

Tuberculosis in Bangladesh: A 40 year review

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Objectives

To review the epidemiology of TB in Bangladesh during 1966-2006

- Incidence
- Prevalence
- Case detection
- Treatment success
- Care seeking
- Drug resistance
- Mortality



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Methods

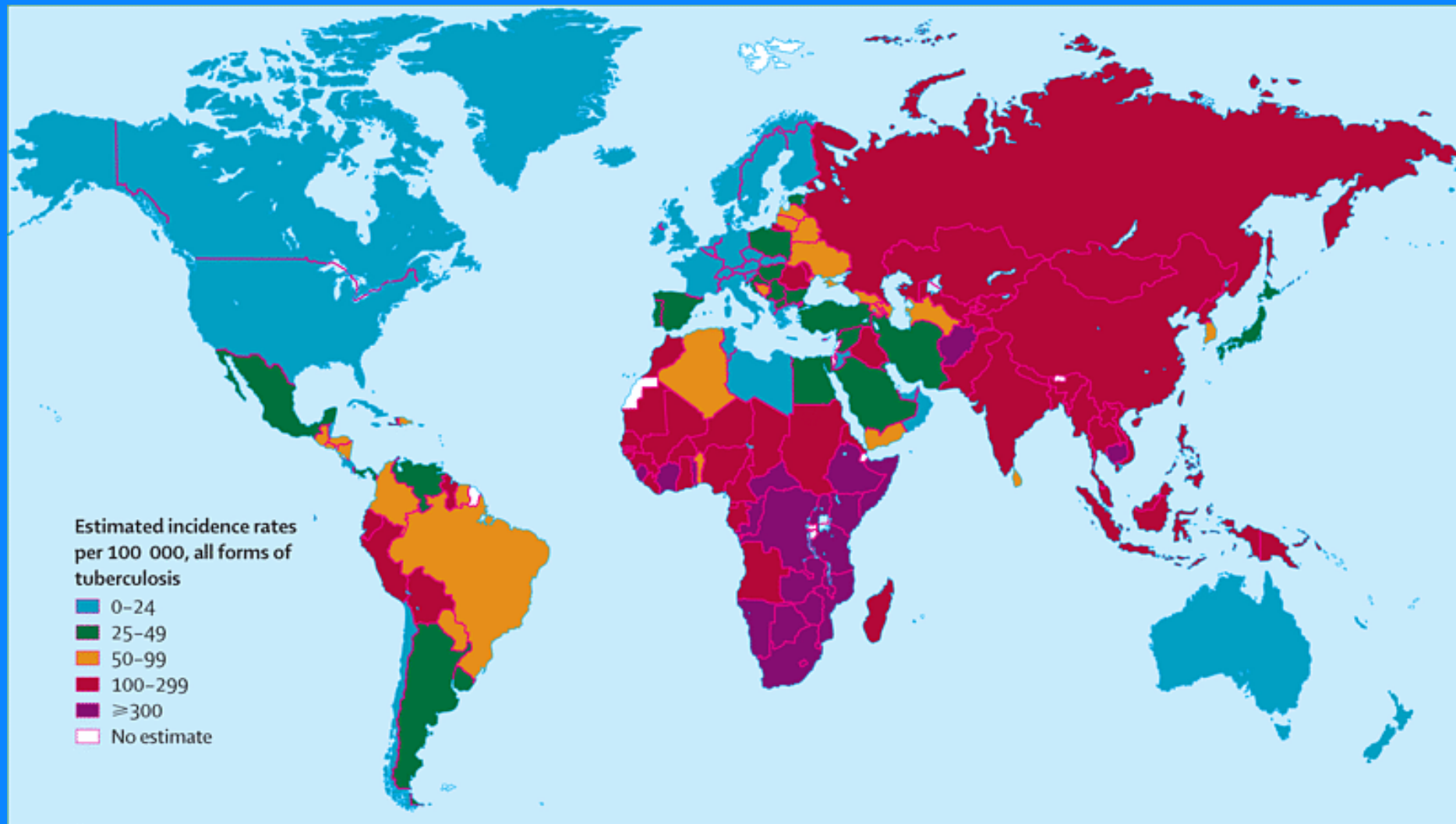
Review journal articles, documents,
reports, data series and records
for the period 1966-2006



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Distribution of tuberculosis in the world



Dye C. Lancet 2006;367:938-40



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Background

Millennium Development Goals (MDG) 6, Target 8:
“halt and begin to reverse the incidence of TB by 2015”

