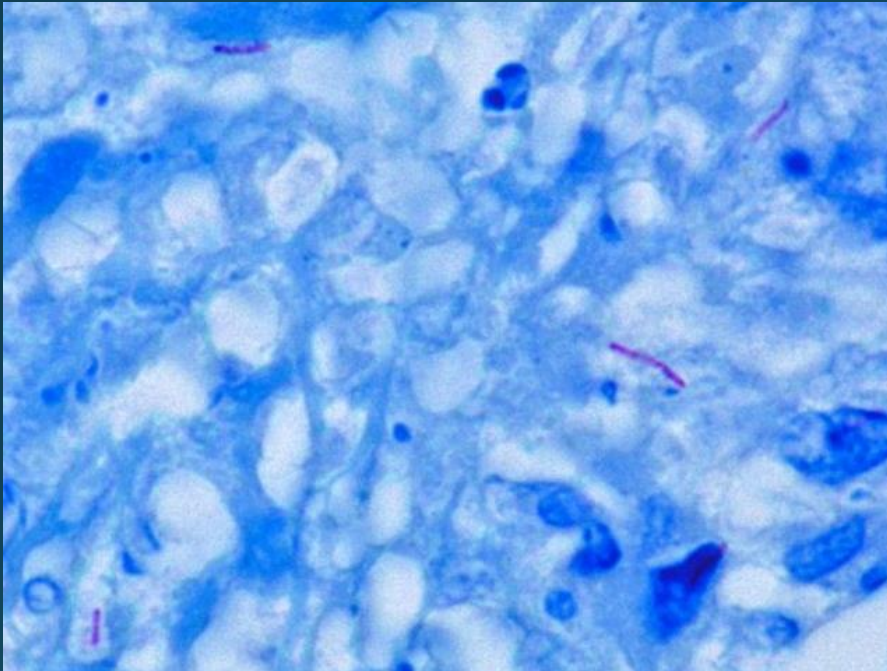


TUBERCULOSIS

ACADEMIC HALF DAY 2018



Felipe N. Gutierrez MD, MPH

Chief, Infectious Diseases Section

Phoenix VA Medical Center

