Tuberculosis Review in Soidao hospital

October 2013 – September 2015

Ext Narumon Sa-ngaareekul
Ext Piriya Pibalkul
Ext Jirawut Muninnimit

Overview

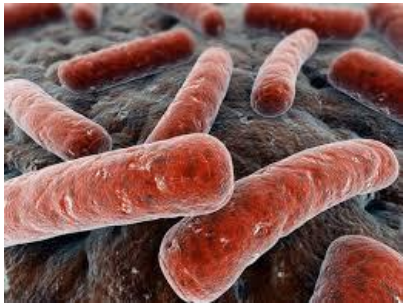
- Introduction
- Definition & Importance
- Objective
- Methodology
- Result
- Discussion
- Conclusion

Tuberculosis

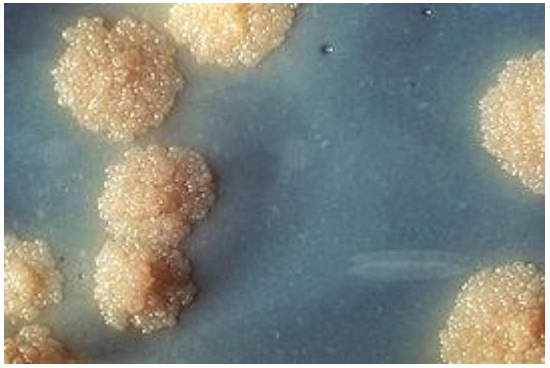
- TB is a disease caused by a bacterium called *Mycobacterium tuberculosis*. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body. If not treated properly, TB disease can be fatal. TB disease was once the leading cause of death in the United States. (CDC)

Mycobacterium tuberculosis

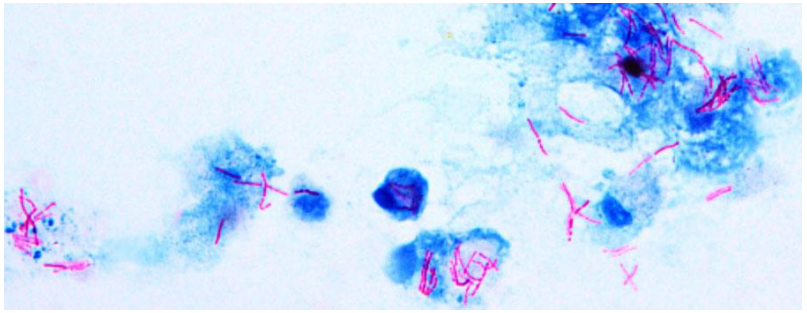
- Genus Mycobacterium
- Airborne-transmitted between Humans



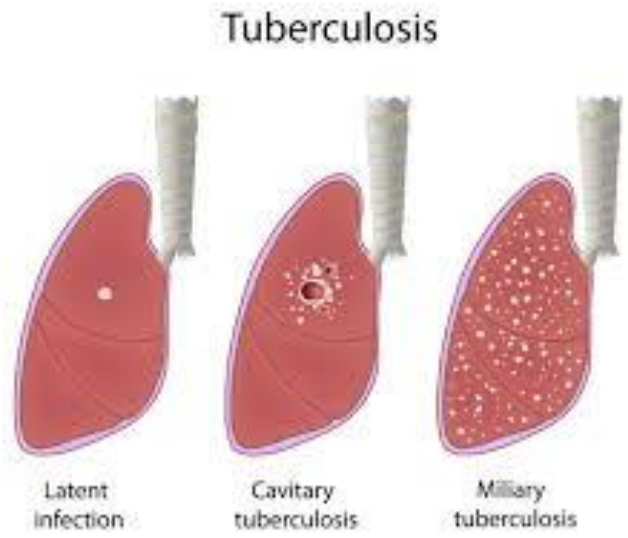
- Highly aerobic
- Slow growing
- Lipid rich cell wall provide resistance

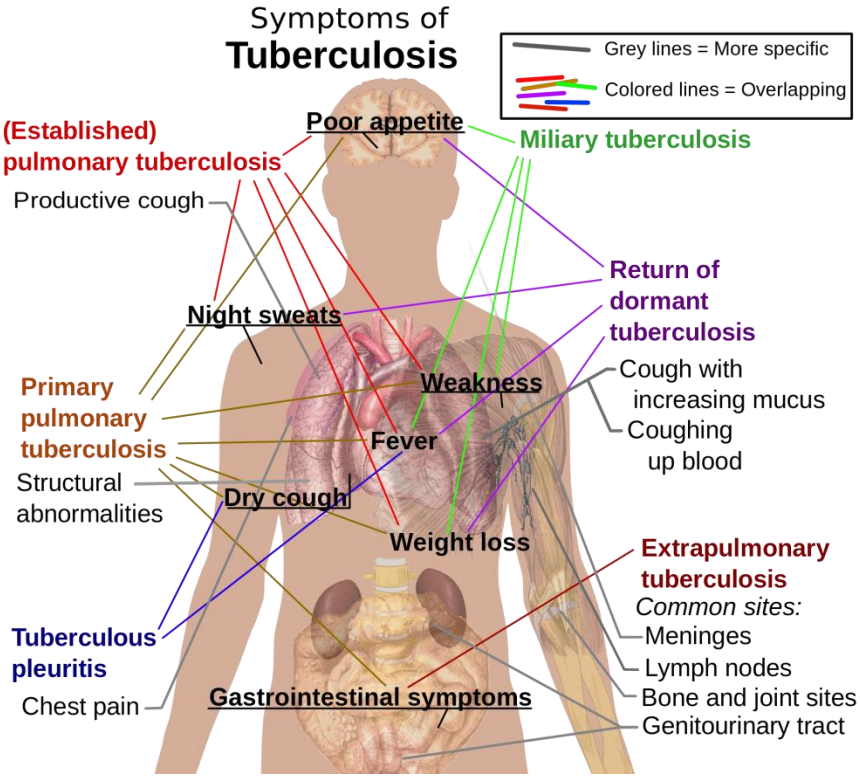


- Gram ghost
- AFB positive bacilli

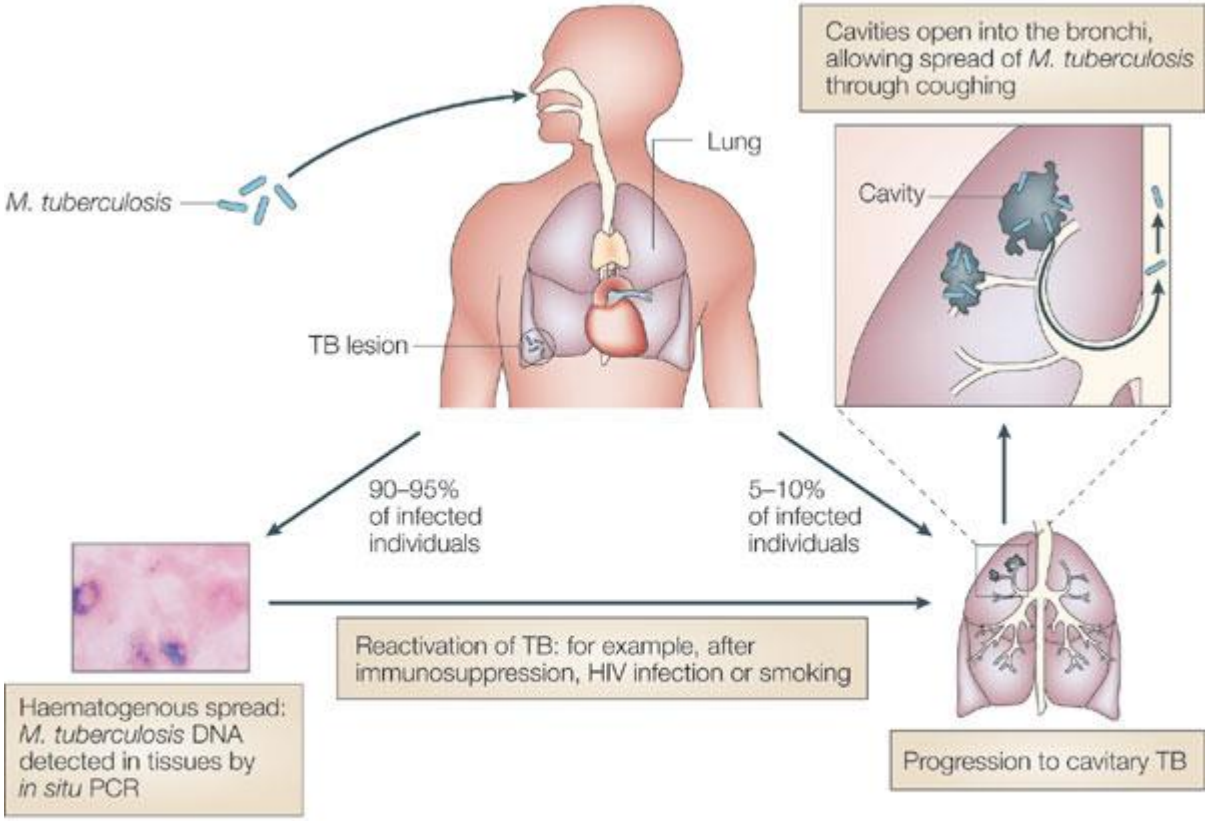


Clinical manifestation





Clinical manifestation

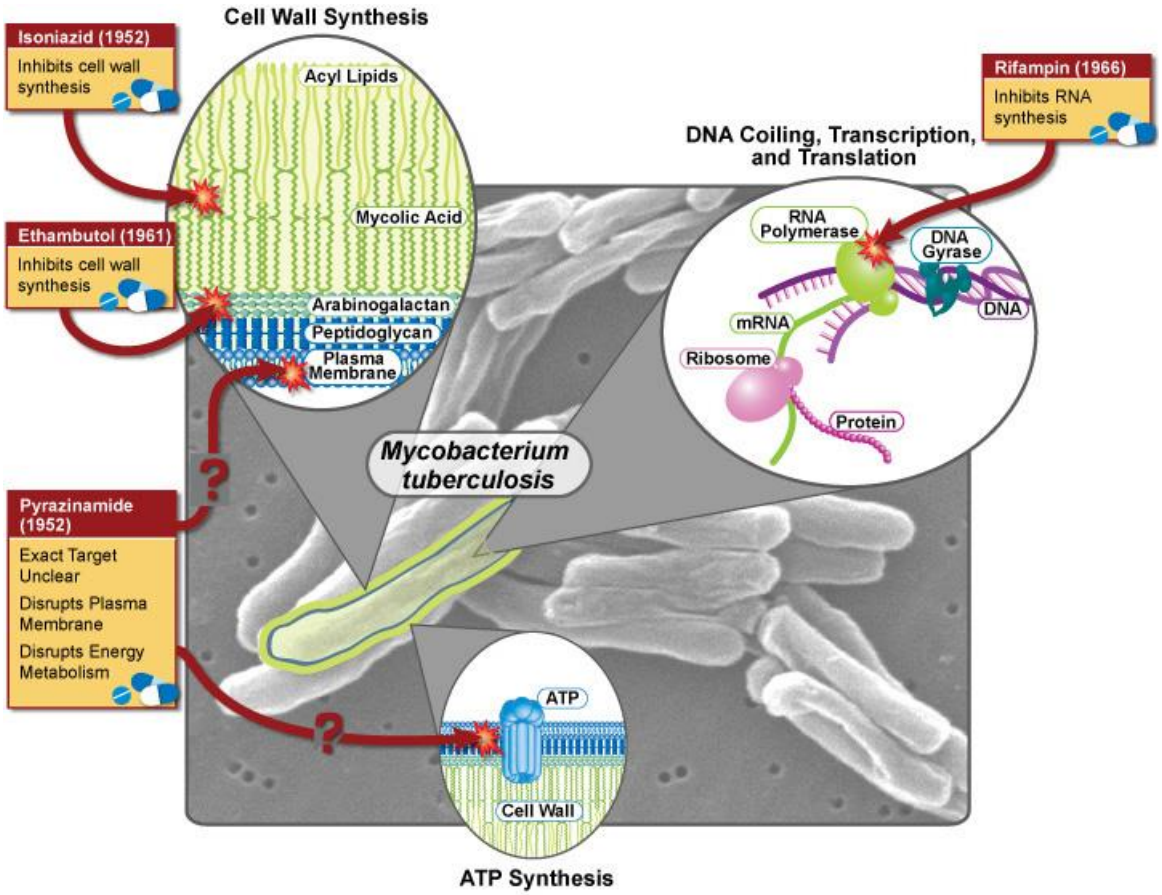


Diagnosis

- PTB
  - Sputum/BAL AFB stain/Culture positive
  - CXR + Clinical

- EPTB
  - Specimen AFB stain/Culture positive
  - Clinical + Laboratory
  - Pathologic Dx

Treatment


Cell Wall Synthesis
Isoniazid (1952)
Inhibits cell wall synthesis
Acyl Lipids
Mycolic Acid
Ethambutol (1961)
Inhibits cell wall synthesis
Arabinogalactan
Peptidoglycan
Plasma Membrane
Rifampin (1966)
Inhibits RNA synthesis
DNA Coiling, Transcription, and Translation
RNA Polymerase
DNA Gyrase
DNA
mRNA
Ribosome
Protein
Mycobacterium tuberculosis
Pyrazinamide (1952)
Exact Target Unclear
Disrupts Plasma Membrane
Disrupts Energy Metabolism
?
?
ATP
Cell Wall
ATP Synthesis

Treatment

ตารางที่ 4.1 ขนาดยารักษาวัณโรคแนวที่หนึ่ง

น้ำหนักก่อนเริ่มการรักษา (กก.)	ขนาดของยา				
	H (มก.) (4-8 มก./กก./วัน)	R (มก.) (8- 12 มก./กก./วัน)	Z (มก.) (20-30 มก./กก./วัน)	E (มก.) (15-20 มก./กก./วัน)	S (มก.) (15 มก./กก./วัน)
35* – 40	300	450	1,000	600	500
> 40 - 50	300	450	1,250	800	750
> 50 – 70*	300	600	1,500	1,000	750 - 1,000**

