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Controlling TB in the era of HIV

Christy Hanson, PhD, MPH
TB Research Advisor

Amy Bloom, MD
TB/HIV Advisor

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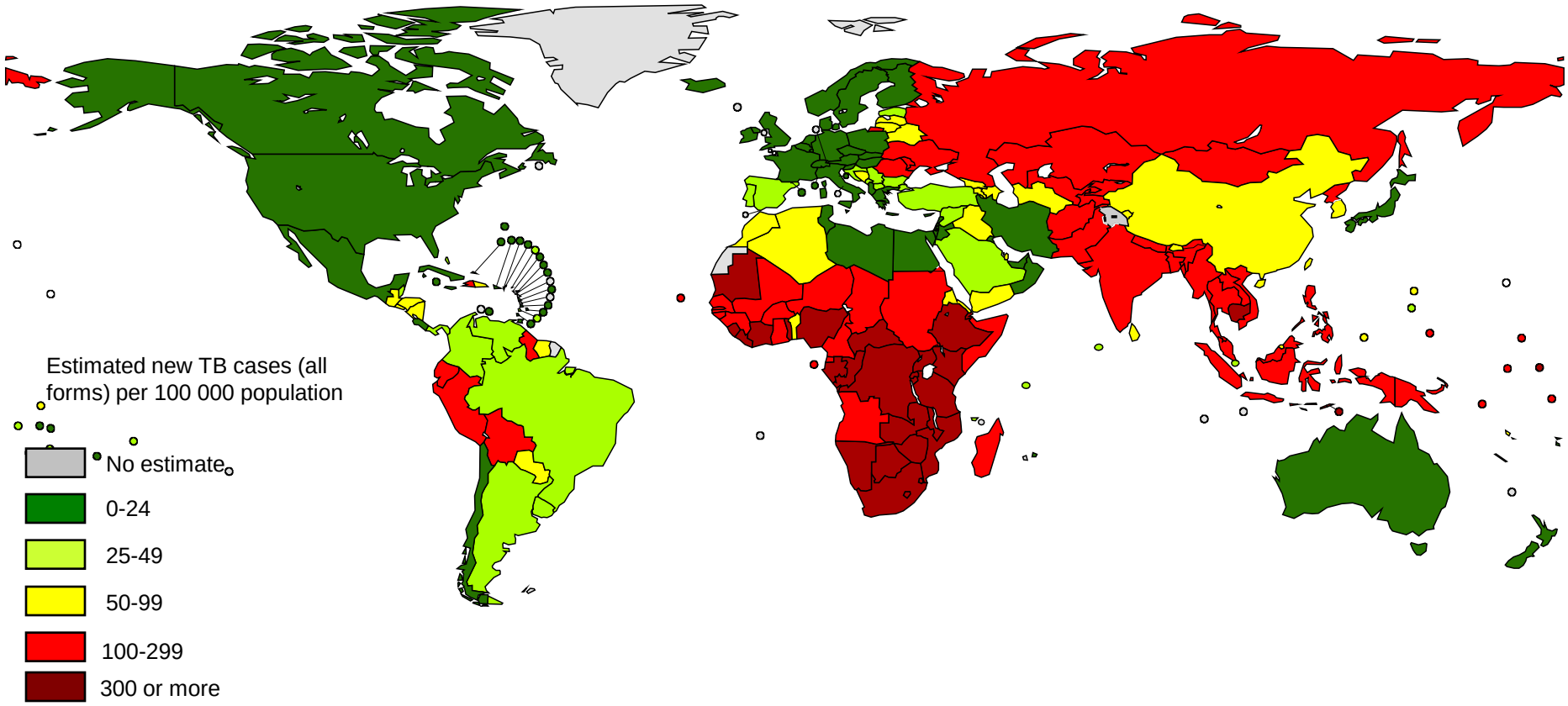
TB Incidence rates highest in Africa