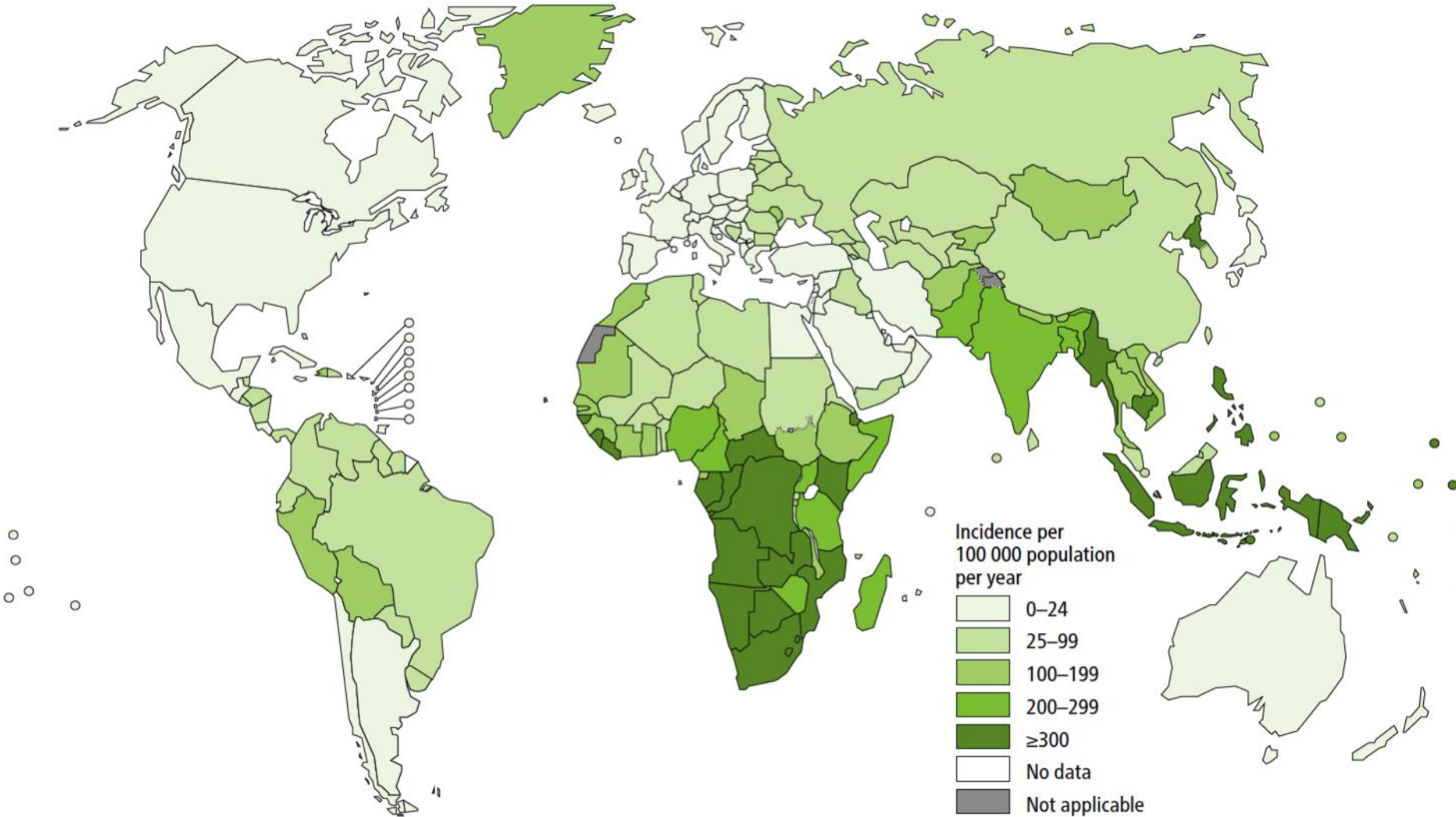
Deputy TB Control Officer

Maricopa County Department of Public Health

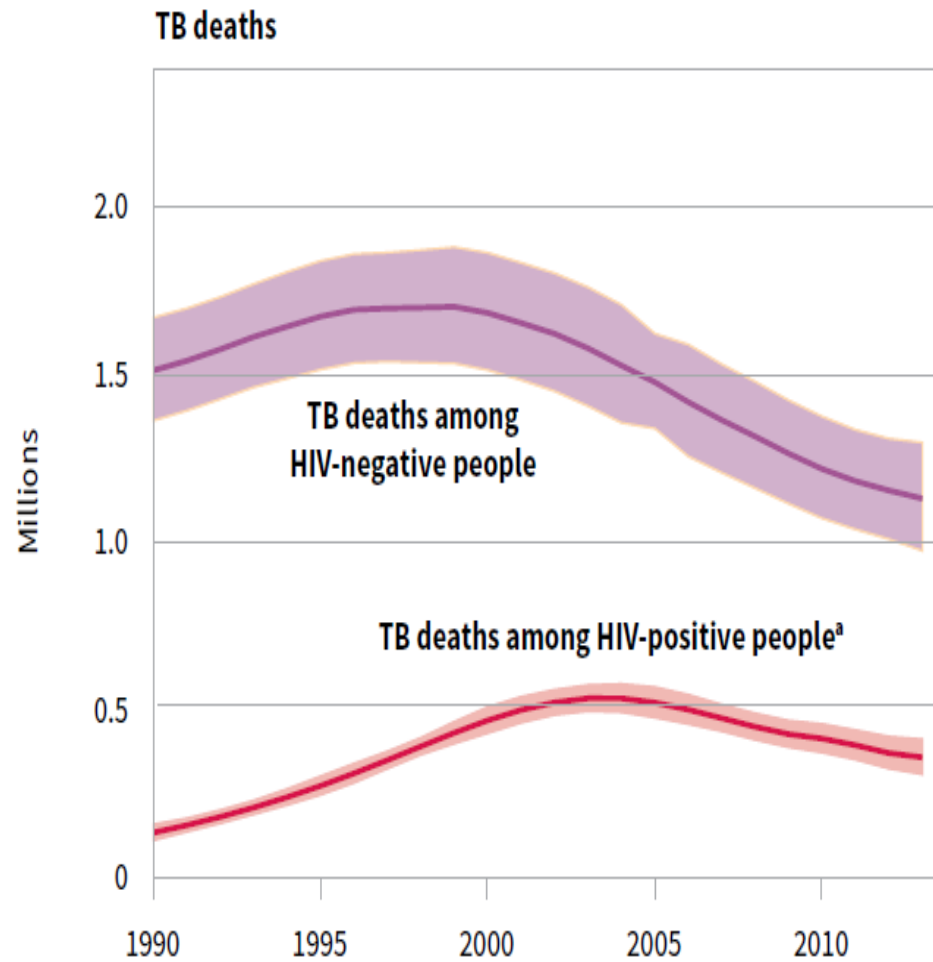
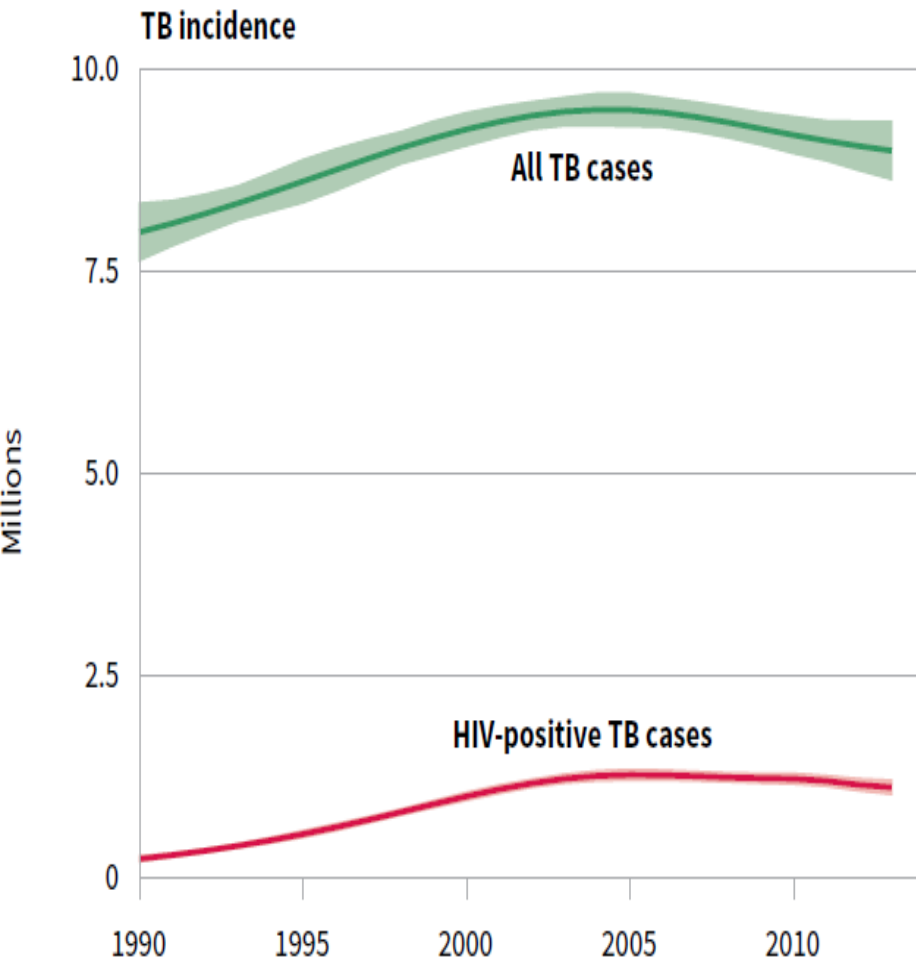
Global Picture