*ในกรณีน้ำหนัก < 35 หรือ > 70 กิโลกรัม ให้คำนวณขนาดยาตามน้ำหนักตัว

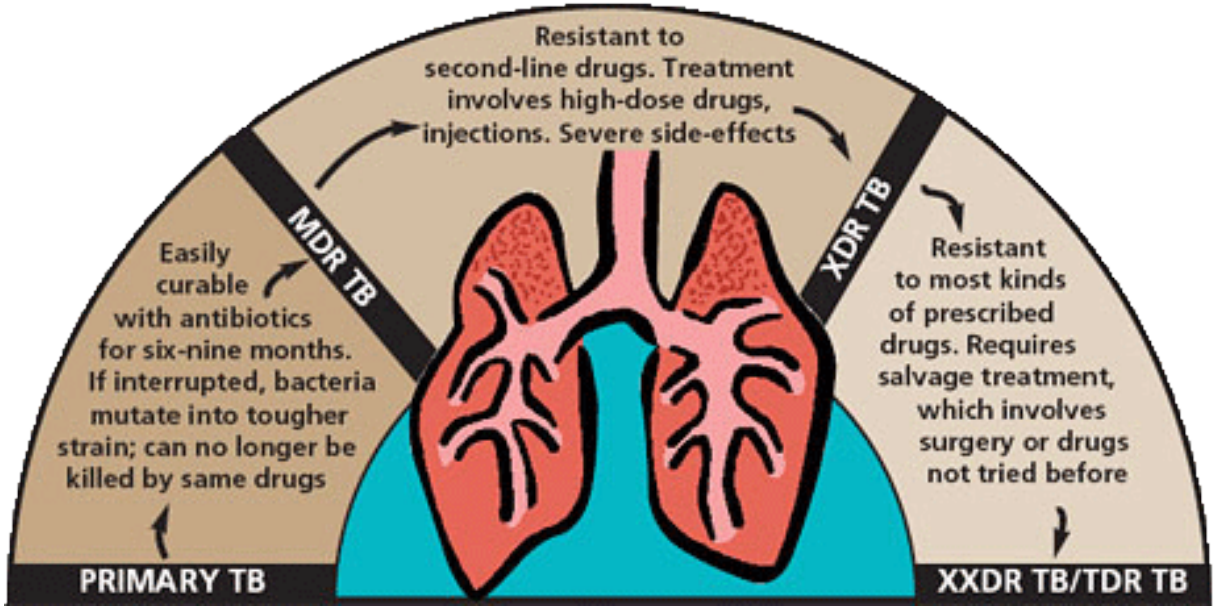
**ในผู้ป่วย > 60 ปี ไม่ควรให้เกิน 750 มิลลิกรัมต่อวัน

Treatment

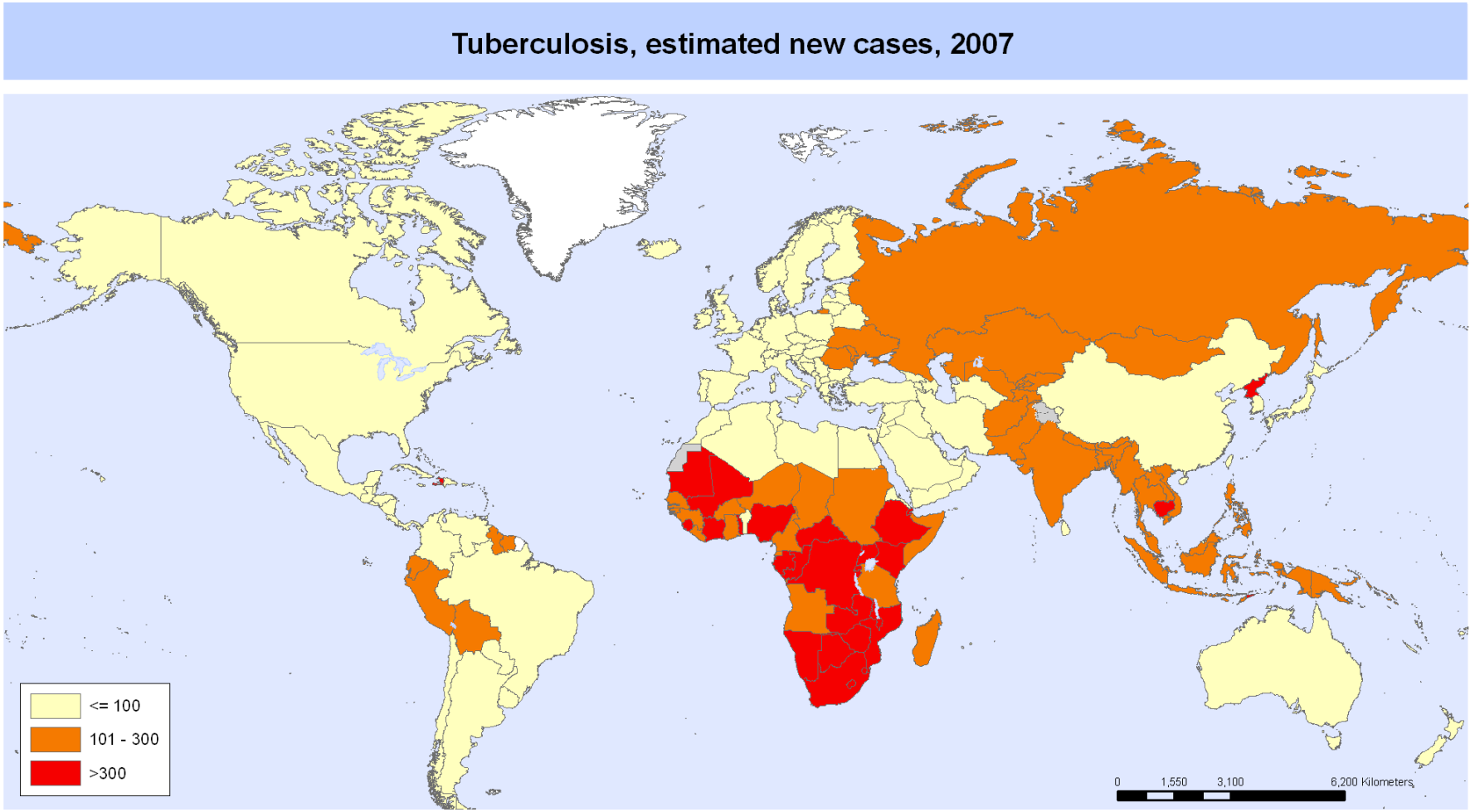
ตารางที่ 3.5 ระยะเวลาการรักษาด้วยสูตรยามาตรฐานระยะสั้น (Standard short-course, SSC) ในผู้ป่วยวัณโรคนอกปอด

ตำแหน่ง	ระยะเวลาการรักษาอย่างน้อย (เดือน)	Rating
วัณโรคต่อมน้ำเหลือง	6	++, I
วัณโรคเยื่อหุ้มปอด	6	++, II
วัณโรคเยื่อหุ้มหัวใจ	6	++, II
วัณโรคเยื่อหุ้มสมองอักเสบและวัณโรคสมอง (Tuberculoma)	≥ 12	+, II
วัณโรคของกระดูกและข้อ	9 – 12	++, II
วัณโรคของระบบทางเดินปัสสาวะ	6	+, II
วัณโรคชนิดแพร่กระจาย	แล้วแต่อวัยวะเด่น	-

Drug resistance



World wide situation 2007



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

World wide situation 2013

Estimated tuberculosis (TB) incidence rates (per 100,000 population) in 2013. The designations used and the presentation of r
expression of any opinion whatsoever on the part of the World Health Organization (WHO) concerning the legal status of any country
concerning the delimitation of its frontiers or boundaries. *Dotted*, *dashed*, and *white lines* represent approximate border lines for whic
(Courtesy of the Global TB Programme, WHO; with permission.)

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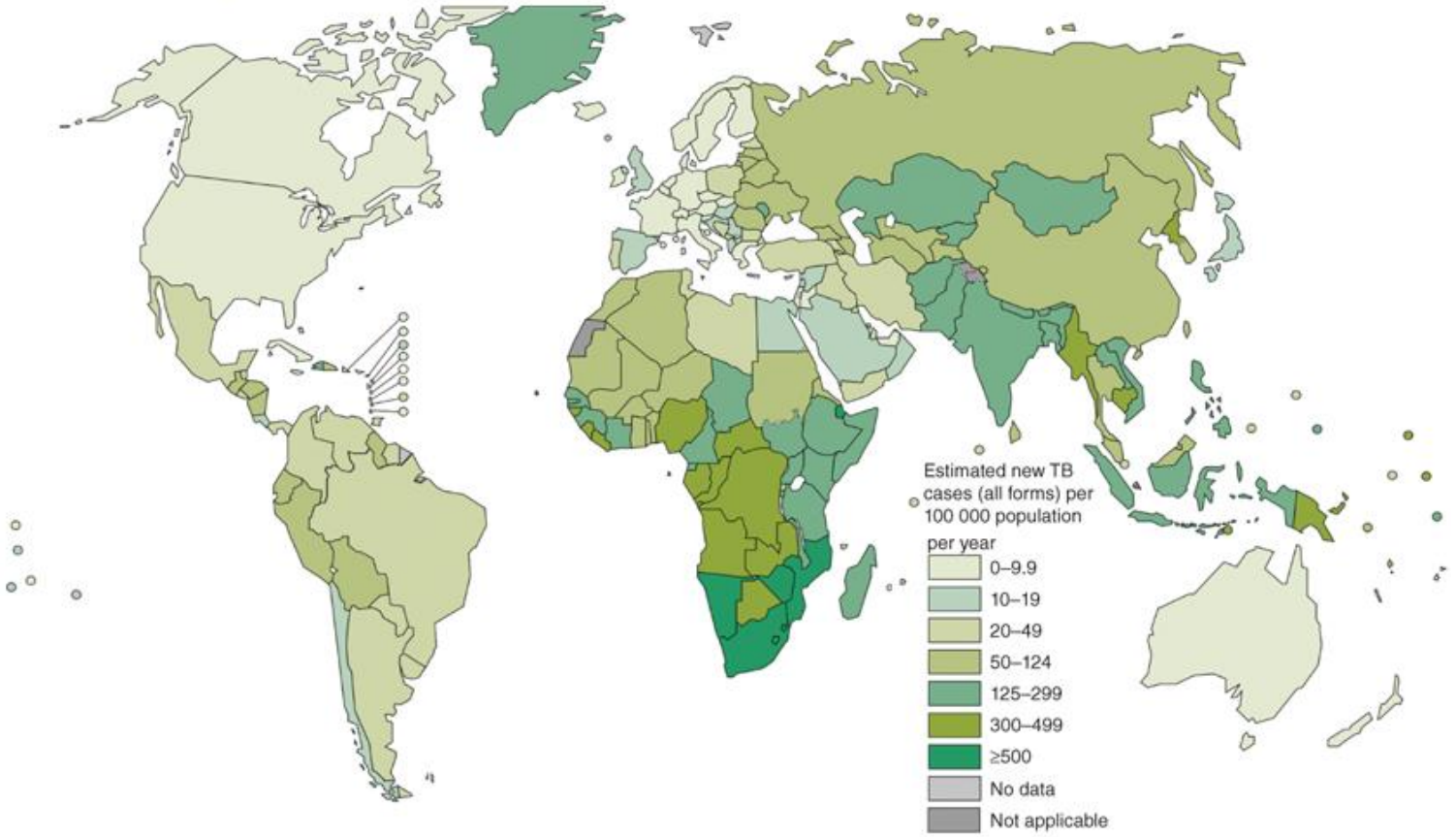

World wide situation 2013

Estimated numbers of tuberculosis-related deaths in 2013. (See disclaimer in Fig. 202-2. Courtesy of the Global TB Programme, WH

