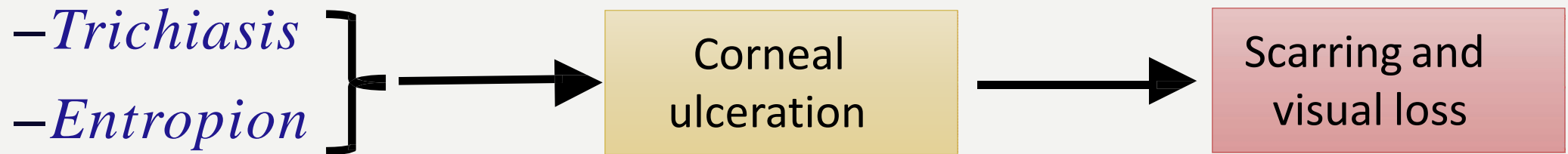


A close-up photograph of a human eye, showing significant redness and inflammation of the conjunctiva, which is characteristic of trachoma. The eye is brown, and the surrounding skin is fair. The image is set against a teal background.

TRACHOMA

# INTRODUCTION

- *Chronic infectious disease of conjunctiva and cornea*
- *Caused by **Chlamydia trachomatis***
- *May undergo spontaneous resolution or may progress to conjunctival scarring*



- *Classified as – **blinding or non-blinding***

# Modified WHO grading of trachoma

**FISTO**

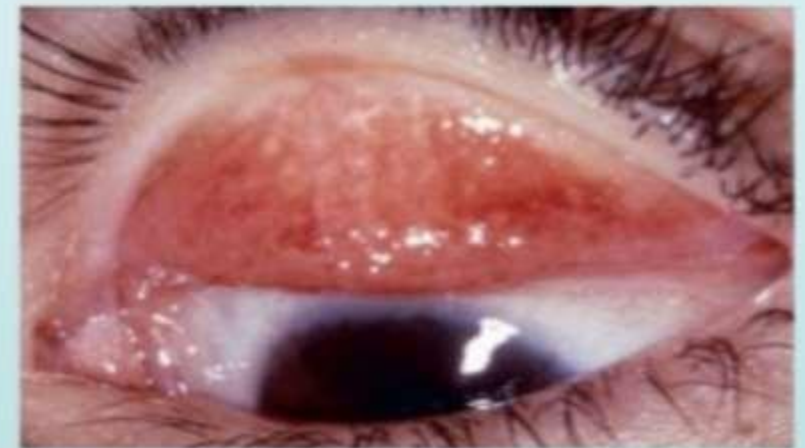
**TF** = trachoma **f**ollicles

**TI** = trachomatous **I**nflammation

**TS** = trachomatous conjunctival **S**carring

**TT** = trachomatous **t**richiasis

**CO** = Corneal **O**pa**c**ity







Trachomatous inflammation-follicular (TF)

**Trachomatous Inflammation – Follicular (TF):** The presence of five or more follicles in the upper tarsal conjunctiva. Follicles are round swellings that are paler than the surrounding conjunctiva, appearing white, grey or yellow. Follicles must be at least 0.5mm in diameter.



Trachomatous inflammation-follicular and intense (TI)

**Trachomatous Inflammation – Intense (TI):** Pronounced inflammatory thickening of the tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels. The tarsal conjunctiva appears red, rough and thickened. There are usually numerous follicles, which may be partially or totally covered by the thickened conjunctiva.



Trachomatous scarring (TS)

**Trachomatous Scarring (TS):** The presence of scarring in the tarsal conjunctiva. Scars are easily visible as white lines, bands, or sheets in the tarsal conjunctiva. They are glistening and fibrous in appearance. Scarring, especially diffuse fibrosis, may obscure the tarsal blood vessels.