- 2017 Statistics (WHO TB Report)
 - 10.4 million incident cases
 - 90% adults
 - 65% males
 - 1.3 million deaths
 - Remains in top 10 causes of mortality
 - 22% decline 2000-2015
 - 5 countries account for 56% of new cases
 - India , Indonesia, China, Philipines, Pakistan
 - 490,000 new cases of MDRTB
 - China, India, Russian Federation account for 47%

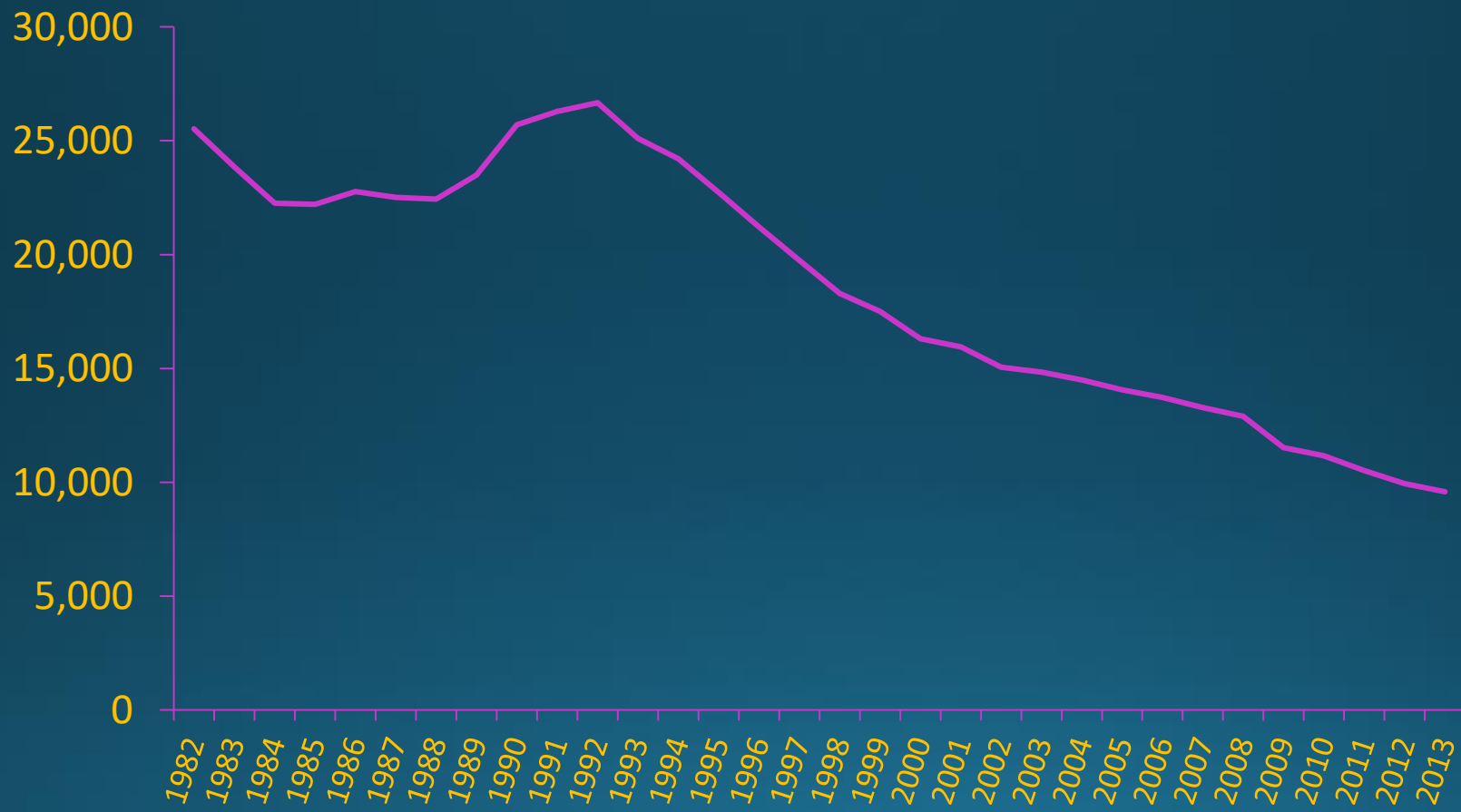
Estimated TB incidence rates, 2016



Global Impact of HIV on TB

