

# Mali: achieving success along the path to trachoma elimination

**Programme National de Lutte contre la Cécité**  
Bamako, Mali.

**Helen Keller International**  
Bamako, Mali and New York, NY, USA.

**The Carter Center**  
Bamako, Mali and Atlanta, GA, USA.

Trachoma, the world’s leading infectious cause of blindness, affects over 300 million people globally. Caused by the bacterium *Chlamydia trachomatis*, the disease thrives in environments with poor access to water, sanitation, and hygiene. It is spread from one person to another by eye-seeking flies, and by sharing cloths used to wipe the eyes and hands. Repeated or persistent infection can lead to lid scarring and the inward-turning of the eyelid, so that each time a person blinks their eyelashes scrape against the globe of the eye. This incredibly painful condition, known as trichiasis, damages the cornea and eventually leads to blindness.

The World Health Organization has endorsed the implementation of the SAFE Strategy, which is a combination of activities designed to eliminate blinding trachoma. **S** stands for surgery of the upper eyelid to correct trichiasis and preserve sight. **A** stands for the mass distribution of antibiotics (Pfizer-donated Zithromax®, and tetracycline) to clear the eyelid of active infection. **F** stands for facial cleanliness to reduce the presence of infectious ocular and nasal discharge. **E** stands for environmental improvement to improve household access to water



© Helen Keller International

**A woman is screened for trichiasis in the district of Sikasso.**

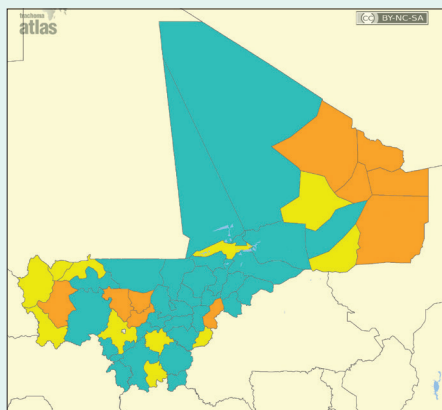
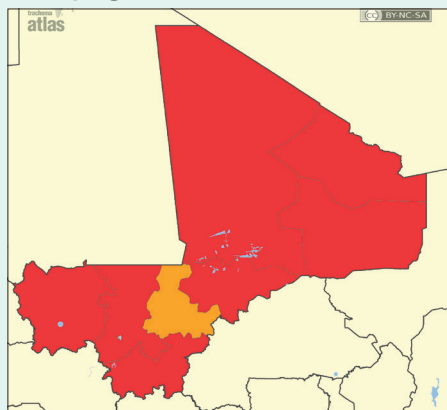
and latrines for better sanitation and hygiene. Implemented concurrently and successfully, the four components of the SAFE Strategy provide endemic countries with the tools needed to achieve trachoma elimination.

Mali, a land-locked country with 16.8 million people in West Africa, has historically been a country with a heavy burden of trachoma. In the late 1990’s, the prevalence of active trachoma – also known as follicular trachoma (TF) – was

found to range from 23.1% to 46.7% and the prevalence of trichiasis to be 2.5%. This evidence led to the implementation of a trachoma control programme through the National Blindness Prevention Programme (PNLC) in 1998.

Since its inception, the PNLC has made significant progress towards the goal of eliminating trachoma as a cause of blindness by 2015, ahead of the global elimination date of 2020. With support from a multitude of partners, the PNLC has become a leader in trachoma elimination across sub-Saharan Africa. Mali’s military coup d’état in March 2012 resulted in the loss of significant donor support to its government, the seizure of the three northern regions (Gao, Kidal, Tombouctou) from the rest of the country, and unprecedented political and social instability. However, the persistence of the PNLC, together with continued financial support from some partners, ensured that their important work continued in all accessible areas during this difficult time.

**Figures 1 and 2: Maps of Mali depicting the prevalence of active trachoma at the start of the programme (left) and now**



**Key: Prevalence of active trachoma (%)**

■ <5.0    ■ 5.0–9.9    ■ 10.0–29.9    ■ ≥30.0    ■ No data

© Trachoma Atlas Project [www.trachomaatlas.com](http://www.trachomaatlas.com), distributed under the Creative Commons Attribution License



# Test yourself

district levels and strategic deployment of human resources (trichiasis surgeons), equipment, and consumables.

The prevalence of active disease has decreased to levels below the threshold recommendation for district-level mass drug administration (MDA), and so the programme has been able to stop this activity in 84 % of the districts where trachoma is present (Figures 1 and 2). This has been due to the high annual rates of coverage with Zithromax® and tetracycline during MDA, strong data collection efforts, and conducting surveys to assess impact.

To address the F and E components, the PNLC conducted several different activities at the same time. These were:

- training for a variety of community groups and leaders (local women's groups, religious/village leaders, and community volunteers) in trachoma prevention
- broadcasting of health messages on community radio stations
- development of a trachoma school health curriculum that is being taught in primary schools
- household latrine construction and community-led total sanitation. Since 2009, PNLC support has assisted in the construction of 53,090 latrines.

