

High Incidence of Tuberculosis among Tibetan Immigrants in New York City, 2000-2006

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Background

- Tibetan TB patients were first seen in New York City (NYC) in the mid-1990s
- Previous reports indicate TB rates among Tibetan refugees in India as high as 835/100,000 population
- TB incidence among Tibetans in NYC is unknown



USA & CANADA: 7000
 EUROPE: 2290
 JAPAN & TAIWAN: 1060
 AUSTRALIA: 220

Population estimates of Tibetans in exile based on Tibetan Demographic Survey of 1998, Planning Council, Dharamsala, Office of Tibet

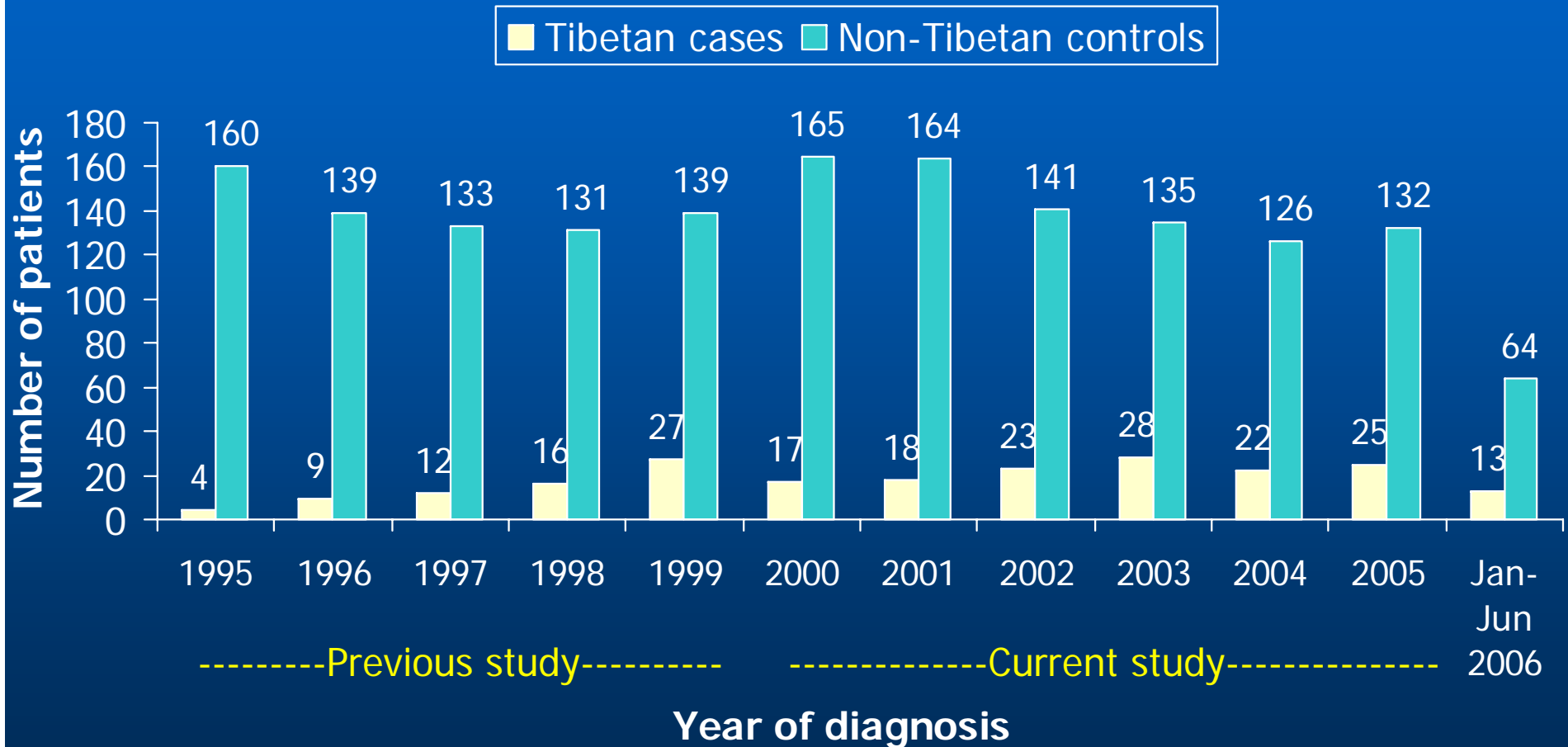
Objectives

- Compare demographic and clinical characteristics of Tibetan and non-Tibetan immigrants from China and South Asia
- To determine the incidence of TB among Tibetans in New York City

