



# TB in the Global North - Caring for Those in Remote and Indigenous Communities

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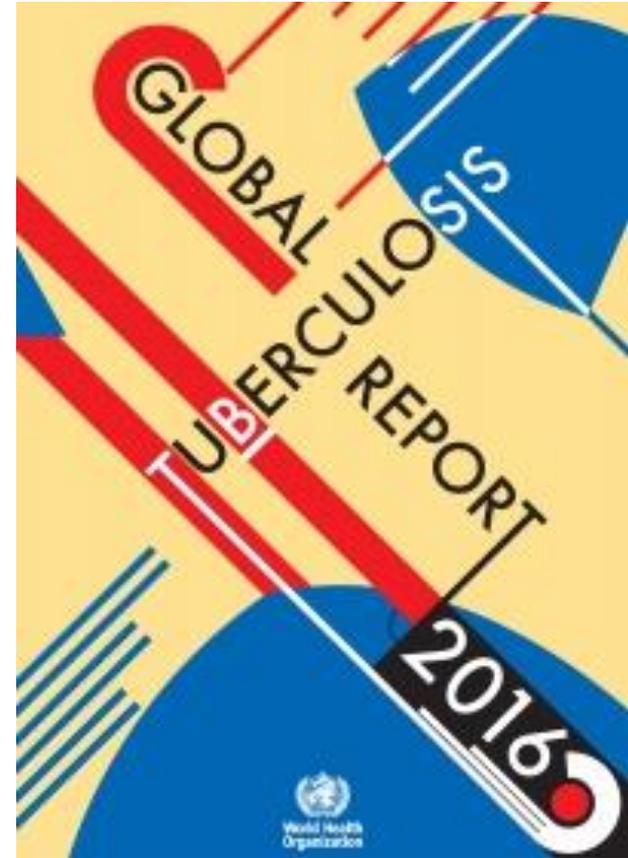
# TB in the Global North: Overview

## Learning Objectives

1. Describe the epidemiology and TB burden in remote northern and indigenous communities to improve care delivery to these communities
2. Explain the relevance of TB in these settings to global TB care and prevention efforts to improve care delivery to these communities

# Global Epidemiology of TB

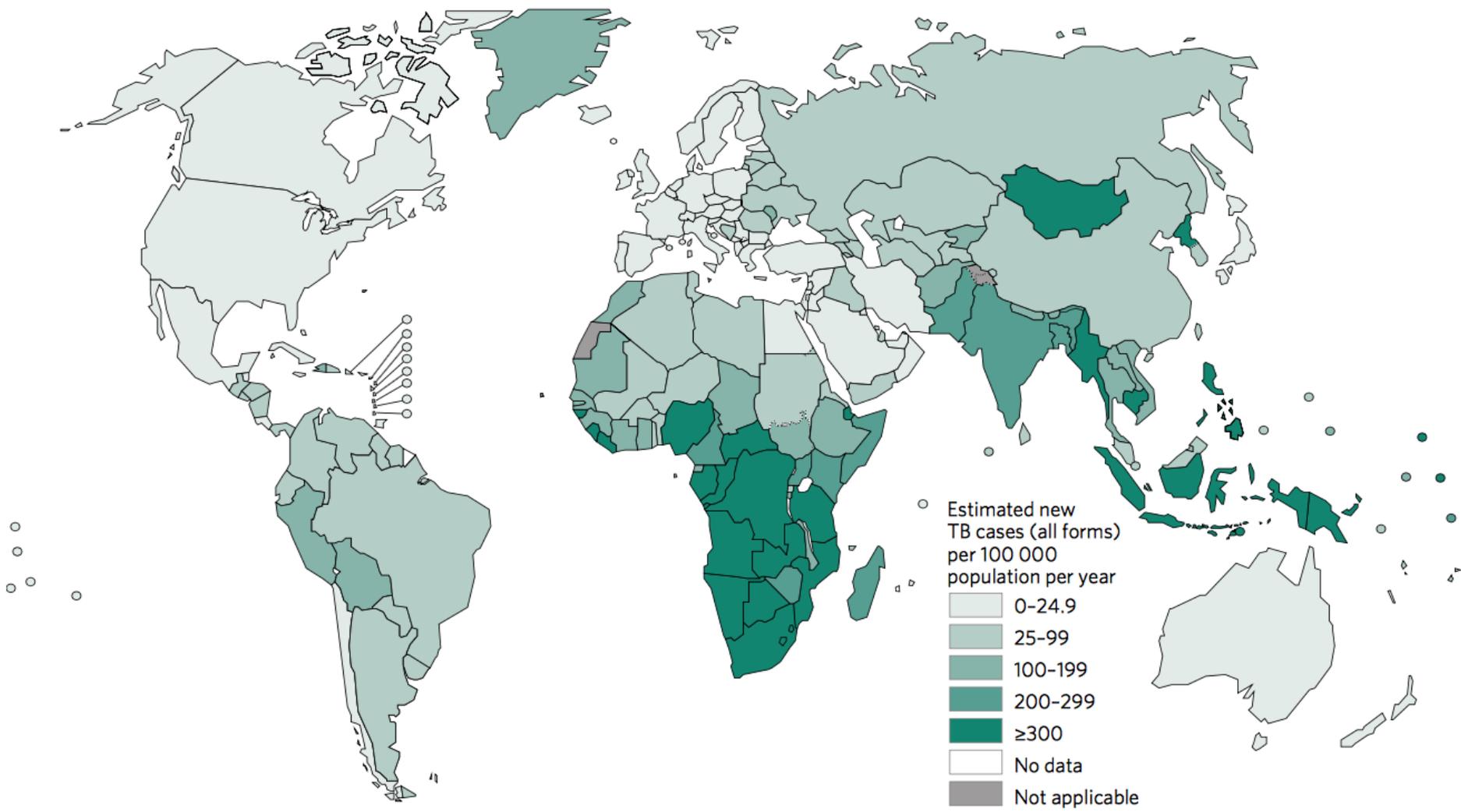
- In 2015
- 10.4 million people developed TB
  - 6.4 million notified
- 1.8 million died from TB
- 30 high-burden countries
  - Incidence ranges 41-788/100,000
  - HBC average 195/100,000
    - The Americas 27/100,000
    - Europe 36/100,000
    - Africa 275/100,000