## Future plans

The PNLC and partners will continue to build upon the gains made over the past 5 years and support the planning and implementation of SAFE strategy activities. The national programme is refining its surgical planning in order to reach the remaining 27,000 people estimated to need trichiasis surgery, thereby achieving the 'elimination goal' of less than one case of trichiasis per 1,000 persons.

Simultaneously, MDA to reduce transmission of trachoma will continue in communities where the prevalence remains high. Surveillance will also continue in areas where MDA has stopped. Social mobilisation and community sensitisation through radios, community volunteers, and women's groups will play a vital role in supporting attitudes and behaviours that help prevent the transmission of disease, strengthen disease knowledge, and decrease the number of people who refuse treatment or surgery. Ongoing latrine construction will continue to provide household access to safe disposal of faeces.

With thanks to Sanoussi Bamani, Seydou Goita, Yaya Kamissoko, Sadi Moussa, Sidi Coulibaly, Aryc W. Mosher, and Emily Toubali for their contributions to this article.

Test your understanding of the concepts covered in this issue and discuss any points of interest with your manager or a colleague. *Produced in collaboration with the International Council of Ophthalmology (ICO).*

1. Think about 'balancing the books' and sustainability		True	False
a	External donor funds are best used for training and capacity building	<input type="checkbox"/>	<input type="checkbox"/>
b	Governments are not responsible for paying for eye care	<input type="checkbox"/>	<input type="checkbox"/>
c	If you charge for services, everyone should pay the same	<input type="checkbox"/>	<input type="checkbox"/>
d	Pharmacy and spectacle sales are two areas where income can be generated	<input type="checkbox"/>	<input type="checkbox"/>
2. Think about patient flow, accounting and procurement		True	False
a	Buying smaller quantities of consumables, more frequently, saves money	<input type="checkbox"/>	<input type="checkbox"/>
b	Intraocular lenses (IOLs) should be on the procurement list if a hospital offers cataract surgery	<input type="checkbox"/>	<input type="checkbox"/>
c	You don't need to have a computer to set up an accounting system	<input type="checkbox"/>	<input type="checkbox"/>
d	Reducing the number of times a patient must visit the hospital, e.g. for cataract surgery, saves costs	<input type="checkbox"/>	<input type="checkbox"/>

## ANSWERS

1a. True, b. False, c. True, d. True. Governments must cover some of the costs or organise health insurance, as in Ghana.  
 2a. True, b. False, c. False, d. True. Some patients will pay more for value-added services.  
 2a. True, b. False, c. True, d. True. Bulk buy medicines and consumables yearly or quarterly. You can start on paper.

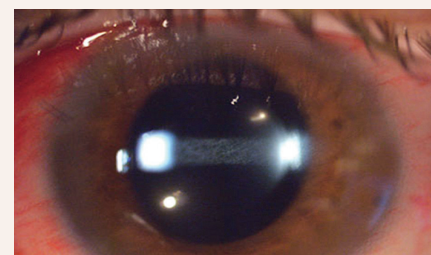
## PICTURE QUIZ

### Diagnose this

A ground-glass appearance of the cornea is noted immediately after cataract surgery (figure) and there is a +3 anterior chamber reaction. What condition do you suspect?

#### What is the most likely diagnosis?

- Endophthalmitis
- Mechanical trauma to the cornea
- Intraoperative introduction of a toxic substance into the eye
- Fuchs' corneal dystrophy



#### ANSWER

**Answer: Introduction of a toxic substance into the eye.** Mechanical trauma to the endothelium during surgery is considered to be the most significant factor influencing postoperative corneal oedema; however, toxic substances may inadvertently be introduced into the eye, causing immediate corneal oedema. This may come from intraocular irrigation solutions or topical and intracameral anaesthetics. Intraocular medications that have resulted in corneal toxicity include epinephrine (now available preservative free), various preparations of lidocaine, benzalkonium chloride-preserved viscoelastic, vancomycin at doses greater than 1 mg/mL, and inadvertent exposure of the endothelium to 5% povidone-iodine.

Bacterial contamination of the cleaning bath detergent for surgical instruments may also cause acute corneal oedema following cataract surgery. Oedema in these cases can be abrupt, resulting in immediate corneal swelling.

Toxic anterior segment syndrome (TASS) is an acute, sterile anterior segment inflammation following generally uneventful cataract and anterior segment surgery. Rapid onset of corneal oedema and absence of a hypopyon are the distinguishing factors in differentiating toxic corneal oedema from an infectious endophthalmitis. Most patients with TASS will develop symptoms and signs within 12 to 24 hours of the operation.

**Answer: Introduction of a toxic substance into the eye.** Mechanical trauma to the endothelium during surgery is considered to be the most significant factor influencing postoperative corneal oedema; however, toxic substances may inadvertently be introduced into the eye, causing immediate corneal oedema. This may come from intraocular irrigation solutions or topical and intracameral anaesthetics. Intraocular medications that have resulted in corneal toxicity include epinephrine (now available preservative free), various preparations of lidocaine, benzalkonium chloride-preserved viscoelastic, vancomycin at doses greater than 1 mg/mL, and inadvertent exposure of the endothelium to 5% povidone-iodine.

© American Academy of Ophthalmology, used by permission