TB! Or not TB?

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TB Nurse Consultant
Virginia Department of Health

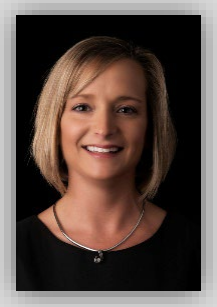
Agenda

- TB Epi
- Overview of TB vs. LTBI
- TB diagnostics
- Reporting requirements
- Screening and testing of HCP

Who is the VDH TB Program?

TB Manager
Marshall Vogt

DCE Director
Jasie Hearn



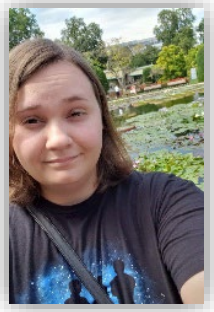
Admin Support
Deborah Clayton

Surveillance Team

Laura Young

Jane Tingley

Leah Breitung



Donna Asby-Green

Nurse Consultants
Amanda Khalil Adwoa Sam

Central Office in Richmond > Office of Epidemiology > Division of Clinical Epidemiology > TB Program

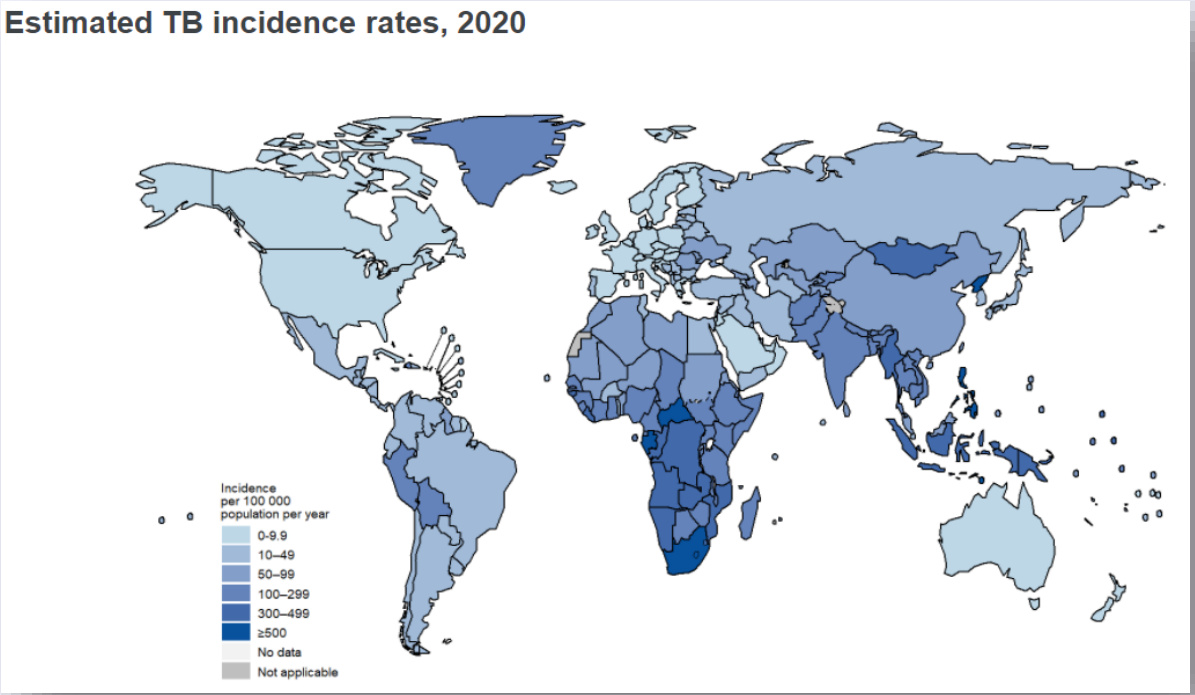
TB AND LATENT TB INFECTION EPIDEMIOLOGY

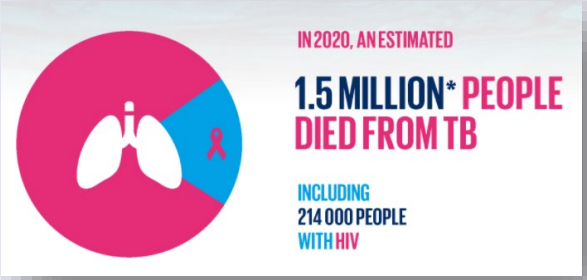
Quick pause

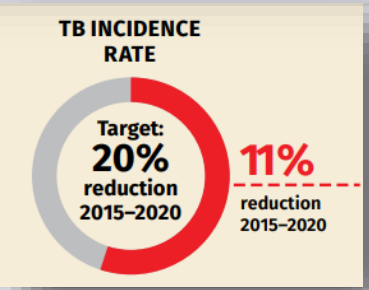
Definition	Acronym
Tuberculosis	TB
Latent TB Infection	LTBI
Interferon Gamma Release Assay	IGRA
Tuberculin Skin Test	TST

Global Tuberculosis Incidence

- 2020 →10 million with TB →5.8 million reported
- Until COVID-19, TB leading cause of death from a single infectious agent
- 8 countries have 2/3 of TB:
  - India
  - China
  - Indonesia
  - Philippines
  - Pakistan
  - Nigeria
  - Bangladesh
  - South Africa
- 1 in 4 people have LTBI





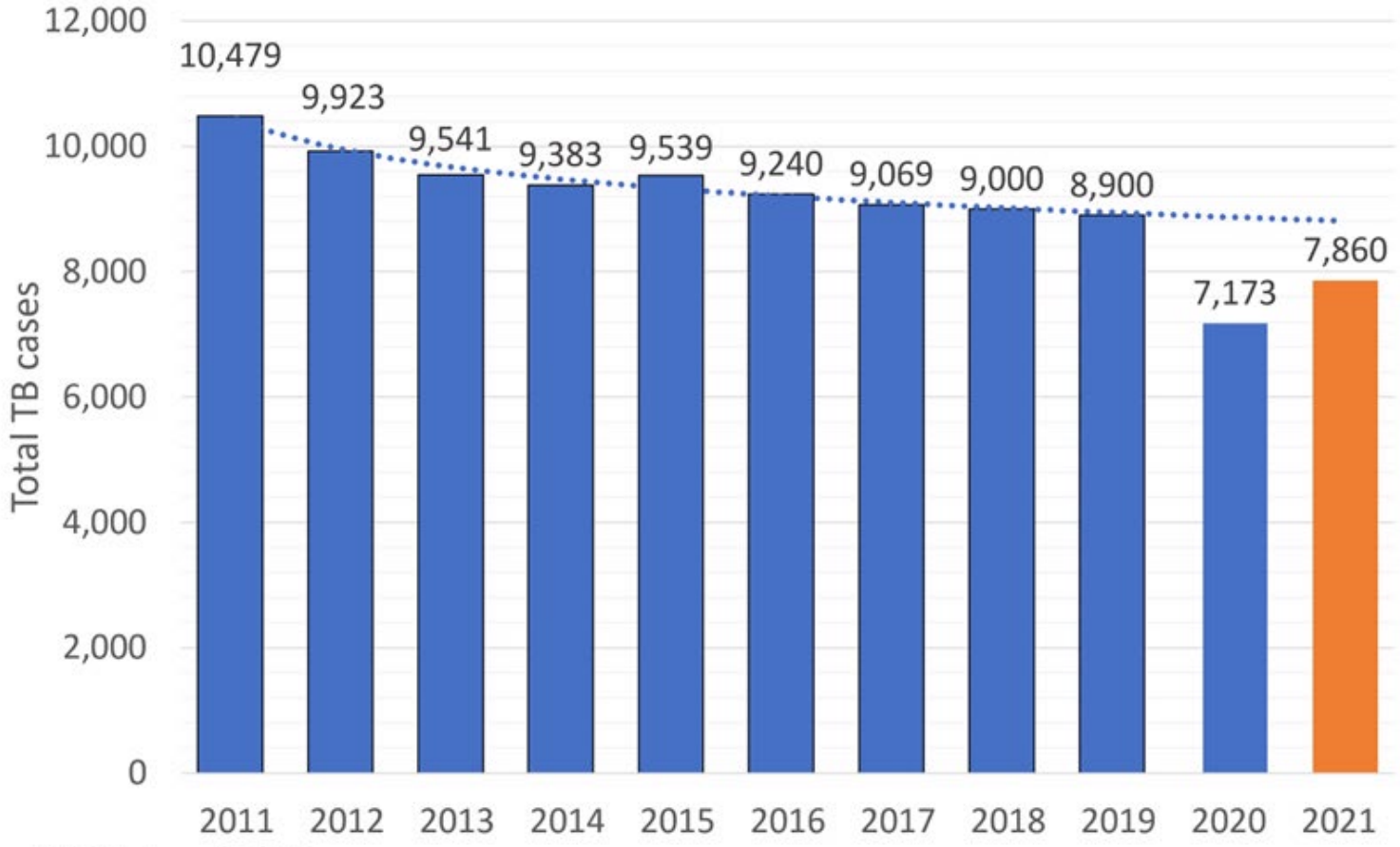


Global tuberculosis report 2021. Geneva: World Health Organization; 2021. License: CC BY-NC-SA 3.0 IGO.

Tuberculosis in the United States

Rate = 2.4

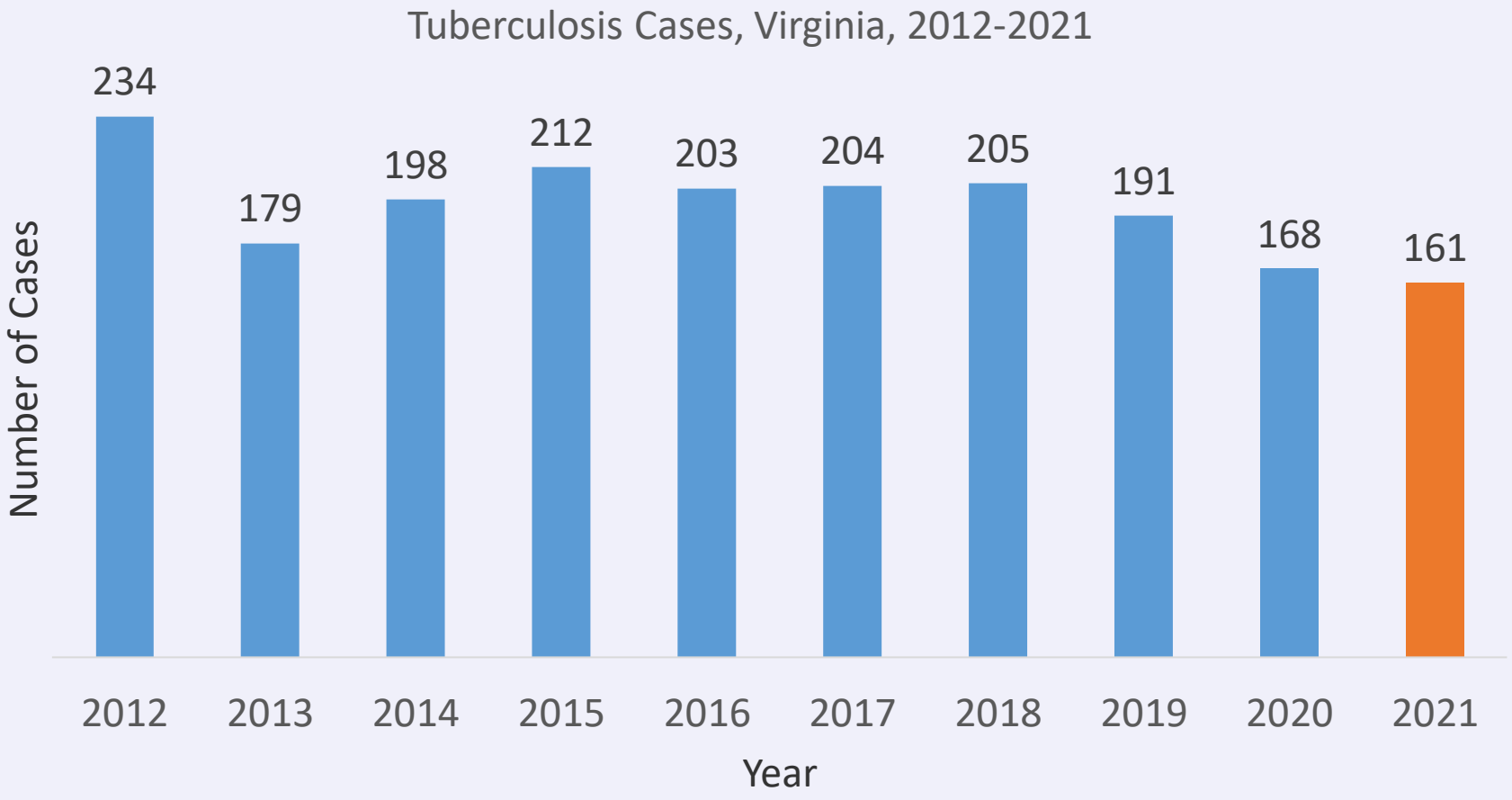
Total number of reported TB cases, 2011–2021