# TB in the Global North: Assumptions

- Global distribution of TB burden
  - TB in the global north typically considered “under control”
    - Moving towards elimination
    - Targeted strategies among highest risk populations
  - TB burden greatest in global south
    - Fueled by HIV, poverty
    - Target high risk but broader coverage

**FIG. 3.3**  
**Estimated TB incidence rates, 2015**



**WHO Global TB Report, 2016**

# TB in the “Extreme” Global North

- Populations in circumpolar regions of the global north are diverse
  - Multiple countries, 10M people
    - Live under different healthcare systems
    - Varying degrees of accessibility and affordability
    - Rural locations, difficult transportation
- In each country, some groups, esp. the indigenous populations, suffer an undue burden of disease
  - Higher rates of depression, DM, alcoholism, suicide, obesity, cancer, and TB

Chatwood et al, Am. J. Public Health. 2012  
Ellsworth et al, Int J Circumpolar Health, 2013

# TB in the “Extreme” Global North: Where?



## Circumpolar/Arctic region:

- Alaska, northern Canada, Greenland, the Faroe Islands, Iceland, northern areas of Nordic countries & Russia
- 8% of Earth's surface
- 10M people

# TB in the Global North

- TB thrives among underserved communities
  - Overcrowded living conditions
  - Disparities in access to care
  - Delayed care-seeking resulting in more advanced disease, worsened outcomes
  - Malnutrition
  - Immunocompromise from DM, HIV, other conditions
  - Smoking