Case Detection 70%
Treatment Success 85%

Target

Reduce prevalence and deaths 50%

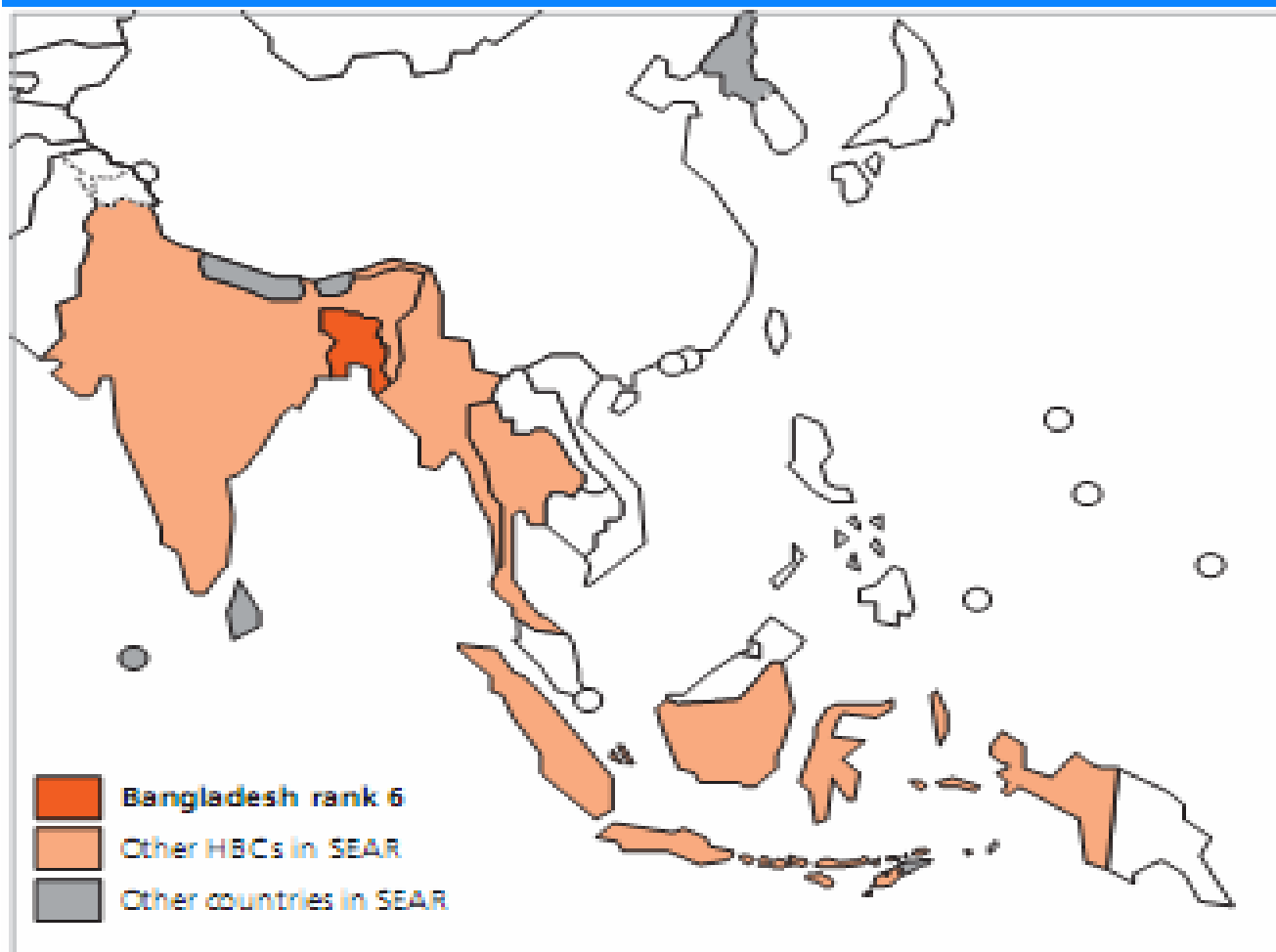
WHO/HTM/TB/2006.362



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Tuberculosis in Bangladesh



- Ranks 5th globally
- Incidence all cases 227/100K /Yr
- Incidence SS+ve cases 102/100K/Yr
- 300,000 new cases in a year
- 70,000 deaths/year

WHO South-East Asia Region (SEAR)

Rank based on estimated number of incident cases (all forms) in 2004.