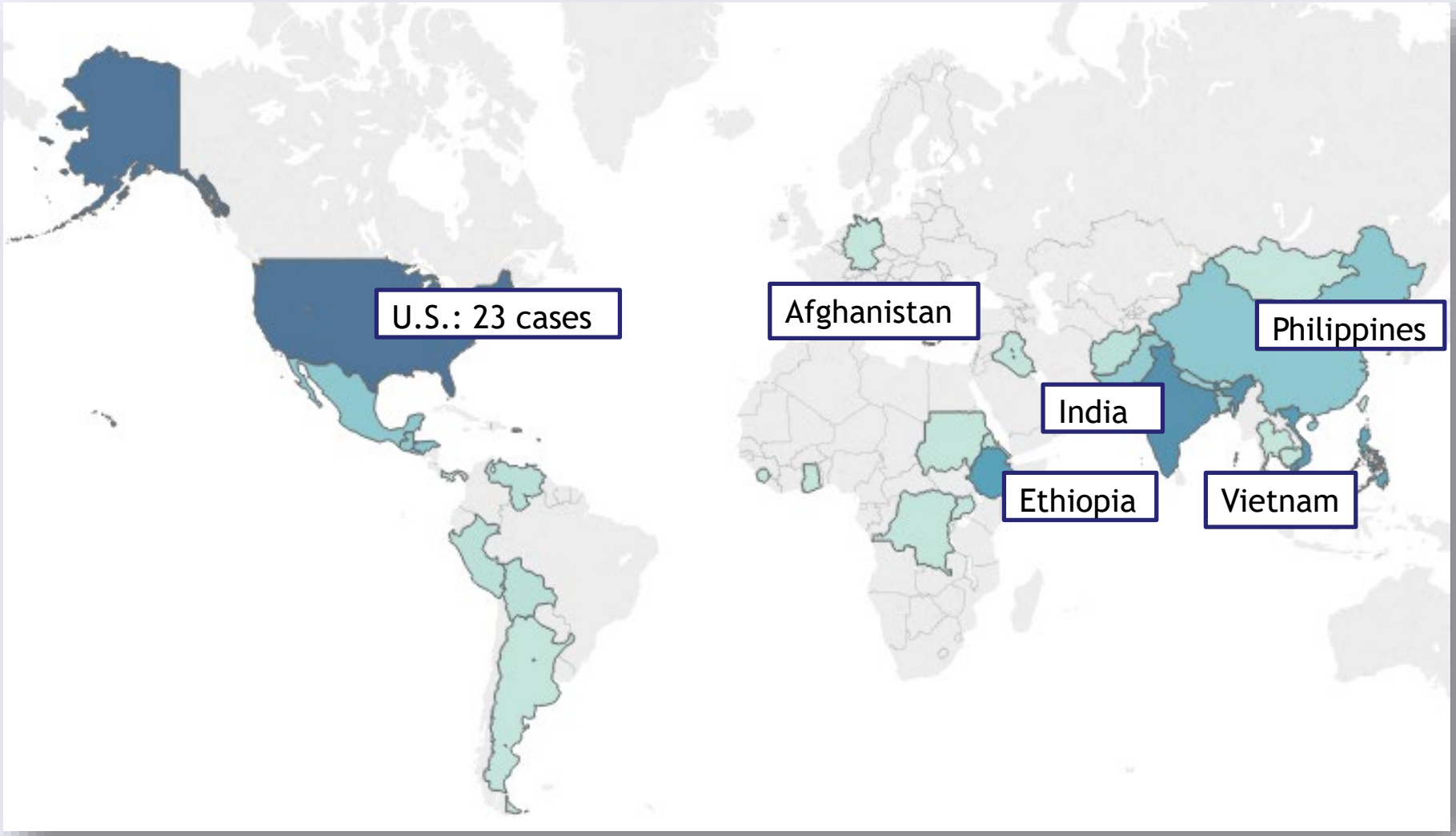
*Based on provisional NTSS data as of 2.9.22

Tuberculosis in Virginia

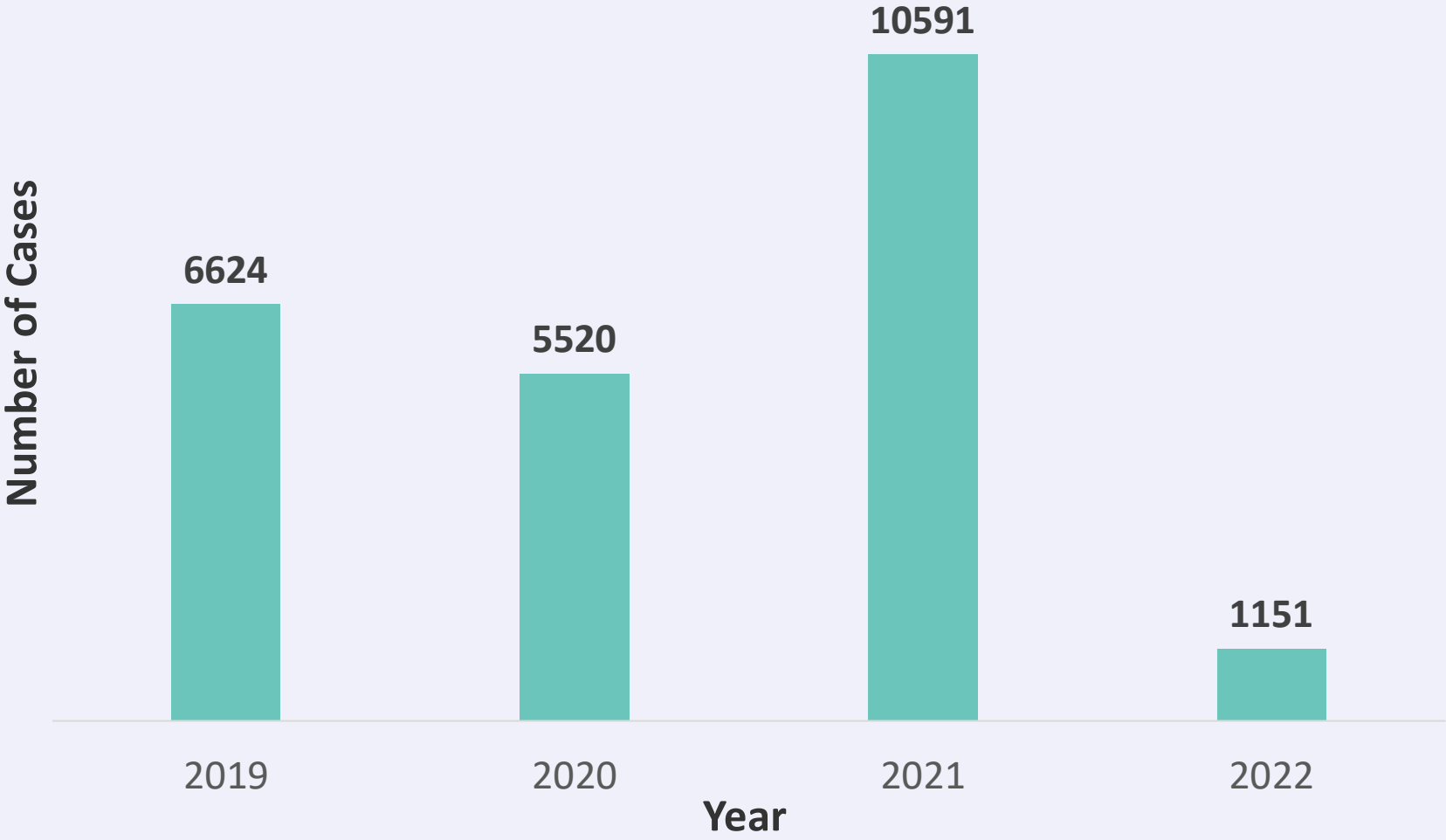
Rate = 1.9



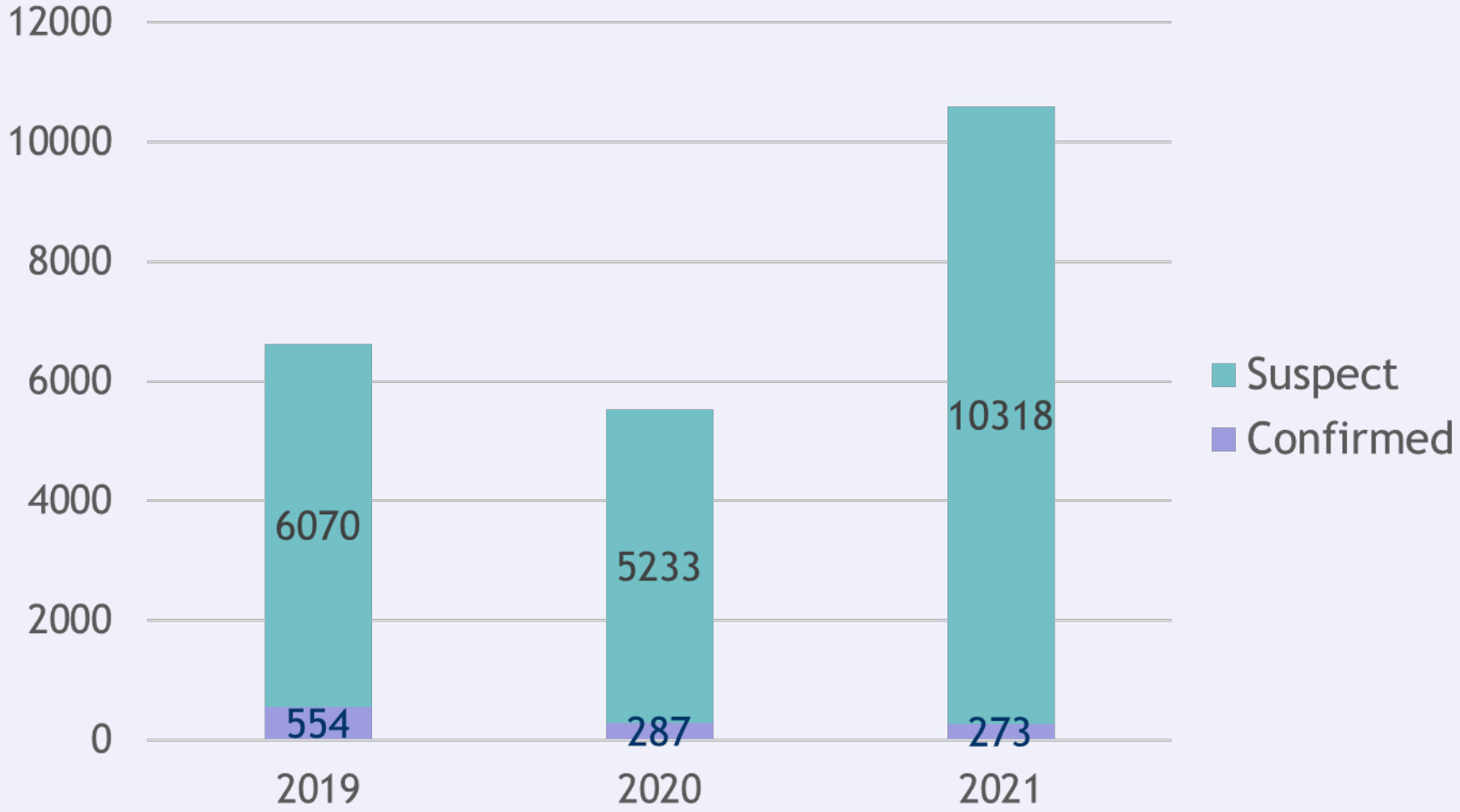
Country of Birth of Tuberculosis Cases, Virginia, 2021