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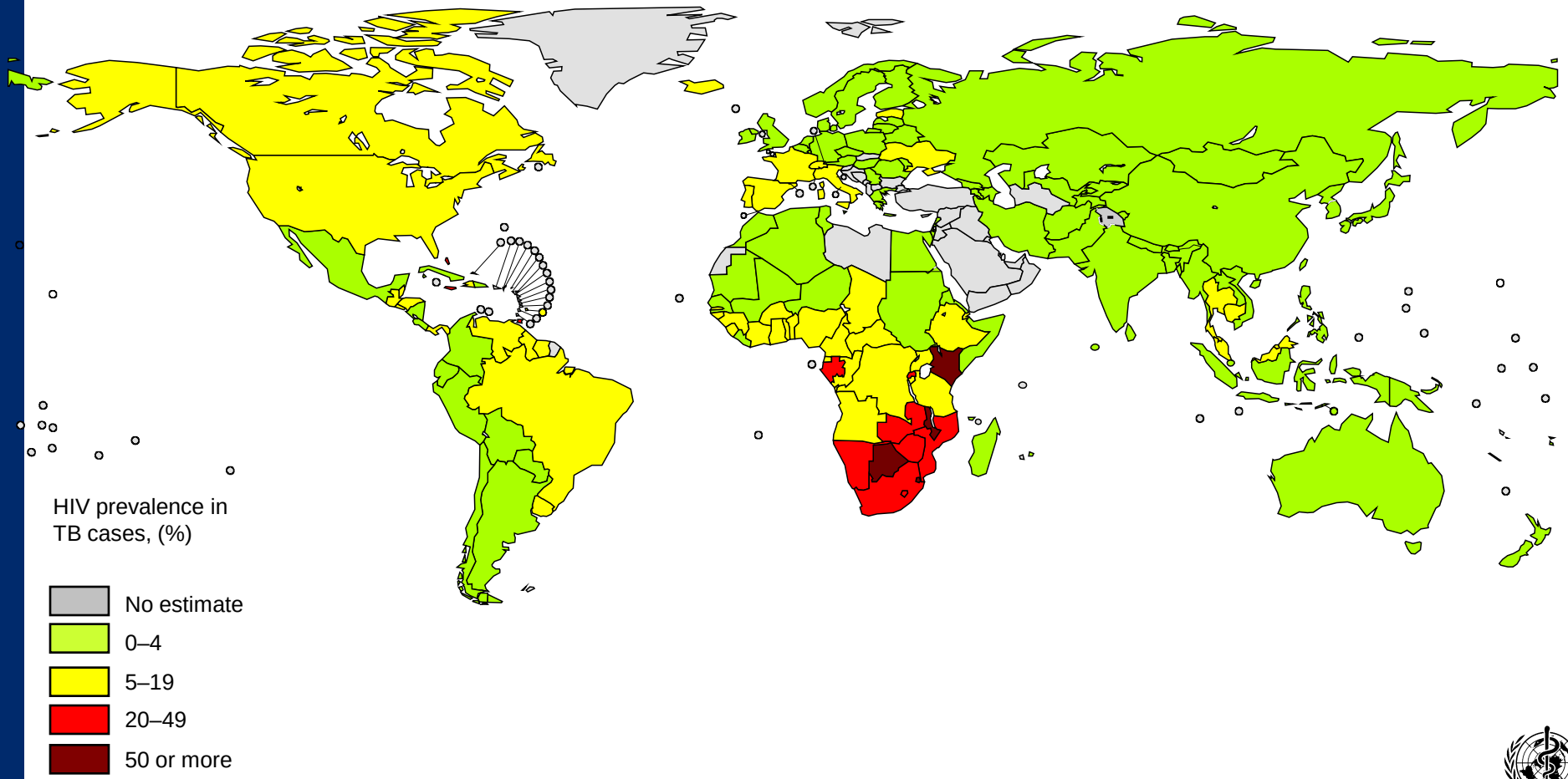
HIV prevalence in new TB cases (estimated)