Methods

- Retrospective case control study
 - Cases: Tibetan TB patients diagnosed in NYC from January 2000-June 2006
 - Controls: Non-Tibetan patients originating from Bhutan, China, India or Nepal
- Demographic and clinical data were abstracted from existing databases
- Denominator data
 - Cases: Estimates from the Office of Tibet
 - Controls: 2000 US Census estimates

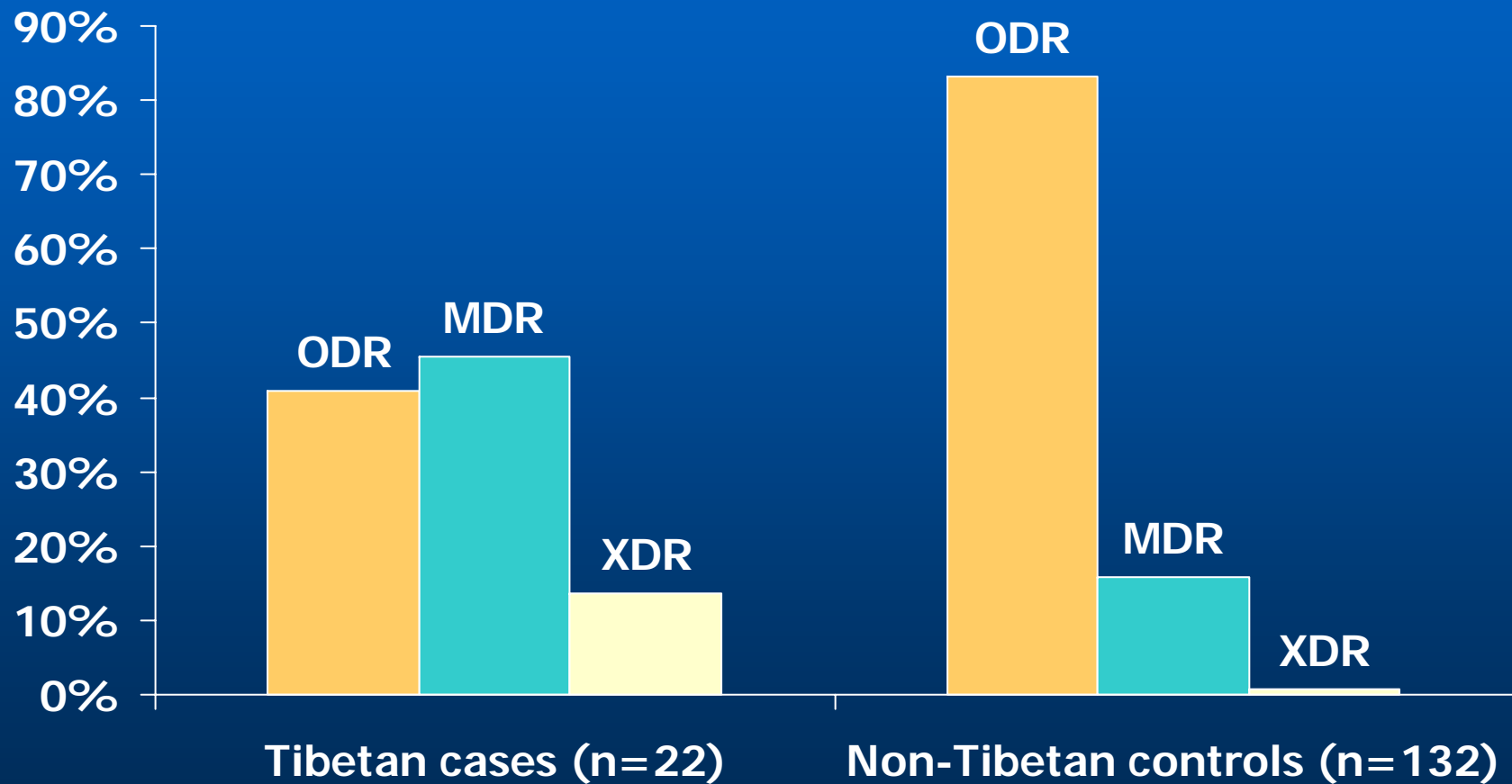
Epidemiologic curve



Patient characteristic	Cases (n=146)	Controls (n=927)	OR _{adj} (95% CI)
Age*	29 (1-70)	46 (10-96)	0.97 (0.95-0.99)
Female	45.2%	35.6%	1.08 (0.61-1.92)
From Bhutan	2.1%	0.2%	-
From China	17.8%	72.2%	0.03 (0-0.23)
From India	21.9%	26.9%	0.07 (0.01-0.51)
From Nepal	57.5%	0.8%	5.07 (0.62-41.8)
From USA	0.7%	0%	-
Years in US prior to TB*	2 (2-10)	7 (0-59)	0.79 (0.71-0.88)
HIV infected	2.1%	1.1%	-
Culture positive	81.5%	15.9%	-
Clustered genotype	37.8%	13.5%	3.11 (1.54-6.27)
Pulmonary TB	89.0%	76.3%	1.75 (0.80-3.85)
Respiratory smear positive	48.5%	63.2%	-
Cavitary chest radiograph	23.1%	18.4%	-
Multidrug-resistant TB	8.9%	2.4%	3.50 (1.36-8.98)
History of TB treatment	12.3%	3.7%	3.02 (1.10-8.27)

*(median, range)

Drug resistant patients



Annual Incidence of TB

	Estimated Annual Incidence (per 100,000 population)
National TB case rate¹	4.8
Non-US born ¹	21.8
NYC TB case rate²	12.3
Non-US born ²	24.0
Tibetan cases	561
Non-Tibetan controls	285

1. CDC, 2005 Surveillance Report

2. New York City, Bureau of TB Control 2005 Annual Report

Conclusions

- Although the NYC Tibetan community is small, the rates of TB are staggering
- Proportion of MDRTB strains among Tibetans is high
- Country of origin alone is not enough information to identify Tibetan patients
- Importance of knowing local epidemiologic trends among non-US born TB patients
- TB control programs should enhance outreach efforts and screening for active TB and latent TB infection in the Tibetan community

Acknowledgments

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- Office of Tibet
 - Tashi Wangdi
 - Yeshi Ngodup

