**Facial cleanliness**

Behavioural change was implemented through school-based interventions. To ensure that healthy activities and efforts were sustained within communities in the long run, children in Myanmar have been introduced to facial cleanliness and overall hygiene through various mediums and activities. The slogan “clean hands, clean feet and clean faces for good health” reminds children and the community at large of the journey that they have undertaken to become trachoma-free.

To ensure clear communication at both administrative and community levels, SEHE as well as VEHE and MVEHE promote facial cleanliness. Teachers’ training colleges also train teachers to ensure that they encourage their students to practice good hygiene and continue to ensure a trachoma-free future.
Improved WASH facilities and services

Efforts to improve WASH infrastructure and behaviours have been implemented by several government ministries and departments in Myanmar with support from national and international nongovernmental organizations.

Water supply to schools, health facilities and communities, water resource management, and the promotion of hygiene as a part of public health are all interdisciplinary aspects of WASH initiatives in Myanmar.

Surveys conducted to map trachoma as a public health problem have specifically taken into consideration the proportion of households with latrine facilities, and accessible supply of water to maintain hygiene.
Since 2019, TT is no longer considered a public health problem in Myanmar. However, TT surgery services are provided at various levels of eye-care facilities to individuals in need. Surgeries are performed by ophthalmologists who receive specific training in this technique from senior ophthalmologists during their residency training at the Sintgaing SEC.

TT patients are identified and monitored through VEHE, MVEHE and outpatient department consultations at rural health centres and SEC. TT surgery is available in the field when a patient is identified during the MVEHE. All consenting TT patients are eligible for surgery, except patients with hypertension, diabetes or heart disease. All patients are given TEO post-surgery, and routine follow-up takes place two weeks after the surgery to remove sutures. TT patients with cataract can also undergo a cataract surgery one month after their TT surgery. In the last five decades of trachoma control activities in Myanmar, an estimated 150 000 cases individuals with TT received surgery.
The TC&PBL programme has a system for monitoring the provision of services at both primary and secondary levels. All new eye patients are examined for cataract, conjunctivitis, TT, blurring of vision, eye injury and glaucoma. Data on the number of people examined, treated and operated on during PEC activities are collated every month and reported to the programme through SEC.

Since 2019 all patients aged under 10 years with active trachoma and all new patients with visual acuity <3/60 in the better eye have been routinely reported by SEC. Data on presentations of TT and active trachoma and training of eye-care staff as per the Manual for primary eye care will continue to be compiled in the future. Training for diagnosis will be assisted through photographs to familiarize practitioners on the appearance of TT and active trachoma, which are, fortunately, now rare in the country. Since 2010, region-specific numbers of children below the age of 10 identified as having signs of trachoma have been routinely reported in the Annual Public Health Statistics.
Annual period prevalence data from 2010 to 2015 shows that active trachoma in children under 10 years of age across all the regions and states in Myanmar ranged from 0% to 0.0537%. The same data also suggest that active trachoma is no longer a public health problem, as the annual period prevalence of blindness (all causes) in the total population from 2010 to 2015 across all the regions and states was very low – ranging from 0% to 0.023%.\(^3\) This was confirmed by the survey of 2019.

\(^3\) Annual Public Health Statistics Reports (2010–2016), Ministry of Health and Sports, Myanmar.

Myanmar is at minimal risk of re-introduction of active trachoma from neighbouring countries.
Since 2019, as part of the post-validation surveillance, reporting of data from SEC has been streamlined and integrated into the routine health management information system.
Lessons learnt

The successful implementation of trachoma elimination initiatives in Myanmar demonstrates exemplary organized action. Key lessons learnt are:

- **Convergence**: A collective and collaborative approach by the leadership of various government ministries and departments within the Ministry of Health and Sports have ensured that public health services were made available in every endemic district in the country. This points to the need for coordinated efforts from health-related and non-health related entities in tackling public health problems.

- **Focus on allied causes**: Going beyond medical interventions has proved effective. The push given to strengthen WASH initiatives in the country led to improved hygiene and sanitation practices which had a direct bearing on lowering trachoma prevalence. The inculcation of good facial and hand hygiene through schools and community interventions have proved effective.

- **Awareness generation through education and participation**: Good hygiene practices have been regularly demonstrated and encouraged at schools and teacher training institutions, and have been participated in. Many community-based health assistants and field workers in Myanmar also perform their roles as points of contact for eye care in rural areas.

- **Vigilance and quality monitoring**: Trained survey staff, electronic recording of survey data, and reliability studies ensure that international standards of quality are met, and people diagnosed with active trachoma or TT are referred to the appropriate secondary eye care for further evaluation and management to make the gains against this disease sustainable.
Despite successfully eliminating trachoma as a public health problem, concerted and focused efforts for sustainable eye care have not ceased. Data on new eye patients, new trachoma patients (aged under 10 years), and new blind patients will continue to be regularly compiled in the future. Myanmar is also monitoring other ocular pathologies for holistic eye care. *The National Eye Health Plan 2017–021 (NEHP)* is in place to implement initiatives such as the Global Strategy for prevention of avoidable blindness, and it is aligned with the Myanmar Health Vision 2030 Strategy that aims to advance the country’s universal health coverage.

Efforts to improve hygiene and sanitation practices, provide latrines in households attached to a water source, and ensure clean drinking water continue to be actively pursued. The National Water Resources Committee in Myanmar ensures sustainable delivery of WASH interventions through coordinated water resource management.

The Government of Myanmar does not, however, regard this as a ‘job done’, and regular post-validation surveys, and continuing improvements in access to eye care and WASH facilities will all ensure that any potential source of return of trachoma to Myanmar is monitored and addressed expeditiously.