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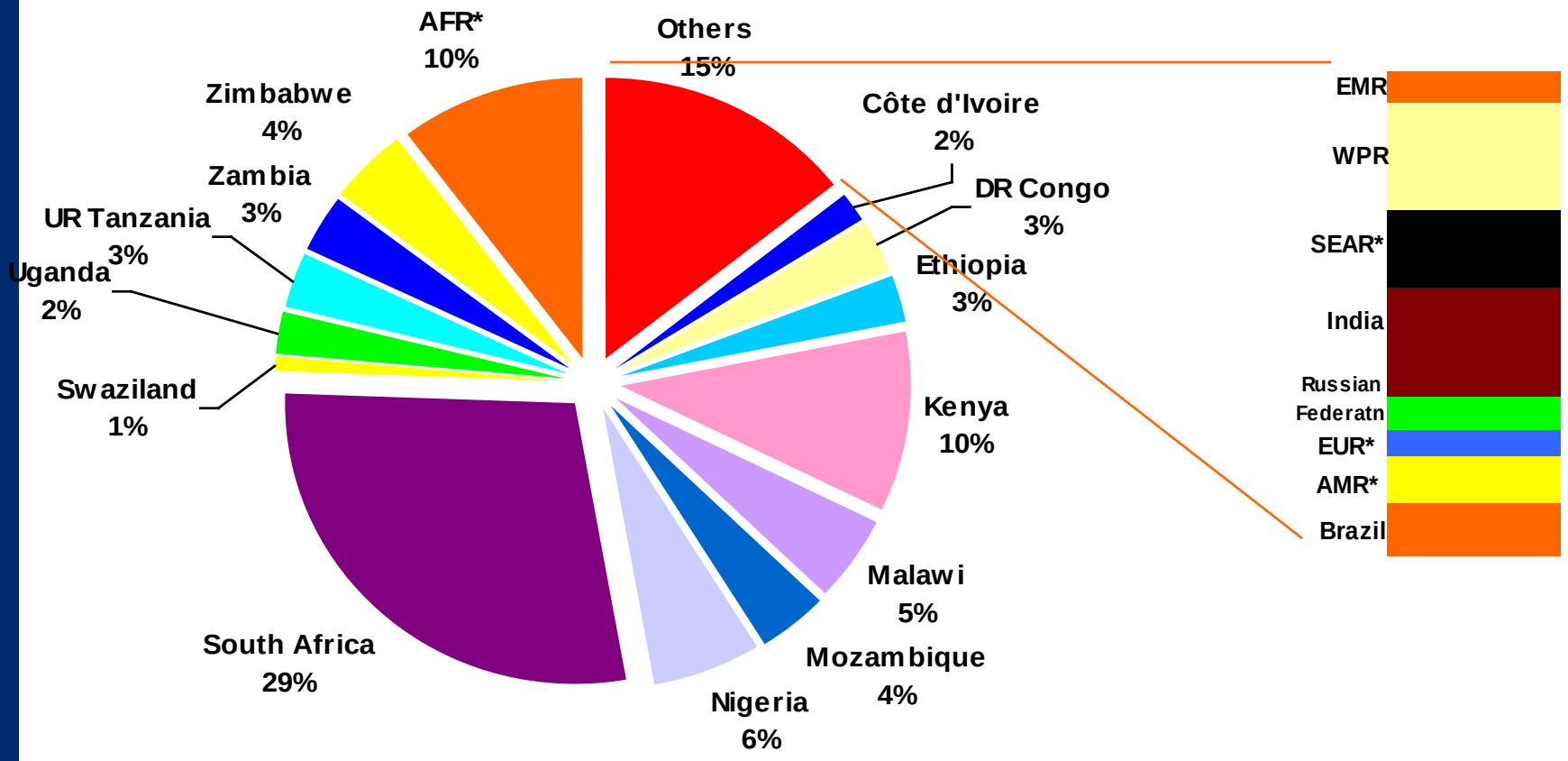
Geographical distribution of HIV+ TB cases



For each country or region, the number of incident TB cases arising in people with HIV is shown as a percentage of the global total of such cases. AFR* is all countries in the WHO African Region except those shown separately; AMR* excludes Brazil; EUR* excludes the Russian Federation; SEAR* excludes India.

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Back to TB Basics

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Classic Features of TB

- TB can affect any organ system: bone, kidney, CNS; 80% of cases are pulmonary
- Only pulmonary cases are infectious! Spread through droplets infecting 10-15 individuals each year infectious
- **Typical** presentation of **Active** disease:
  - persistent cough > 3 weeks duration
  - +/-bloody sputum, decreased appetite, weight loss, general weakness, night sweats
- **Atypical** presentation of **Active** disease: decreased/few clinical signs, very common in **HIV-infected**

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TB Infection vs TB Disease

- TB infection – organism is present, but dormant, cannot infect others
- TB disease (active TB) – person is sick and can transmit disease to others if in lungs
- Lifetime risk of developing (active) TB disease if TB but not HIV infected: 10%
- Annual risk of developing TB disease if co-infected with HIV: 10%

When Does TB Infection Become Disease?