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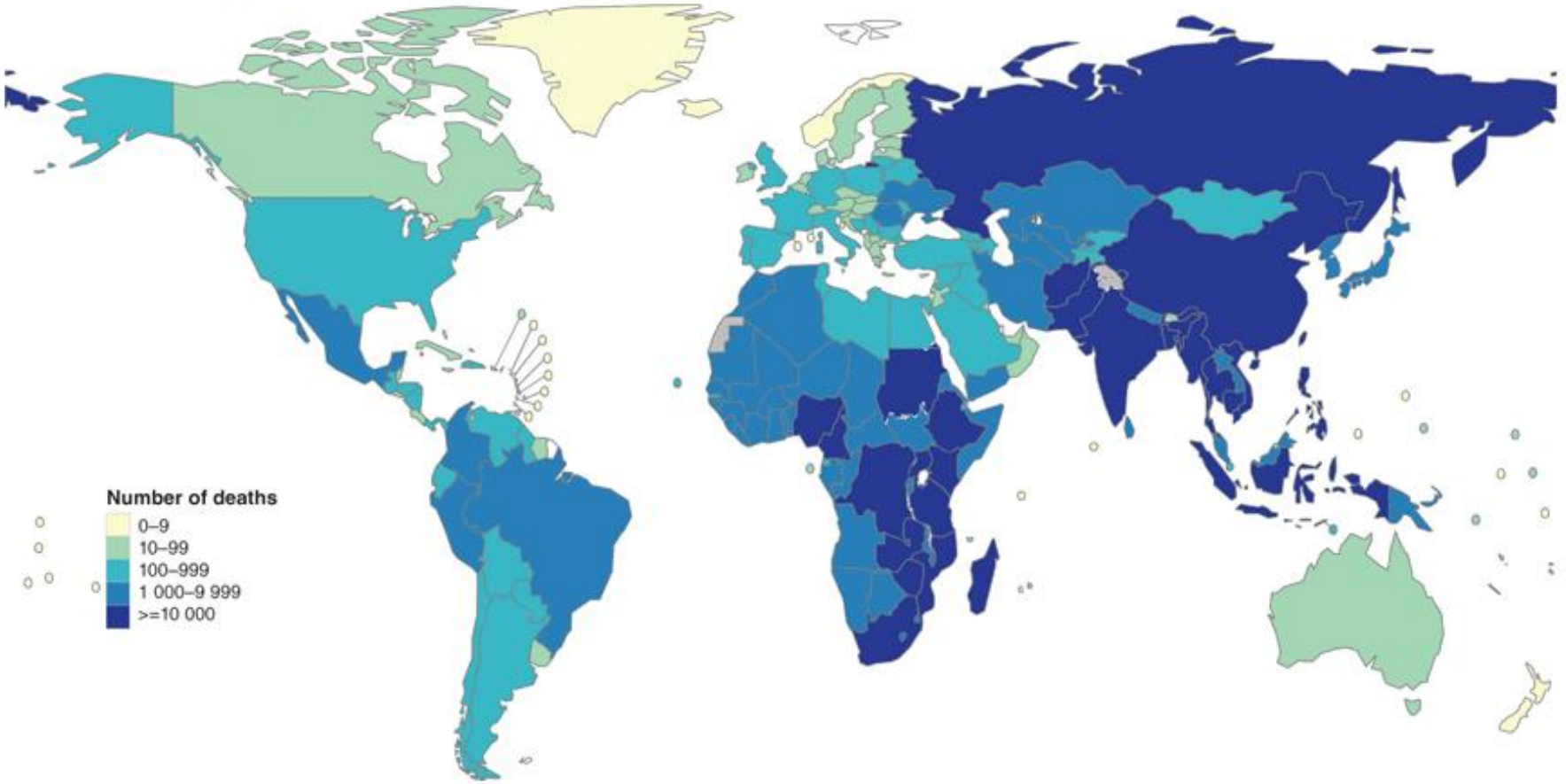
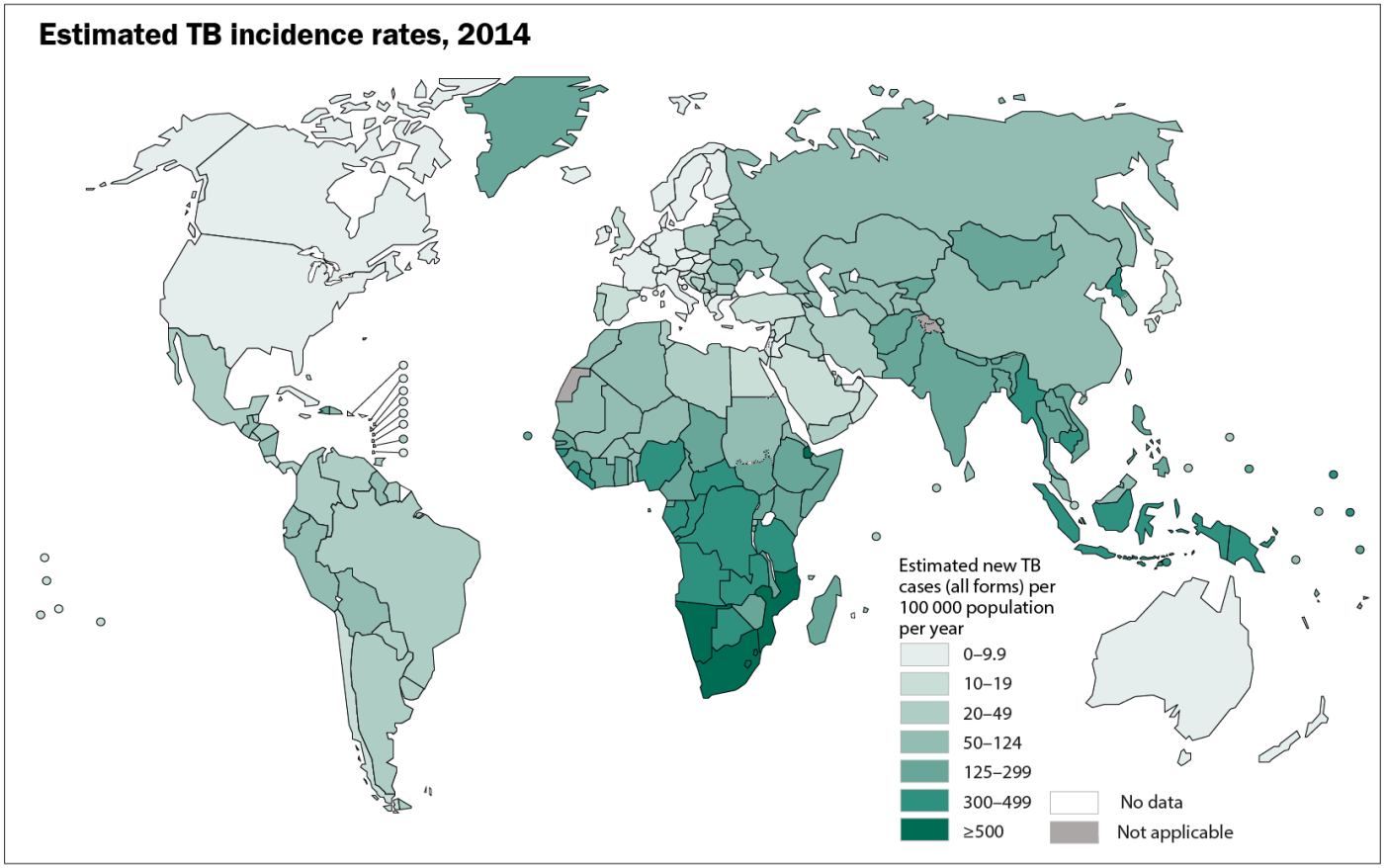
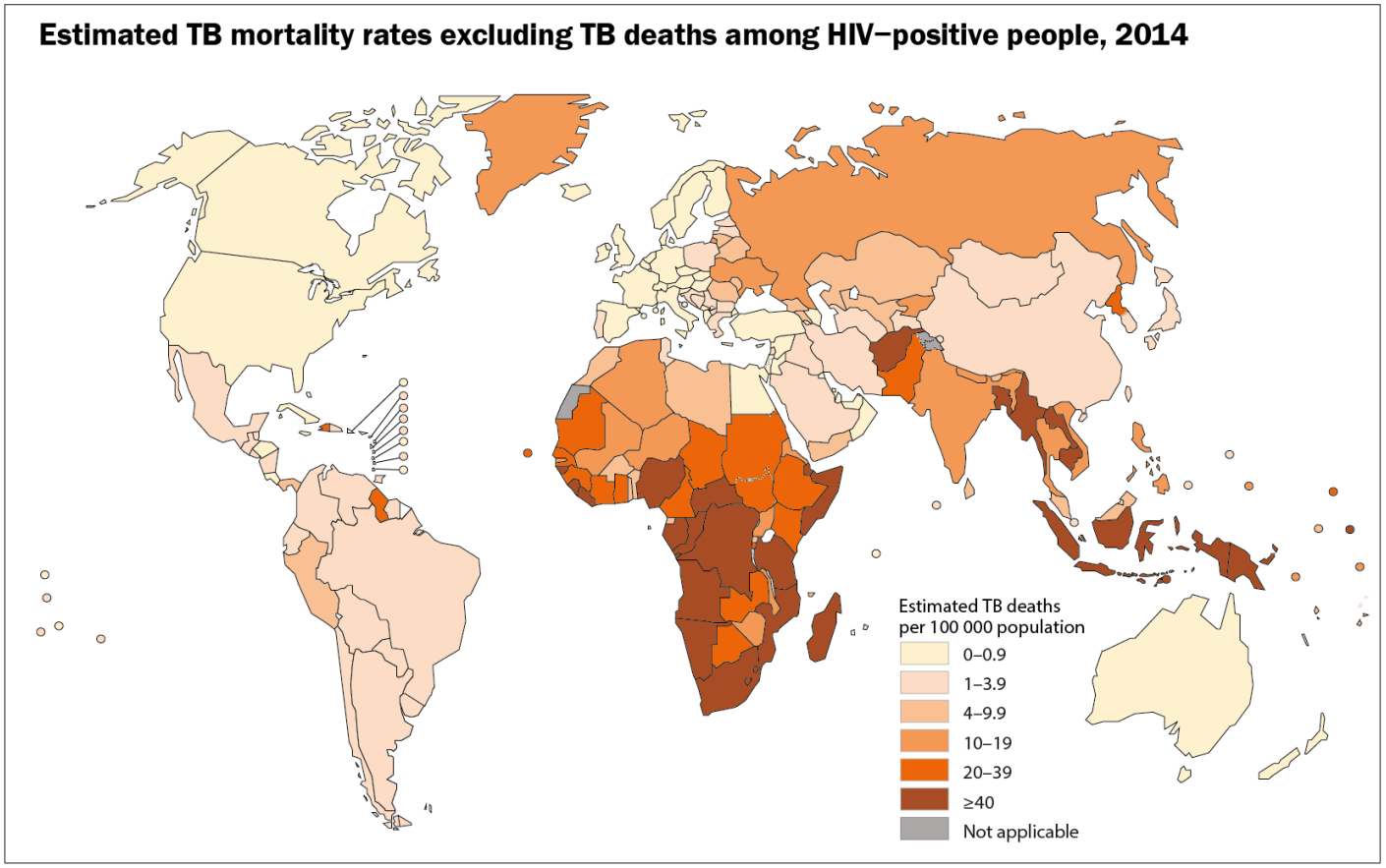


Source: D. L. Kasper, A. S. Fauci, S. L. Hauser, D. L. Longo, J. L. Jameson, J. Loscalzo: Harrison's Principles of Internal Medicine, 19th Edition.
www.accessmedicine.com

World wide situation 2014



World wide situation 2014



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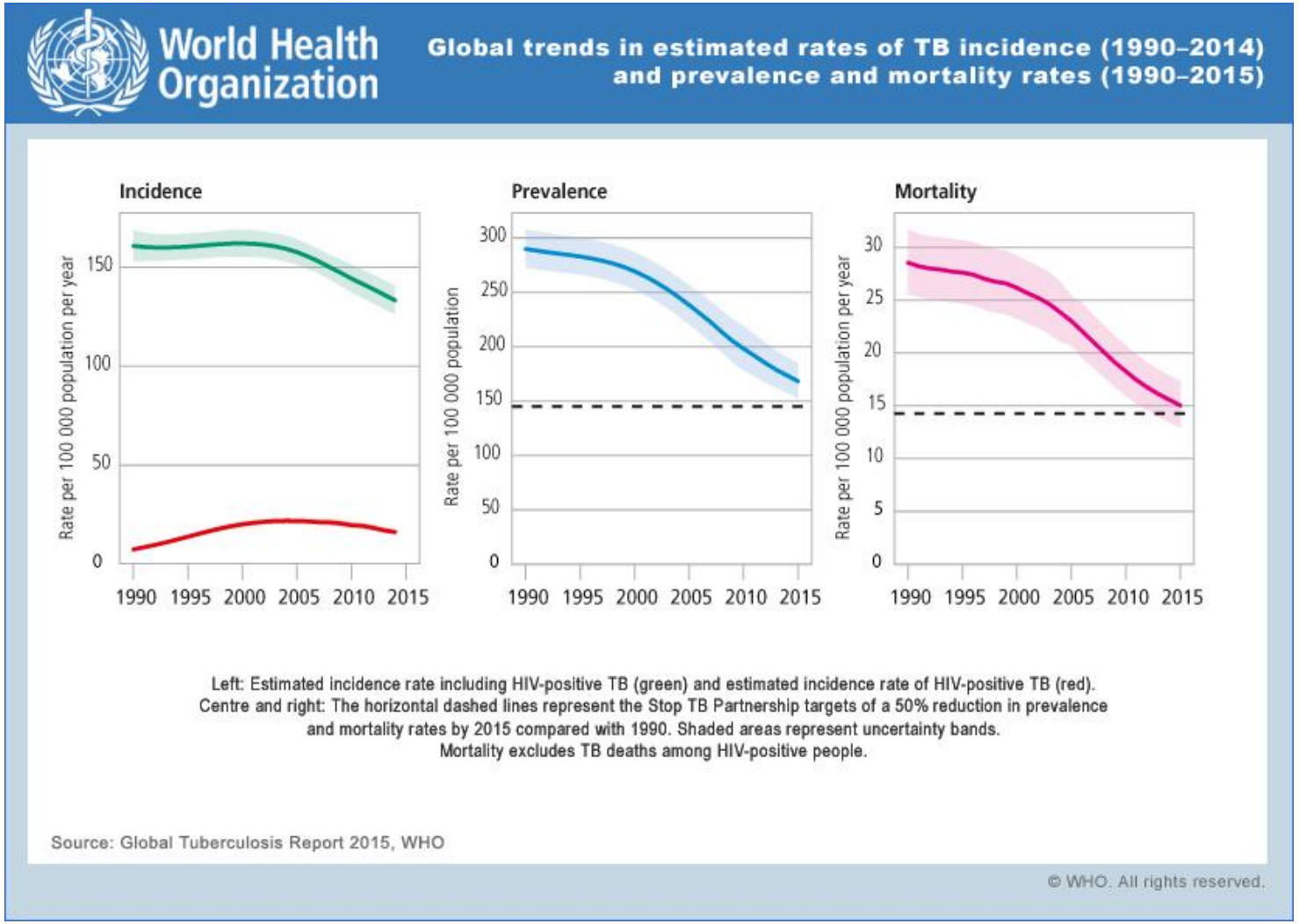
Data Source: *Global Tuberculosis Report 2015*. WHO, 2015.