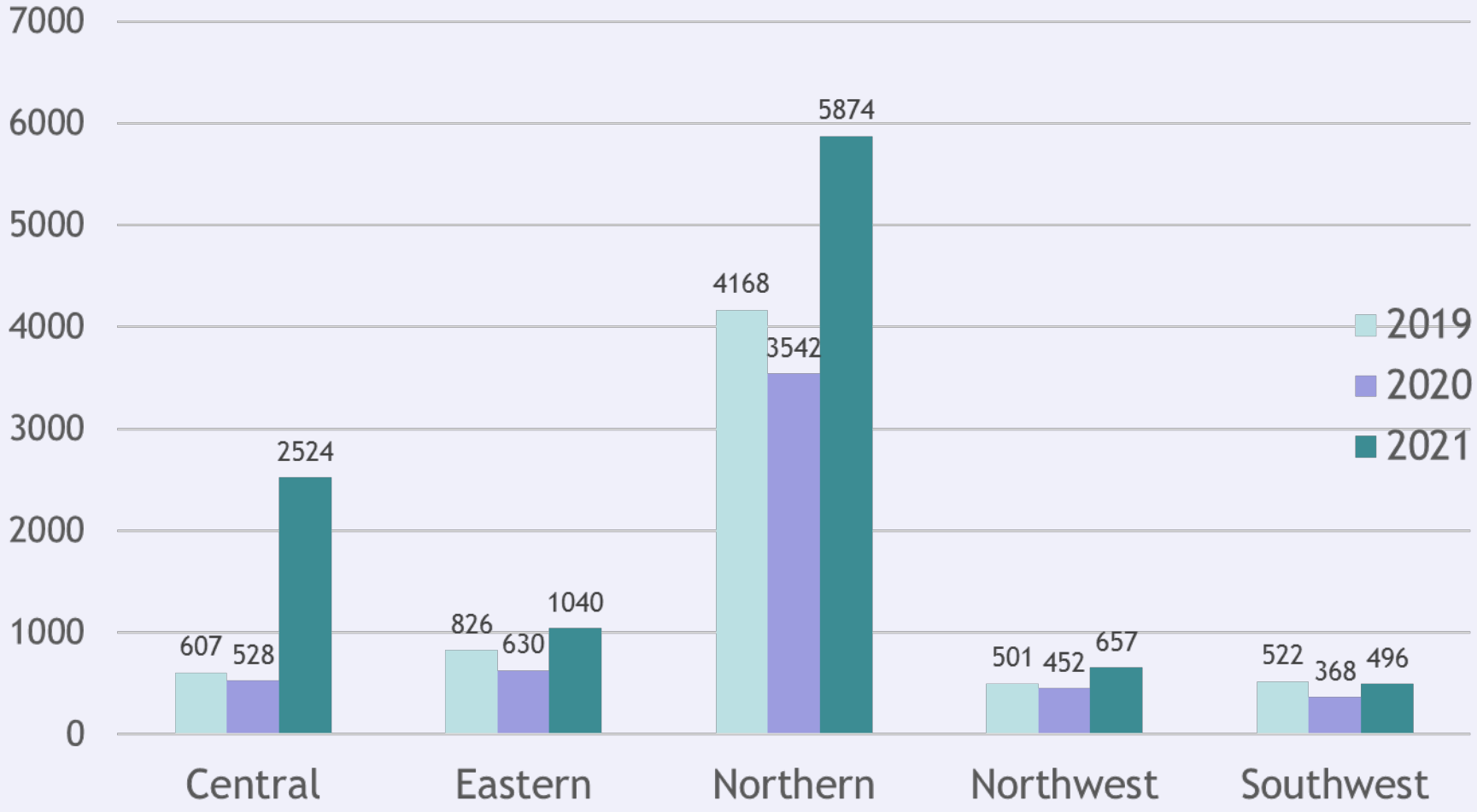
Latent TB Infection (LTBI) Cases in Virginia, 2019-2022



LTBI Cases by Case Status, Virginia, 2019-2021

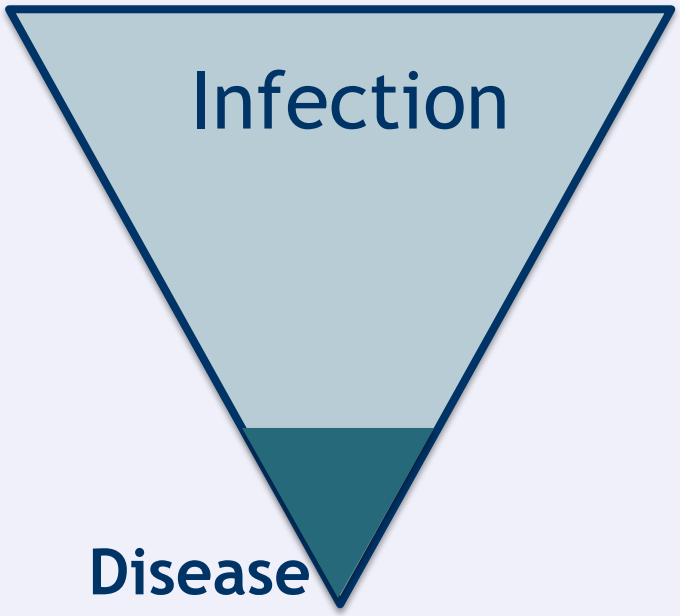


LTBI Case Distribution by Region, Virginia, 2019-2021



Burden of latent TB infection (LTBI) in the U.S.

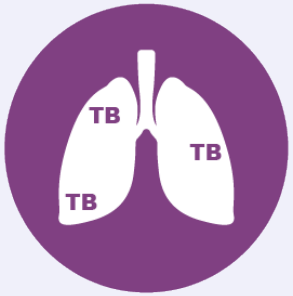
- CDC estimates 13 million people in United States have LTBI
- Without treatment, about 10% of these people will develop TB disease
- Diabetes!
  3 fold increased likelihood of progression to active disease!
- Fortunately, treatment for LTBI is 90% effective in preventing activation of TB disease



LTBI can also be called TB infection (TBI)

IS IT TB OR LTBI?

Two TB-related conditions



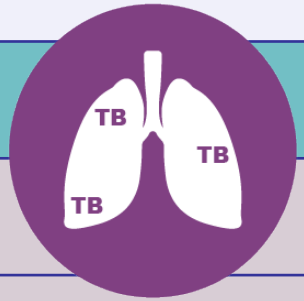
LTBI

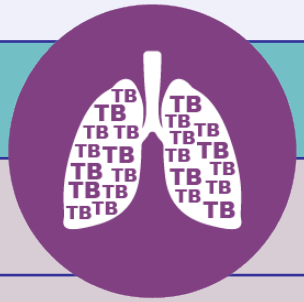
- Do not feel sick, do not have symptoms, cannot spread TB bacteria to others
- Can have LTBI for years
- TB bacteria in body is alive but inactive
- **Can** develop into active disease

Active Disease

- If TB bacteria become active and multiply, LTBI can turn into active disease

LTBI vs. active disease



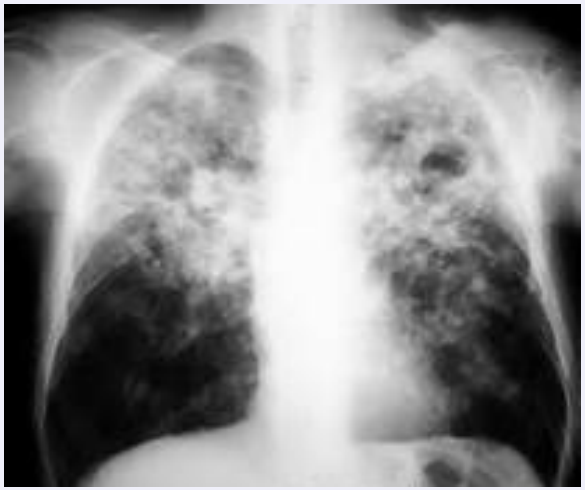


LTBI	Active Disease
Tubercle bacilli in the body	
Tuberculin skin test or IGRA usually positive	
No symptoms	Symptoms
Chest x-ray (CXR) normal or abnormal but not consistent with TB	Chest x-ray usually abnormal
Not infectious	Often infectious (sputum)
Should consider preventive treatment	Needs treatment

Symptoms and sites of active disease

General symptoms:

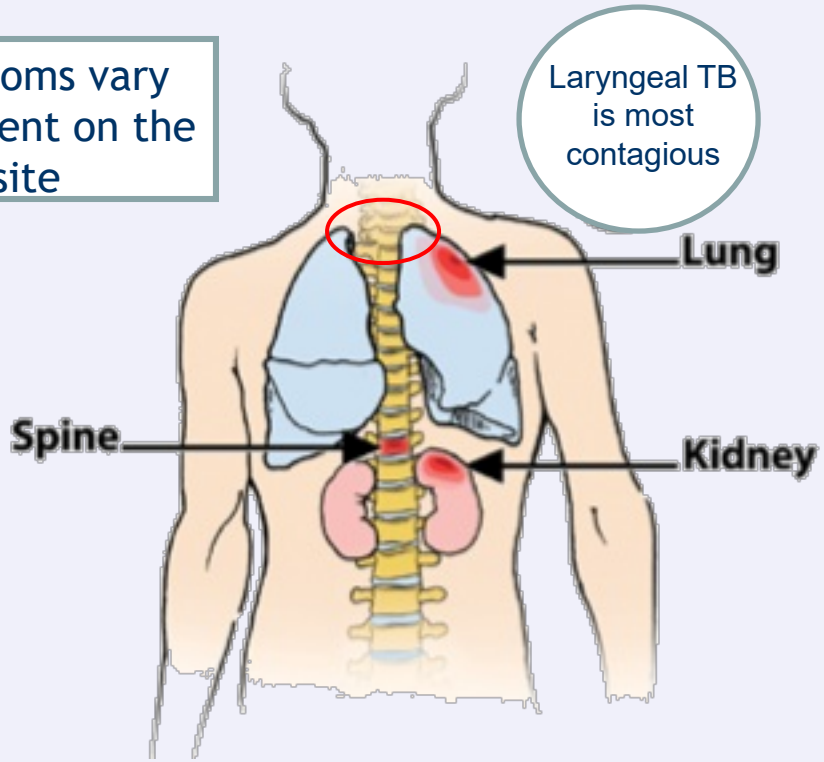
fever, weight loss, loss of appetite, fatigue and night sweats