Trachomatous trichiasis (TT)

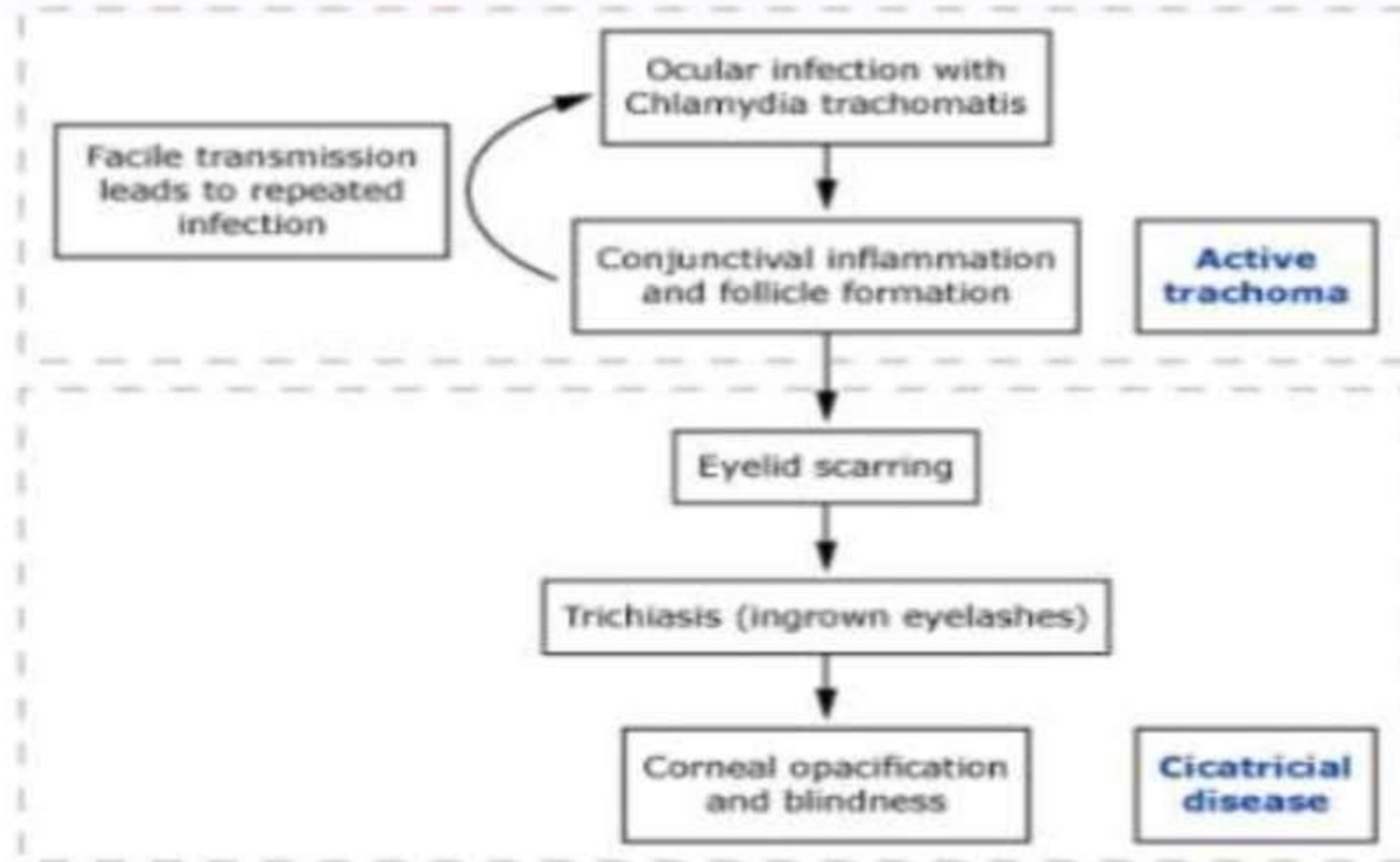
**Trachomatous Trichiasis (TT):** At least one eyelash rubs on the eyeball. Evidence of recent removal of intumed eyelashes should also be graded as trichiasis.



Corneal Opacity (CO)

**Corneal Opacity (CO):** Easily visible corneal opacity over the pupil. The pupil margin is blurred viewed through the opacity. Such corneal opacities cause significant visual impairment (less than 6/18 or 0.3 vision), and therefore visual acuity should be measured if possible.

## Natural history of *C. trachomatis* infection



# WHO grading system

- Trachomatous Inflammation – Follicular (TF) - which mostly requires **topical treatment**.
- Trachomatous Inflammation – Intense (TI) - during which **topical and systemic** treatments are considered.
- Trachomatous Scarring (TS) - when scars are visible as in the tarsal conjunctiva and which may obscure tarsal blood vessels.
- Trachomatous Trichiasis (TT) - when an individual is referred for **eyelid surgery**; and
- Corneal Opacity - a stage during which a person is **irreversibly blind**.