World Health Organization

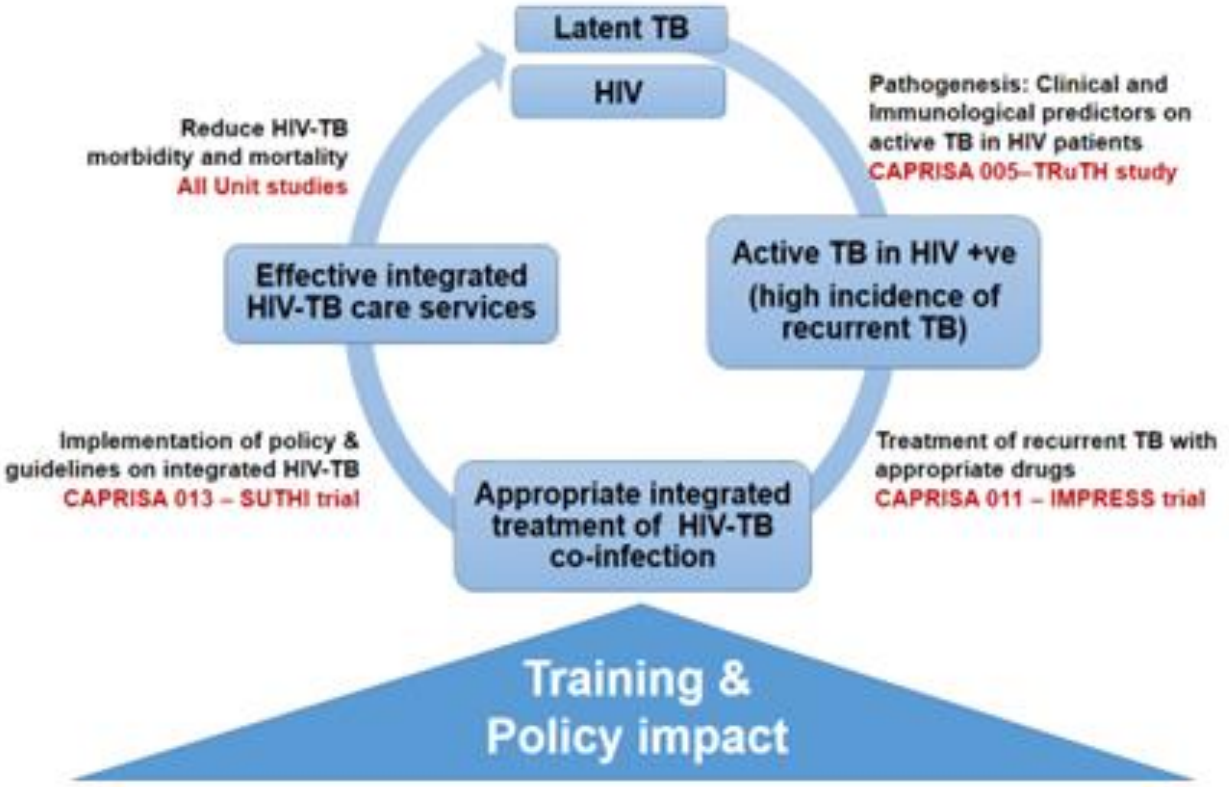
Global trend



TB & HIV

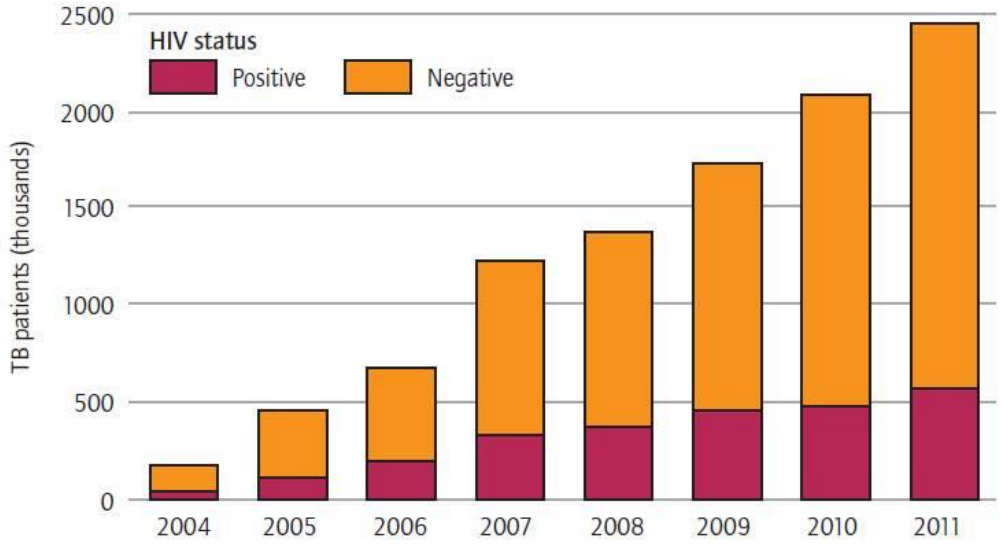
- ในปี พ.ศ. 2549 (ค.ศ. 2006) องค์การอนามัยโลกรายงานจำนวนผู้ป่วยวัณโรคทั่วโลก 14 ล้าน 4 แสนราย
- ในจำนวนนี้มีผู้ติดเชื้อเอชไอวี 709,000 ราย (4.9 %)
- ประเทศไทยอยู่ในลำดับที่ 17 จาก 22 ประเทศที่องค์การอนามัยโลกจัดให้เป็นประเทศที่มีจำนวนผู้ป่วยวัณโรคมากที่สุดในโลก

TB & HIV


Latent TB
HIV
Pathogenesis: Clinical and immunological predictors on active TB in HIV patients
CAPRISA 005–TRuTH study
Active TB in HIV +ve (high incidence of recurrent TB)
Treatment of recurrent TB with appropriate drugs
CAPRISA 011 – IMPRESS trial
Appropriate integrated treatment of HIV-TB co-infection
Implementation of policy & guidelines on integrated HIV-TB
CAPRISA 013 – SUTHI trial
Effective integrated HIV-TB care services
Reduce HIV-TB morbidity and mortality
All Unit studies
Training & Policy impact

TB & HIV

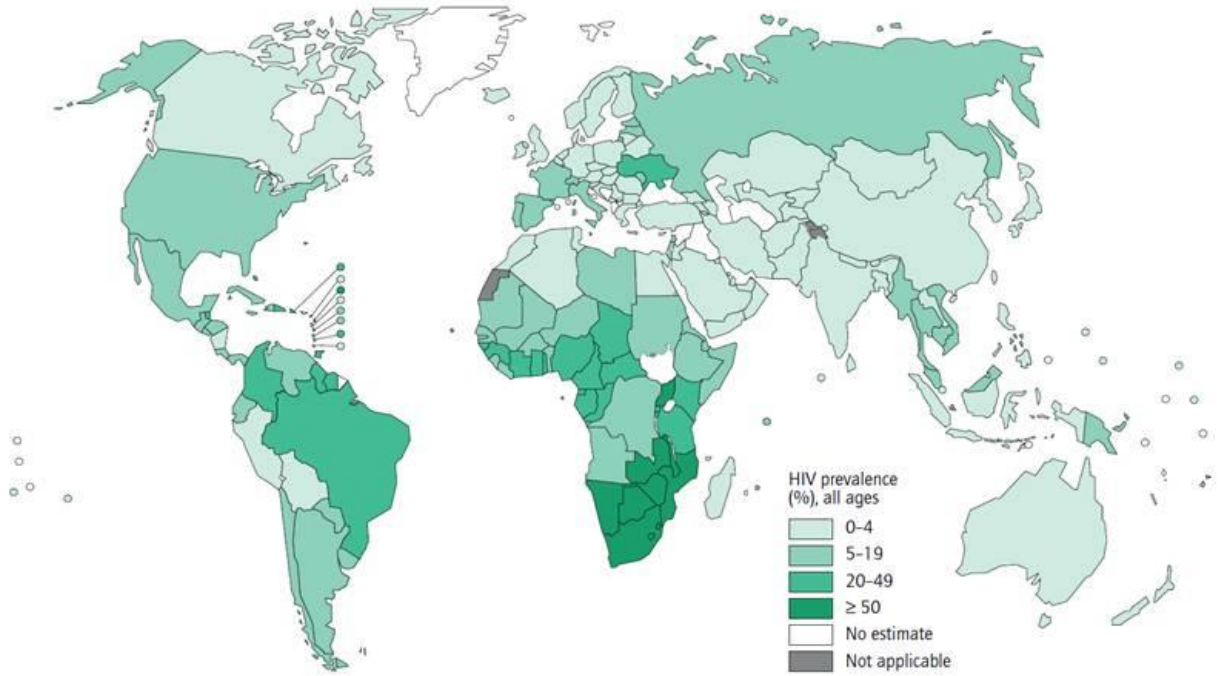
Number of TB patients with known HIV status 2004-2011



World Health Organization

TB & HIV

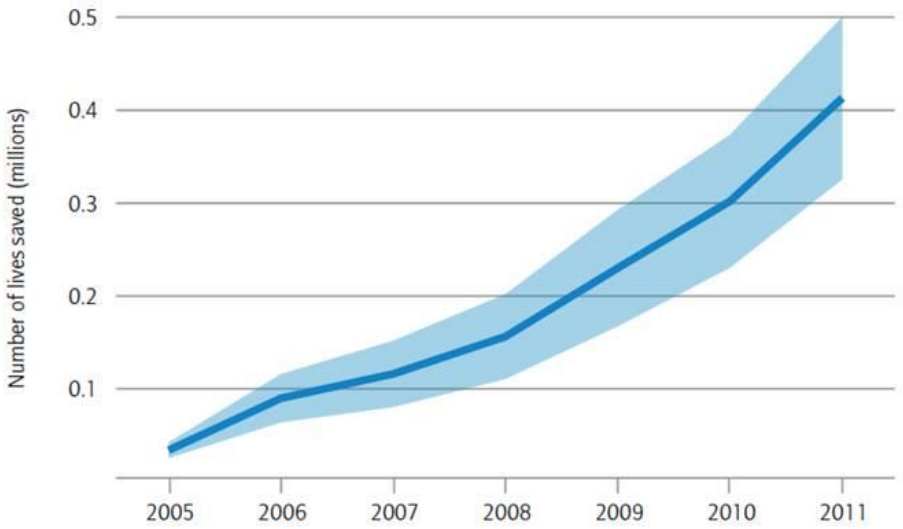
Estimated HIV prevalence among TB cases, 2011



World Health Organization

TB & HIV

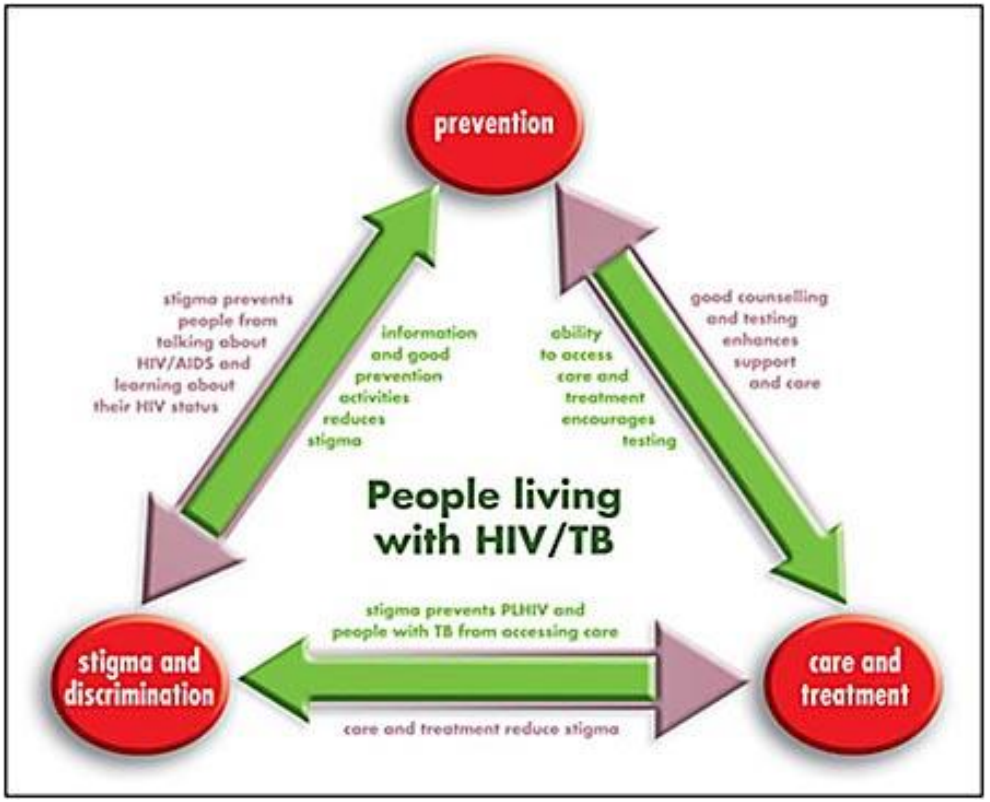
Estimated number of lives saved globally by the implementation of TB/HIV interventions, 2005-2011



Blue band represents the uncertainty interval

World Health Organization

Holistic care



Objective

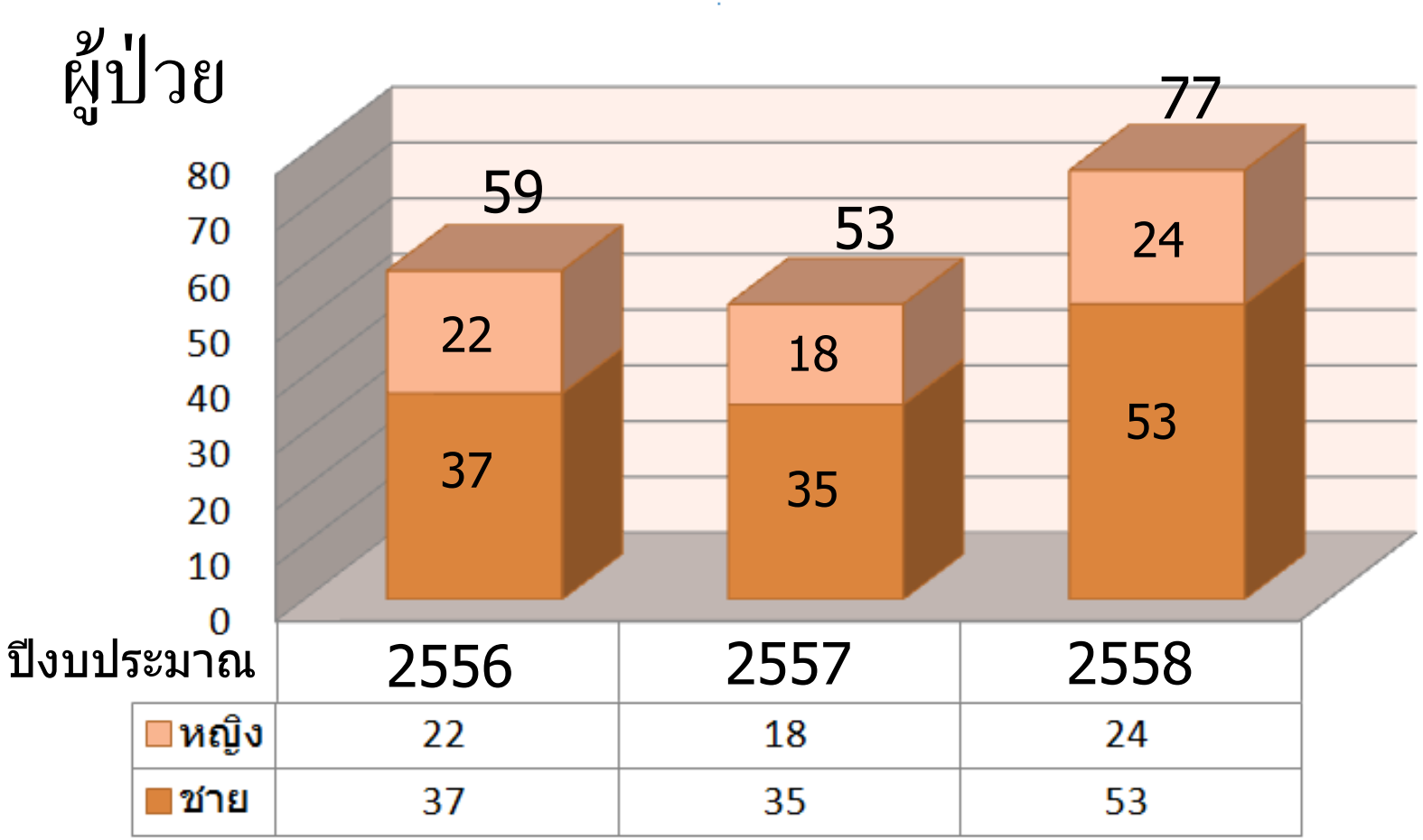
- To study the epidemiology of active TB in Soidao hospital during October, 2013 – September, 2015 (ปีงบประมาณ 2556-2558)
- To study the type, response to treatment, success rate & complication
- To study the HIV co-infection in TB patient