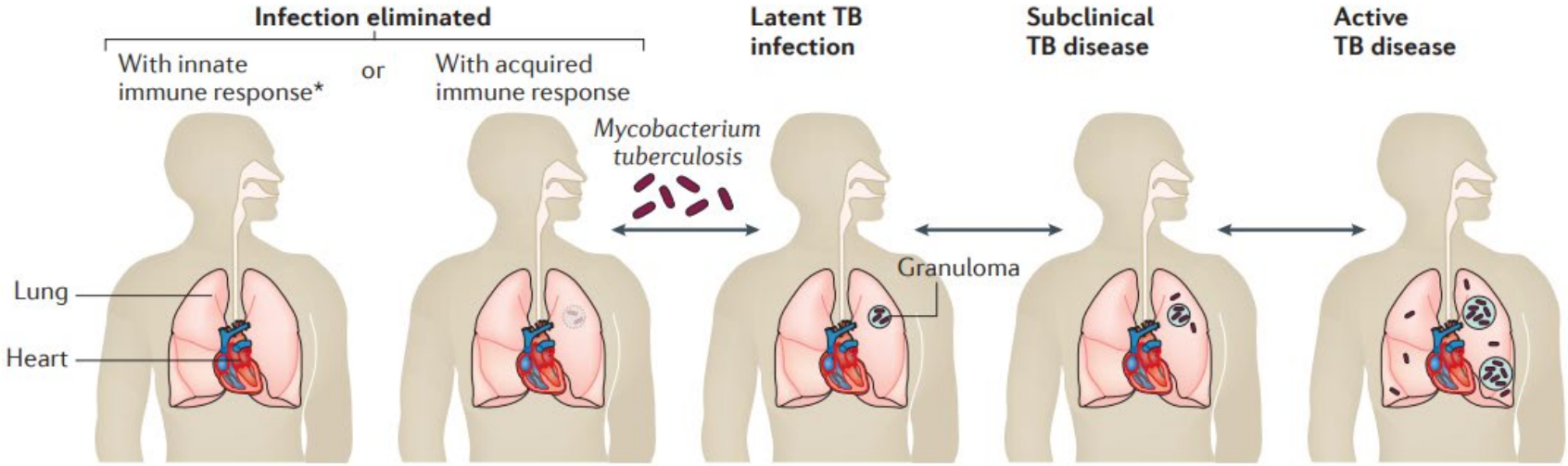
Pulmonary disease

cough, SOB, chest pain, hemoptysis

Symptoms vary dependent on the site



The spectrum of TB → infection to disease

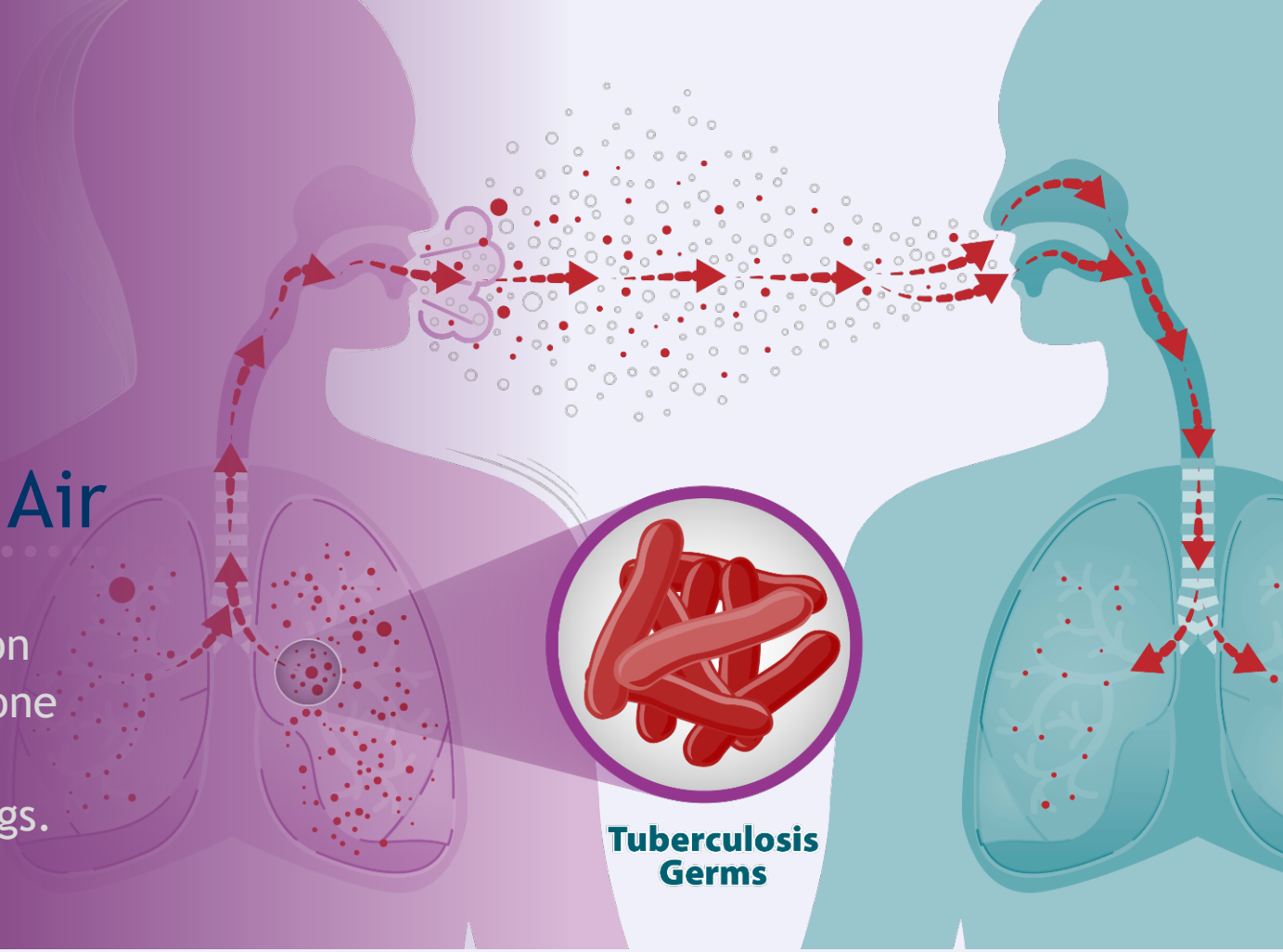


TST	Negative	Positive	Positive	Positive	Usually positive
IGRA	Negative	Positive	Positive	Positive	Usually positive
Culture	Negative	Negative	Negative	Intermittently positive	Positive
Sputum smear	Negative	Negative	Negative	Usually negative	Positive or negative
Infectious	No	No	No	Sporadically	Yes
Symptoms	None	None	None	Mild or none	Mild to severe
Preferred treatment	None	None	Preventive therapy	Multidrug therapy	Multidrug therapy

doi:10.1038/nrdp.2016.76 Nature Reviews | Disease Primers

TB Spreads Through the Air

TB spreads from person to person when someone with contagious TB coughs, speaks, or sings.



TB is NOT spread by

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Treatment

LTBI

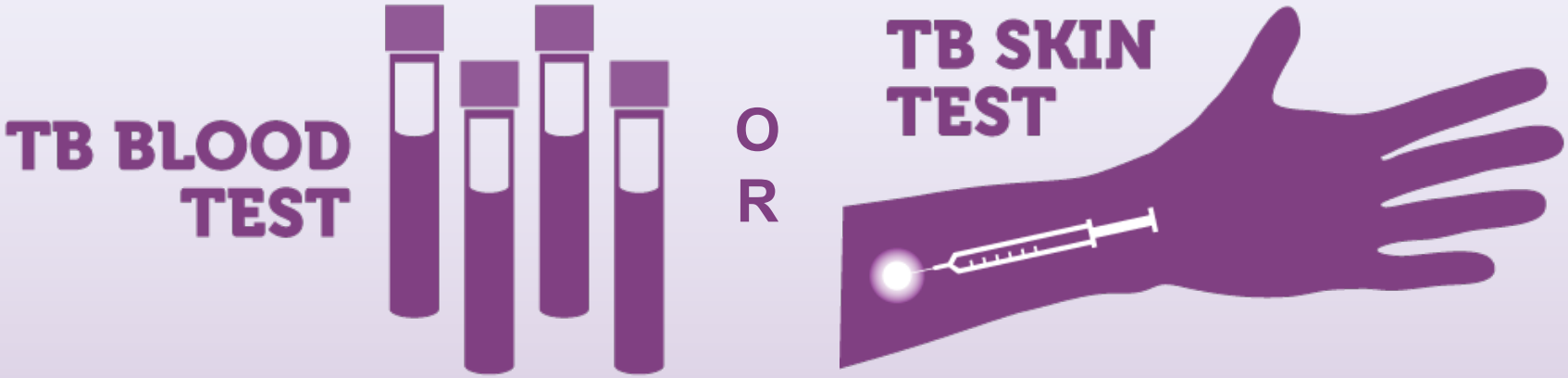
Drug	Treatment Length
Isoniazid/ Rifapentine (3HP)	12 weeks
Rifapmin (4R)	4 months
Isoniazid/ Rifampin (3HR)	3 months
Isoniazid (6H or 9H)	6 or 9 months

Active Disease

Drug	Treatment Length
Isoniazid	??? 4 months 6 months 9 months 12 months 18 months +
Rifampin	
Pyrazinamide	
Ethambutol	
So many others! • Moxifloxacin • Levofloxacin • Linezolid • Bedaquiline • Pretomanid…	

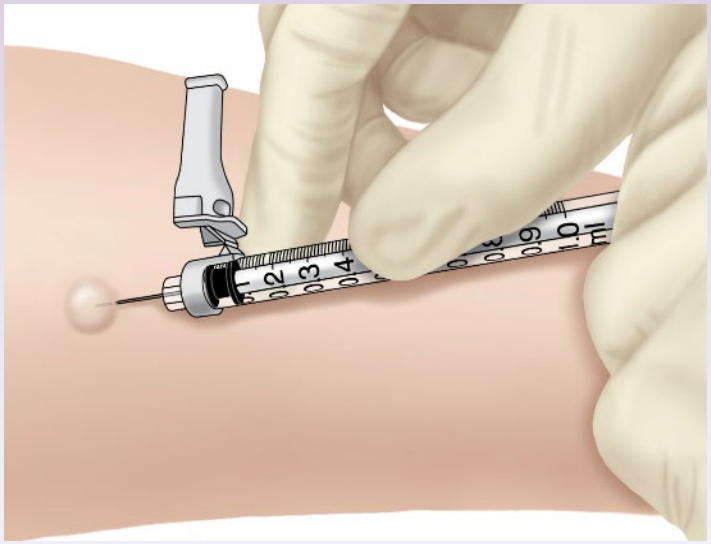
TB DIAGNOSTICS

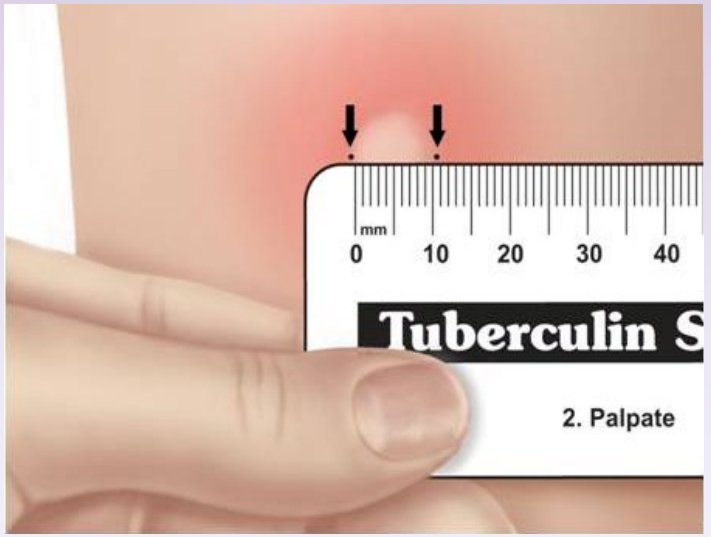
Two types of tests to diagnose TB infection



Tuberculin skin test (TST)