# GLOBAL SCENARIO

- *Public health problem in 41 countries of **Africa**, Central and South America, Asia, Australia and the Middle East*
- *Responsible for the **irreversible blindness** or visual impairment of about 1.9 million people*
- *Causes about **1.4% of all blindness** worldwide*
- *Economic cost from blindness and visual impairment is **US\$ 2.9–5.3 billion annually**, increasing to US\$ 8 billion when trichiasis is included*

# INDIA

- *Was most important cause of blindness in India in 1950s and over 50% population was affected in Gujarat, Rajasthan, Punjab, and Uttar Pradesh.*
- *Estimated to be responsible for 0.2% of visual impairment and blindness*
- *National Trachoma Survey Report (2014-17) - declared India free from 'infective trachoma' - active trachoma infection eliminated among children in all the survey districts with overall prevalence of only 0.7%*
- *Disease pockets - north Indian states like Gujarat, Rajasthan, Punjab, Haryana, Uttar Pradesh & Nicobar Islands*



A decorative graphic on the left side of the slide, consisting of three parallel, wavy vertical lines. The outermost line is white, the middle line is a light blue color, and the innermost line is white. These lines create a sense of movement and depth.

# EPIDEMIIOLOGY

# AGENT FACTORS

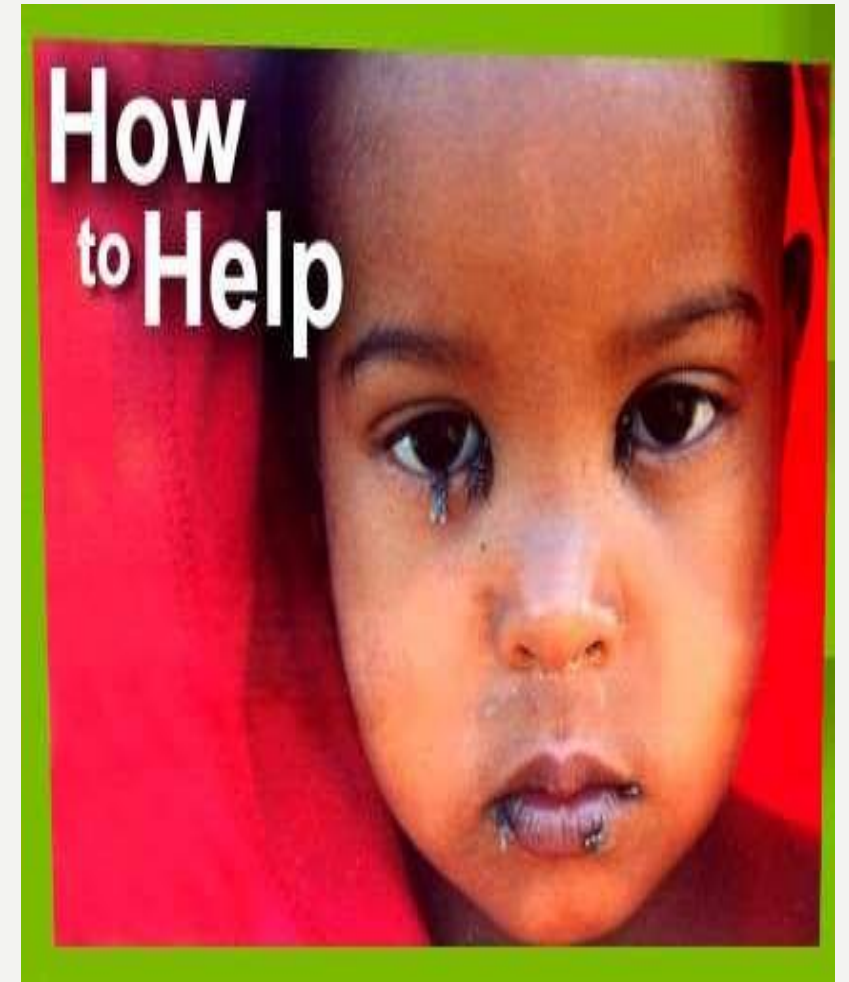
- *Classical endemic trachoma - Chlamydia trachomatis of immune types A,B, or C*
- *Sexually transmitted - Chlamydia trachomatis serotypes D,E,F,G,H,I,J,OR K –*
  - *may also infect eyes –Inclusion conjunctivitis*
  - *Rarely produce permanent visual loss*
  - *May cause respiratory infections in infants*
- *Other pathogenic organisms –*
  - *Morax-Axenfeld diplobacillus – most innocuous*
  - *Koch-Weeks bacillus – most widespread*
  - *Gonococcus – most dangerous*