WHO/HTM/TB/2006.362



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Prevalence of sputum positive TB estimates in different surveys

Organization	Period	Prevalence estimates/100K
DGHS ¹	1964-66	318
DGHS ²	1987-88	870
BRAC ³	1995	70-150
Damien Foundation ⁴	2001	24*
ICDDR,B ⁵	2001	95**

- Differences in methods
- Differences in population
- Different tests done
- Sampling variation

* Population \geq 12 years (All others \geq 15 years)

** Cases under treatment not having cough \geq 3 weeks not enrolled

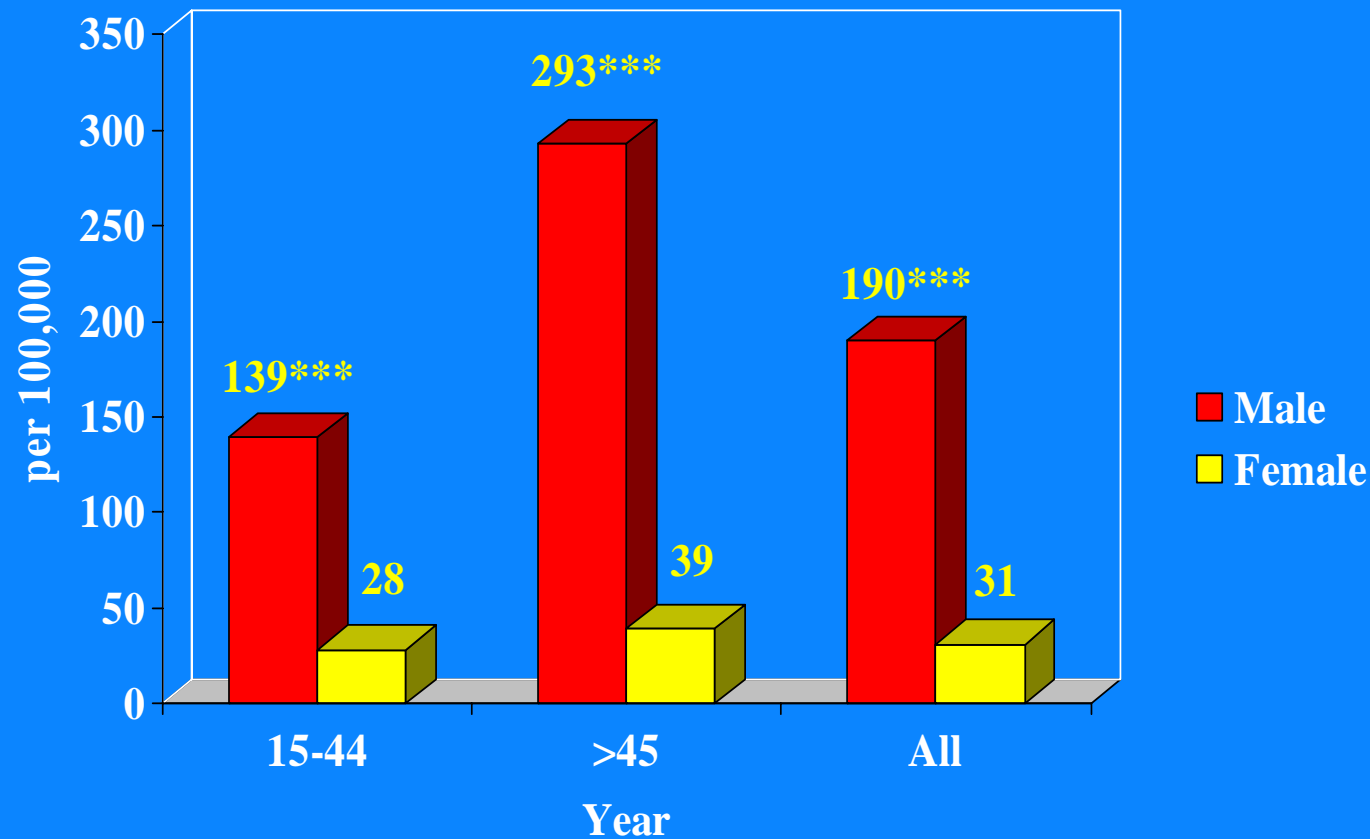
1. GOB 1973, 2. DGHS 1989, 3. Chowdhury et al 1997, 4. Salim et al 2004, 5. Zaman et al 2006



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Population prevalence of smear positive TB cases by age and gender (Matlab 2001-2002)