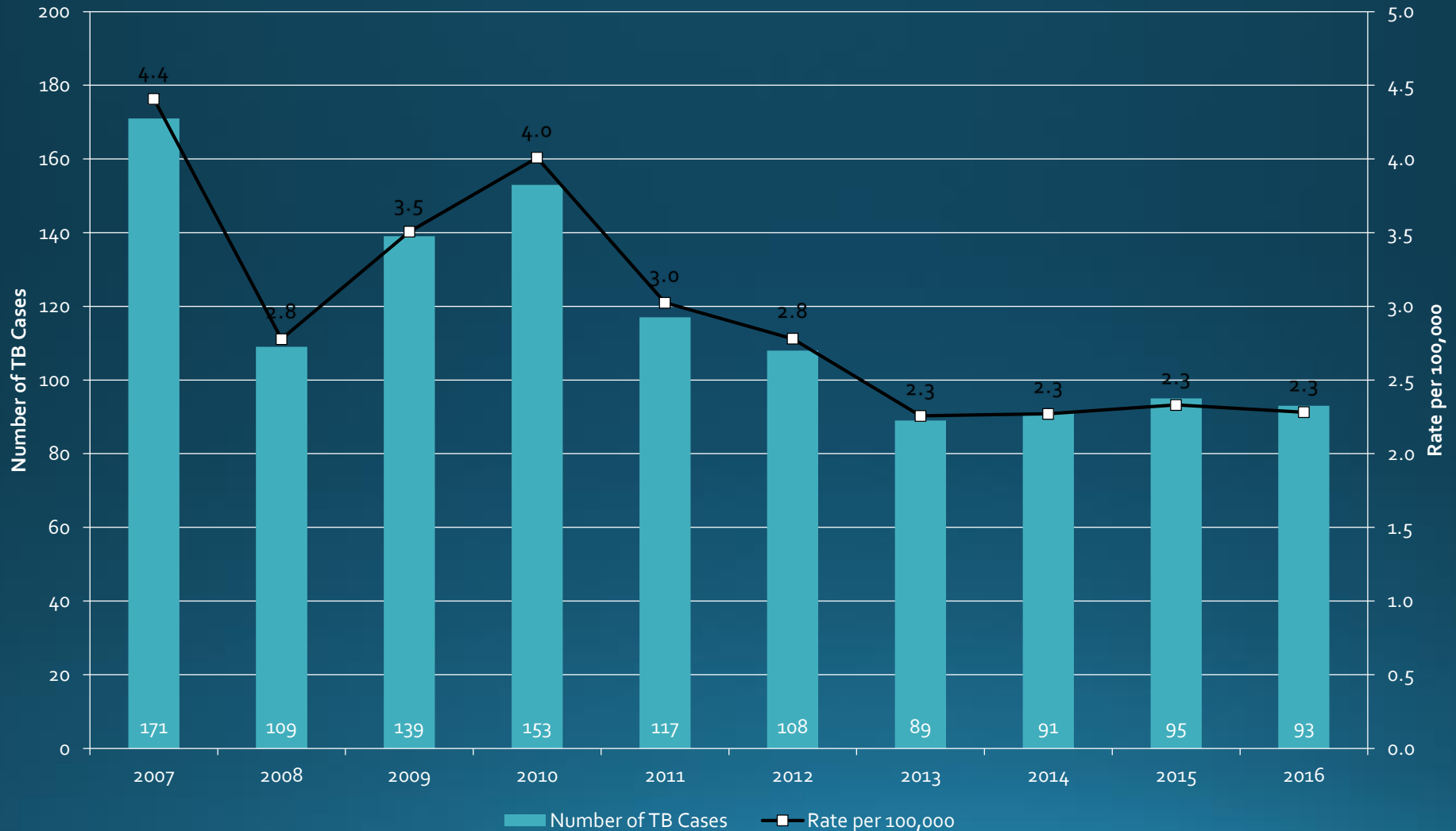


Reported TB Cases US 1982-2013



Maricopa County Statistics

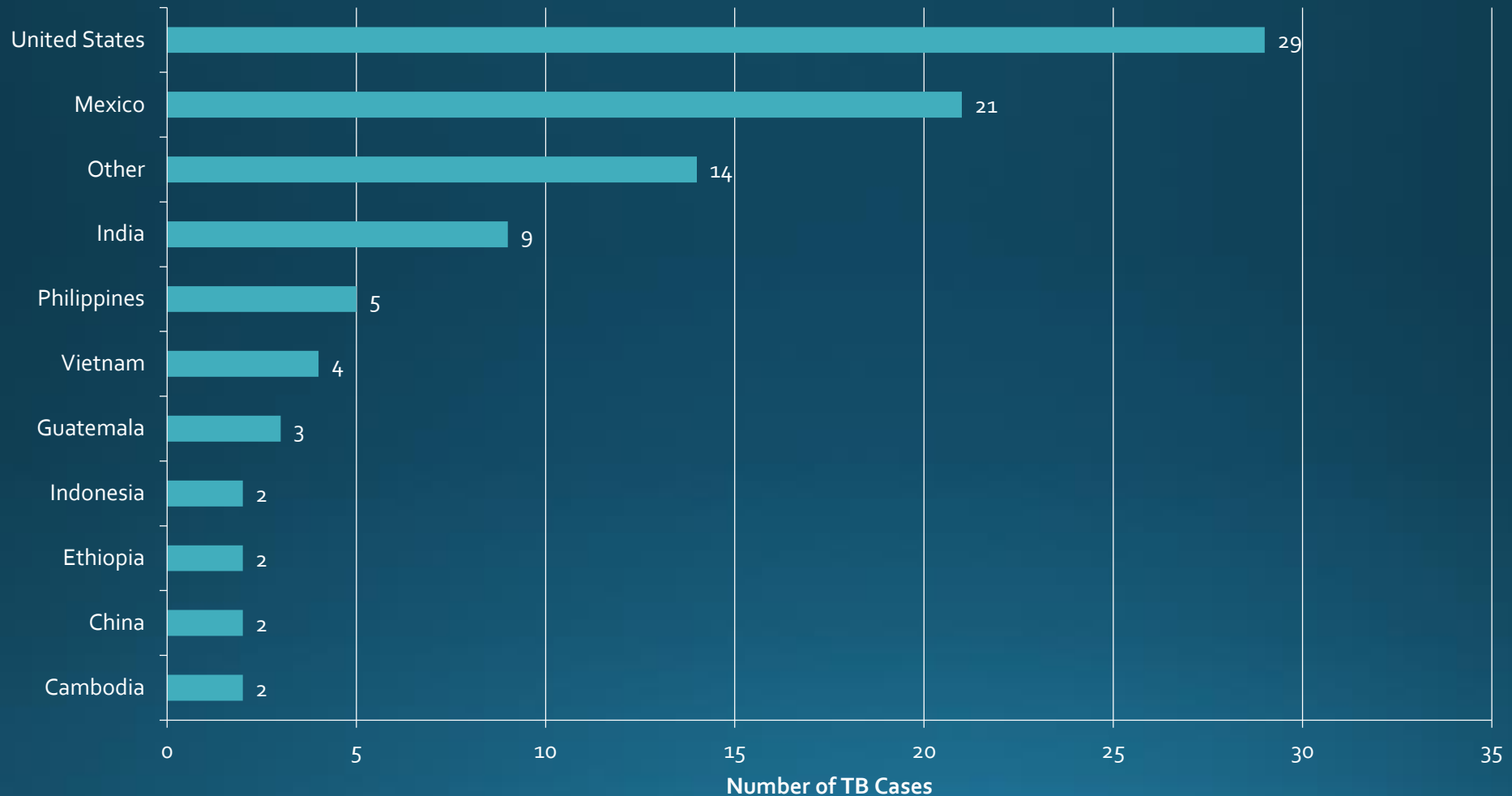
TB Case Rates & Number of TB Cases, Maricopa County, 2003 - 2016



