Turning the Tide: Tech, Tools and TB

WORLD TB DAY
MARCH 24

Tuberculosis Program
VIRGINIA DEPARTMENT OF HEALTH

Agenda

- Welcome and TB Program Updates – Jasie Hearn
- Surveillance Update – Leah Breitung and Jane Tingley
- Laboratory Update – Rana Mehr
- TB Community Assessment and Engagement Toolkit – Sondra Dietz
- Mini Grant Opportunity Announcement – Jasie Hearn
- Question and Answer Session – via chat

TB Program Updates

WORLD TB DAY – MARCH 24, 2022

Programmatic Updates

- New TB Program Manager
  - Marshall Vogt, MPH, CIC
  - 3/25/22
- DCE Physician
  - Serve as TB Controller and HAI/AR Medical Consultant
  - Recruiting this spring/summer

Upcoming Training

- Biennial Nurse Meeting – September 21-23, 2022, Harrisonburg, VA
- Southeast TB Control Conference – postponed till October 2023, Richmond, VA
- New TB Nurse Training – May 4 & 5, 2022
- RVCT and EDN Training – offered when requested

Collaborations with Districts

- Workload evaluation
- Feedback on IGRAs
- Feedback on VET platform
- Lab Quality Improvement Project: Specimen Quality and Timeliness
- Feedback on training needs
- Case Review
- Cohort Review

Resources for Districts

- LTBI Toolkit and Resources
- Alternative Housing and Incentives Program
  - Lyft
  - Cell phones/data plan
- IJN Guidance
- 512 Updates
- Sputum Collection Guides – patient and health care worker
- TB and LTBI Welcome and Thank You kits
- Water Filter Bottles
- GTBI – ID Crowd
- UVA Consultants

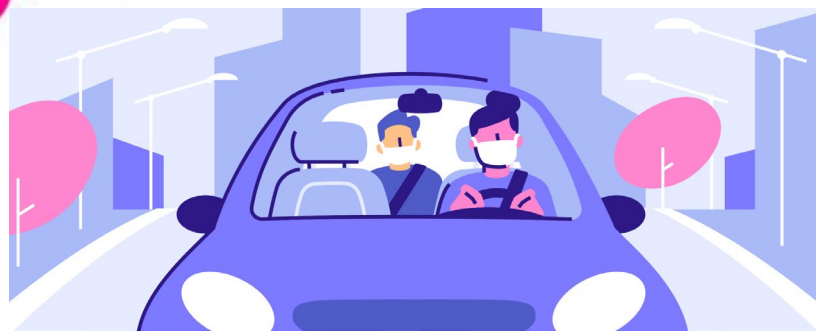
LTBI Toolkit and Resources

- Patient and Provider Materials
- Branded Items
- Survey to indicate number of materials needed and languages – please complete by March 30, 2022
- Items mailed to Districts

Latent TB. Active Concern.
Tuberculosis Program
VIRGINIA DEPARTMENT OF HEALTH

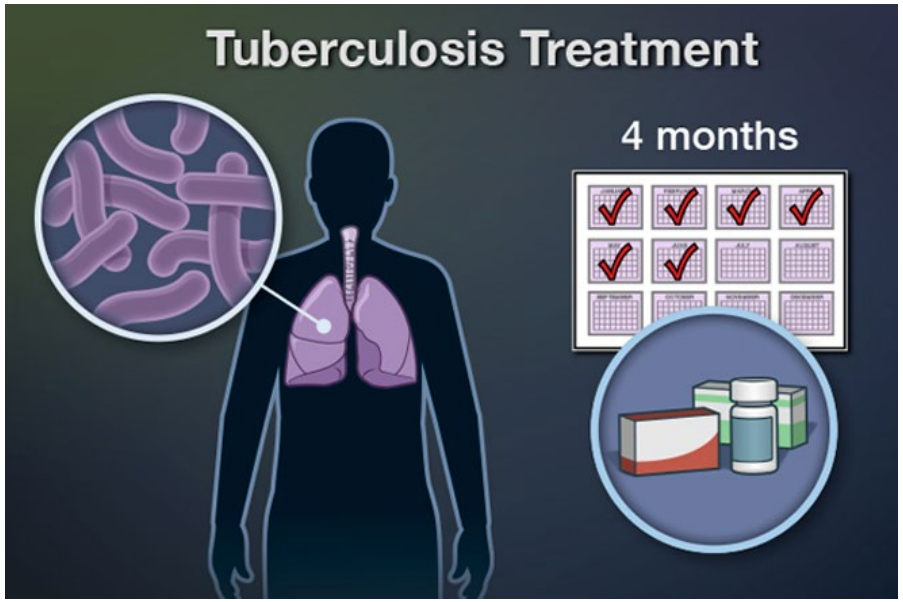
Alternative Housing and Incentive Program