- Most likely in first two years after infection (if not HIV-infected)
- If person becomes immunocompromised
  - **HIV**
  - Cancer
  - Chemotherapy
  - Poorly controlled diabetes
  - malnutrition

Priorities of TB Control

- **Completion** of treatment is **paramount**!
- Treating **non-pulmonary** cases and those with **infection but without active disease** less important
- A **poor** TB program **worse than no** TB program—bad programs breed resistance!
- These **priorities** hold **regardless of HIV** status!

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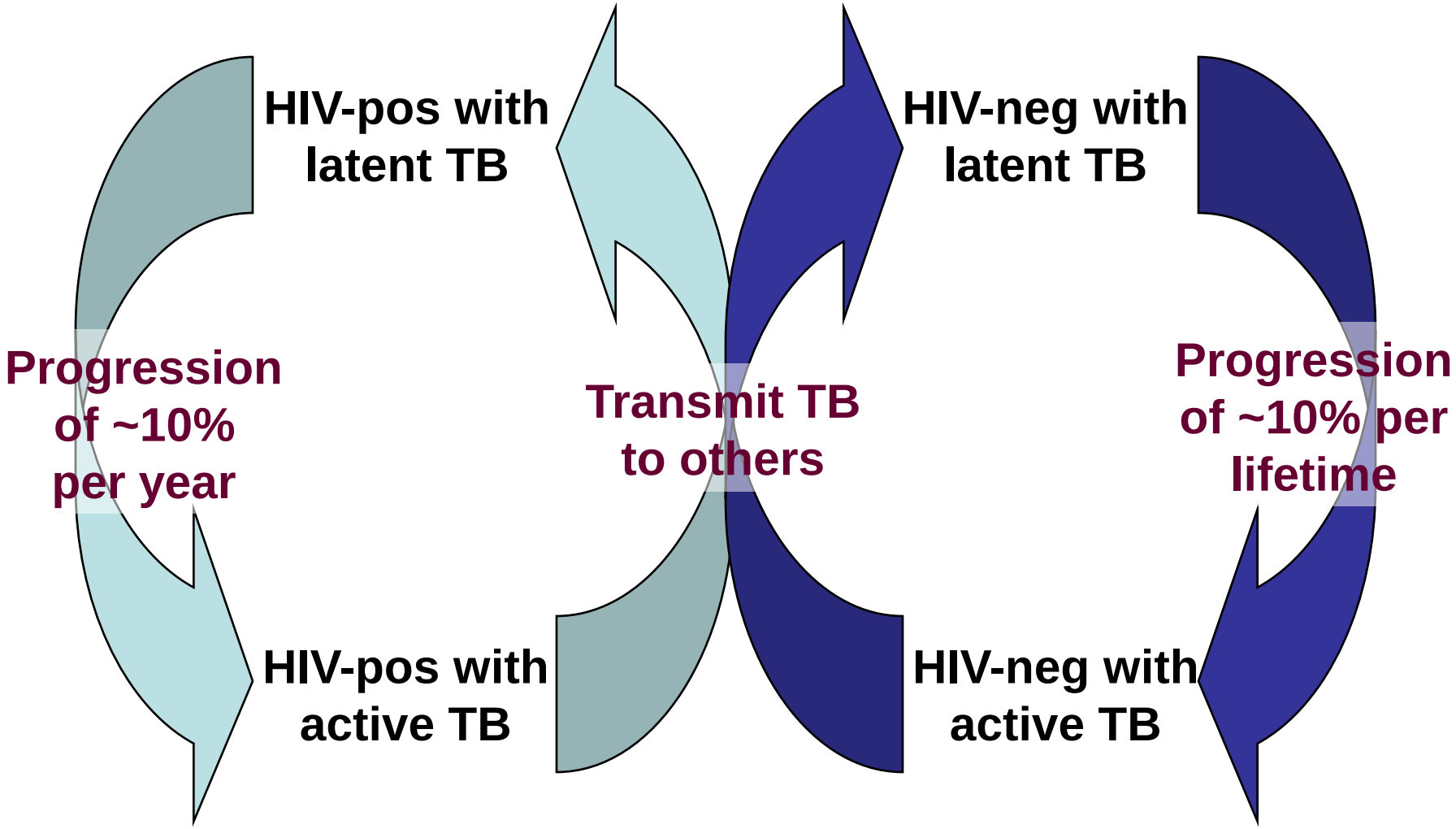
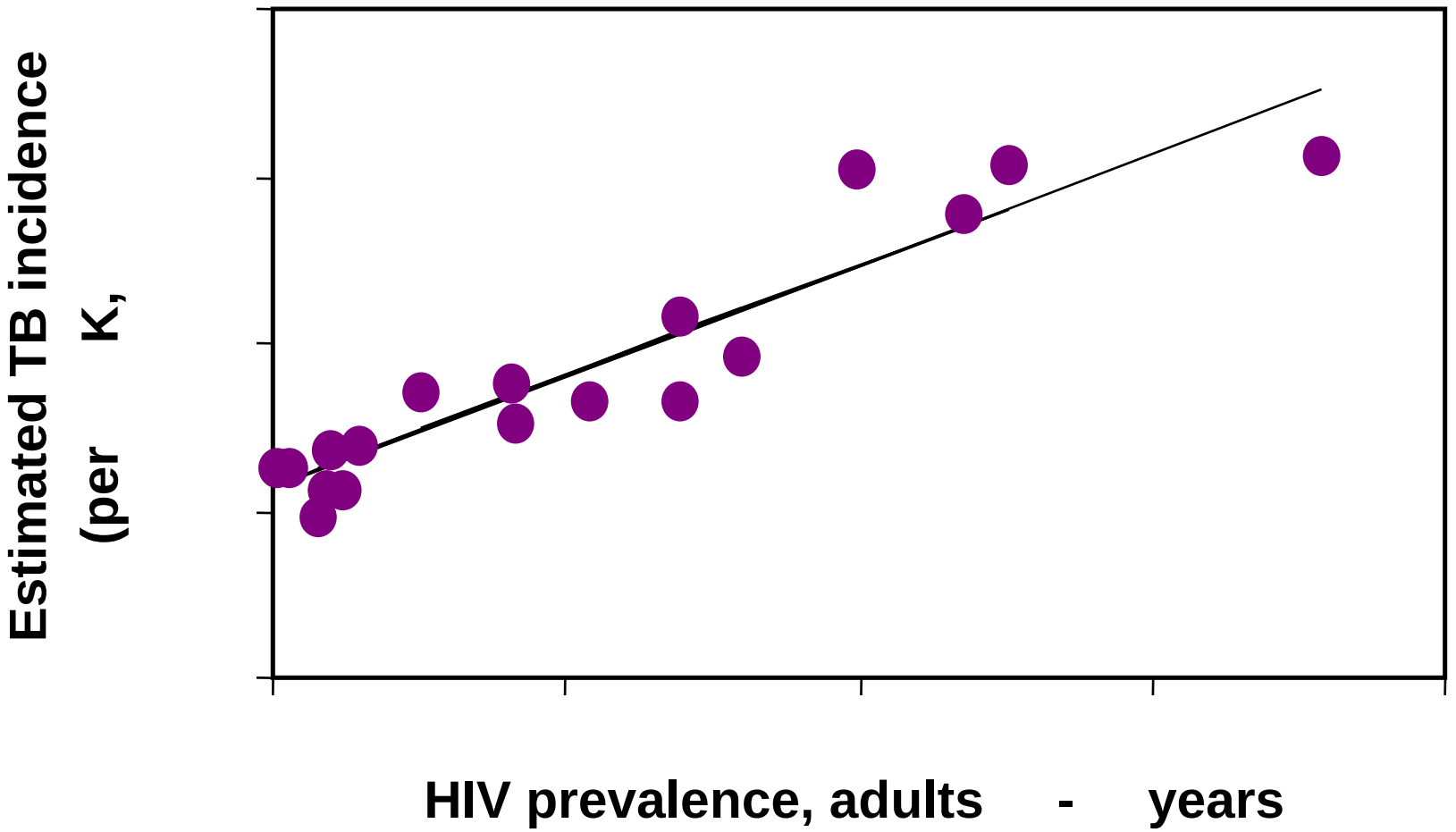
Impact of HIV-TB Coinfection



TB incidence vs HIVprevalence



Source: Dye C et al, JAMA


What can we do??