*** $p < 0.0001$

Zaman et al, 2006

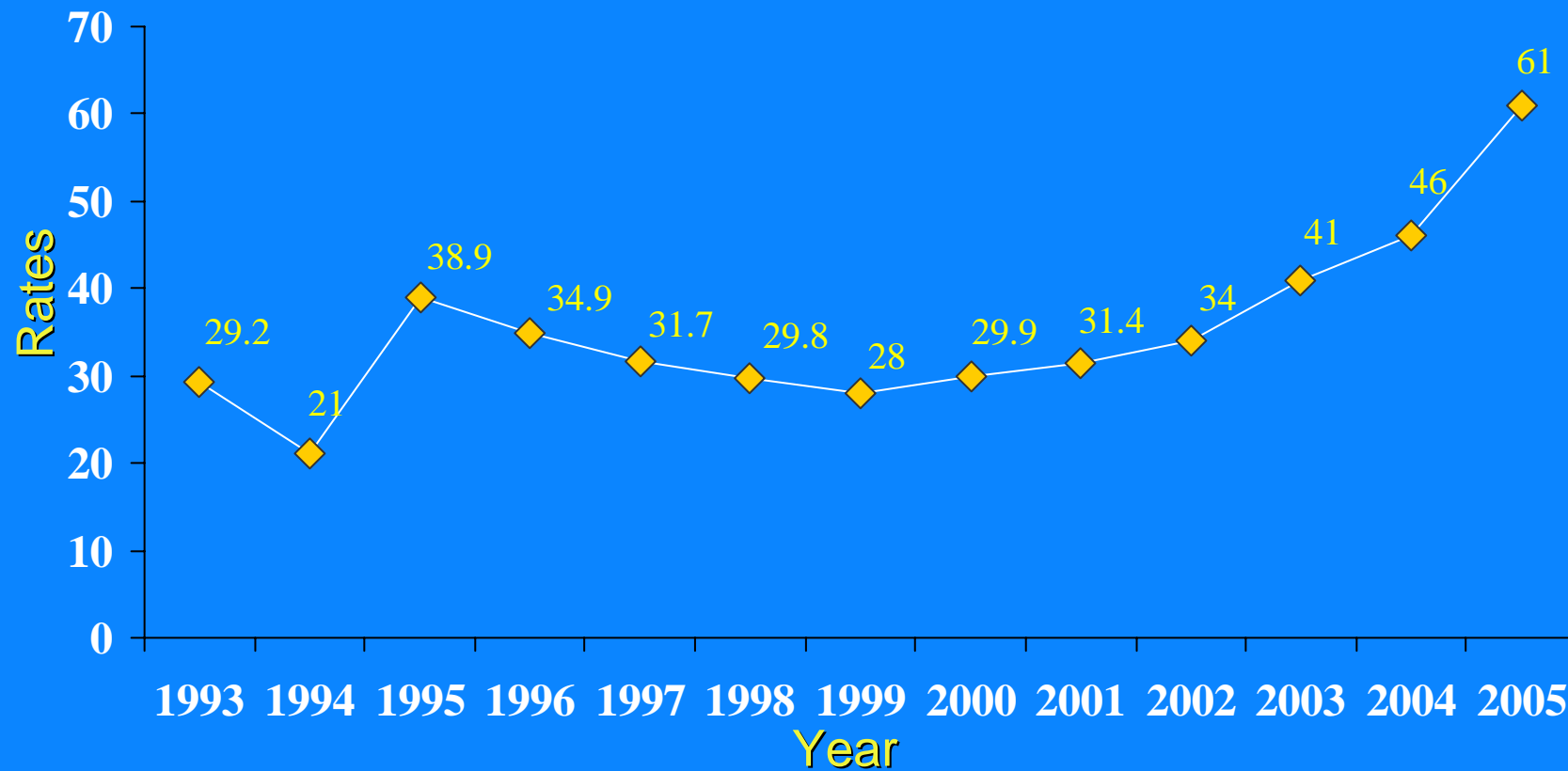


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National Tuberculosis Control Program, Bangladesh