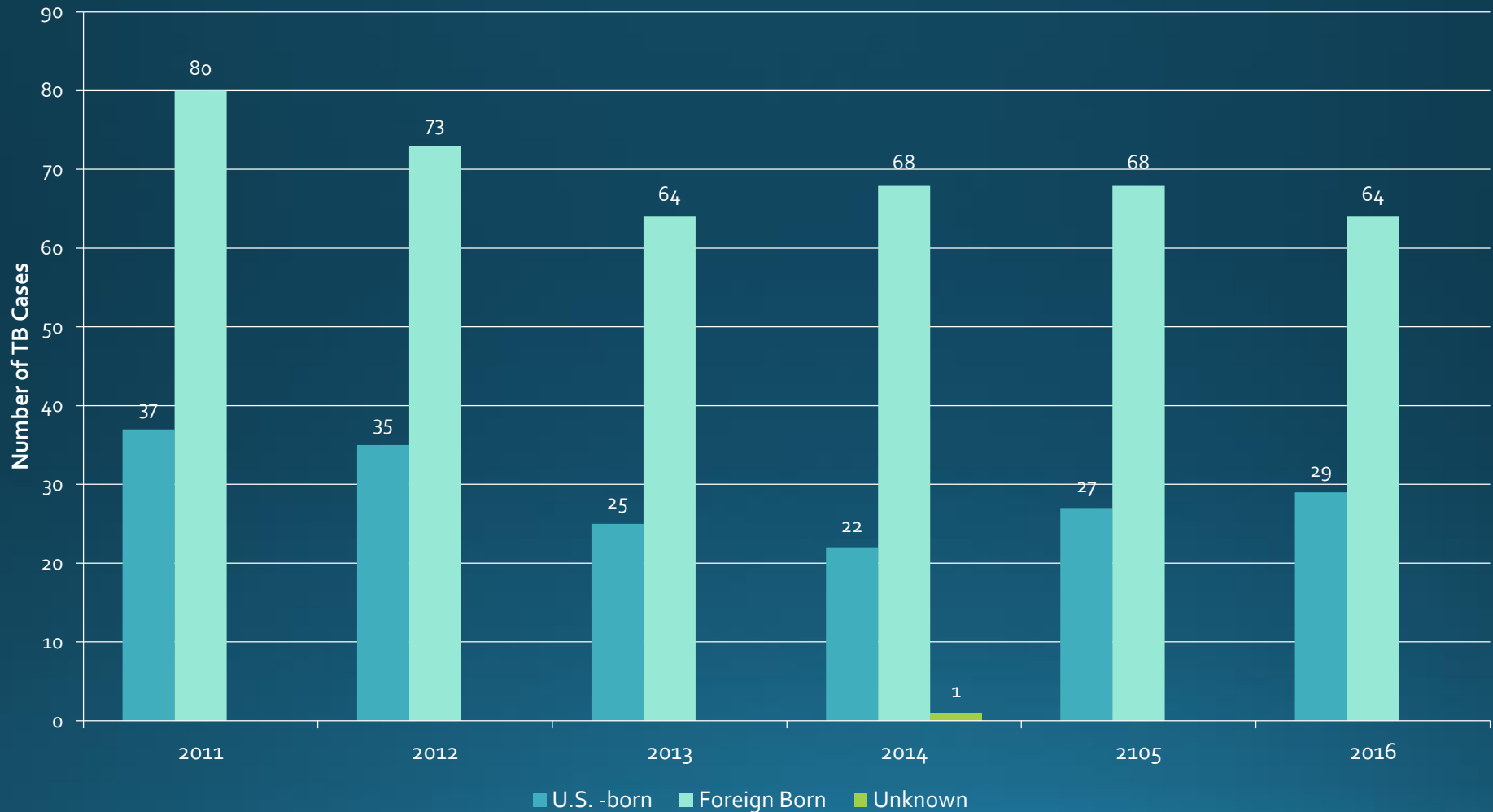
TB Cases by Gender, Maricopa County, 2011 - 2016