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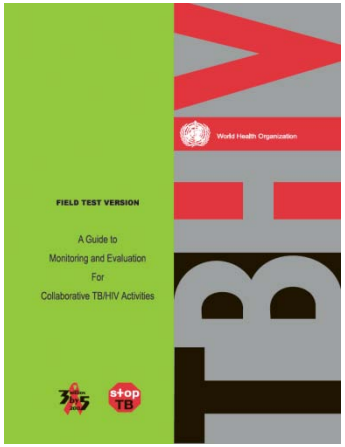
Addressing the Challenge of HIV/TB

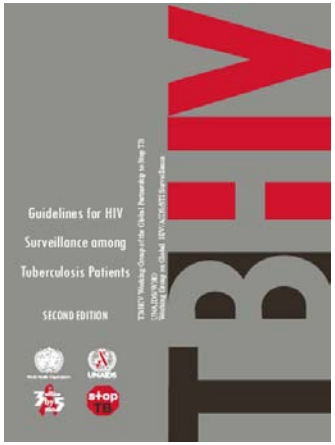
- HIV prevention
- AIDS prevention and treatment (ART)
- TB prevention
  - Socio-economic development
  - Intensified case finding (ICF)/early case detection
  - TB-Infection Control (IC)
  - INH preventive treatment (IPT)
- TB Treatment (also a preventive measure)

TB/HIV policy guidance

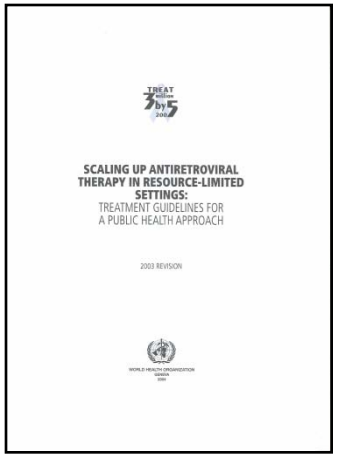
Interim policy



M&E

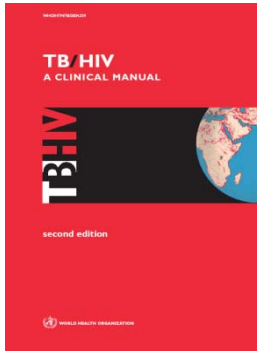


Surveillance



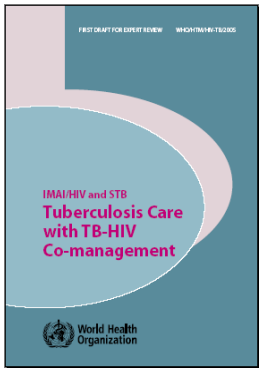
ART

ProTEST lessons



TB/HIV Clinical Manual

Training manuals for Management of TB/HIV Activities



TB Care with TB/HIV Co-management

(1) Decrease burden of TB in PLWHA

- Intensified case-finding
  - Screening for TB disease in HIV/AIDS care settings is relatively easy add-on
- Isoniazide preventive therapy (IPT)
  - 6-9 months daily INH
  - Reduces risk of TB in HIV+ people
    - by 62% in PPD+
    - By 36% overall
  - Evidence of survival in children and adults
  - Benefit of IPT *may* wane after 1-2 years in high prevalence settings

(2) Decrease burden of TB in PLWHA

- TB infection control
  - Neglected concept
  - Renewed attention since recent outbreaks MDR/XDR
  - TB IC-Scale up activities
    - Create national partnerships
    - Mainstream into general IC
    - TB IC policy/guidelines
    - Capacity building and OR required