# AGENT FACTORS

- *Chlamydia trachomatis* – obligatory intracellular bacteria
- **Reservoir** –
  - children with active disease,
  - chronically affected older children and adults
- **Source of infection** –
  - ocular discharges of infected persons and
  - fomites
- **Communicability** – low infectivity
  - infective as long as active lesions are present in the conjunctiva

# HOST FACTORS

- **AGE** – *children of 2-5 years are most infected*
  - *Endemic areas - children show signs at age of only a few months*
- **SEX** – *prevalence equal in younger age groups*
  - *In older age groups – female affected more*
- **Pre-disposing factors** – *direct sunlight, dust, smoke, irritants like kajal or surma*



# ENVIRONMENTAL FACTORS

- *Season* – Environmental risk factors influencing disease transmission:
  - *Higher temperature and rainfall favour increase in flies*
  - *Inadequate sanitation facilities*
    - poor hygiene;
    - crowded households;
    - water shortage; and
    - inadequate latrines and sanitation facilities.
- *Quality of Life* – *thrives in conditions of poverty, crowding, ignorance, poor personal hygiene, illiteracy and poor housing*
- *Customs* – *applying kajal or surma*



# MODE OF TRANSMISSION

- *In endemic communities – eye to eye transmission*
  - *Direct or indirect contact with ocular discharges of infected persons or fomites – fingers, towels, kajal, surma*
  - *Mechanical transmission by eye-seeking flies -female Musca sorbens / Musca domestica flies*
- *In areas with sporadic cases – venereal transmission*
- *Familial disease*
- *Incubation period - 5 to 12 days*

# The Life Cycle of Trachoma

## INFECTING THE EYES

Flies carrying the micro-organism land on children's eyes, to feed on discharge.

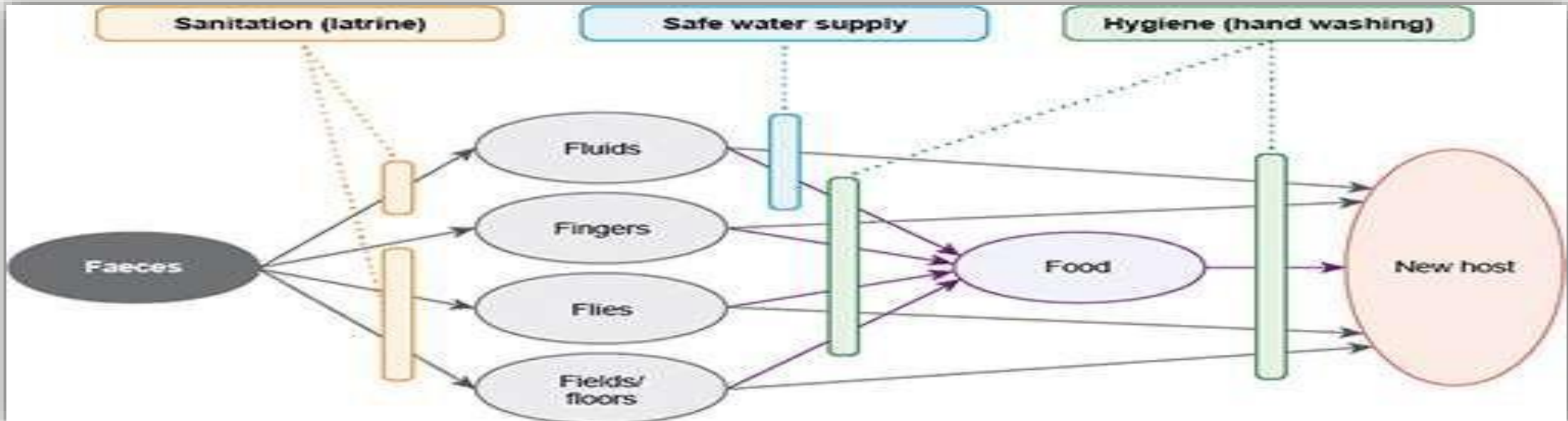
## FAMILY CONTACT

Women who take care of children also get the infection.