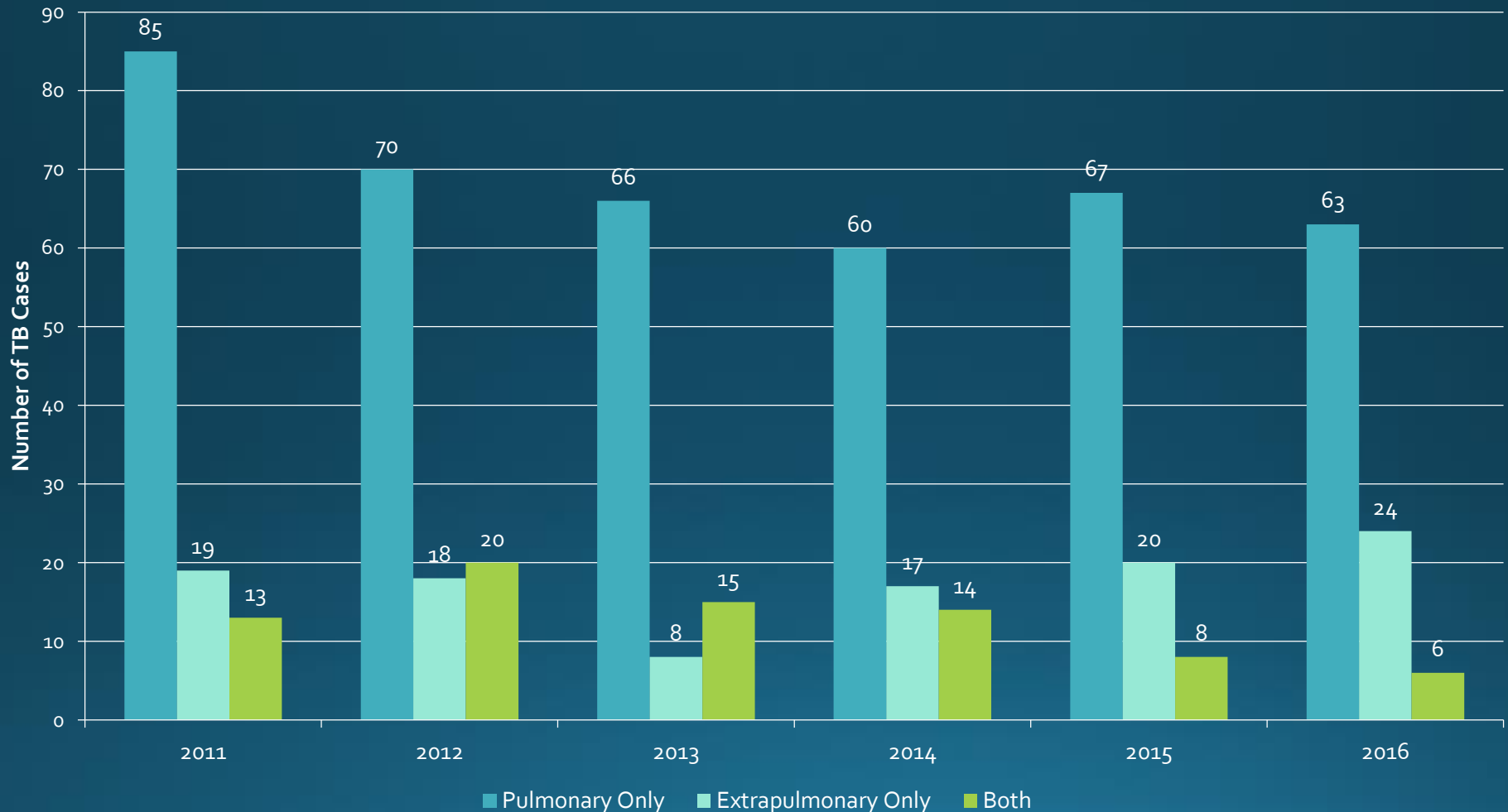
TB Cases by Country of Origin, Maricopa County, 2016