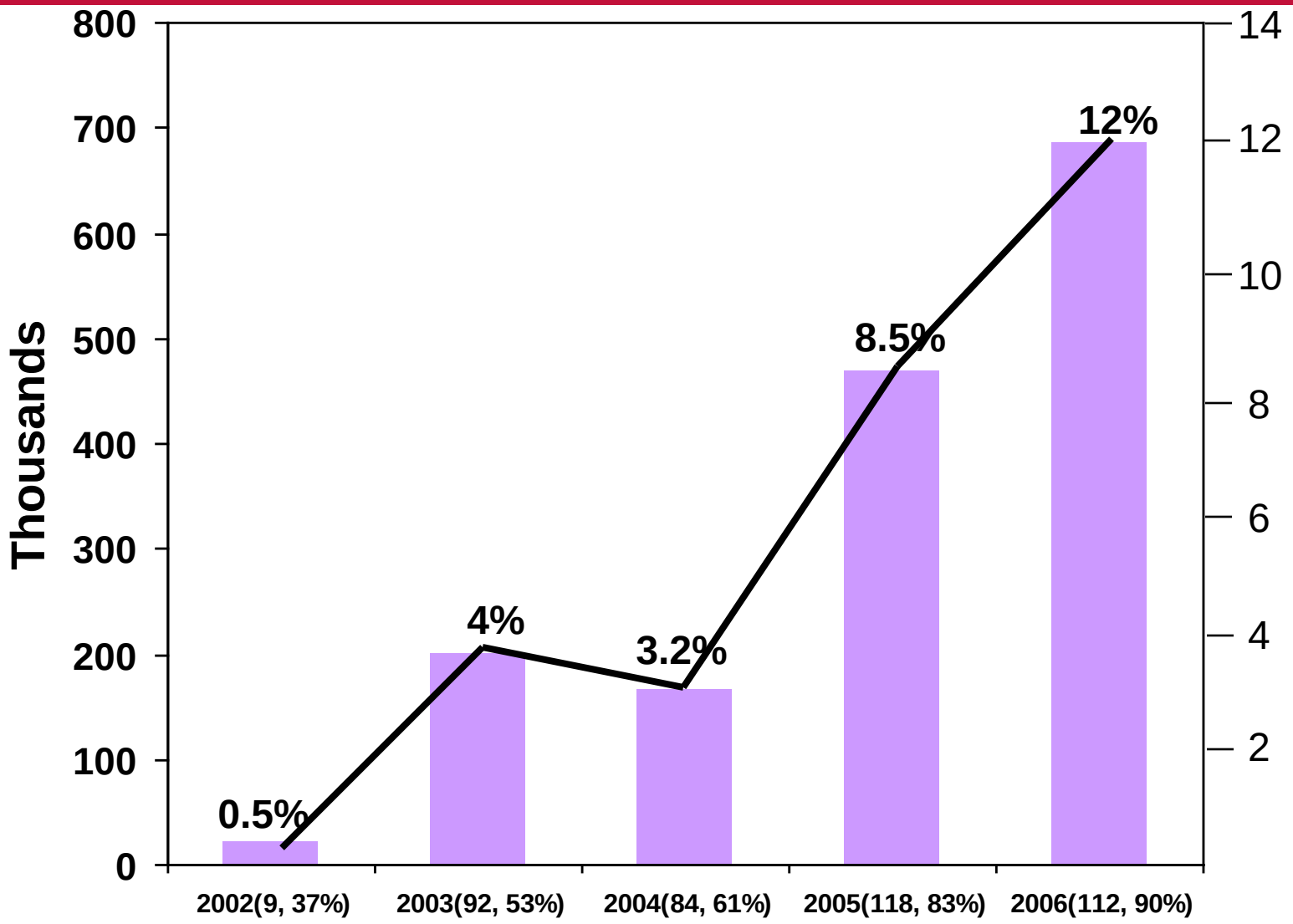
(3) Decrease burden of HIV/AIDS in TB patients

- HIV testing and counseling
  - PICT, rapid HIV testing in the TB clinic
- HIV prevention
  - IEC to patients and PICT to partners
- Cotrimoxazol prophylaxis (CPT)
  - All HIV+ TB patients, lifelong
  - Those with CD4 counts <350
- HIV/AIDS care and support
  - Referral to support systems
- ART
  - All HIV+ TB patients eligible for ART
  - All HIV+ TB patients with CD4 counts <350

(4) Decrease burden of HIV/AIDS in TB patients

- Cotrimoxazol prophylaxis (CPT)
  - Scaling-up with PICT
  - High uptake while on TB treatment
  - Drug supply often a problem
- ART in TB pts
  - Low uptake reported
  - HIV scale-up determines scale-up of TB/ART activities; HIV testing, ART availability
  - TB treatment decentralized vs. ART centralized
  - Lack of integrated care clinics

HIV testing for TB patients all countries



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Clinical Aspects of HIV-TB Infection