Case Detection Rate: 1993-2005



NTP/DGHS, Annual Report 2005

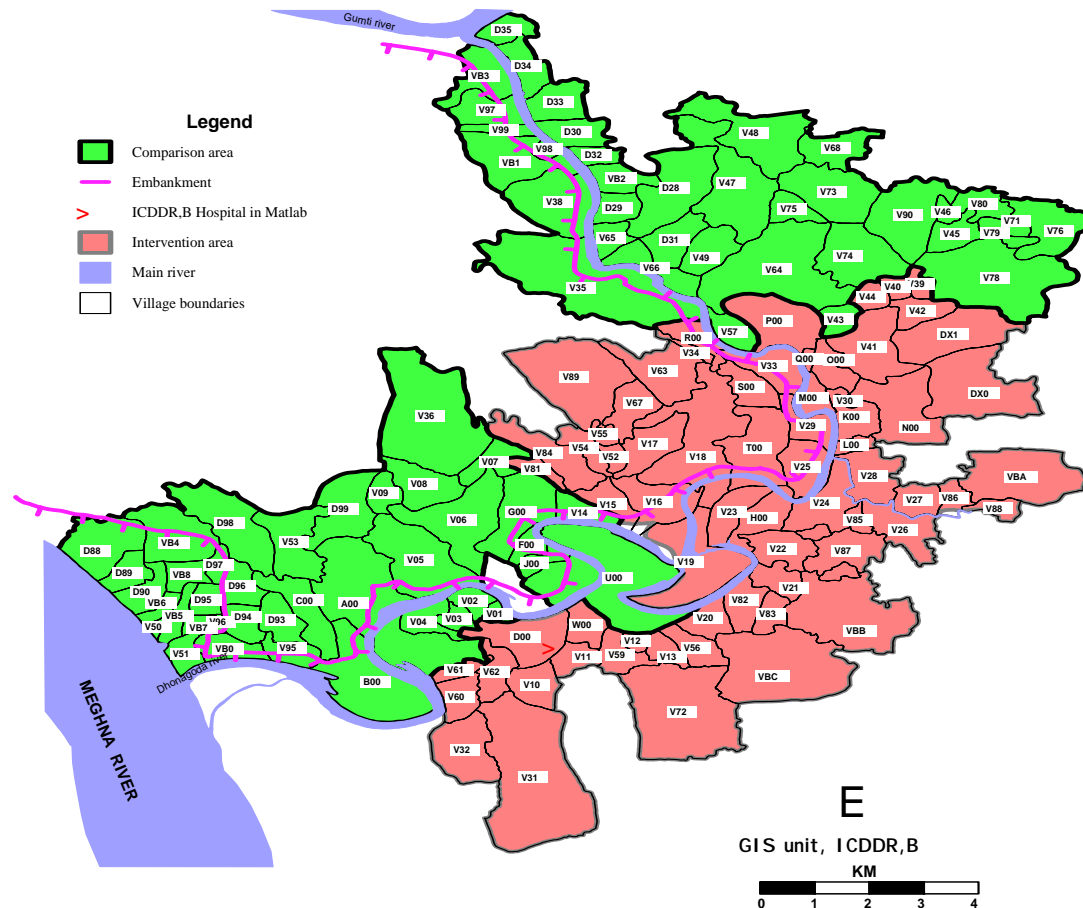


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TB Surveillance in Rural Matlab

The Map Showing Villages of Matlab Study Area



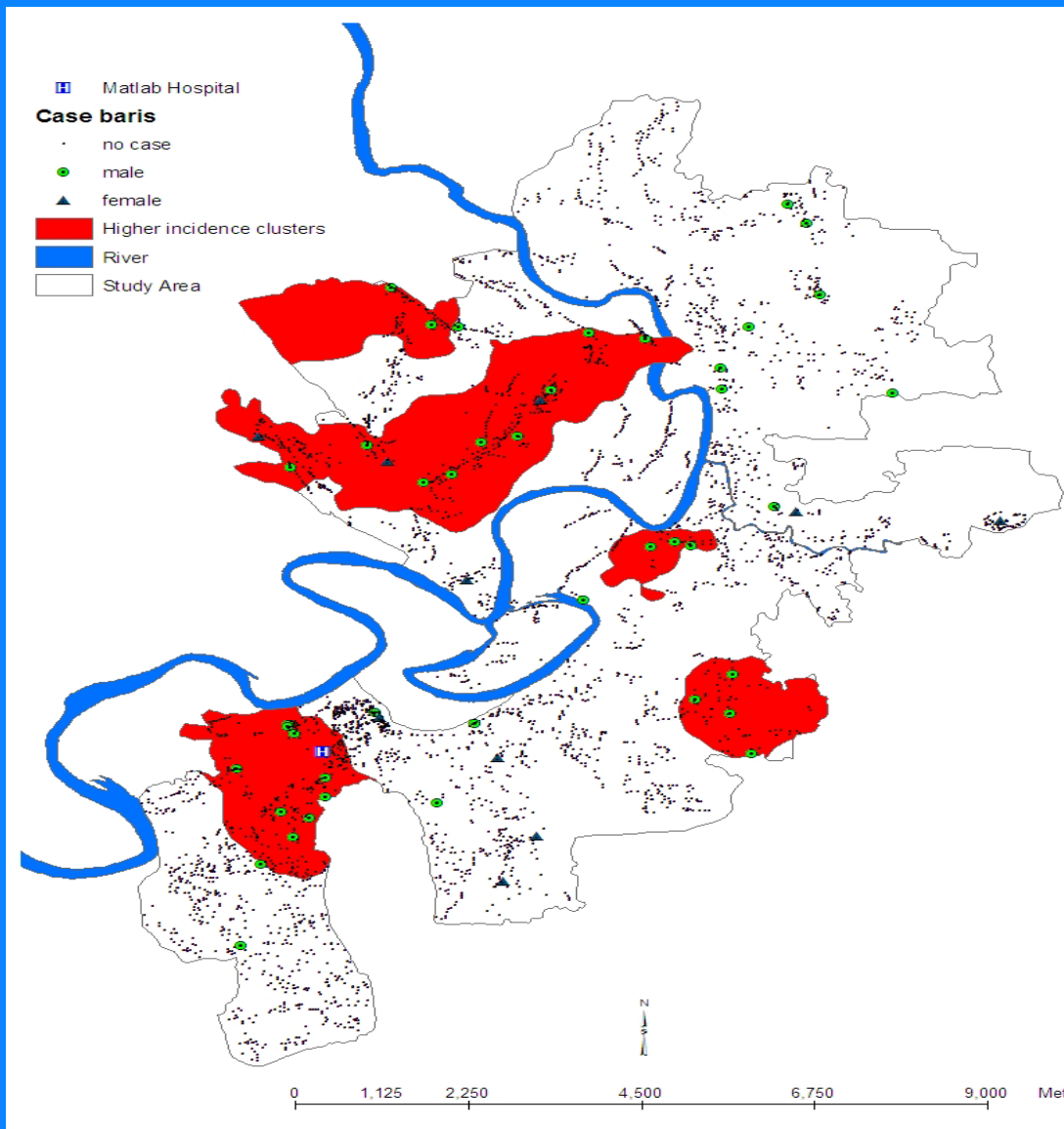
- Routine surveillance in the intervention area
- Referral of all suspected cases to Matlab THC
- Specific data collection from all areas