U.S.-born Compared to Foreign-born TB Cases, Maricopa County, 2011 - 2016



TB Cases by Site of Disease, Maricopa County, 2011 - 2016



TB Cases with Reported Drug Resistance, Maricopa County, 2011 - 2016



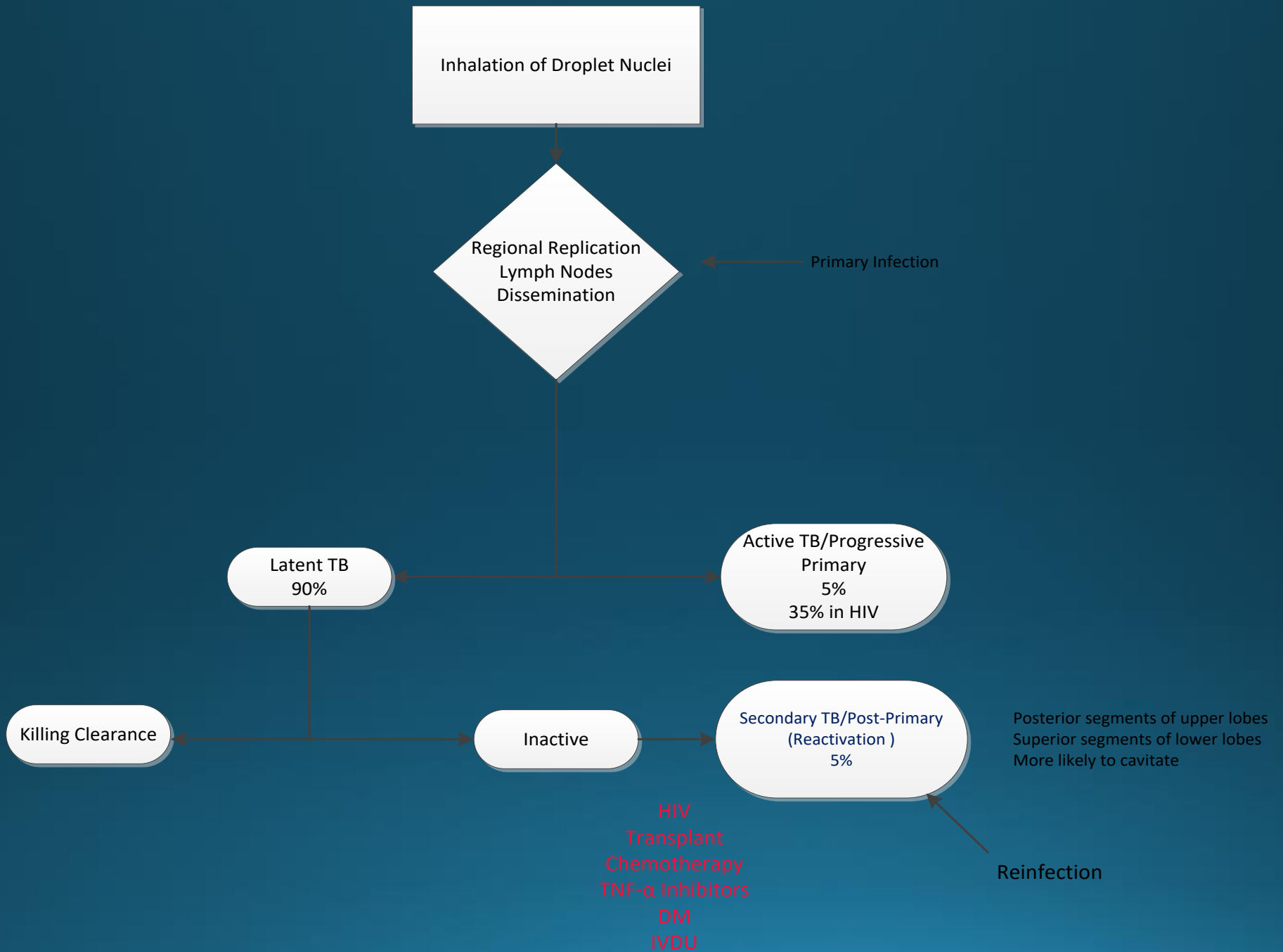
	Cases with Drug Susceptibility Results Reported	INH Resistance ^a		Multi-Drug Resistance ^b		Other Resistance ^c	
	Number of Cases	Number	%	Number	%	Number	%
2011	83	4	4.8	0	0	1	1.2
2012	84	8	9.5	0	0	0	0
2013	72	8	11.1	1	1.4	1	1.4
2014	73	6	8.2	2	2.7	0	2.7
2015	71	10	14.1	0	0	12	16.9
2016	74	10	13.5	3	4.1	3	4.1

^aIsolates may also be resistant to other drugs including rifampim, includes initial and final susceptibility results

^bResistant to at least isoniazid and rifampin, includes initial and final susceptibility results

^cOther drug resistance without isoniazid resistance.

TB INFECTION



Diagnostic Tools

- Immunologic
 - TST
 - IGRA (Quantiferon/T-Spot)
- Radiographic
 - Chest X-Ray
 - CT scan
- PCR
 - Xpert MTB/Rif
 - NAAT
- HPLC
- Microscopy
 - AFB staining
- Culture
- Urinary LAM
 - Lipoarabinomannan Antigen
 - A lipopolysaccharide present in mycobacterial cell walls
 - Present in urine in cases of active disease

TST INTERPRATION

- Read at 47-72hours
- Measured in mm induration
- ≥ 5 mm
 - HIV +
 - Transplant
 - TNF- α antagonists
 - Prednisone ≥ 15 mg/day ≥ 1 month
- ≥ 10 mm
 - Recent immigration (5yrs) from high prevalence countries
 - Clinical conditions (Silicosis, CRI, DM)
 - IVDU
 - Mycobacterial Laboratory Personnel
- ≥ 15 mm
 - Anyone
- <http://www.tstin3d.com/en/calc.html>

LTBI TREATMENT REGIMENS

- Isoniazid – 9 months
 - B6
- Rifampin – 4 months
- Rifapentine + Isoniazid – 3 months
 - Once weekly
 - Directly Observed Therapy

TREATMENT FOR ACTIVE TB

- RIPE
 - Rifampin
 - Isoniazid (INH)
 - B6
 - Pyrazinamide (PZA)
 - Ethambutol (EMB)
- Induction Phase
 - 8 weeks (40 doses)
- Continuation Phase
 - Typically INH + B6 + Rifampin
 - Duration 6,9, 12 months

Infection Control Considerations

- Respiratory isolation for suspected cases
 - If in doubt isolate
- Personnel respiratory protection
 - N95
 - PAPR (Purified Air Purifying Respirator)
- Surgical mask on patient
- Clearing Patient
 - 3 AFB negative smears
 - 8 hours apart
 - BAL specimen counts for one
 - Alternative diagnosis

QUESTIONS?