## SPREADING OUT

Flies that breed in human feces spread the disease to others.

Dirty hands or face cloths also spread the disease.



# Trachoma → Blindness



A decorative graphic on the left side of the slide, consisting of three vertical, wavy lines in shades of light blue and white, set against a dark blue background.

# Control of Trachoma

# ELEMENTS OF CONTROL

- *Assessment of problem*
- *Chemotherapy*
  - *Mass treatment*
  - *Selective treatment*
- *Surgical correction*
- *Surveillance*
- *Health education*
- *Evaluation*



# Need of Assessment of problem

- *Primary objective of programme for trachoma control is prevention of blindness*
- *Focus on communities with high prevalence of 'blinding trachoma' – indicated by –*
  - *Corneal blindness*
  - *Trachomatous trichiasis and entropion*
  - *Moderate and severe Trachomatous inflammation*
- *Such communities have blindness rates of >0.5%*
- *Also required – information on local conditions and existing resources*

# Chemotherapy

- **Objective** - *reduce severity, lower incidence and thence prevalence in long run*
- **Antibiotic of choice** – *1% ophthalmic ointment or oily suspension of tetracyclines*
- *Erythromycin and Rifampicin also used*
- *Treatment can be Mass or Selective*

# Chemotherapy

- *Mass treatment*

- *Blanket treatment*

- *Prevalence of moderate or severe trachoma is >5% in children under 10 years*

- Application of **1% tetracycline ointment** to all children

- *Twice daily for 5 days each month for 6 consecutive months, or*

- *Once daily for 10 days each month for 6 consecutive months*

- *Erythromycin is alternative antibiotic*

# Chemotherapy

- *Selective treatment*

- *In communities with low to medium prevalence*
- *Whole population at risk is screened – case finding*
- *Treatment is applied only to those with active problem*
- *Principles of treatment remaining same*

# Surgical correction

- *Individual with lid deformities –
  - trichiasis and
  - entropion*
- *Actively sought out*
- *Immediate impact in preventing blindness*



# Surveillance

- *Once control of blinding trachoma is achieved*
- *Necessary for several years after active inflammatory trachoma is controlled*
- *Whole family should be under surveillance*

# Health Education

- *Mothers of young children should be target*
- *Measures of personal and community hygiene*
- *Permanent change in behaviour patterns and in environmental factors*
- *Final solution – improvement of living conditions and quality of life*