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Distribution of TB cases in rural Matlab 2001



- Geographic clusters of increased risk of TB

Zaman et al.
Scand J Infect Dis 2005; 37: 21-26.



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Female male ratio of sputum smear positive AFB cases in Bangladesh

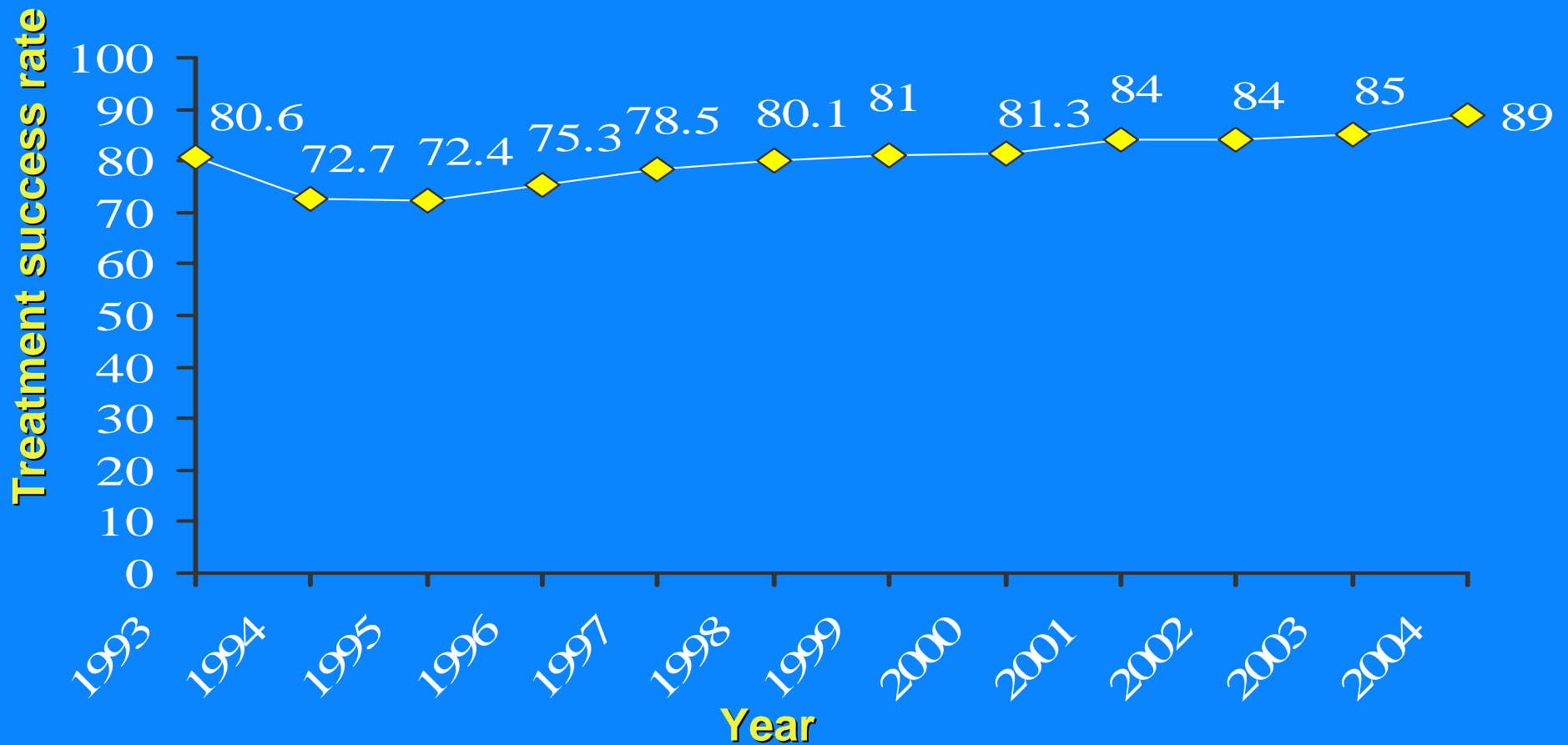
Study Organization	Year of study	Female/Male ratio
BRAC ¹	1992-94	0.39
NTP ²	1997	0.35
Damien Foundation ³	2001	0.33
ICDDR,B ⁴	2001	0.24

