



TRINIDAD & TOBAGO: The Filariasis Elimination Program

***Balkaran Shivnauth,¹ Principal Medical Officer,
Epidemiological Health, Ministry of Health (MoH)***

Country profile

The twin island State of Trinidad & Tobago is the most southerly island in the Caribbean (see Figure 1). It has an estimated population of 1.3 million, with the 20–39 year age group comprising the largest proportion (31.9%). For all groups except the 60+ age group, there are slightly more males (50.15%) than females (49.85%).



Figure 1. Country map

Health system

The government health system includes 105 health centers, 10 hospitals (including 3 major hospitals), and 4 district health facilities. The number of health centers ranges from 8 to 19 per county, with the largest number in Tobago.

Mission statement

The Mission of IVCD [Insect and Vector Control Division] is to provide a service for the protection of the nation's health from vector-borne diseases through the application of safe, effective, and economical integration of all appropriate, sustainable vector control measures which are acceptable to the people of Trinidad & Tobago within prescribed limits.

Human resources

In 2004, there were 6,618 health professionals in the country, including

- nurses and midwives (34.9%)
- physicians (19.5%)
- nursing assistants, nursing aides (32.9%)
- pharmacists (7.7%).

¹ Dr. Shivnauth was unable to attend the meeting(s) due to travel constraints caused by hurricanes in the Caribbean region, but excerpts from his PowerPoint presentation are included above.

Partners

- PAHO/WHO
- Caribbean Epidemiology Centre (CAREC)

Integration

Program synergy with other health institutions includes

- dual screening of blood smears in primarily malaria surveillance
- recent identification of *W. bancrofti* and *P. vivax* in imported case in December 2004
- active community surveillance system using blood smears
- random smears of *Pyrexia* of unknown origin at health facilities.

History

1893–1937

- Average number of cases per year²
 - elephantiasis (24)
 - hydrocele (54)
- 1902 *George A. Vincent Survey*⁸
 - 5% positive for microfilaria (mf)
 - 6.7% had elephantiasis (n = 500)
- 1908 *George C. Low Survey* (n = 400)
 - 10.8 % positive for mf (n = 43)
 - 44.2 % symptomatic
 - 55.8 % asymptomatic
 - 20.8% had elephantiasis
- 1909 *A.B. Herrick Survey*
 - one case of chyluria
 - Trinidadian who lived in Panama for 22 years
 - positive for mf

- 1928
 - Low prevalence lymphatic filariasis (LF) (n = 33,970)
 - 0.1% 1945 (*Platzer*)
 - 0.0003% 1961 (*Beve*)
 - naval base employee survey
 - T&T *Surgeon General Report*

1936–present

- 1976 *Nelson & Davis*
 - 6.3% positive for mf (n = 300)
 - elephantiasis & hydrocele reported in north coast village
- 1978–1979 *Nathan 1981; Nathan 1982*
 - Blanchisseuse survey (n = 562)
 - 15.3% positive for mf
 - 2.1% amicrofilaria with lymphedema
 - 16.7% (n = 12) had elephantiasis
- *Nathan 1981*
 - Human bait capture mosquito population
 - 2.1% infected (0.1% with mature larvae)
 - Resting vector population
 - 7.0% infected (0.1% with mature larvae)
- *Nathan 1987*
 - DEC (diethylcarbamazine citrate) efficacy survey in 1980–1981 (see Table 1)
 - dosage of 6 mg/kg body weight monthly for one year (April 1980–April 1981)
- *Chadee 1995*
 - 12 years post treatment
 - 66.92% total population sampled in 1992 (n = 520)
 - all negative for mf

² Trinidad & Tobago *Surgeon General Report*

³ Patients from Port of Spain Colonial Hospital., St. Ann's, and private practitioners

Table 1. Survey results (Nathan 1987)

	Pre-treatment	Post-treatment
Mf	14.5%	1.7%
Vector Parasitic Index	6.4%	0%
Infectivity Rate	0.1%	0%

LF elimination criteria

- Cumulative 5-year transmission rate less than 1 new infection per 1,000 individuals
- Consensus at 50th World Health assembly
- Request for certification for elimination made in 2002

Monitoring

- Ongoing risk of re-introduction of LF from imported cases originating from endemic countries

Epidemiological

- Blood smearing in community surveys serve dual purpose for LF and malaria surveillance
- ICT (immunochromatographic testing) in 1998 (Rawlins et al. 2000)
 - 211 adults (8 locations in north, central, and south Trinidad)
 - 139 children (from previously endemic Blanchisseuse and neighboring Matelot and Grand Riviere)
 - all results negative (including those for adults treated in 1981 DEC campaign)

Entomological

- Chadee et al 2002
 - xenomonitoring of *Culex quinquefasciatus* (Cq) mosquito
 - use of blood-engorged, resting mosquitoes (rather than ethically questionable human bait captures)
 - use of electrical or mouth respirators for collection
 - use of “Cocoyear broom” technique (flushing method for hard-to-reach mosquitoes)
- Xenomonitoring
 - results
 - 3000 Cq from 1,400 households in St. George and Caroni
 - 3–6 Cq collected per household
 - stored mosquitoes not yet analyzed by PCR (polymerase chain reaction)-based assay

Challenges

- Detection of imported cases from “underground visitors”
 - need humane, diplomatic approach
- Promotion of regional inter-country communication linkages (which may help management of aforementioned problem)
- Need for ongoing technical cooperation and assistance for epidemiological/ vector surveillance