# Evaluation

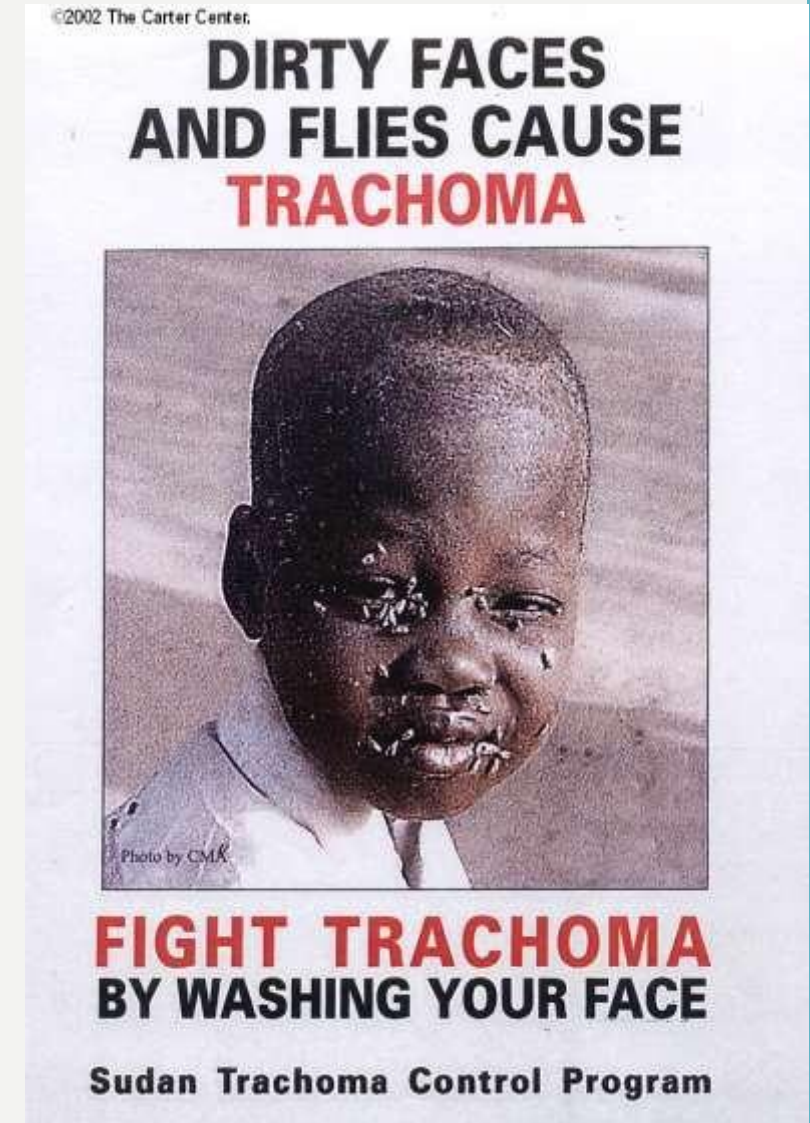
- *Evaluated at frequent intervals*
- *Effect of intervention judged by –*
  - *Age-specific rates of active trachoma*
  - *Prevention of trichiasis and entropion*

# TRACHOMA CONTROL

- WHO's goal – eliminate trachoma as a public health problem by the year **2020**.
- **Elimination** of trachoma as a public-health problem is defined as
  - reduction in prevalence of trichiasis (TT) “unknown to the health system” to less than 1 case per 1000 total population
    - (“known” cases are those in whom trichiasis has recurred after surgery, those who refuse surgery, or those yet to undergo surgery whose surgical date is set)
  - reduction in the prevalence of the active trachoma sign “TF” in children aged 1–9 years to less than 5%

# Elimination strategy – SAFE

- *Adopted by WHO in 1996*
- *Combination of interventions implemented as an integrated approach. **SAFE** is an acronym for:*
  - ***S**urgery for trachomatous trichiasis*
  - ***A**ntibiotics to clear ocular *C. trachomatis* infection*
  - ***F**acial cleanliness to reduce transmission of ocular *C. trachomatis**
  - ***E**nvironmental improvement, particularly improved access to water and sanitation.*







### **S**urgery

for inturned  
eyelids



### **A**ntibiotics

Pfizer-donated  
Zithromax® to treat  
and prevent active  
infection



### **F**acial cleanliness

to prevent disease  
transmission



### **E**nvironmental change

to increase access  
to water and  
sanitation

# GET 2020

- *In 1997, WHO launched the WHO Alliance for the **Global Elimination of Trachoma by the year 2020 – GET 2020***
- *Partnership which supports country implementation of the SAFE strategy and the strengthening of national capacity through epidemiological assessment, monitoring, surveillance, project evaluation and resource mobilization*
- ***ICTC** - International **C**oalition of **T**rachoma **C**ontrol*

# INDIA

- *NATIONAL TRACHOMA CONTROL PROGRAMME – launched in 1963*
- *Incorporated with National Programme for Control of Blindness in 1976*

“Trachoma is no longer a public health problem in India. We have met the goal of trachoma elimination as specified by the WHO under its GET2020 programme. There is need for constant surveillance by the states to report any fresh cases of trachoma and trachoma sequelae and to treat them promptly to finally be completely free of trachoma,”

J.P. Nadda, Union health minister



The end <sup>in</sup> ~~of~~ sight.

A global strategy to eliminate blinding trachoma

**ICTC** International Coalition  
for Trachoma Control

YOU.