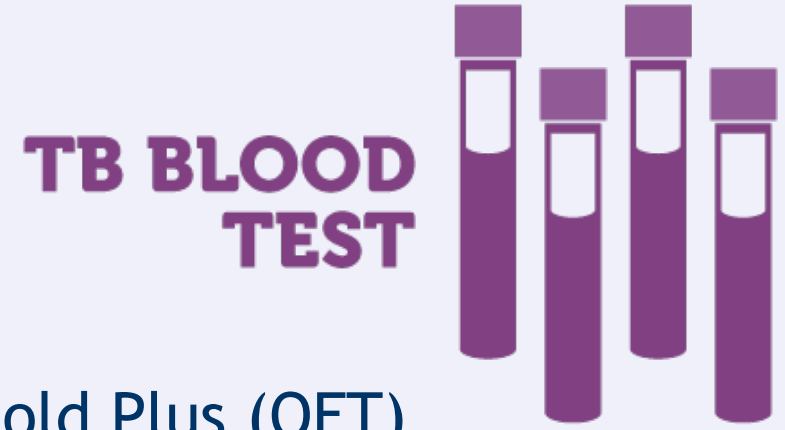
- PPD (purified protein derivative) the solution used in testing
- Stimulates a delayed-type hypersensitivity response mediated by T lymphocytes
- Induration NOT erythema
- Must be done in conjunction with TB risk assessment





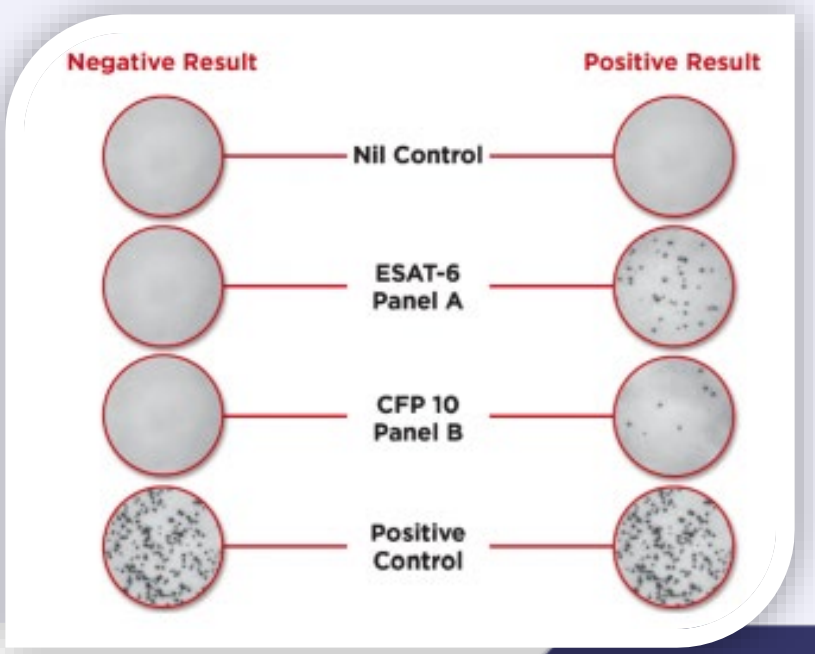
IGRA (Interferon Gamma Release Assay)

- Measure T cell release of interferon-gamma following stimulation by TB-specific antigens
- Does **not** cross react with BCG vaccine
- Reflects prior contact with M. *tuberculosis* and a few other Mycobacteria
  - M. *kansasii*
  - M. *marinum*
  - M. *szulgai*
  - M. *gordonae*
  - M. *fulvacin*
- T-SPOT or QuantiFERON TB Gold Plus (QFT)
- Built in measure of immune function



T-SPOT

- Drawn in a single lithium heparin tube
- Interferon-gamma (IFN) is captured and presented as spots
- Results are interpreted by subtracting the spot count in the NIL control from the spot count in Panels A and Panels B
  - Positive ≥ 8 spots
  - Borderline 5,6,7 spots
  - Negative ≤ 4 spots
  - Invalid



QFT

- Can be drawn in single tube
- Total measure of IFN released
- Results
  - Positive result
    - Mitogen ≥0.50 & Nil ≤8.0
    - TB1 or TB2 minus Nil = ≥0.35
  - Negative result
    - Mitogen ≥0.50 & Nil ≤8.0
    - TB1 or TB2 minus Nil = ≤0.35
  - Indeterminate result
    - Mitogen <0.50 or Nil >8.0
    - Decrease immune status
    - Incorrect handling/incubation

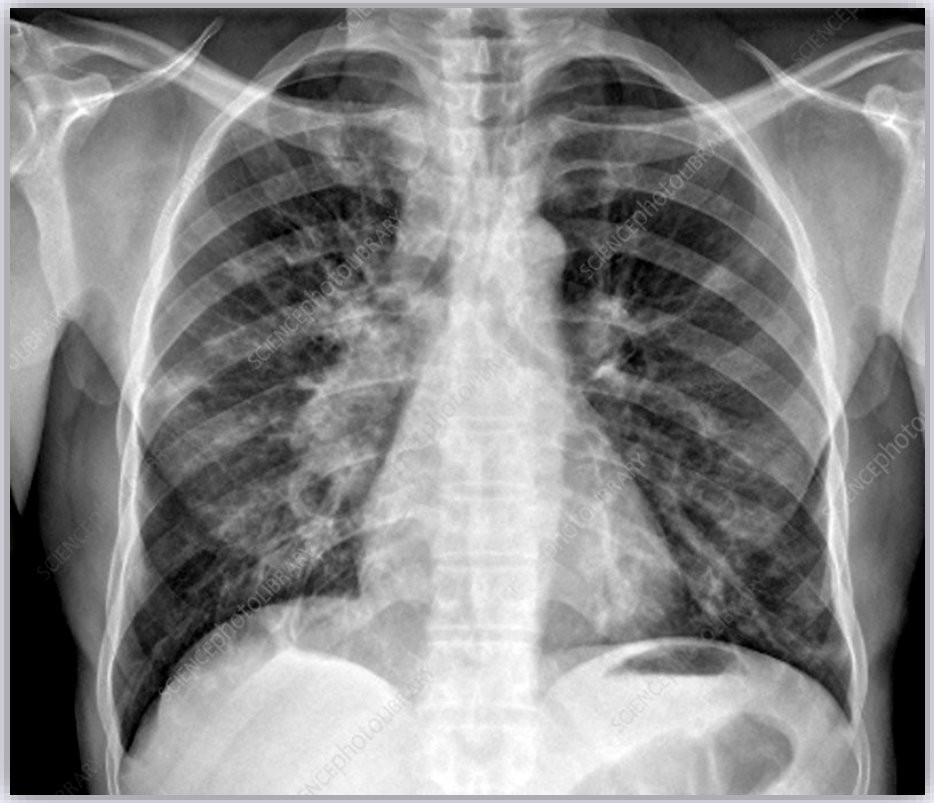
TST & IGRA

Do not differentiate between latent or active disease!

Live vaccines can interfere with both the TST and the IGRA

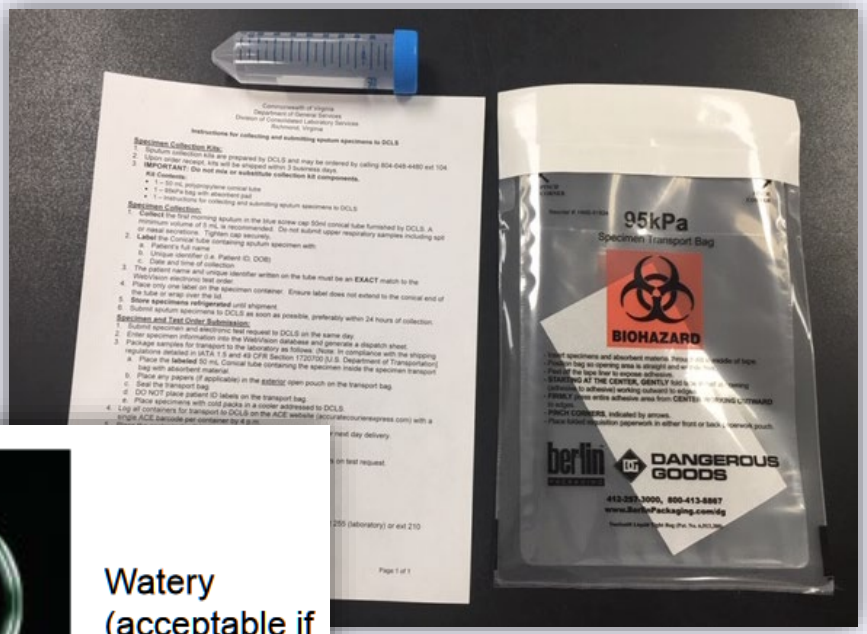
Imaging

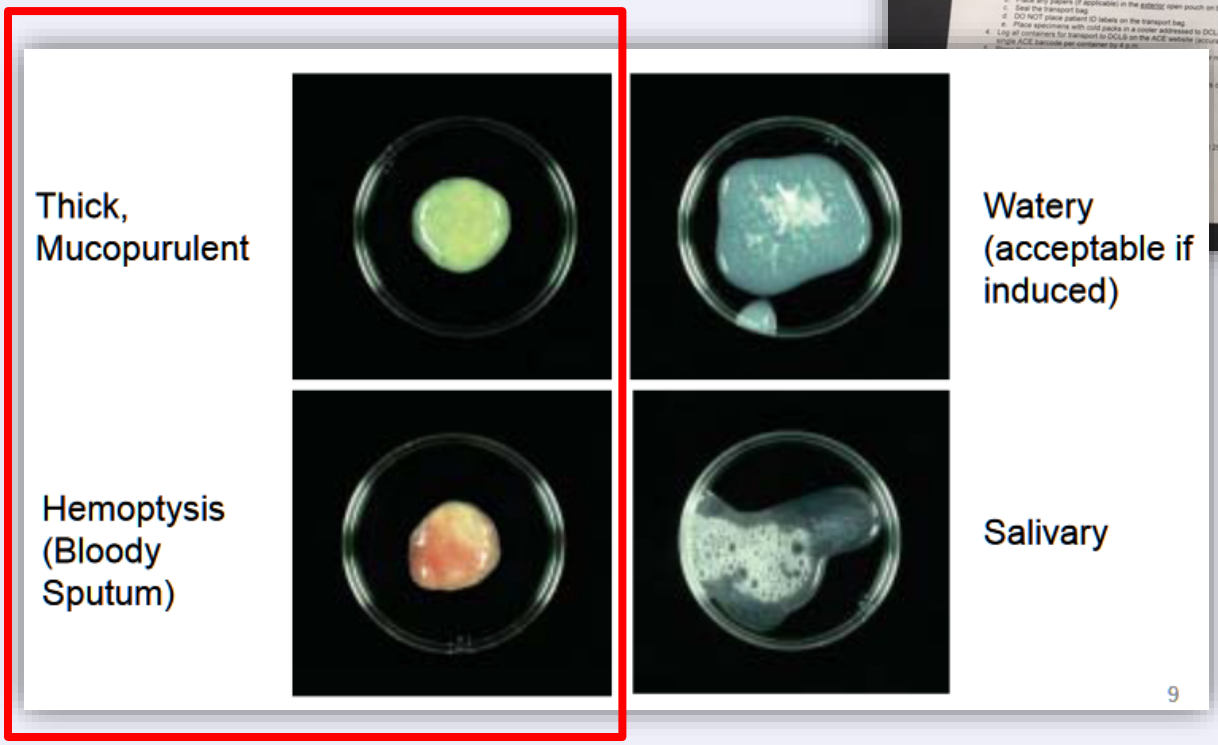
- Nodules
- Consolidation
- Cavities
- Pleural effusion
- Lymphadenopathy
- Volume Loss
- Miliary TB
- Enlarged cardiac shadow