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Key Concepts

- TB is still curable and treated with the same regimen regardless of HIV status
- HIV programs ideal locations for TB screening; TB programs opportunity to identify those at high HIV risk and appropriate for care/rx
- Addressing co-infection requires integration of care and treatment at the service delivery level
- Screening/treating active TB among HIV-infected takes priority over preventive treatment
- Finding and treating TB cases essential to prevent MDR/XDR, especially in HIV+ individuals
- Many opportunities for collaborative efforts to decrease mortality, and extend and improve lives

TB in the HIV-infected (1)

Similarities to diagnosis and treatment in HIV-UNinfected people

- First diagnostic tool is AFB smear
- Drug regimens, the same
- Treatment cures TB
- DOTS strategy essential for success
- DOT effective method
- Reporting to National TB program key

TB in the HIV-infected (2)

Differences in diagnosis for HIV-infected people

- Atypical clinical presentations (?<infectious)
- Sputum smear sensitivity reduced (20-30% lower), further studies often necessary
- Radiologic presentation—location and type of pulmonary lesions unusual
- Extrapulmonary TB more common (30-50%)
- Increased need for culture and biopsy

TB in the HIV-infected (3)

Differences in treatment for HIV-infected people on ART

- Initiation, timing, choice of TB and HIV drugs dependent on co-treatment with HIV meds
- Monitor for drug interactions
- Monitor for immune reconstitution syndrome
- Presumptive treatment more common due to difficult definitive diagnosis
- Frequent concurrent opportunistic infections

Impact of ARVs on TB

- Significantly reduces risk of developing active TB (Brazil)
- Reduces AIDS-related illnesses
- May result in significant # of TB patients requiring HIV or TB regimen modification
- Current ART initiation guidelines start therapy at levels > thresholds for development of TB
- Focus on ART may diminish attention to TB programs especially if health system fragile

Infection Control (IC)

- Mainstreamed HIV and TB programs bring individuals into close proximity.
- Undiagnosed TB patients (and those with active TB disease) present the greatest risk of transmission to HIV+/-TB uninfected.
- HIV-infected HCWs are especially vulnerable population for acquiring nosocomial TB.
- Hierarchy of IC activities (admin, managerial, personal, architectural) outlined; urgent implementation of simple, low-cost measures

Clear Rationale for Joint TB/HIV Activities

- HIV drives TB incidence and mortality in high HIV prevalence areas (mortality 3.5x higher if HIV +)
- TB significant cause of mortality among HIV/AIDS patients (single most common cause of death)
- Where HIV is high and on the increase, DOTS alone is insufficient to control TB
- TB control system can be a major partner in the delivery of ARV/reaching USG and int'l targets

HIV – MDR/XDR TB
The Perfect Storm?

Basics: MDR and XDR Defined

Multidrug resistant (MDR) TB

- TB patient's *M. tuberculosis* isolate resistant to ≥ isoniazid and rifampicin

Extensively drug resistant (XDR) TB

- MDR + resistance to a fluoroquinolone and ≥ 1 second-line injectable drug (amikacin, kanamycin, capreomycin)

How does HIV impact DRTB?

- Treatment interruption and default are risk factors for development of DRTB
- Increasing HIV-associated TB burden → overwhelmed public health systems
- Poor infection control practices leads to infection in the health care setting
- Poor absorption of anti-TB drugs
- Drug/drug interactions
- Increased likelihood/rapid course to death

Key Activities Proposed by the WHO Global Task Force on XDRTB

- Strengthen basic TB and HIV/AIDS control to prevent the development of MDR and XDR
- Scale-up MDRTB and XDRTB programs
- Expand and improve laboratory services to ensure appropriate and timely diagnosis
- Expand MDRTB and XDRTB surveillance
- Prevent transmission via infection control, especially in high HIV prevalence settings
- Increase awareness and information through strengthened advocacy, communication, and social mobilization
- Promote R & D of new diagnostics, drugs, and vaccines; OR to determine best management practices

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Best Practices in TB HIV Care

- Strengthened provider-initiated C&T of TB patients
- Integrated basic TB symptom screening into HIV programs (C&T, care, treatment)
- Routine integration of TB/HIV data into TB and into HIV patient forms
- Close ties among community based HIV care programs, TB Clinics, and CB-DOTS programs, e.g., DOT training for HIV caregivers