- Transportation Assistance via Lyft
- Cell phones and/or data plan for clients for VET
- Updated AHIP Manual
- Updated AHIP Request Form



New and Noteworthy

- 4-month Treatment for Drug Susceptible TB
  - Working with DCLS and Clinical Consultants to develop an implementation plan



Research Projects

- Mycobacterial Lung Diseases in Virginia: Sequencing and Clinical Determinants of Relapse and Outcome study – UVA
  - Reminder: VDH NTM Handout
- Urine Colorimetry for Tuberculosis Pharmacokinetics Evaluation in Children and Adults study – UVA
- Clinical Course and Outcomes of People with Coronavirus Disease and Tuberculosis: A Multicentre Cohort Study with the World Health Organization Collaborating Centre for TB and Lung Diseases

Other Announcements

- Use of Doxy.me and/or Zoom for VET
- Rifapentine – no longer a shortage. Resume use of 3HP regimen.
- Continuing to maintain access to the T-spot and QFT TB Gold Plus
- Coming Soon – IGRA Test Interpretation Resources


thank
you!

https://www.vdh.virginia.gov/tuberculosis/

Email: tuberculosis@vdh.virginia.gov

Call: 804-864-7906

Tuberculosis Epidemiology: A Global, National and Virginia Update

LEAH BREITUNG, BSPH
SURVEILLANCE EPIDEMIOLOGIST

JANE TINGLEY, MPH
LTBI EPIDEMIOLOGIST

MARCH 24, 2022

Overview

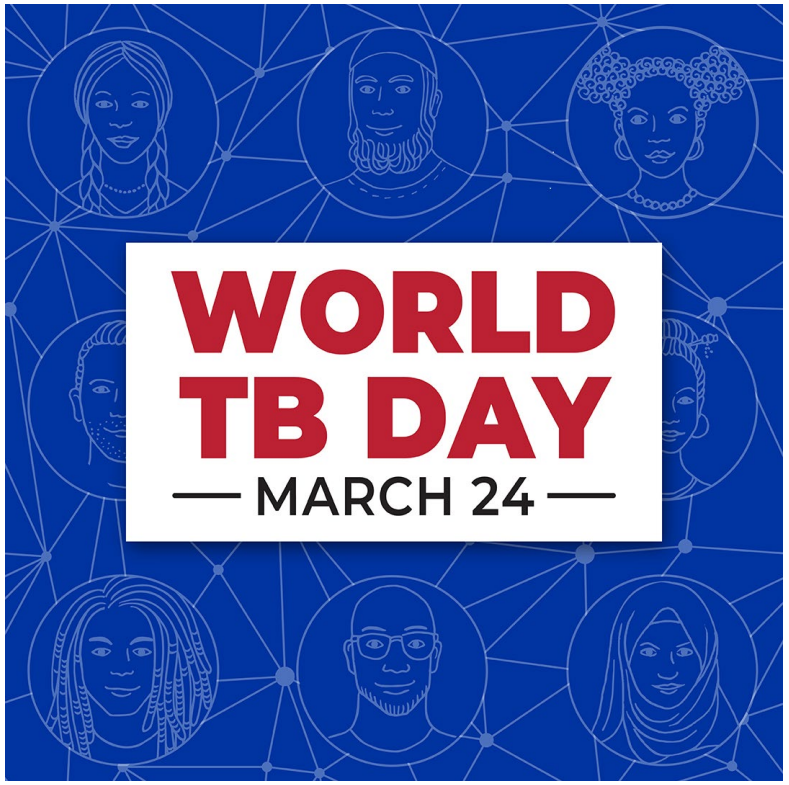
Global Tuberculosis (TB) Update

National TB Update*

State TB Update*

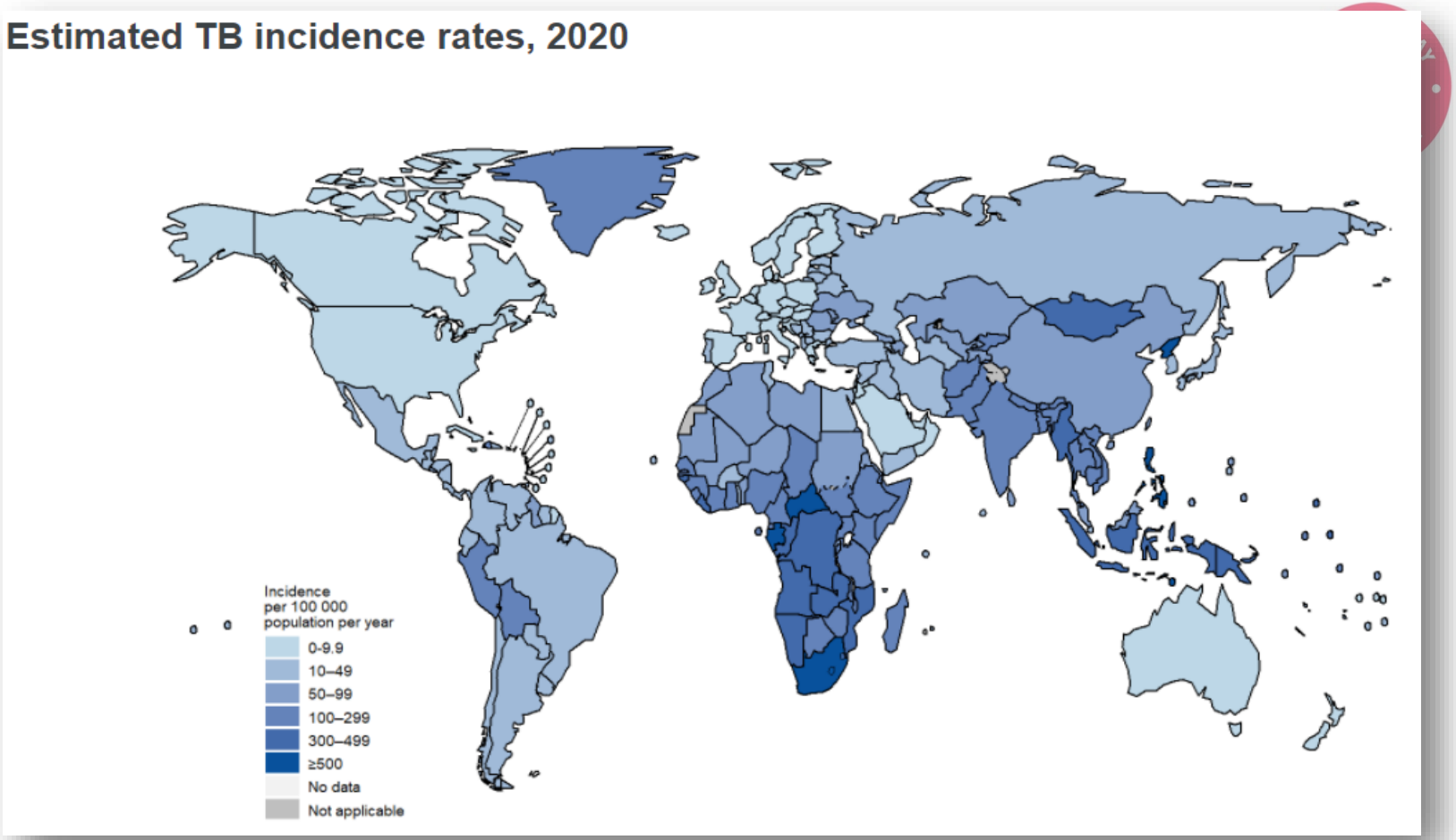
LTBI Update*

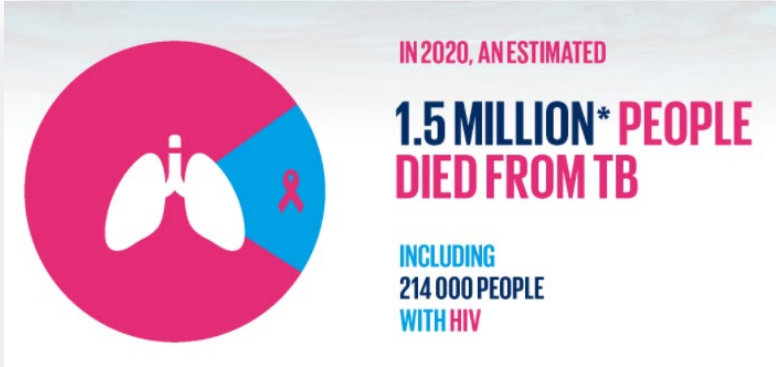
**Please note that all 2021 data is provisional*

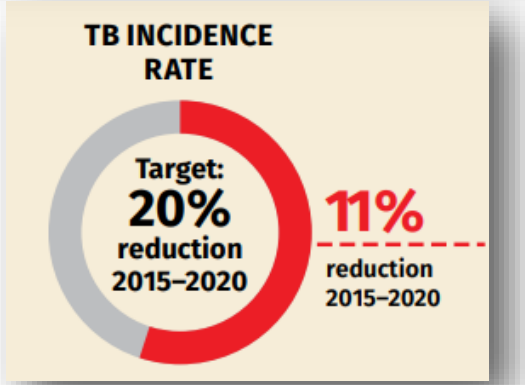


Global Tuberculosis Incidence

- In 2020, approximately 10 million people fell ill with TB. However, only 5.8 million cases were reported
- Until the coronavirus (COVID-19) pandemic, TB was the leading cause of death worldwide from a single infectious agent
- Eight countries accounted for two-thirds of the global total: India, China, Indonesia, the Philippines, Pakistan, Nigeria, Bangladesh and South Africa
- Nearly one in ever four people in the world is infected with latent TB