Sputum

Generated with a deep productive cough

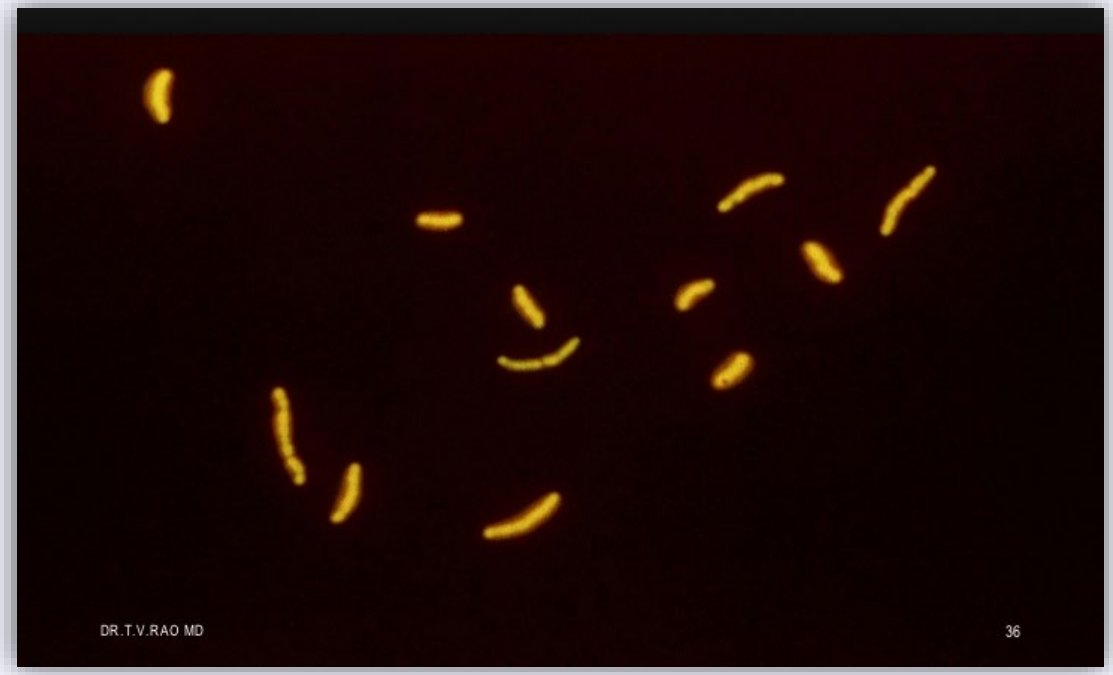




Sputum

- 3 specimens
- 8 hours apart
- Early morning preferred
- Observed
- Induction

Fluorochrome stain for acid fast bacilli (AFB)



- Cannot determine if AFB are live or dead

- *M. tuberculosis* or nontuberculous mycobacteria (NTM)
- Lacks sensitivity compared to culture
- Negative result does not rule out mycobacterial infection

Smear results

- Quick turnaround (1-2 days)
- Negative
- Positive – with quantification based on the number of AFB seen per field
  - 1+ Rare
  - 2+ Few
  - 3+ Moderate
  - 4+ Many
- 1-2 acid fast bacilli seen – basically an indeterminate result

Nucleic acid amplification (NAA) / polymerase chain reaction (PCR)

Advantages

- Rapid (2-3 hours)
- Direct from clinical specimen
- Increased sensitivity over AFB smear

1. In house (DCLS) developed PCR
2. FDA approved GeneXpert
   - Also detects rpoB gene mutations

Disadvantages

- Detects non-viable *M.tb*
- Negative test does not exclude possibility of isolating *M.tb* from culture
- Unsure how long *M.tb* can be detected even after treatment completion

Quick check

1. Test for infection → IGRA or TST
2. AFB smear
   - Typically on sputum, can be on other specimens
   - Results in 1-2 days
   - Gauge of infectiousness
3. NAA/PCR
   - Molecular detection of TB
   - Done right after the AFB smear
   - Assists with diagnosis
4. Next up….

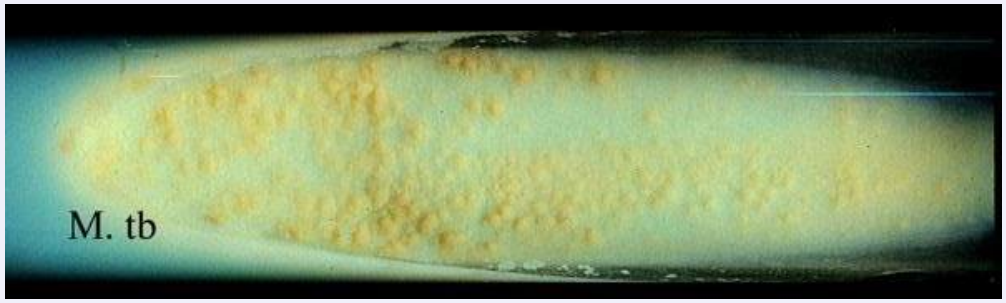
Culture = gold standard for TB diagnosis

LJ: solid media

MGIT: liquid media

MTBC takes up to 21 days or more to grow

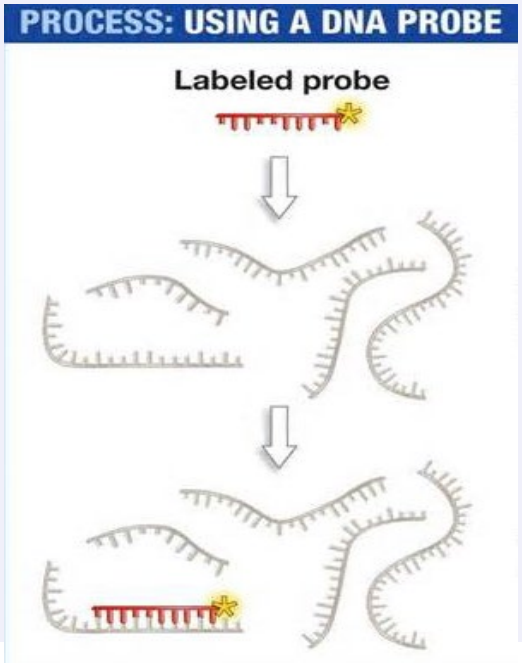
Identifying growth



Old DCLS method

DNA probe

- Uses complimentary DNA to detect specific species of mycobacteria
- Does not amplify DNA; only detects presence or absence



New DCLS method

Real-time PCR

- Same one used earlier on in testing, just a slightly different process!
- Simultaneous amplification and detection of MTBC and MAC (*M.avium*) DNA

What can we treat this TB with?

Antimycobacterial susceptibility testing (AST) aka drug susceptibility testing (DST)

- 4-13 day qualitative test
- Based on the growth of the MTBC isolate in the presence of a drug vs. growth in the absence of the drug

Panel

- Isoniazid (low)
- Isoniazid (high)
- Rifampin
- Pyrazinamide
- Ethambutol
- Moxifloxacin

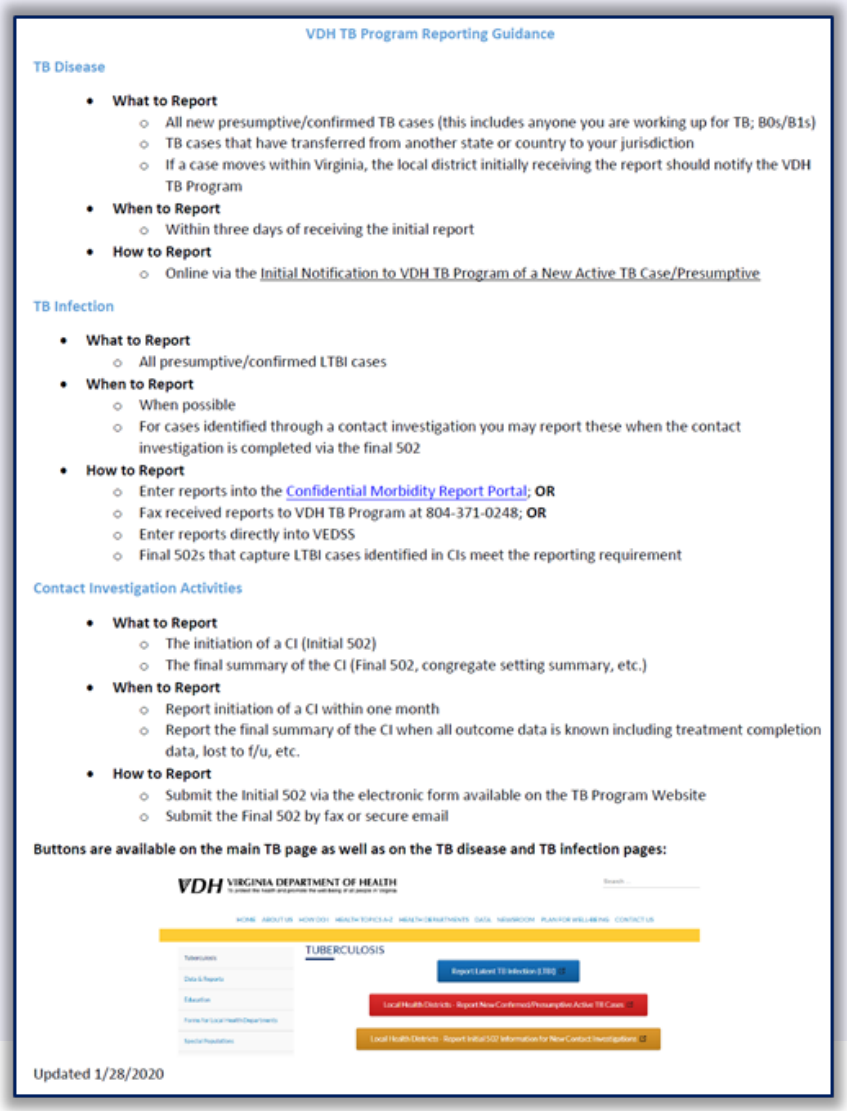
Coming soon!

Resistance?

Any resistance triggers CDC testing

- CDC can run
  - Growth based susceptibilities
  - Molecular Detection of Drug Resistance (MDDR)

What's reportable?



VDH TB Program Reporting Guidance

TB Disease

- **What to Report**
  - All new presumptive/confirmed TB cases (this includes anyone you are working up for TB; 80s/B1s)
  - TB cases that have transferred from another state or country to your jurisdiction
  - If a case moves within Virginia, the local district initially receiving the report should notify the VDH TB Program
- **When to Report**
  - Within three days of receiving the initial report
- **How to Report**
  - Online via the Initial Notification to VDH TB Program of a New Active TB Case/Presumptive

TB Infection

- **What to Report**
  - All presumptive/confirmed LTBI cases
- **When to Report**
  - When possible
  - For cases identified through a contact investigation you may report these when the contact investigation is completed via the final 502
- **How to Report**
  - Enter reports into the Confidential Morbidity Report Portal; **OR**
  - Fax received reports to VDH TB Program at 804-371-0248; **OR**
  - Enter reports directly into VEDSS
  - Final 502s that capture LTBI cases identified in CIs meet the reporting requirement

Contact Investigation Activities

- **What to Report**
  - The initiation of a CI (Initial 502)
  - The final summary of the CI (Final 502, congregate setting summary, etc.)
- **When to Report**
  - Report initiation of a CI within one month
  - Report the final summary of the CI when all outcome data is known including treatment completion data, lost to f/u, etc.
- **How to Report**
  - Submit the Initial 502 via the electronic form available on the TB Program Website
  - Submit the Final 502 by fax or secure email

Buttons are available on the main TB page as well as on the TB disease and TB infection pages:

VDH VIRGINIA DEPARTMENT OF HEALTH

TUBERCULOSIS

Updated 1/28/2020

1. Presumptive & confirmed TB disease
   - Rapid reportable = immediately
2. TB infection (LTBI)
   - Within 3 days
3. Contact investigation activities

https://www.vdh.virginia.gov/content/uploads/sites/175/2021/02/VDH-TB-Program-Reporting-Guidance.pdf