NYC enhanced outreach and screening efforts

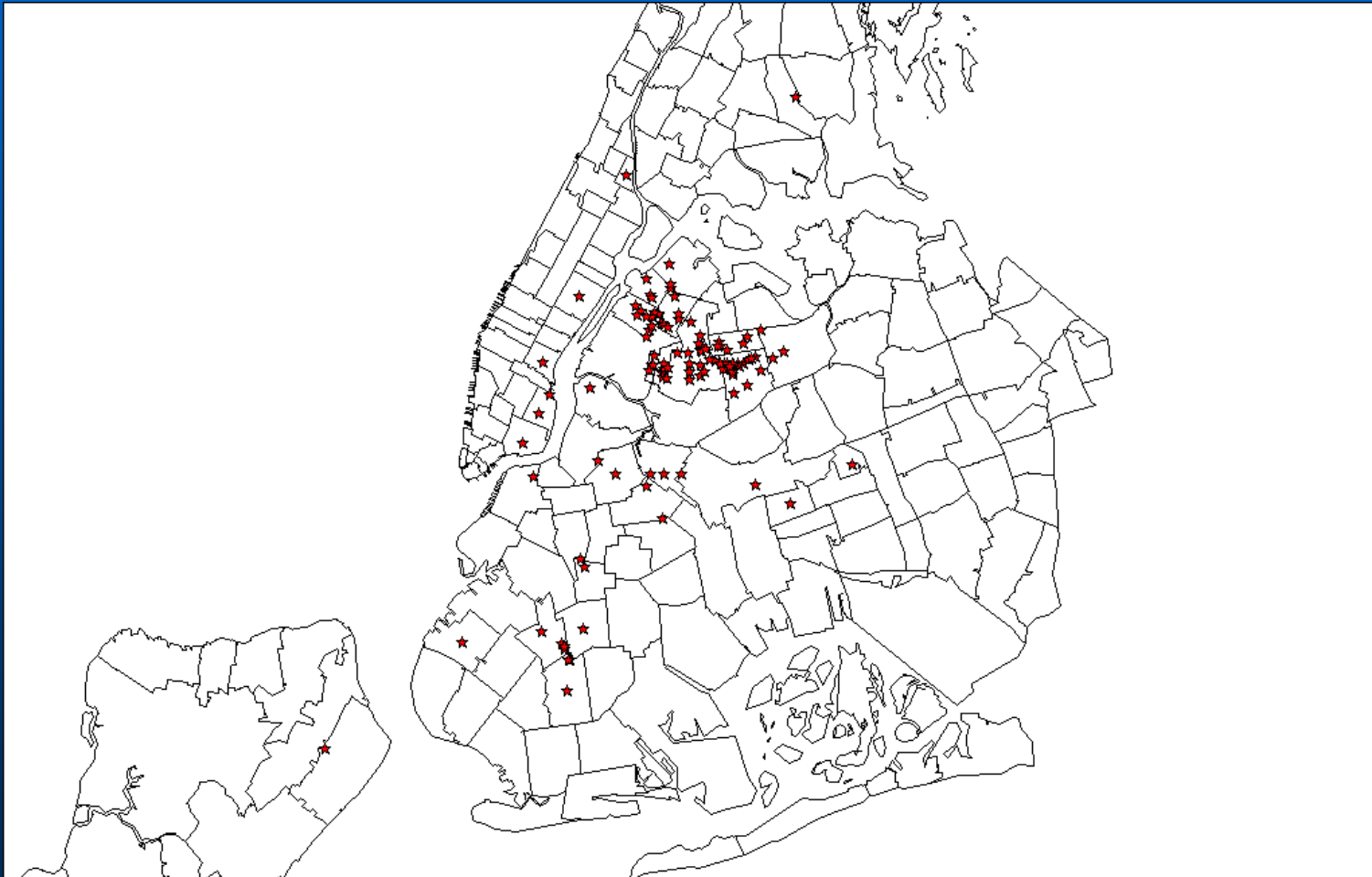
Special considerations



Patient characteristic	Cases (n=146)	Controls (n=927)	OR (95% CI)	OR _{adj} (95% CI)
Age*	29 (1-70)	46 (10-96)	0.93 (0.92-0.95)	0.97 (0.95-0.99)
Female	45.2%	35.6%	1.49 (1.03-2.16)	1.08 (0.61-1.92)
From Bhutan	2.1%	0.2%	9.70 (1.31-83.57)	-
From China	17.8%	72.2%	0.08 (0.05-0.13)	0.03 (0-0.23)
From India	21.9%	26.9%	0.76 (0.49-1.18)	0.07 (0.01-0.51)
From Nepal	57.5%	0.8%	178.1 (75.5-440.6)	5.07 (0.62-41.8)
From USA	0.7%	0%	Undefined	-
Years in US prior to TB*	2 (2-10)	7 (0-59)	0.74 (0.69-0.80)	0.79 (0.71-0.88)
HIV infected	2.1%	1.1%	1.92 (0.42-7.67)	-
Culture positive	81.5%	15.9%	23.39 (14.55-37.81)	-
Clustered genotype	37.8%	13.5%	3.89 (2.54-5.97)	3.11 (1.54-6.27)
Pulmonary TB	89.0%	76.3%	2.53 (1.43-4.52)	1.75 (0.80-3.85)
Respiratory smear +	48.5%	63.2%	0.82 (0.56-1.18)	-
Cavitary CXR	23.1%	18.4%	1.59 (0.99-2.52)	-
MDR	8.9%	2.4%	4.02 (1.87-8.58)	3.50 (1.36-8.98)
History of TB treatment	12.3%	3.7%	3.69 (1.94-6.99)	3.02 (1.10-8.27)

*(median, range)

Borough of Residence for Tibetan TB patients



Drug resistant patients