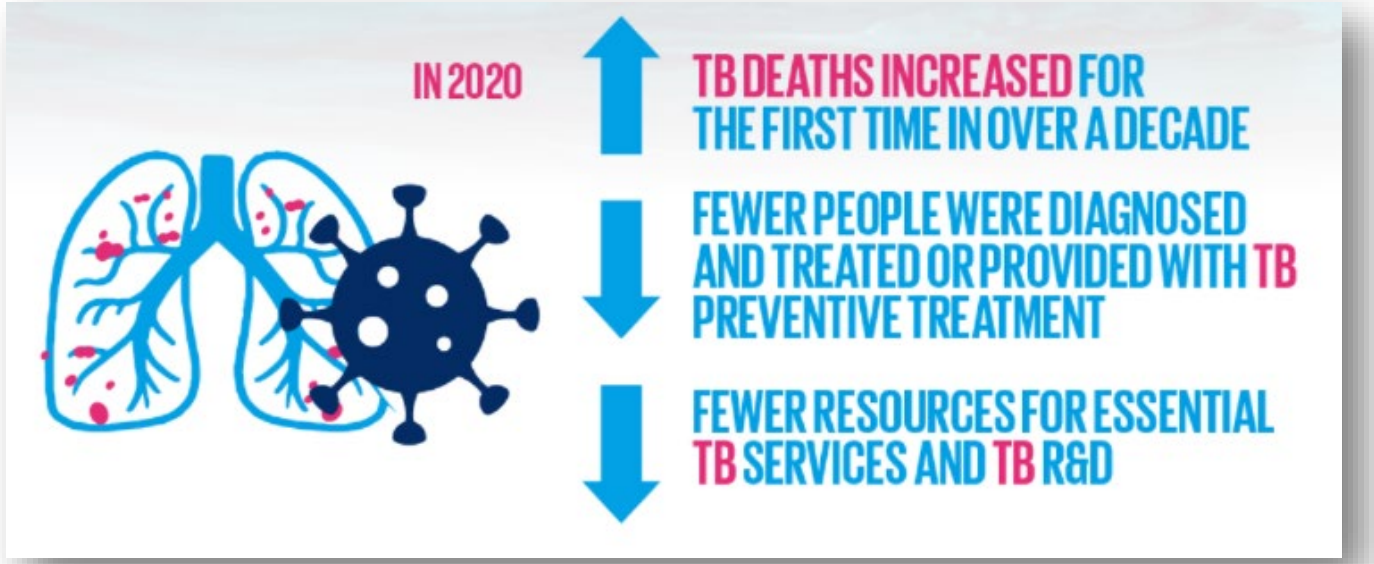


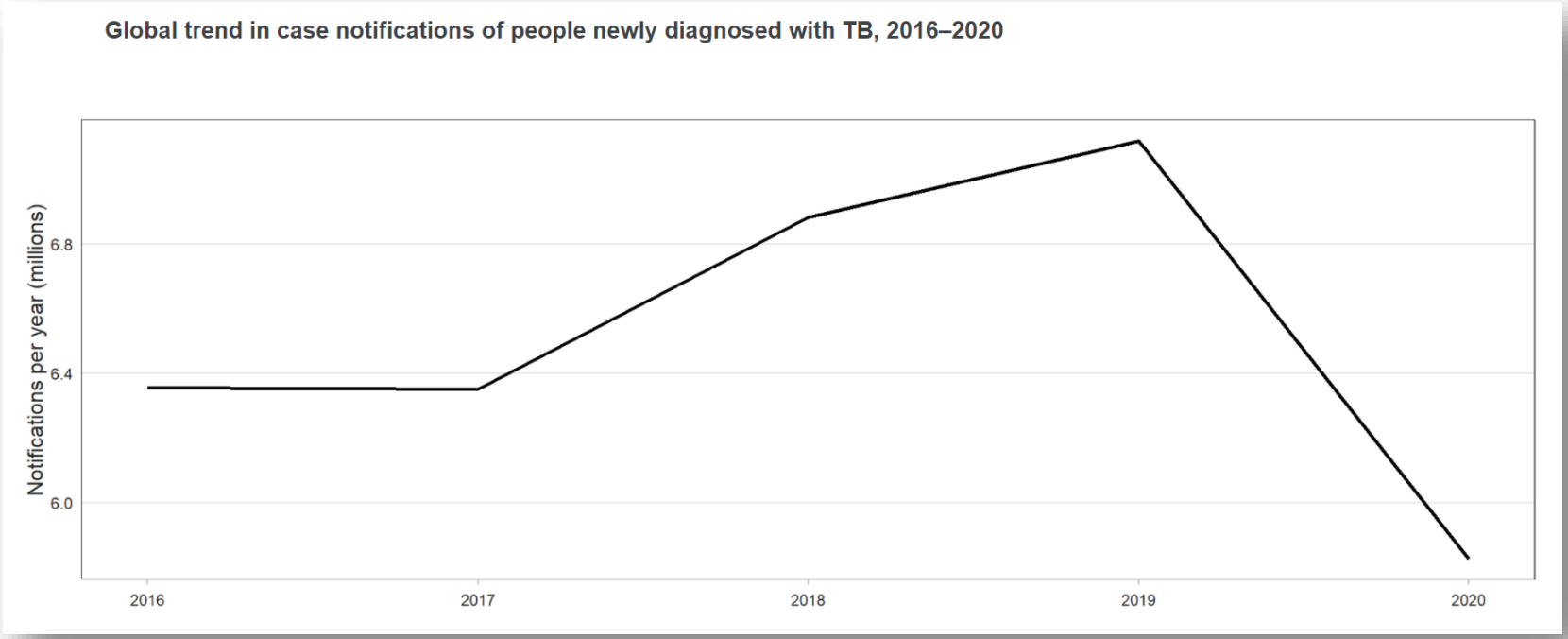




Global COVID-19 Pandemic and TB

- Modelling has suggested that the number of people developing TB could increase by more than 1 million per year in 2020–2025
- Disruptions to the provision of and access to TB diagnostic and treatment services due to the COVID-19 pandemic are estimated to have caused an increase of about 100,000 in the global number of TB deaths between 2019 and 2020