TB SCREENING AND TESTING OF HEALTHCARE PERSONNEL

Screening and testing – healthcare personnel (HCP)

- Updated guidance released in May of 2019
- Supplements: Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in healthcare settings (2005)

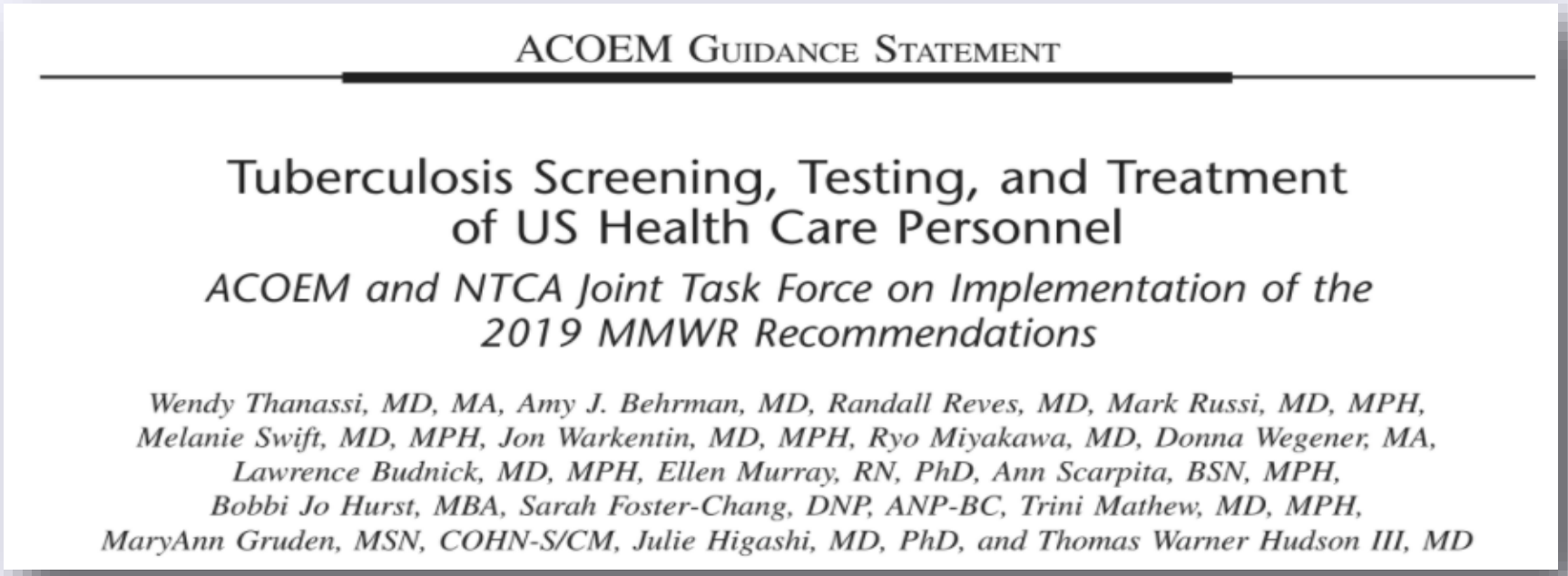
Morbidity and Mortality Weekly Report

Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019

Lynn E. Sosa, MD[1,2]; Gibril J. Njie, MPH[3]; Mark N. Lobato, MD[2]; Sapna Bamrah Morris, MD[3]; William Buchta, MD[4,5]; Megan L. Casey, MPH[6]; Neela D. Goswami, MD[3]; MaryAnn Gruden, MSN[7]; Bobbi Jo Hurst[7]; Amera R. Khan, MPH[3]; David T. Kuhar, MD[8]; David M. Lewinsohn, MD, PhD[9]; Trini A. Mathew, MD[10]; Gerald H. Mazurek, MD[3]; Randall Reves, MD[2,11]; Lisa Paulos, MPH[2,12]; Wendy Thanassi, MD[2,13]; Lorna Will, MA[2]; Robert Belknap, MD[2,11]

Companion document

- Expands on, provides clarifications, explanations, and considerations beyond the 2019 recommendations
- Strategies for implementation



ACOEM GUIDANCE STATEMENT

Tuberculosis Screening, Testing, and Treatment of US Health Care Personnel

ACOEM and NTCA Joint Task Force on Implementation of the 2019 MMWR Recommendations

Wendy Thanassi, MD, MA, Amy J. Behrman, MD, Randall Reves, MD, Mark Russi, MD, MPH, Melanie Swift, MD, MPH, Jon Warkentin, MD, MPH, Ryo Miyakawa, MD, Donna Wegener, MA, Lawrence Budnick, MD, MPH, Ellen Murray, RN, PhD, Ann Scarpita, BSN, MPH, Bobbi Jo Hurst, MBA, Sarah Foster-Chang, DNP, ANP-BC, Trini Mathew, MD, MPH, MaryAnn Gruden, MSN, COHN-S/CM, Julie Higashi, MD, PhD, and Thomas Warner Hudson III, MD

Healthcare worker vs. healthcare personnel

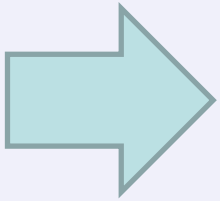
- Healthcare personnel (HCP) replaces healthcare worker
- Companion Document:
  - All paid and unpaid, part-time, temporary, contract, student and full-time persons working in healthcare settings.
  - Suggested list – Appendix 2

- Administrators, managers
- Bronchoscopy staff
- Chaplains
- Clerical staff
- Construction staff
- Correctional officers
- Craft or repair staff
- Dental staff
- Dietician or dietary staff
- ED staff
- Engineers
- Food service staff
- Health aides
- Health and safety staff
- Housekeeping or custodial staff
- Homeless shelter staff
- Infection control staff
- Information technologists
- Intensive care unit staff
- Janitorial staff
- Laboratory staff
- Maintenance staff
- Morgue staff
- Nurses
- Outreach staff
- Patient transport staff, including EMS
- Pediatric staff
- Pharmacists
- Phlebotomists
- Physical and occupational therapists
- Physicians (assistant, attending, fellow, resident, and intern)
- Public health educators or teachers
- Radiology staff
- Researchers
- Respiratory therapists
- Scientists
- Social workers
- Students (medical, nursing, technicians, allied health)
- Technicians (health, laboratory, radiology, animal handlers)
- Veterinarians
- Volunteers

A shift in focus

From:

Routine serial testing



To:

Improving education

Increasing LTBI treatment

Why?

- Annual conversion rates of <1% in HCP
- Low TB incidence rates among HCP
  - 2.5 per 100,000 in HCP vs. 3.0 per 100,000 in general population
- 80% of active TB cases reported are reactivations

4 major areas of recommendation

1. Baseline (preplacement) screening and testing
2. Postexposure screening and testing
3. Serial screening and testing for HCP without LTBI
4. Evaluation and treatment of HCP with positive test results

1. Baseline (preplacement) screening and testing

Health Care Personnel (HCP)
Baseline Individual TB Risk Assessment

HCP should be considered at increased risk for TB if any of the following statements are marked "Yes":

Temporary or permanent residence of ≥1 month in a country with a high TB rate Any country other than the United States, Canada, Australia, New Zealand, and those in Northern Europe or Western Europe	YES ☐ NO ☐
OR	
Current or planned immunosuppression, including human immunodeficiency virus (HIV) infection, organ transplant recipient, treatment with a TNF-alpha antagonist (e.g., infliximab, etanercept, or other), chronic steroids (equivalent of prednisone ≥15 mg/day for ≥1 month) or other immunosuppressive medication	YES ☐ NO ☐
OR	
Close contact with someone who has had infectious TB disease since the last TB test	YES ☐ NO ☐

2. Post exposure screening and testing

- Initiate a contact investigation (CI) any time a potentially infectious case is identified.
  - Exposed HCP, staff members, and other contacts
- **Notify and work with your local health department**
- Characteristics of the exposure dictate the timing and extent of the CI activities
  - Risk and exposure assessment
  - Symptom screen
  - Test results

Factors affecting transmission

TABLE 2. Factors that Affect Risk of TB Transmission to Health Care Personnel (HCP)

Factors that Decrease Risk for TB Transmission to HCP

Patient Factors	Environmental Factors	Time and Intensity of Exposure
Early identification of possible TB disease of respiratory tract	Isolation room under negative air pressure	Risk of transmission is directly proportional to time and intensity of exposure
Early/prompt transfer of patient into respiratory isolation	Removal of infectious droplet nuclei by adequate air exchanges with exhaust to outside air	Short exposure duration
Early initiation of effective anti-TB regimen	Use of adequate ultraviolet germicidal irradiation (UVGI)	Infrequent exposure
Effective antibiotic treatment of 3 days or more	Employee using appropriate personal protective equipment (PPE) (N95, powered air-purifying respirator [PAPR], or equivalent)	Absence of close physical contact
Patient is not coughing		
Surgical mask is worn by patient		

Factors that Increase Risk for TB Transmission to HCP

Patient Factors	Environmental Factors	Time and Intensity of Exposure
Incorrect, lack of, or short duration of TB treatment	Sharing small, enclosed spaces	Prolonged cumulative duration of exposure
High concentrations of acid-fast bacillus (AFB) on sputum smear	Inadequate local or general ventilation that results in insufficient dilution or removal of infectious droplets	Frequent exposure
Presence of cough	Recirculation of air containing infectious droplet nuclei	Prolonged close physical proximity
Cavitation on CXR	Inadequate cleaning and disinfection of medical equipment	Intense exposure (eg, conducting aerosol-generating procedures)
Oropharyngeal or laryngeal TB	Improper procedures for handling specimens	
Failure to cover the mouth and nose while coughing (or not wearing a mask)		
Undergoing cough-inducing or aerosol-generating procedures (eg, bronchoscopy, sputum induction, autopsy)		
Culture or NAAT + regardless of AFB smear positivity		

Partially adapted from Centers for Disease Control and Prevention.[2]

Conducting postexposure screening and testing

- Exposure definition – includes “without the use of adequate personal protection”
- Use IGRA or TST
- At least one test 8-10 weeks after exposure
- Documented prior LTBI
  - Do not need IGRA/TST
  - Rule out active TB

Facility risk assessment and classification

Appendix 1. Facility Risk Assessment

Portions from the 2005 MMWR CDC Guidelines Appendix B: Tuberculosis (TB) Risk Assessment Worksheet
Suggested updates to Reflect the 2019 MMWR CDC/NTCA Recommendations are in bold underlined text[1,2]

> **The 2019 MMWR CDC/NTCA Recommendation states:** "Recommendations from the 2005 CDC Guidance that are outside the scope of health care personnel screening, testing, treatment, and education remain unchanged; this includes continuing annual facility risk assessments for guiding infection control policies and procedures."

Outpatient settings

Does evidence exist of person-to-person transmission of *M. tuberculosis* in the health-care setting? (Use information from case reports for both contact investigation and from serial testing **(if any is being done).** Determine if any tuberculin skin test [TST] or blood assay for *M. tuberculosis* [BAMT/IGRA] for *M. tuberculosis* conversions have occurred among HCP in the past year.)	Yes No

Nontraditional facility-based settings

Have any TST or BAMT/IGRA conversions occurred among staff or clients in the past year? (Use information from case reports for both contact investigation and serial testing program **if done**)	Yes No

Screening of HCP for *M. tuberculosis* Infection

How frequently are HCP tested for M. *tuberculosis* infection?	o On hire o Post-exposure o Other

Recommendations from the 2005 CDC Guidance that are outside of the scope of healthcare personnel screening, testing, treatment and education remain unchanged: this includes continuing annual facility risk assessments for guiding infection control policies and procedures. Ensure review of environmental and administrative controls.