Methodology

- Data collection: from TB clinic & Admission data in Soidao hospital 2013-2015
- Categorization and review medical record via HOSxP
- Data analysis, discussion and summary

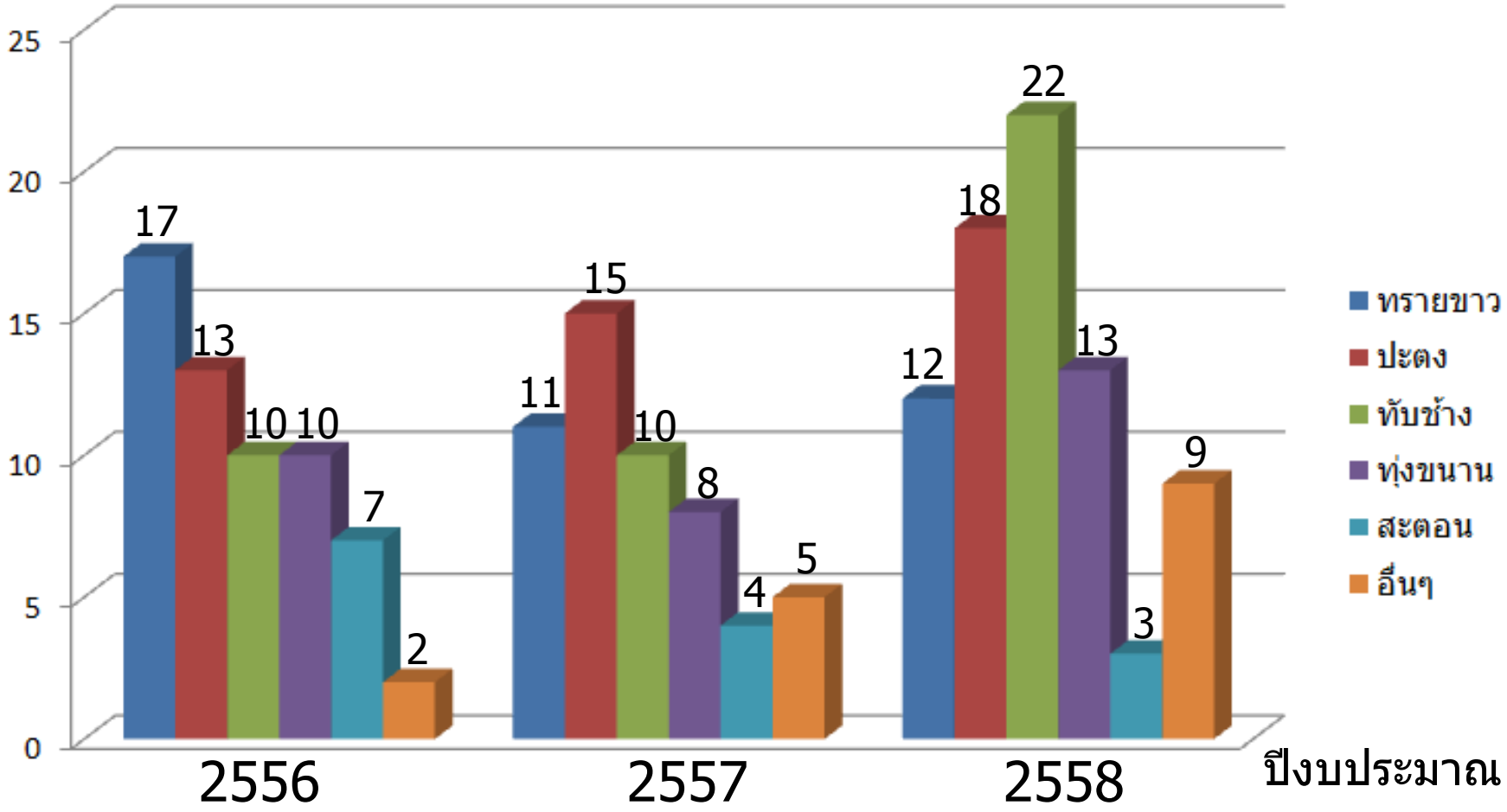
RESULTS

จำนวนผู้ป่วยวัณโรคในคลินิกวัณโรค รพ.สอยดาว



ปีงบประมาณ	อายุเฉลี่ย	น้อยที่สุด	มากที่สุด
2556	47.5	8	82
2557	45.3	18	86
2558	66.8	23	94

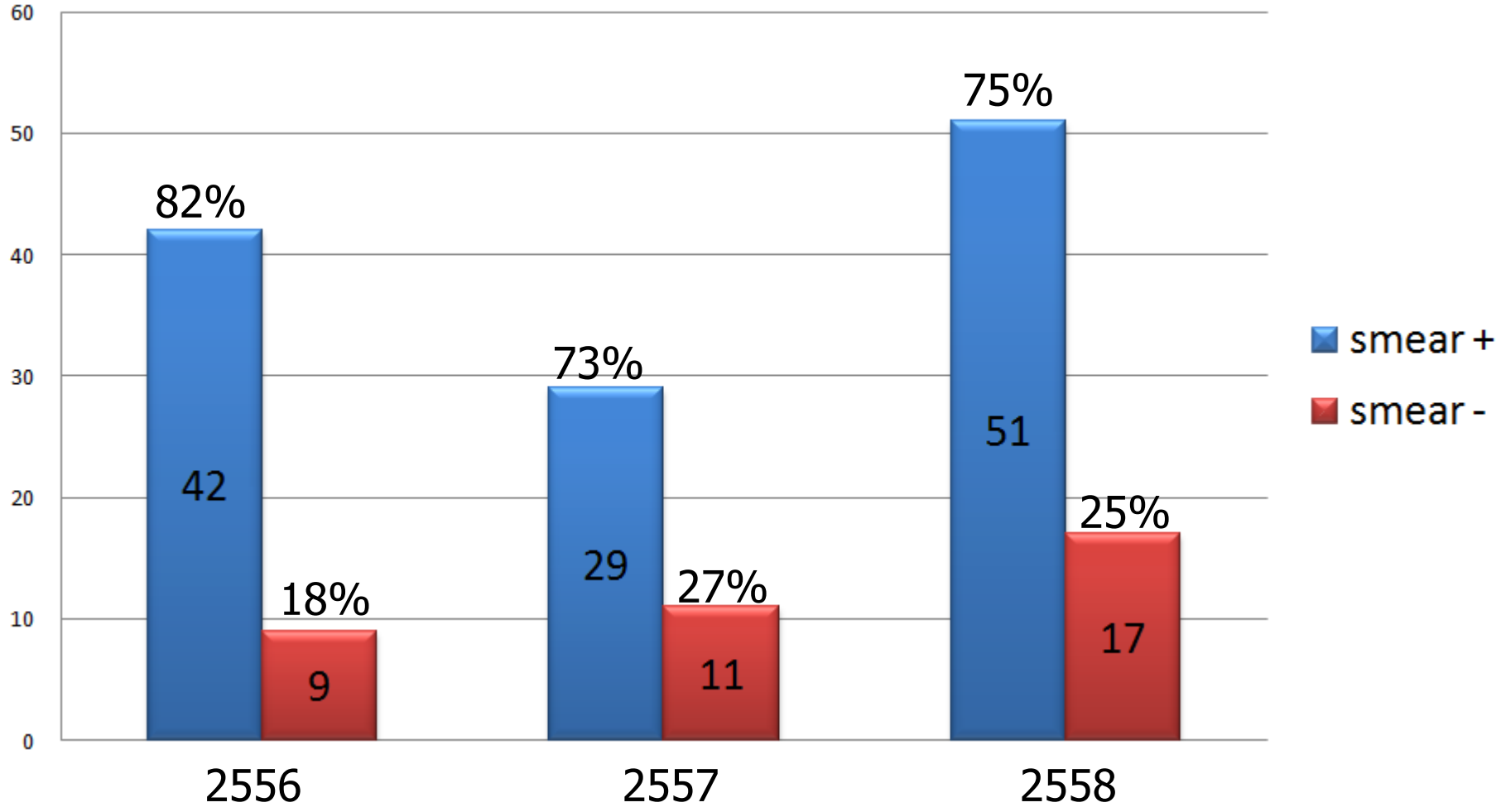
การกระจายตัวของโรค แบ่งตาม ตำบล



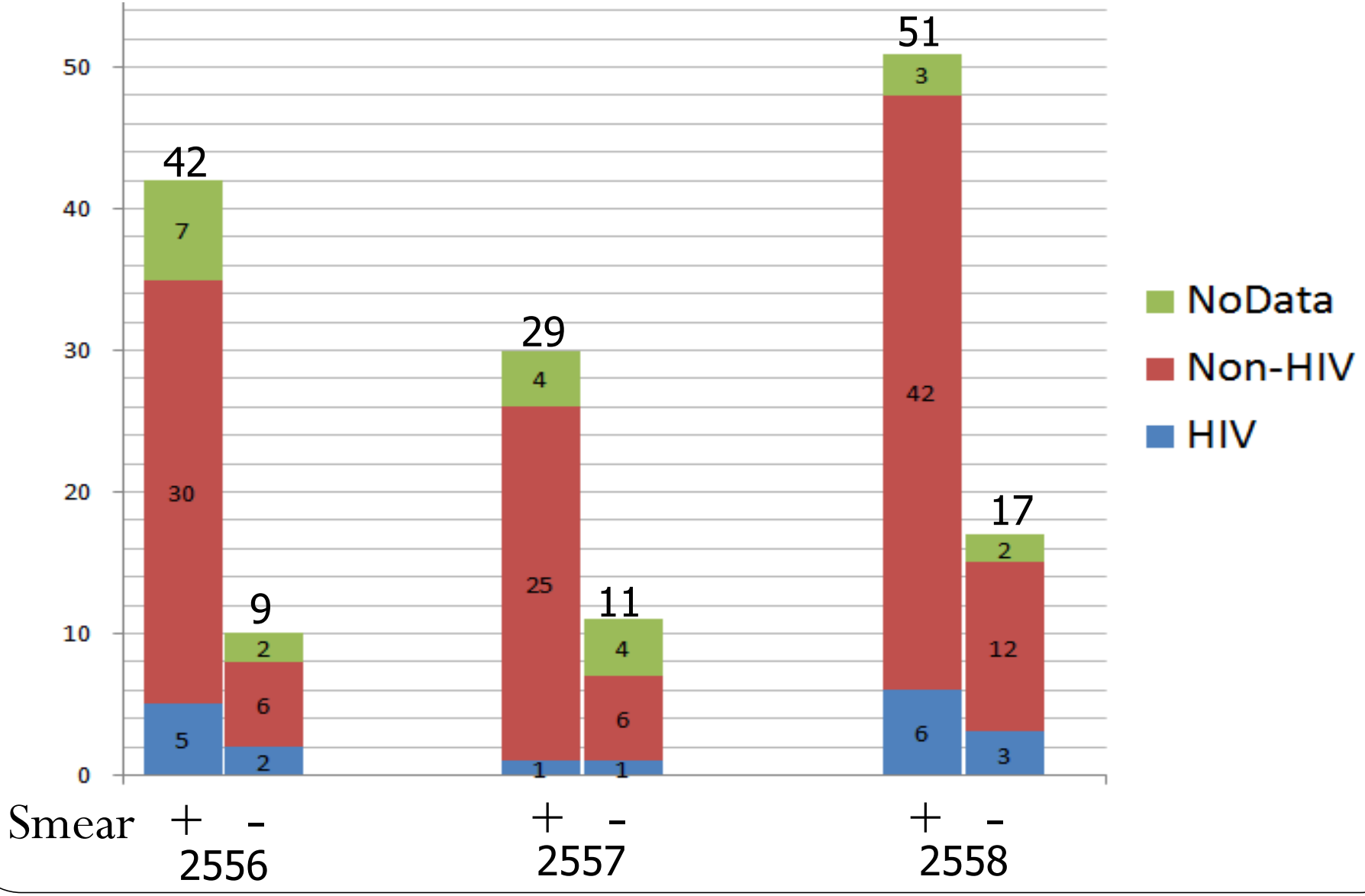
Pulmonary VS Extrapulmonary TB

ปีงบประมาณ	Pulmonary TB	Extrapulmonary TB	Both
2556	51	9	1
2557	40	13	0
2558	68	9	0

