Mali: achieving success along the path to trachoma elimination

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 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.

**Milestones**

Major milestones have been reached in the S and A components of the SAFE strategy in Mali. Since 2009, the PNLC has decreased the surgical backlog by almost half with targeted programme planning at the central, regional, and

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 (%)

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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 areas 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.

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**Test yourself**

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).

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

2a. False. Some treatments and medications are of variable cost and can be priced to cover costs. It can cost more to provide higher-quality services.

2b. True. A. Governments must cover some of the costs of primary healthcare in Ghana.

**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?

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

**ANSWER**

Intraoperative introduction of a toxic substance into the eye.

**COMMON DISEASES**

Bacterial endophthalmitis - A serious and sight-threatening condition that results from an infection of the intraocular structures. It can be caused by aerobes or anaerobes, and is more common after intraocular surgery. Prompt diagnosis and treatment are critical to preserve vision.

Fungal endophthalmitis - A rare but serious condition that can affect anyone, but is more common in patients with a history of corticosteroid use, diabetes, or other immune deficiencies. Early detection and treatment are essential to prevent permanent vision loss.

Viral endophthalmitis - A less common condition that can affect people with a weakened immune system. Early diagnosis and treatment with antiviral medications are necessary to prevent vision loss.

**ANSWER**

Mechanical trauma to the cornea.

**COMMON DISEASES**

- Traumatic corneal abrasion: A common cause of temporary vision loss, usually resulting from a scratch or impact to the eye.
- Corneal ulcer: An infection of the cornea that can be caused by bacteria, viruses, or fungi and can lead to permanent vision loss if left untreated.
- Corneal perforation: A rare but serious condition that occurs when the cornea is penetrated, potentially causing immediate vision loss.
- Corneal dystrophies: A group of inherited conditions that affect the cornea and can lead to progressive vision loss.

**ANSWER**

Fungal endophthalmitis.

**COMMON DISEASES**

- Fungal keratitis: A fungal infection of the cornea that can be caused by Aspergillus, Fusarium, or other fungi. It is more common in people with diabetes, organ transplants, or immunosuppressive therapy.
- Fungal corneal infection: A fungal infection of the cornea that can result from exposure to contaminated environments or direct contamination from a fungal source.
- Fungal keratoconjunctivitis: A fungal infection of the cornea and conjunctiva that can cause inflammation and vision loss.

**ANSWER**

Intraoperative introduction of a toxic substance into the eye.

**COMMON DISEASES**

- Intraocular injection: A rare but serious condition that can occur during intraocular surgery, usually as a result of accidental injection of a toxic substance. It can cause immediate vision loss and is treated with immediate medical intervention.
- Intraocular tamponade: A technique used in intraocular surgery to manage leaks or hemorrhage by introducing a non-toxic substance into the eye to provide pressure and support.
- Intraocular foreign body: A common complication following intraocular surgery, which can cause pain, inflammation, and vision loss. Early detection and removal are essential to prevent further complications.

**ANSWER**

Fungal endophthalmitis.

**COMMON DISEASES**

- Fungal endophthalmitis: A fungal infection of the intraocular structures that can cause severe inflammation, pain, and vision loss. It is more common in people with diabetes, immunosuppression, or recent intraocular surgery.
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