Appendix 5. Risk Classifications for Health Care Settings and Recommended Frequency of Screening for Mycobacterium Tuberculosis Infection among Health Care Personnel (HCP)
Adapted from 2005 MMWR CDC Guidelines, Appendix C

Updated to Reflect 2019 MMWR CDC/NTCA Recommendations
(changes are in **bold underlined text**)[1,2]

Setting	Risk Classification† Low risk	Medium risk	Potential ongoing transmission#
Inpatient <200 beds	<3 TB patients/year	≥3 TB patients/year	Evidence of ongoing *M. tuberculosis* transmission, regardless of setting
Inpatient >=200 beds	<6 TB patients/year	≥6 TB patients/year	
Outpatient and nontraditional facilities	<3 TB patients/year	≥3 TB patients/year	
TB treatment facilities	Settings in which: • persons who will be treated have been demonstrated to have latent TB infection (LTBI) and not TB disease • a system is in place to promptly detect and triage persons who have signs or symptoms of TB disease to a setting in which persons with TB disease are treated • no cough-inducing or aerosol-generating procedures are performed	Settings in which: • Persons with TB disease are encountered • Criteria for low risk are not otherwise met	
Laboratories	Laboratories in which clinical specimens that might contain *M. tuberculosis* are not manipulated	Laboratories in which clinical specimens that might contain *M. tuberculosis* are manipulated	

Recommended Frequency of Screening for Mycobacterium Tuberculosis Infection among Health Care Personnel (HCP)

Setting	Low risk	Medium risk	Potential ongoing transmission#
Baseline two-step TST or one BAMT/IGRA^	Yes, for all HCP* on hire	Yes, for all HCP on hire	Yes, for all HCP on hire
Serial TST or BAMT/IGRA	No**	No**	As needed in the investigation of potential ongoing transmission§§
TST or BAMT/IGRA for HCP upon unprotected exposure to *M. tuberculosis*++	Perform a contact investigation (ie, administer one TST or BAMT/IGRA as soon as possible at the time of exposure and, if the result is negative, give a 2nd test [TST or BAMT/IGRA, whichever was used for the 1st test] 8-10 weeks after the end of exposure to *M. tuberculosis*^^		

*The term health care personnel (HCP) refers to all paid and unpaid persons working in health care settings who have potential for exposure to *M. tuberculosis* through air space shared with persons with TB disease.
†Settings that serve communities with a high incidence of TB disease or that treat populations at high risk (eg, those with human immunodeficiency virus infection or other immunocompromising conditions) or that treat patients with drug-resistant TB disease might need to be classified as medium risk, even if they meet the low-risk criteria.
#A classification of potential ongoing transmission should be applied to a specific group of HCP or to a specific area of the health-care setting in which evidence of ongoing transmission is apparent, if such a group or area can be identified. Otherwise a classification of potential ongoing transmission should be applied to the entire setting. This classification should be temporary and warrants immediate investigation and corrective steps after a determination has been made that ongoing transmission has ceased. The setting should be reclassified as medium risk, and the recommended timeframe for this medium risk classification is at least 1 year.
^All HCP should have a documented baseline two-step TST or blood assay (IGRA) **at hire**.
HCP in settings classified as low **or medium risk do not need to be included in the serial testing program.
§§During an investigation of potential ongoing transmission of *M. tuberculosis*, testing for *M. tuberculosis* infection should be performed every 8-10 weeks until a determination has been made that ongoing transmission has ceased. Then the setting should be reclassified as medium risk for at least 1 year.
^^Procedures for contact investigations should not be confused with two-step TSTs that are used for baseline TST results for newly hired HCP.

Local data – rate tables

Virginia Department of Health Tuberculosis Program
Number of Reported TB Cases and Rates per 100,000: 2017-2021 (Revised 4/13/2022)

NORTHERN REGION		2017		2018		2019		2020		2021	
City/County	2020 Pop*	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
ALEXANDRIA DISTRICT	158,726	10	6.4	11	6.9	9	5.6	7	4.4	7	4.4
ARLINGTON DISTRICT	240,119	16	7.0	13	5.5	11	4.6	8	3.4	12	5.0
Fairfax City	23,429	1	4.1	0	0.0	0	0.0	1	4.2	0	0.0
Fairfax County	1,150,847	73	6.4	68	5.9	64	5.6	50	4.4	49	4.3
Falls Church City	14,631	0	0.0	0	0.0	0	0.0	0	0.0	1	6.8
FAIRFAX DISTRICT	1,188,907	74	6.3	68	5.7	64	5.4	51	4.3	50	4.2
LOUDOUN DISTRICT	422,784	13	3.4	12	3.0	17	4.2	15	3.6	12	2.8
Manassas City	40,869	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Manassas Park City	18,004	0	0.0	0	0.0	1	5.8	0	0.0	1	5.6
Prince William County	475,533	21	4.6	18	3.9	19	4.1	12	2.6	22	4.6
PRINCE WILLIAM DISTRICT	534,406	21	4.1	18	3.5	20	3.8	12	2.3	23	4.3
NORTHERN REGION	2,544,942	134	5.4	122	4.9	121	4.8	93	3.7	104	4.1
VIRGINIA	8,590,563	204	2.4	205	2.4	191	2.2	169	2.0	161	1.9

https://www.vdh.virginia.gov/tuberculosis/data-reports/

3. Serial screening and testing for HCP without LTBI

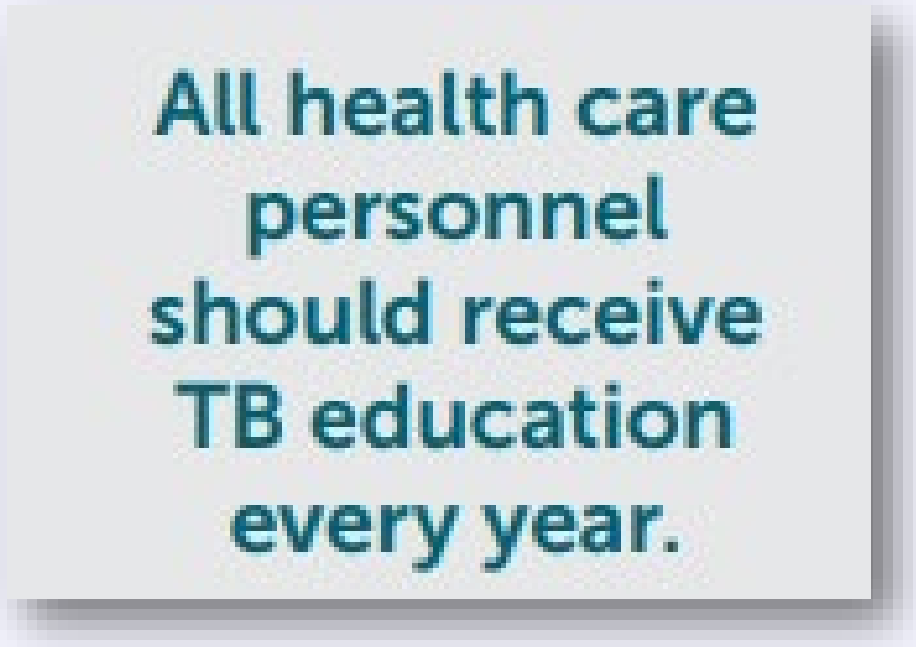
An annual TB test is not recommended unless there is a known exposure or ongoing transmission.

No annual risk assessment either!

However, consider:

- High risk occupational groups
- Settings with documented transmission
- Institutional or regulatory requirements
- Number active TB cases seen
- Delays in airborne isolation
- Environmental controls

Annual education



Education template:

https://www.vdh.virginia.gov/content/uploads/sites/175/2020/09/Annual-TB-Education-Template.pptx

4. Evaluation and treatment of HCP with positive test results

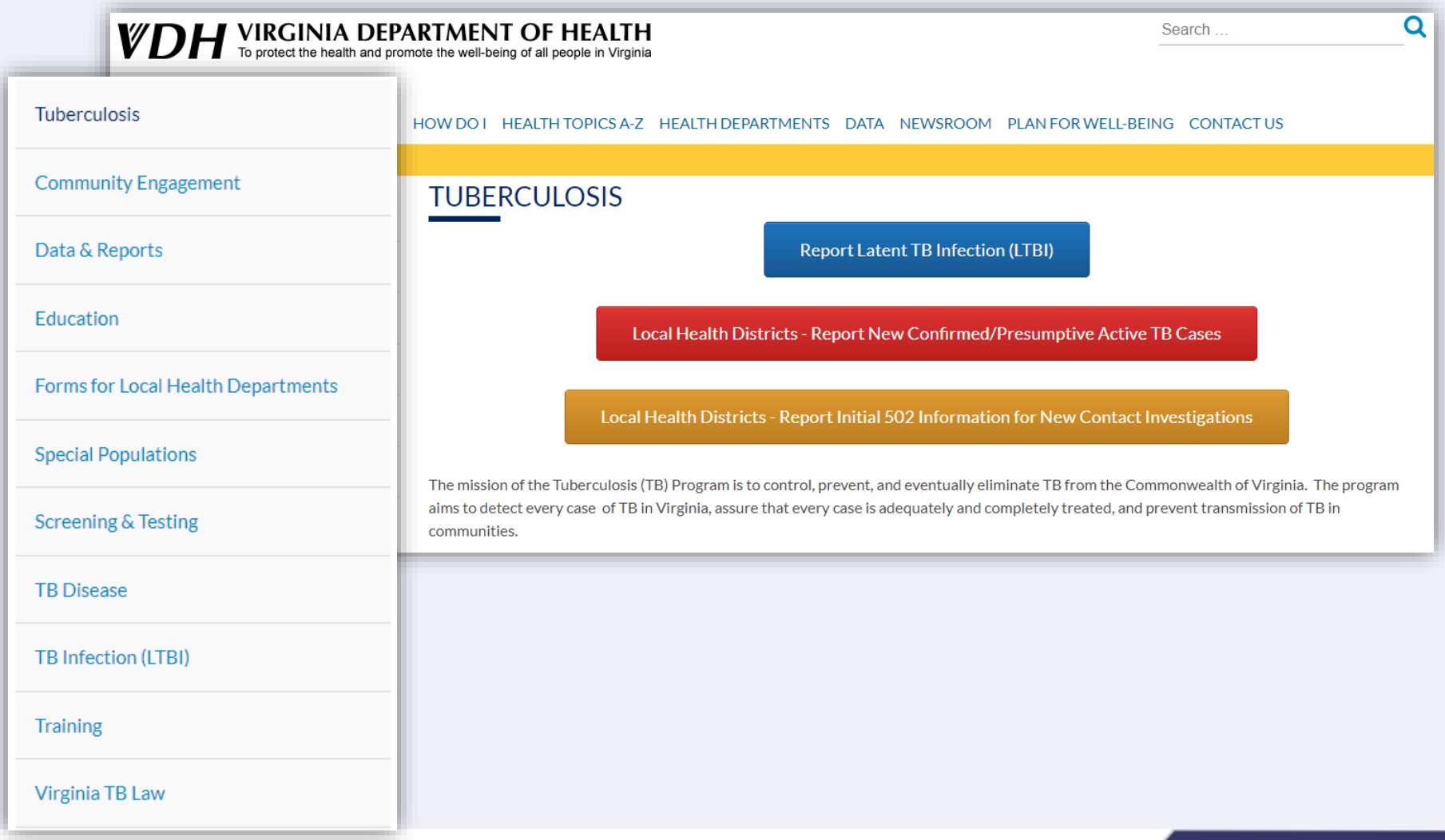
- Risk assessment
- Symptom screen
- LTBI education
- **Offer and encourage LTBI treatment**

Must be conducted annually for HCP with **untreated** LTBI

TB screening/testing in other settings

- Visit our Screening & Testing webpage for resources
- Guidance for specific settings:
  - Corrections
  - Unhoused
  - Elderly Persons
    - High risk groups
    - Long-term care

VDH TB Website



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Questions?

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