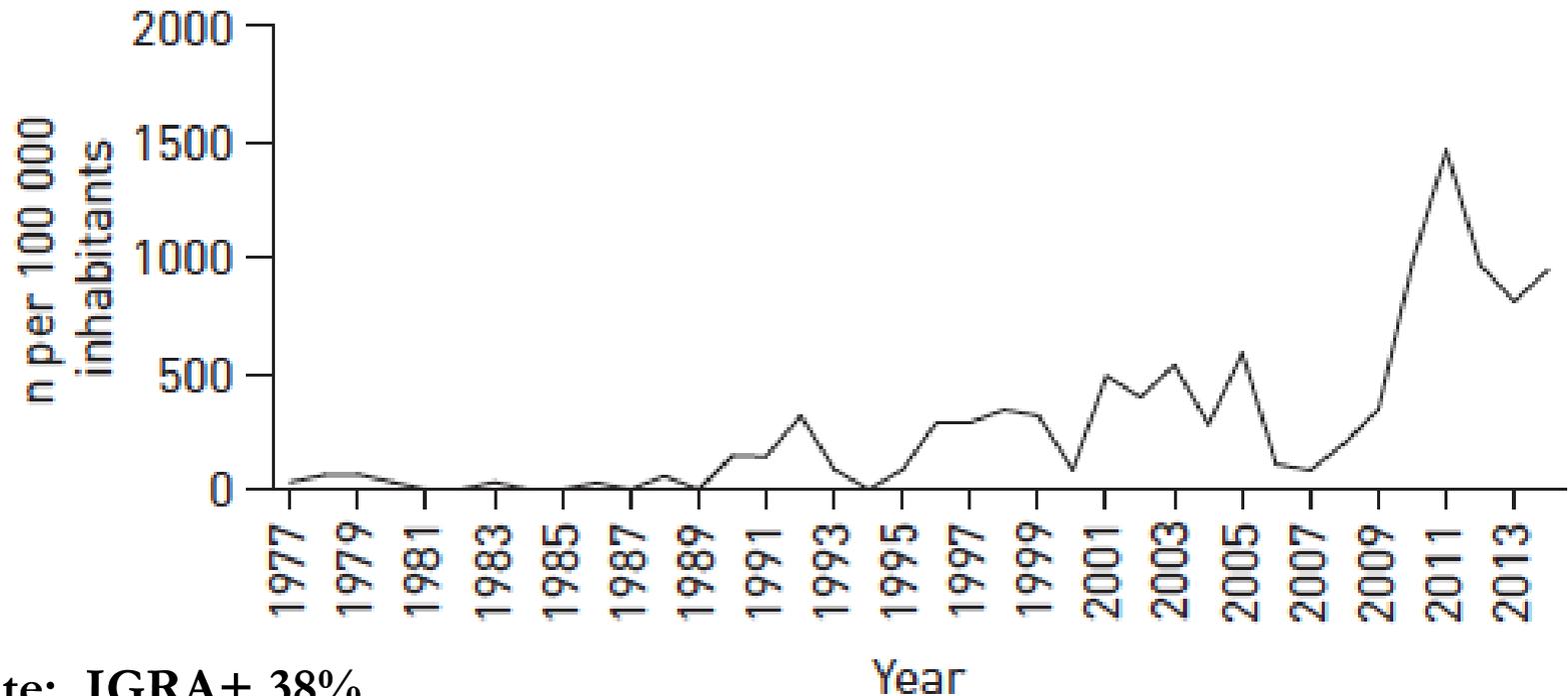
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# High rates of TB in Global North

## TB Notifications per 100,000 in East Greenland, 1977-2013



LTBI rate: IGRA+ 38%

- 61% in the high rate settlement
- 79% in teens, (0% in school-aged children 4 yrs prior)

Bjorn-Mortensen et al, Eur Respir J, 2015

# TB in the Global North

- High(er) rates of TB among indigenous populations
  - 234/100,000 in Nunavut, Canada
  - 20x – 170x higher in aboriginal vs. non-aboriginal populations in Canada
  - Recent outbreaks demonstrate the vulnerability of these populations to rapid TB transmission
  - Burden in small communities
    - In 2011-2012, 50 residents in a Canadian village of 933 diagnosed with TB
      - 49 had same genotype indicating generated from a single outbreak
      - What is the impact on a community when  $> 5\%$  of your neighbors develop TB in the span of 1 year?

# TB in the Global North: risk factors exacerbated?

## Diabetes is a risk factor for TB in the Inuit population

	RR	95% CI
<b>Crude</b>		
Diabetes	2.66	0.41–10.3
Non-diabetes	1	
<b>Adjusted<sup>#</sup></b>		
Diabetes	11.7*	1.48–65.9
BMI kg·m <sup>-2</sup>	0.67*	0.51–0.84
Age yrs	0.93*	0.88–0.97
Sex		
Males	1	
Females	0.16*	0.02–0.63
Place of residence		
Town	1	
Settlement	1.82	0.47–6.11

BMI: body mass index. <sup>#</sup>: adjusted for age, sex, place of residence and BMI.  
\*: p<0.05.

Byberg et al. , Eur  
Respir J, 2013



# TB in the Global North: collaboration

Efforts to improve TB control in the region:

- The International Circumpolar Surveillance (ICS)-TB Working Group includes jurisdictional reps from northern Canada, Finland, Greenland, Norway, Sweden, Russian Federation and the USA
- Mandate: Conduct epi studies to inform policy, and program design & evaluation



Bourgeois, Int J Circumpolar Health, 2016

# TB in the Global North: how to respond

- TB care delivery can be improved by
  - Better targeted epi data
  - Better understanding of the SDoH
  - Locally driven health education & outreach
  - Improved access to TB diagnostics, expert care (tele-health), case management (VOT)
  - Improved active case finding

# TB in the Global North: drawing attention

It is time to end the neglect of TB in the “extreme” global north and embrace all regions of the globe in our efforts to promote TB care and prevention for all.