- Differentials in exposure
- Differentials in accessibility
- Smoking
- Cough production
- Progression of disease

1. Chowdhury et al 1997, 2. V Begum et al 2001, 3. Salim et al 2004, 4. Zaman et al 2006

National Tuberculosis Control Program, Bangladesh

Treatment Success Rate: 1993-2004



NTP/DGHS, Annual Report 2005

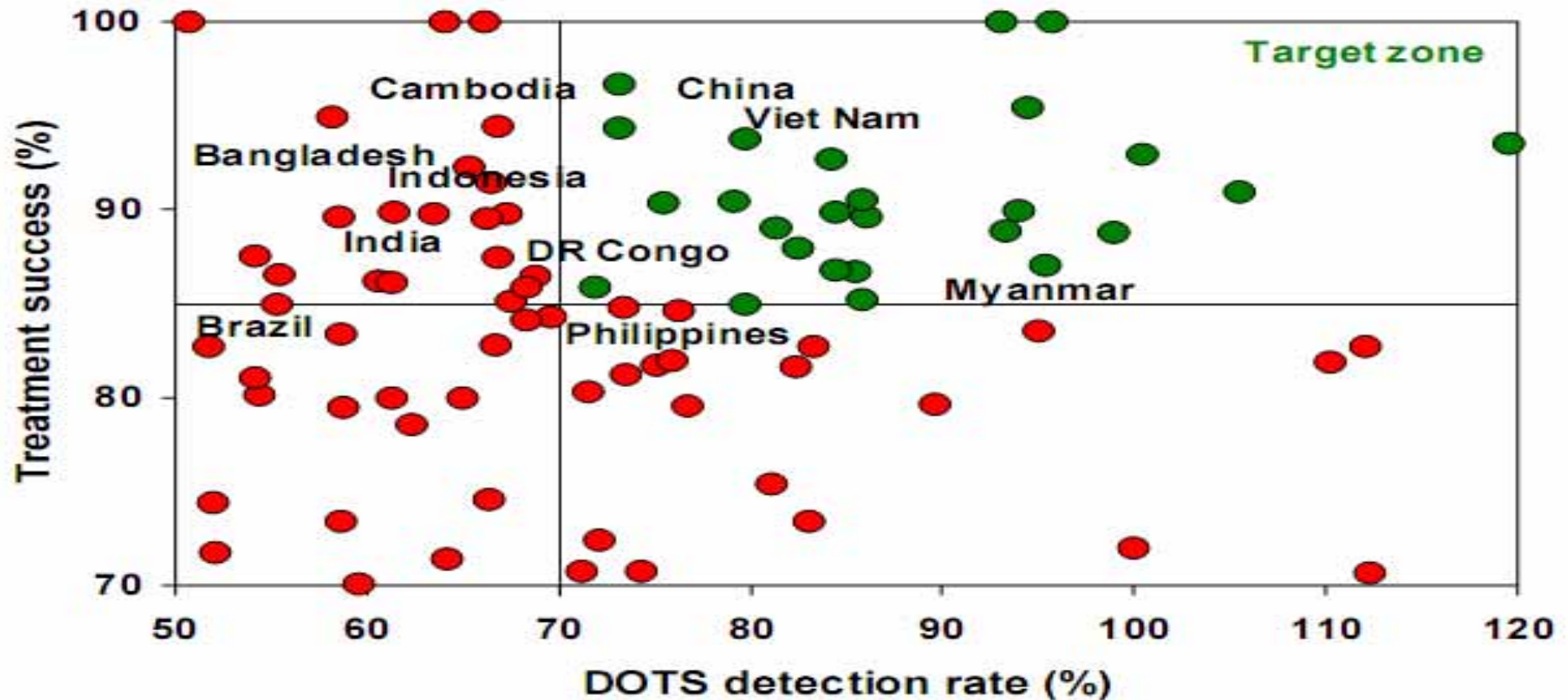


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Detection graph

About 25 countries met both targets by 2005



Stop TB partnership: The MDG goal Report 2006



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Drug resistance pattern of M. Tuberculosis in Bangladesh