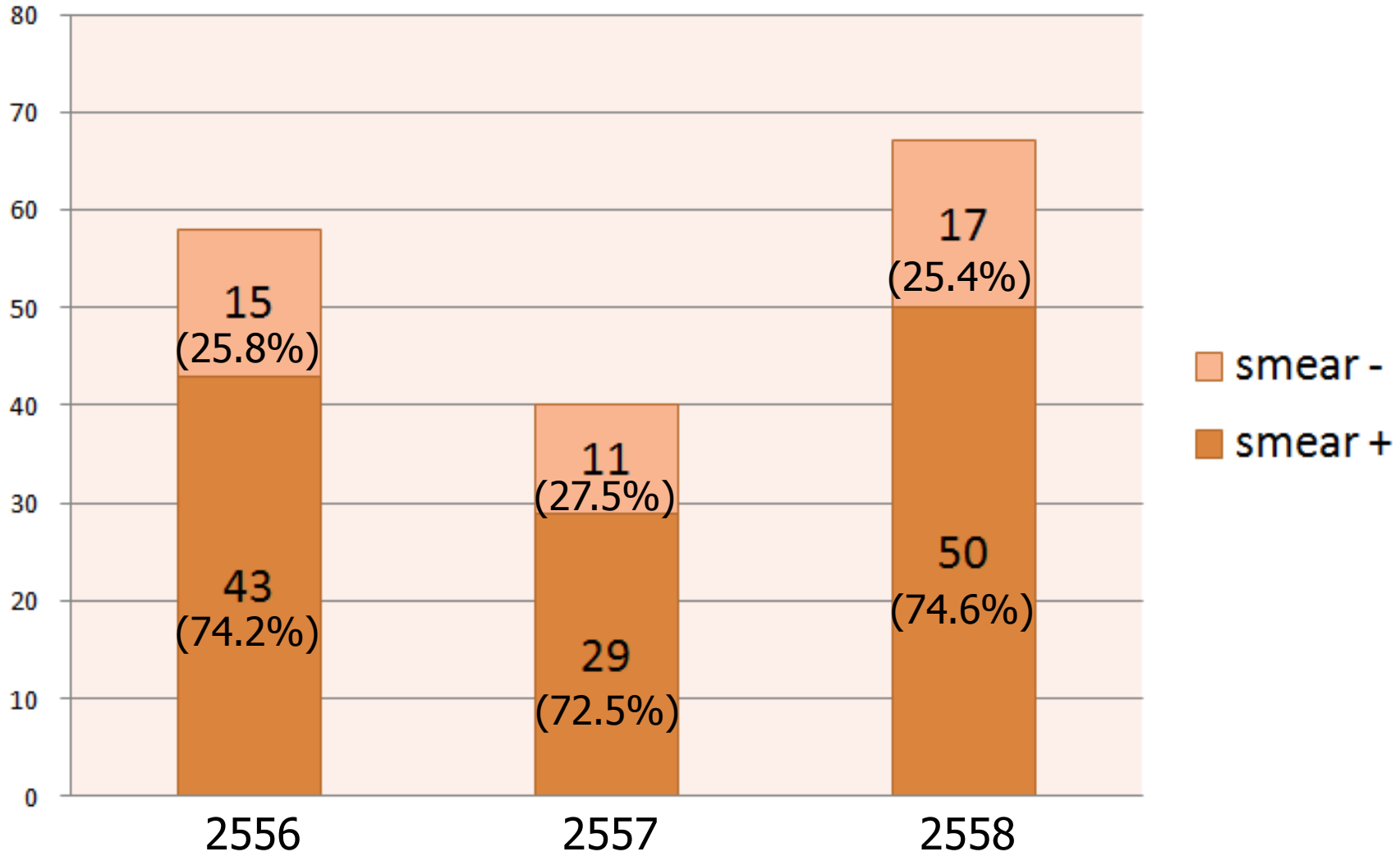
Pulmonary TB



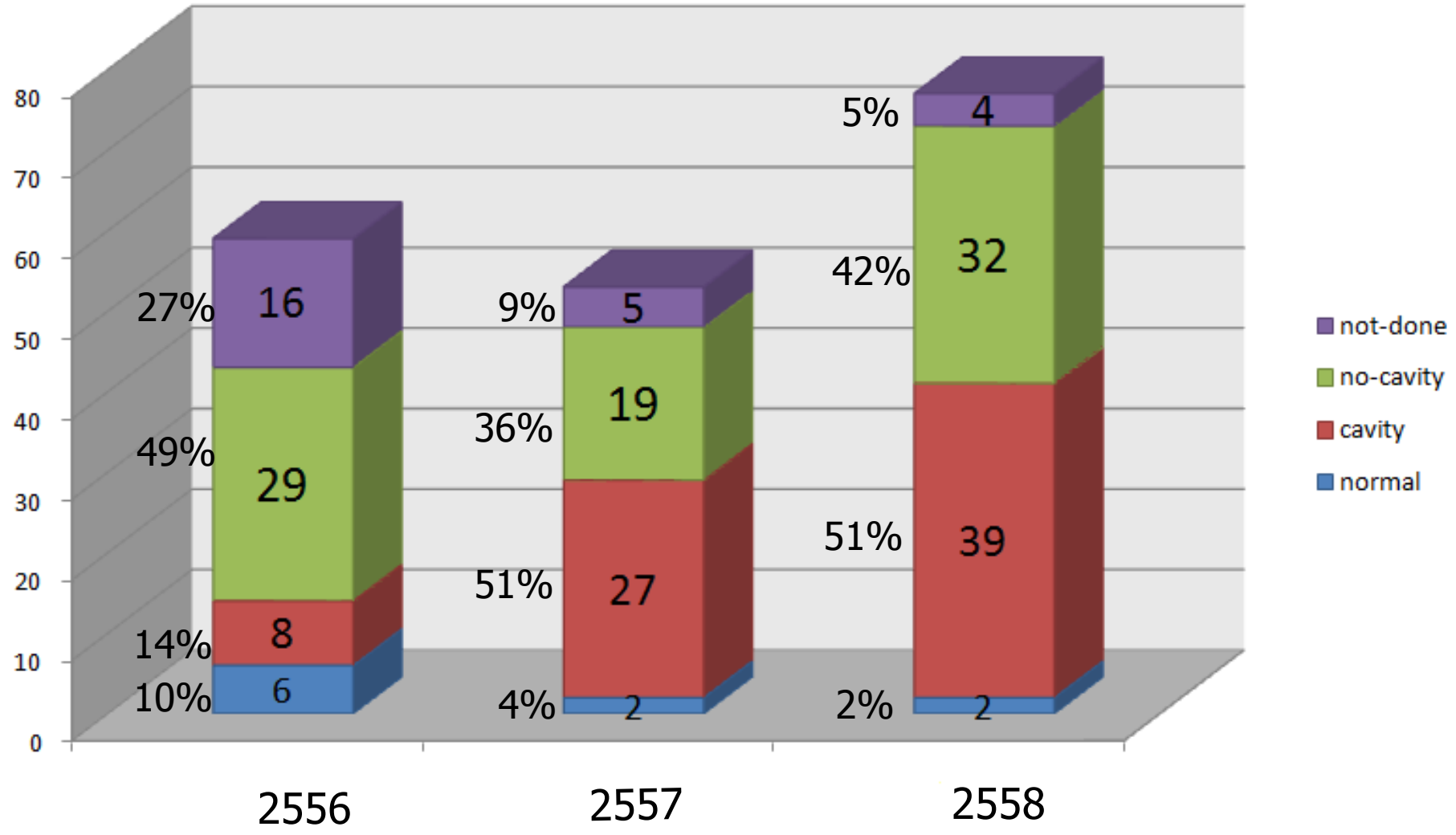
Pulmonary TB



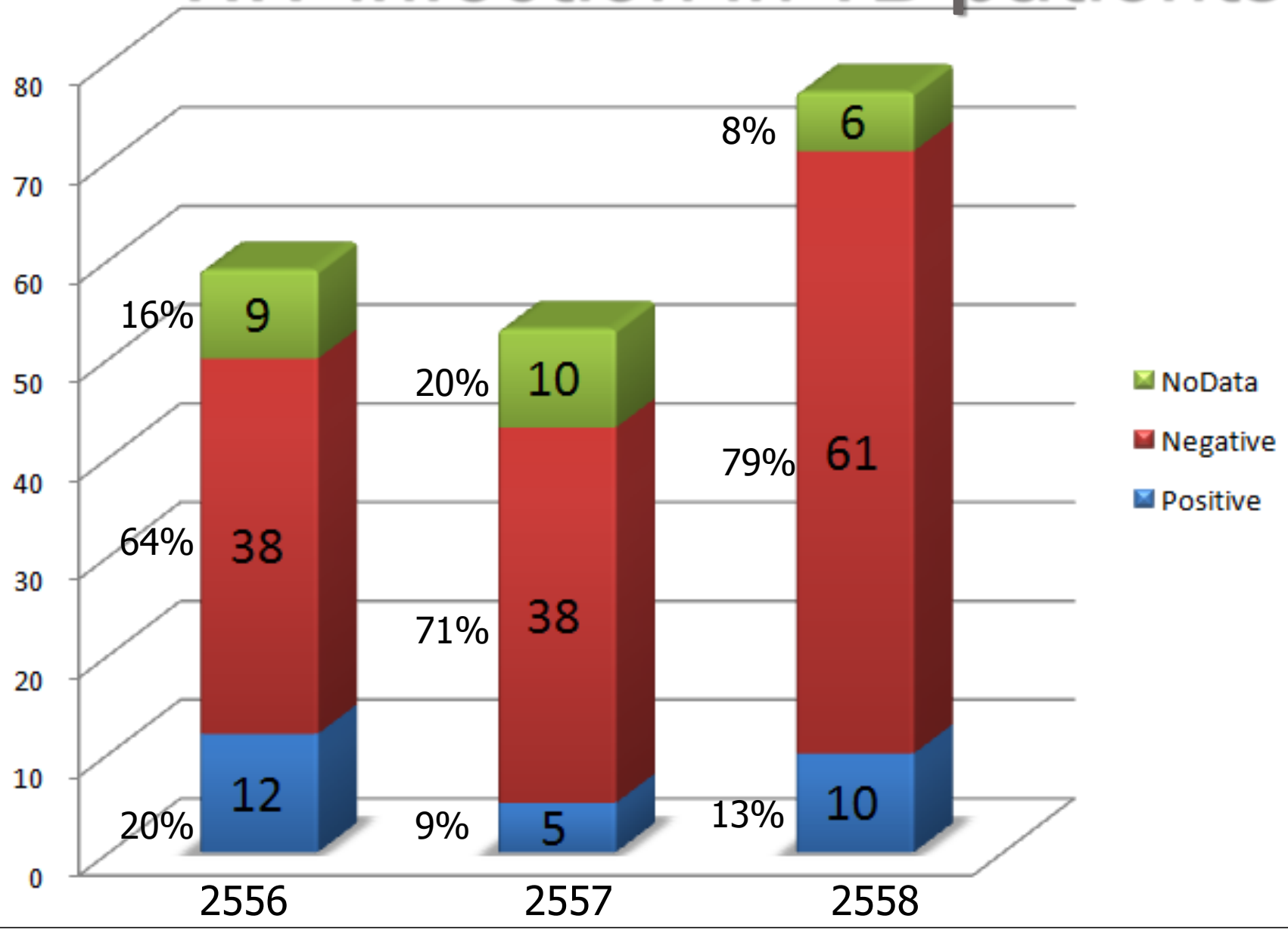
Sputum AFB


80
70
60
50
40
30
20
10
0
15
(25.8%)
43
(74.2%)
11
(27.5%)
29
(72.5%)
17
(25.4%)
50
(74.6%)
2556
2557
2558
smear -
smear +

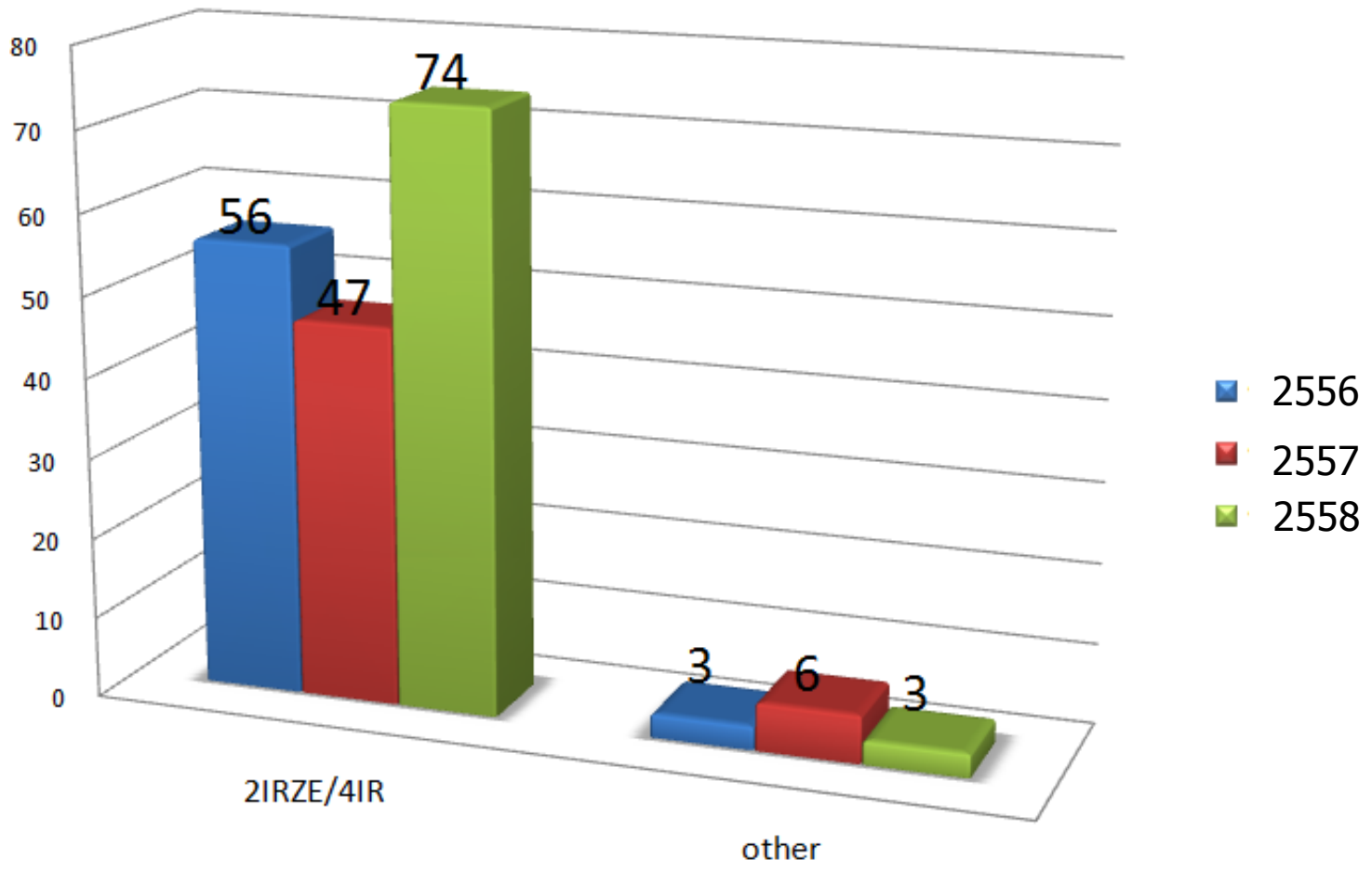
CXR finding


80
70
60
50
40
30
20
10
0
27%
16
49%
29
14%
8
10%
6
9%
5
36%
19
51%
27
4%
2
5%
4
42%
32
51%
39
2%
2
2556
2557
2558
not-done
no-cavity
cavity
normal