Study Organization	Resistance to any drug %	Multiple drug resistance (MDR) %
BSMMU ¹	29.7	4.9
Damien Foundation ²	18.6	2.0
ICDDR,B ³	48.4	5.5

- More MDR among those who received irregular treatment > 1 m (15.4% vs 3.0%)

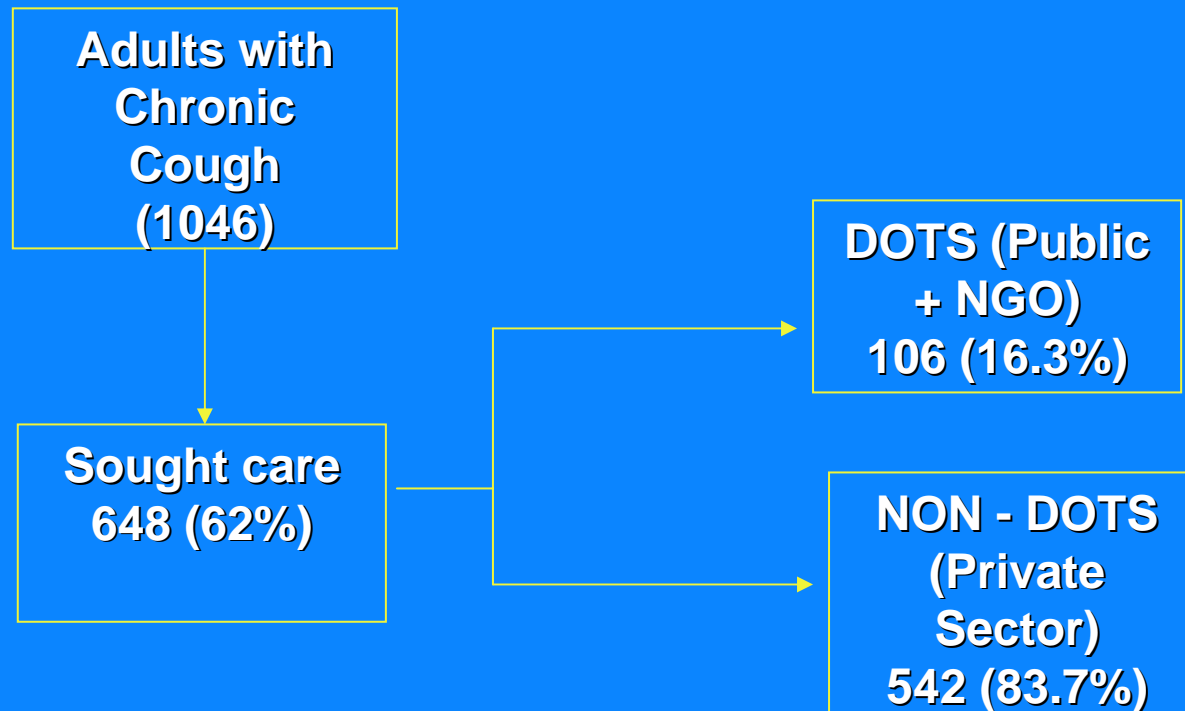
1. Hossain MR et al 1998, 2. Van Deun et al 1999, 3. Zaman et al 2005



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Care seeking of suspected TB cases



Shahed et al. Abstract in Int J Tuberc Lung Dis 2006; 10(11): s-148



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TB deaths in rural Matlab 1988-2003

Age group	Deaths	Age standardized mortality Rate / 100K
≥ 15 yrs	3.6 % of all deaths	Male: 19.15 ~ 46.05 Female: 2.19 ~ 23.72
< 15 yrs	2.8 % of TB deaths	
15-44 yrs	21.6 %	
≥ 45 yrs	75.6 %	

- Ascertained through verbal autopsy

Zaman et al. Int J Tuberc Lung Dis 2006; 10(11): s-99



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Future challenges

- Scarcity of epidemiological data
- Involvement of private sectors
- Strategies to increase case detection
- Continuation of MDR surveillance
- Diagnosis and management of childhood TB/extrapulmonary
- Development of rapid diagnostic methods
- Extension of DOTS to work place, hard reach areas



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Collaboration

- **Government of Bangladesh (NTP)**
- **Matlab THC**
- **BRAC**
- **WHO**
- **All partners of NTP**



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