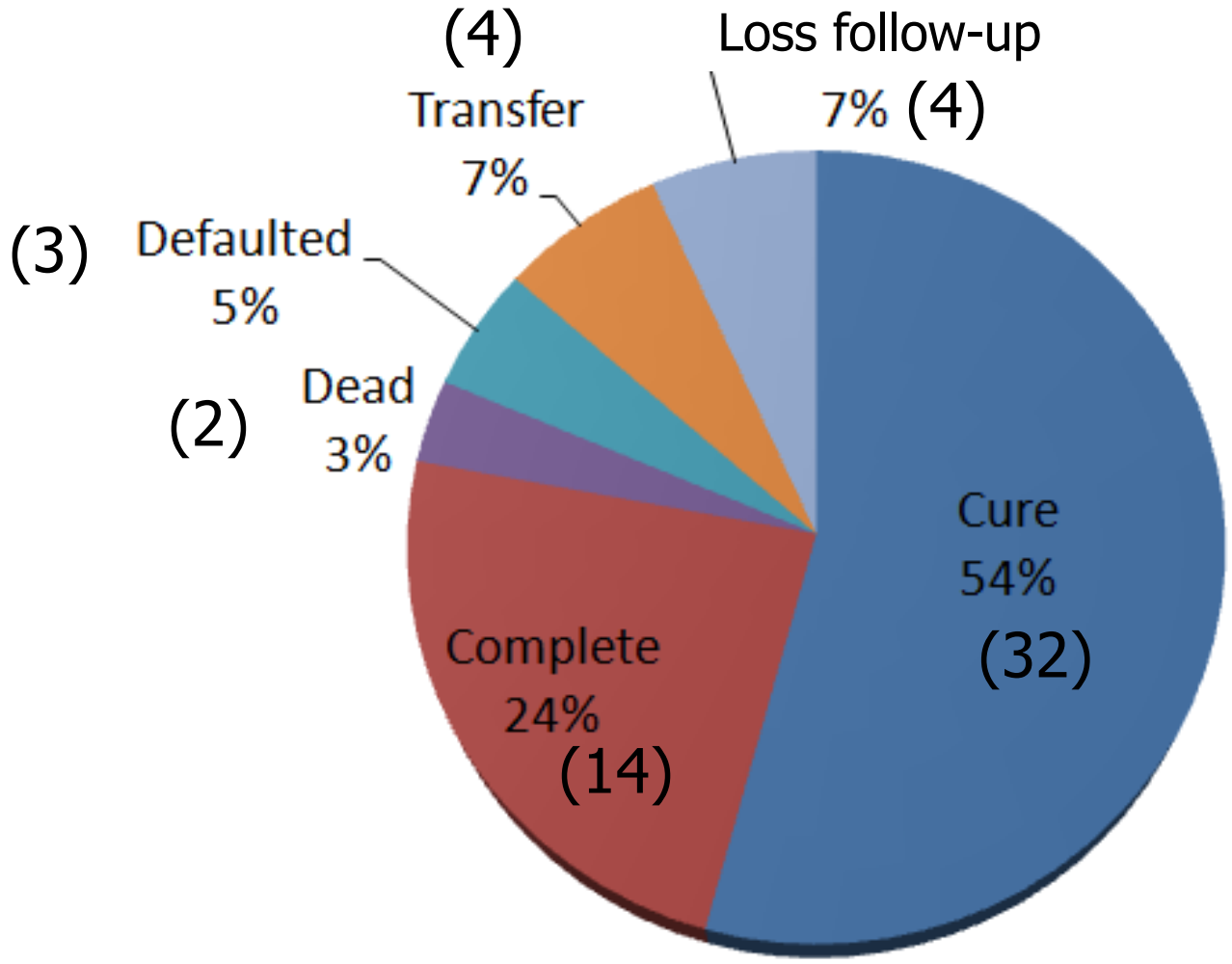
HIV infection in TB patients



Treatment regimen

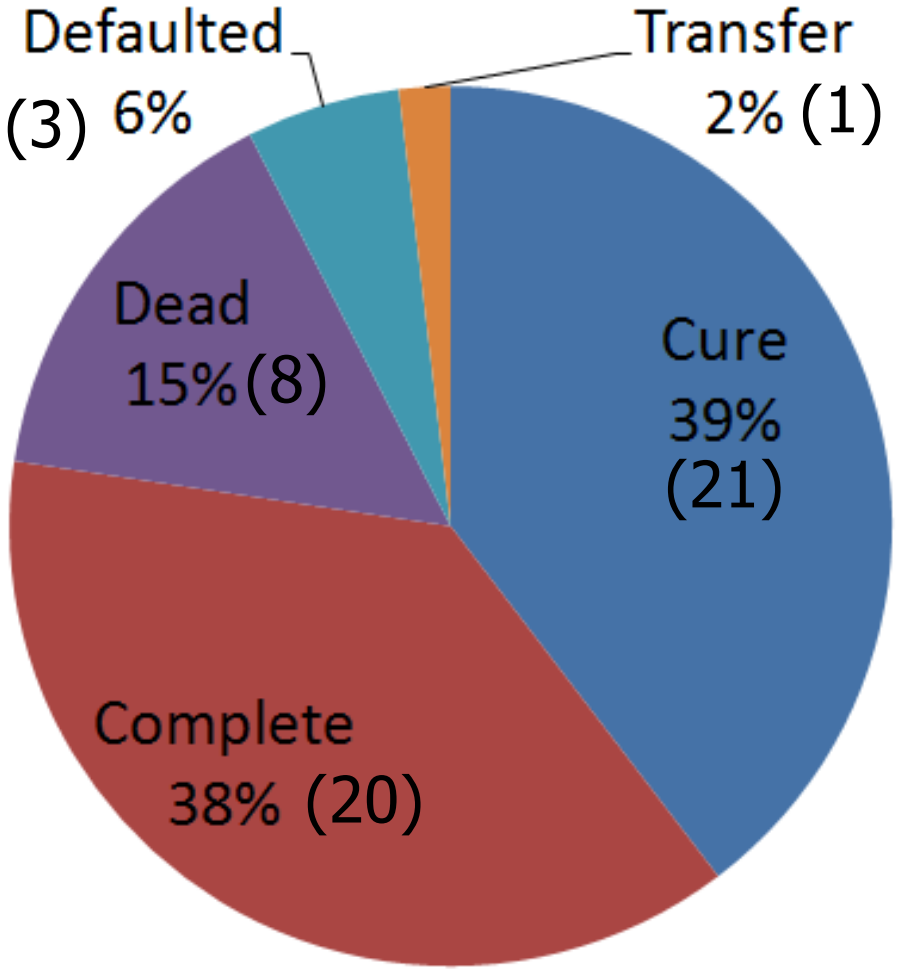


ผลการรักษา ปีงบประมาณ 2556



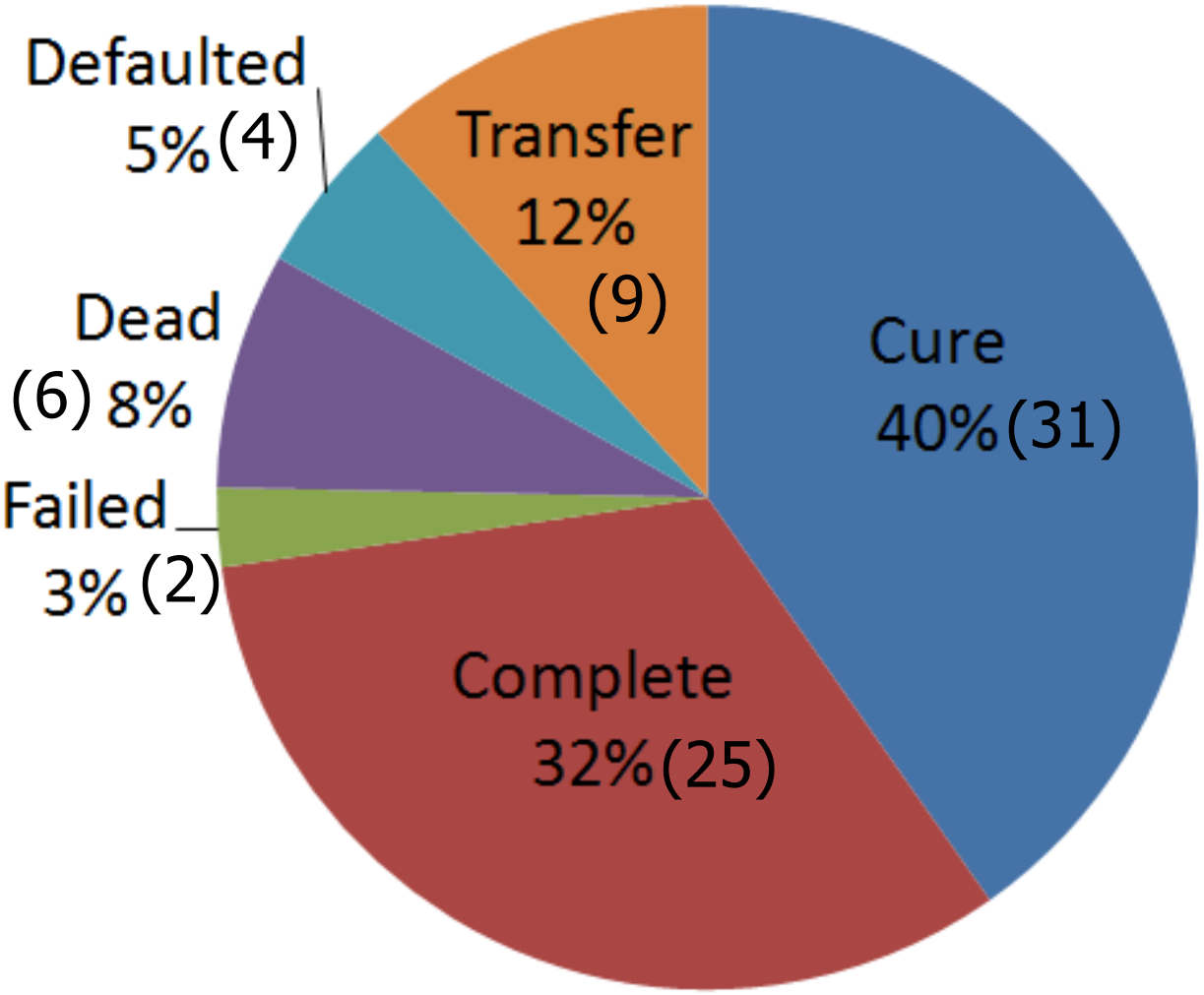
N=59

ผลการรักษา ปีงบประมาณ 2557

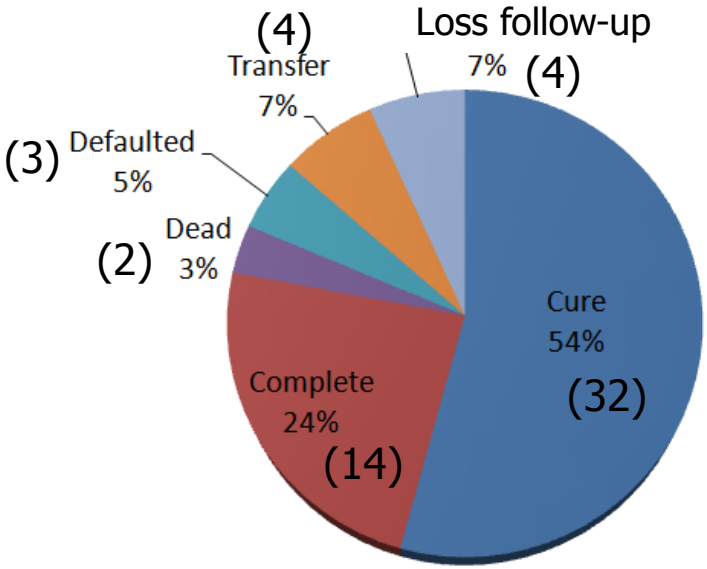


N=53

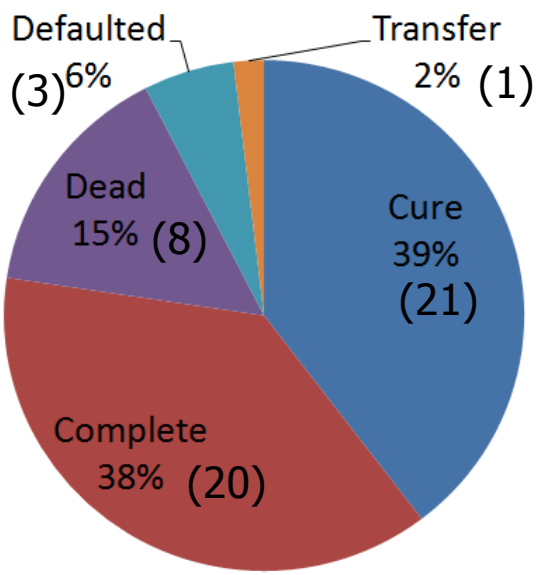
ผลการรักษา ปีงบประมาณ 2558



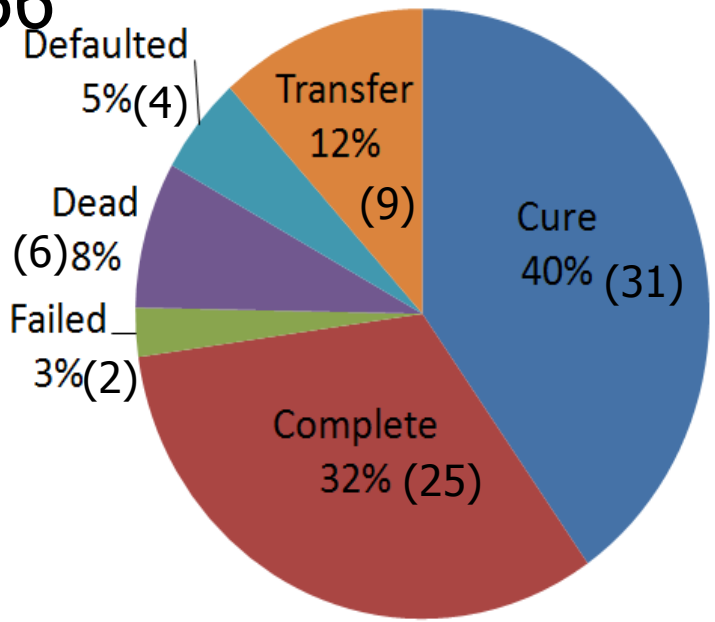
N=77



2556



2557



2558

Admission cases

- ปี 56 admit 12 case
  - Dx pulmonary TB smear positive 10 cases(hepatitis 1 case)
  - Dx Pulmonary TB smear negative 1 case
  - Dx TB meningitis 1 case

Admission cases

- ปี 57 admit 17 case
  - Dx pulmonary smear positive TB 7 cases
  - Dx pulmonary TB + Hemoptysis 2 cases
  - Dx Bronchopneumonia ontop pulmonary TB 3 cases
  - Dx Pleural effusion 4 case
  - Dx Drug allergy 1 cases
- ปี 58 admit 3 case
  - Dx Localized peritonistis > refer รพศ
  - Dx Bronchopneumonia 2 cases

Case admit ที่ไม่ได้ F/U TB clinic

- ปี 56 : 8 case
  - Pulmonary TB smear positive 4 cases
  - TB meningitis
  - TB pericarditis
  - TB spine
  - TB base of skull mass with MDS
- ปี 57 : 1 case
  - Pulmonary TB smear positive 1 case

Dead cases

- ปี 56 dead 5 case
  1. Pulmonary TB smear positive with respiratory failure
  2. E1 with disseminated TB
  3. Suicide
  4. TB base skull mass with MDS (no F/U TB clinic)
  5. Pulmonary TB smear positive, AAA, UGIB (no F/U TB clinic)

Dead cases

- ปี 57 dead 8 case
  1. Pleural effusion with hemoptysis refer PPK
  2. HyperK, MI (arrest at home)
  3. Drug induce hepatitis with liver failure
  4. Pulmonary TB with respiratory failure refer PPK
  5. Drug induce hepatitis, ARDS, repiratory failure refer PPK
  6. E1, PCP, encephalitis, TB LN
  7. Unknown 2 case

Dead cases

- ปี 58 dead 6 case
  1. Pneumonia on top pulmonary TB (tracheostomy)
  2. Peritonitis refer PPK
  3. COPD with AE on ETT refer PPK
  4. COPD with AE on ETT refer PPK
  5. Death at home unknown casuse
  6. Severe destroy lung NR off ETT at home

Conclusion

Conclusion

- Good success rate
- High HIV-TB co infection

- Accurate complication rate can’t be stated
- ‘Hidden’ case issue – Cambodian & others

- Previous & further data review will be helpful to summarize more accurate trend

สรุปรายงานการเฝ้าระวังโรคประจำปี 2552

Fig. 1 Reported Cases of Tuberculosis per 100,000 Population, by types of TB and by Year, Thailand, 1995 – 2009

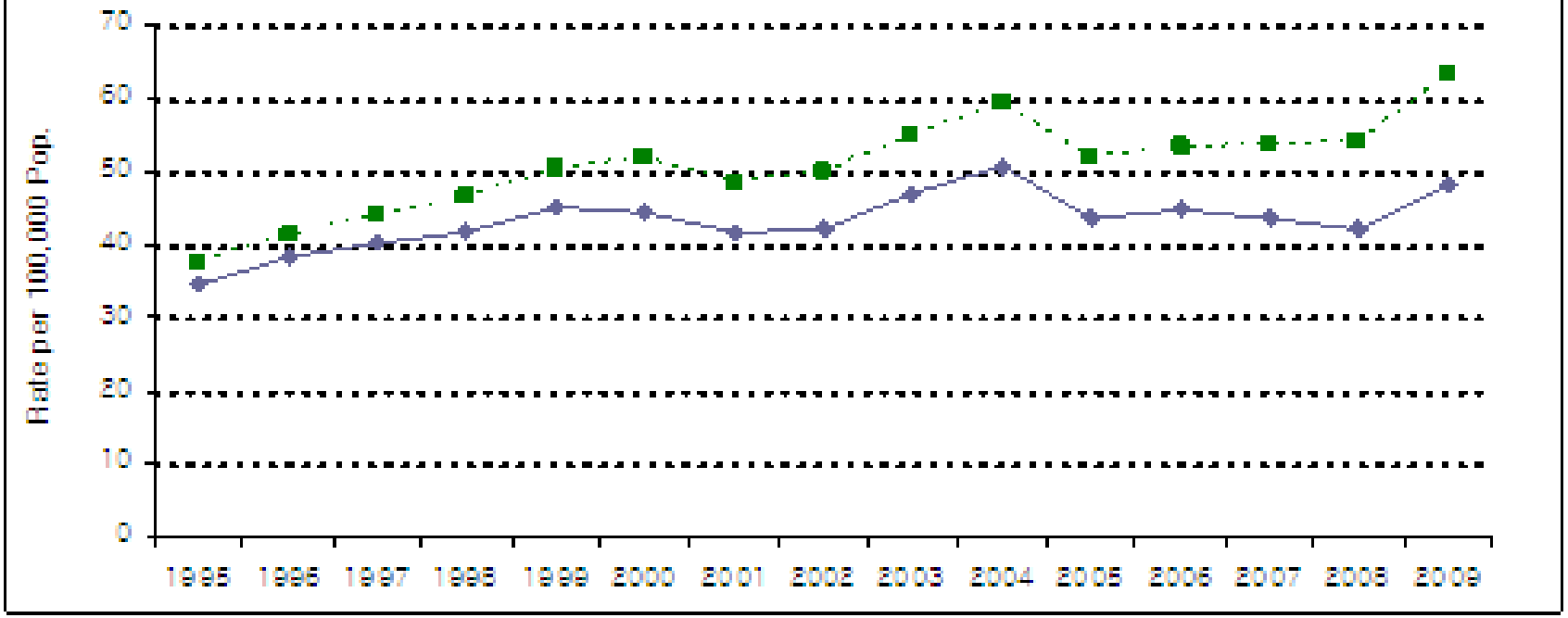


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Fig. 2 Reported Cases of Tuberculosis (total) per 100,000 Population, by Age-group, Thailand, 2005 -2009

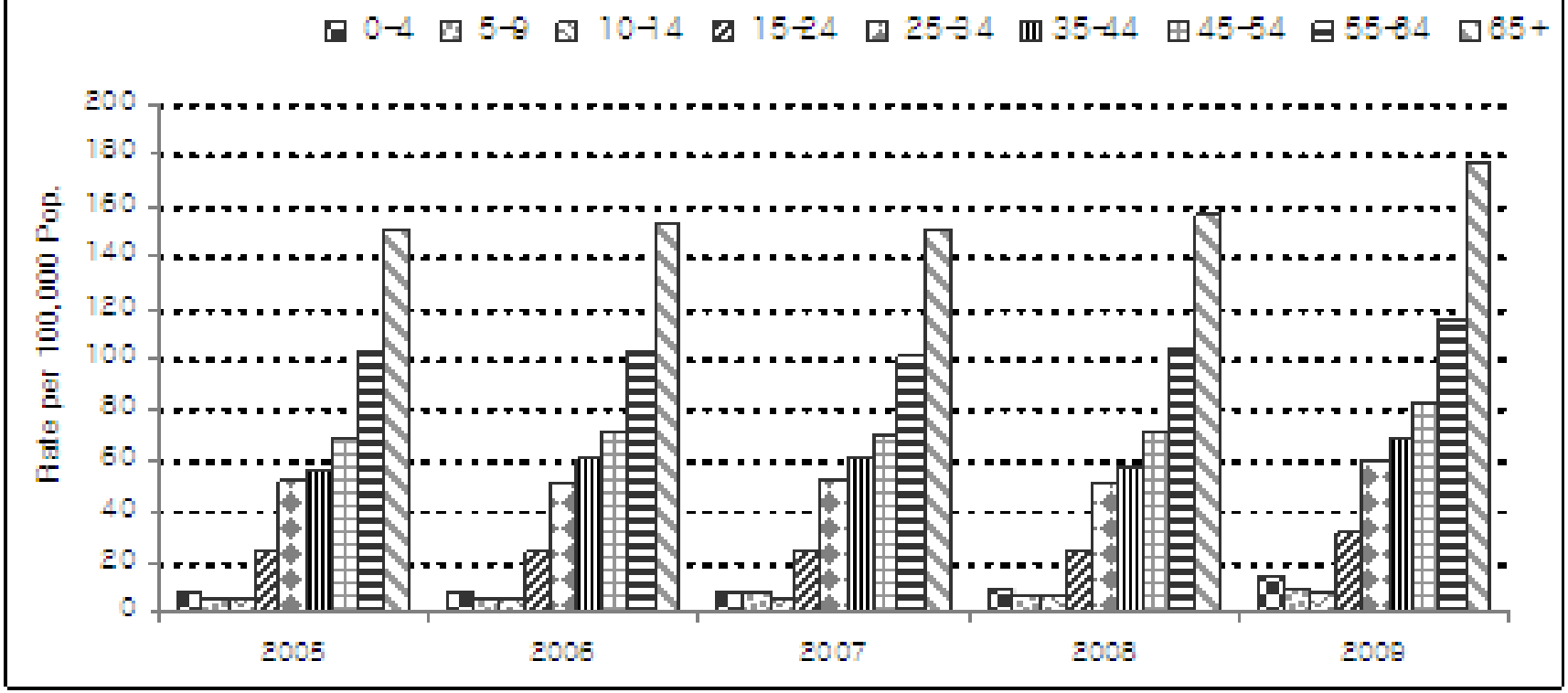

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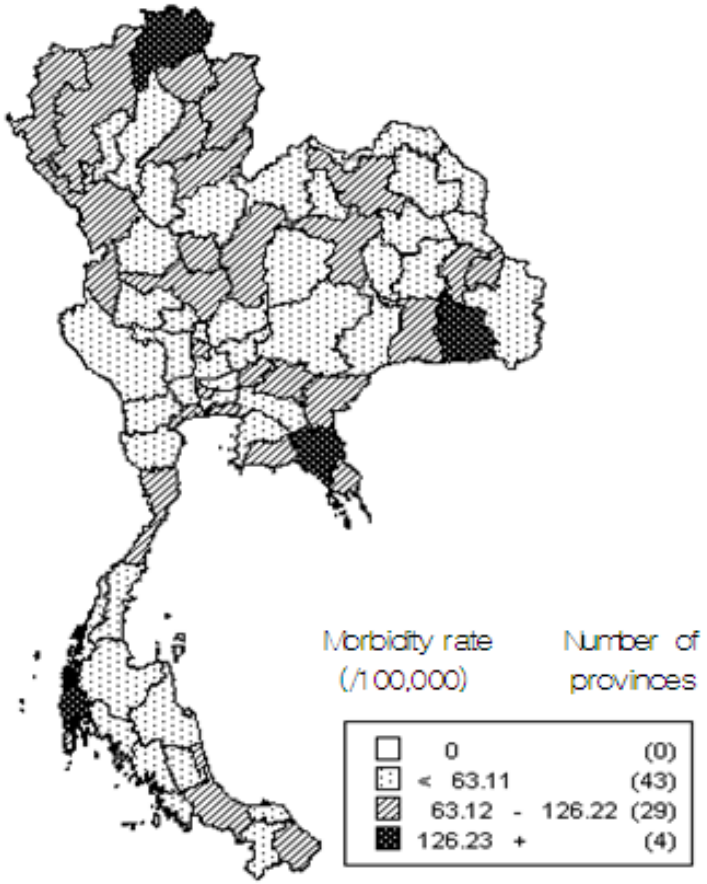
Fig. 4 Reported Cases of Tuberculosis (total) per 100,000 Population, by Province, Thailand, 2009

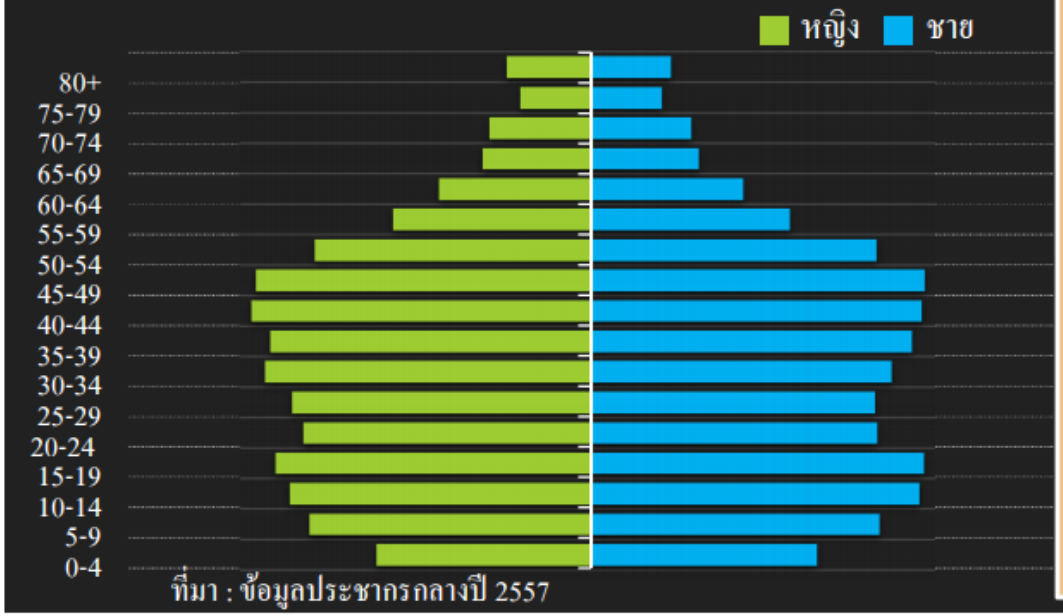


Top Ten Leading Rate

1	Si Sa Ket	168.37
2	Phangnga	146.73
3	Chanthaburi	145.20
4	Chiang Rai	141.77
5	Phayao	122.73
6	Tak	108.51
7	Amnat Charoen	106.18
8	Samut Songkhram	98.01
9	Khon Kaen	97.03
10	Phichit	93.74

ประชากรกลางปี 2557 อำเภอสอยดาว

ข้อมูลประชากร



จำนวน 18,803 หลังคาเรือน	
ประชากรทั้งหมด	67,072 คน
ประชากรUC	52,604 คน
ชาย	33,827 คน
หญิง	33,245 คน
ผู้สูงอายุ	14 %
ภาวะพึ่งพิง	19,791 คน
ร้อยละ 29.51	

TB incidence (per 100,000 population)

- ปี 56 : 88
- ปี 57 : 79
- ปี 58 : 115

Conclusion

- More incidence than global
- More incidence than Thailand
- Less incidence than overall Chantaburi province

Suggestion

- Aim for 100% HIV counseling & Screening

- Record for previous HIV / new HIV
- Record for Complication of treatment during F/U

- Public health education for TB importance
- AEC issue

For TB

- Early Dx
- Prompt & Adequate treatment
- Scheduled follow up & protocal
- Prevent transmission
- Prevent drug resistance
- Look for HIV

- Health education

Reference

- Treatment for tuberculosis guideline, 4th ed, WHO, 2010
- Guidelines on the management of latent tuberculosis infection, WHO, 2015
- Management of MDR-TB: A field guide, WHO, 2009
- แนวทางเวชปฏิบัติการรักษาวัณโรคในผู้ใหญ่ พ.ศ. 2556 , สำนักวัณโรคกรมควบคุมโรค และ สมาคมอุรเวชช์แห่งประเทศไทย

WHO

- Data

Suggestion

Reference

- Treatment for tuberculosis guideline, 4th ed, WHO, 2010
- Guidelines on the management of latent tuberculosis infection, WHO, 2015
- Management of MDR-TB: A field guide, WHO, 2009
- แนวทางเวชปฏิบัติการรักษาวัณโรคในผู้ใหญ่ พ.ศ. 2556 , สำนักวัณโรคกรมควบคุมโรค และ สมาคมอุรเวชช์แห่งประเทศไทย