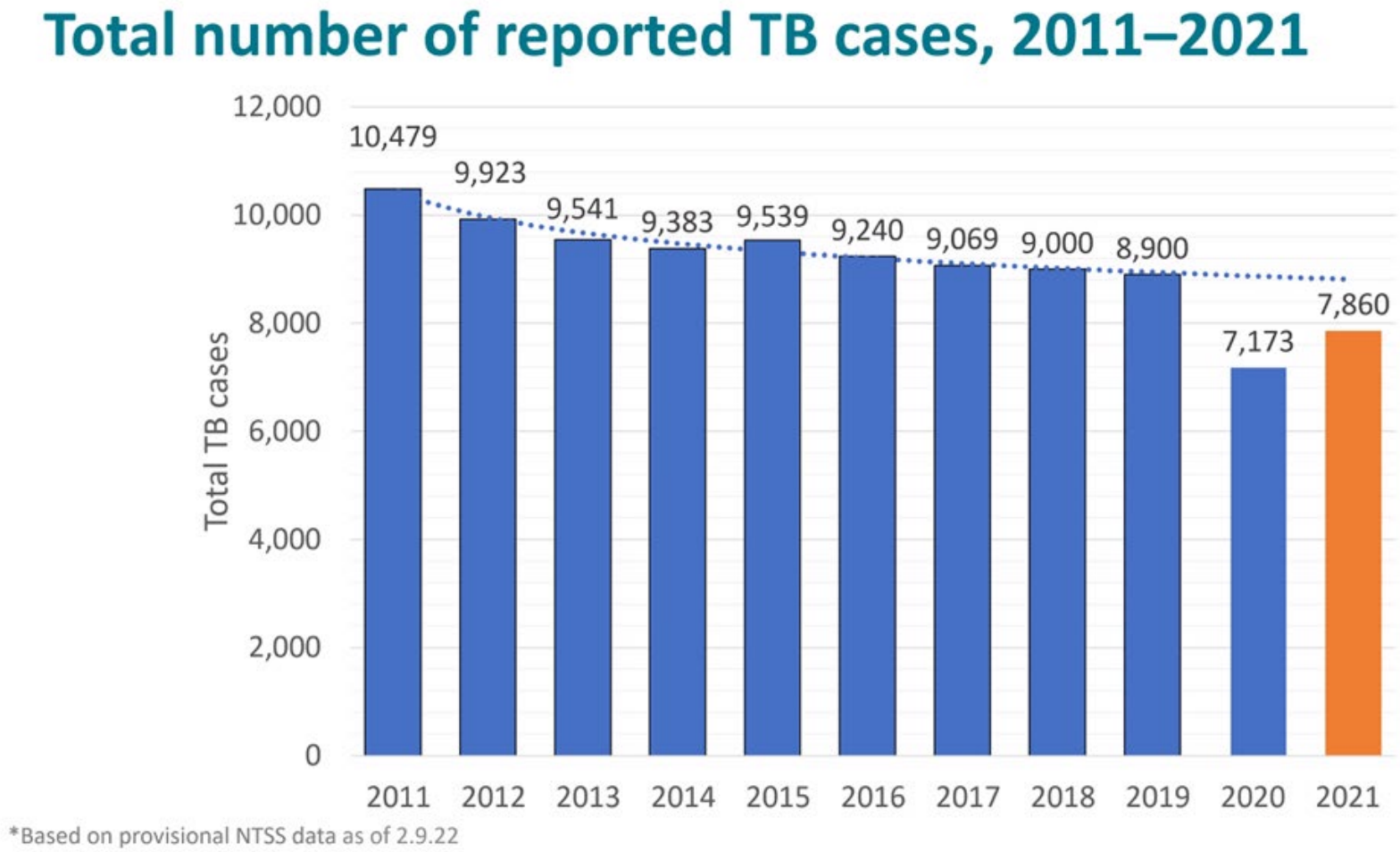




Global tuberculosis report 2021. Geneva: World Health Organization; 2021. License: CC BY-NC-SA 3.0 IGO.

Tuberculosis in the United States

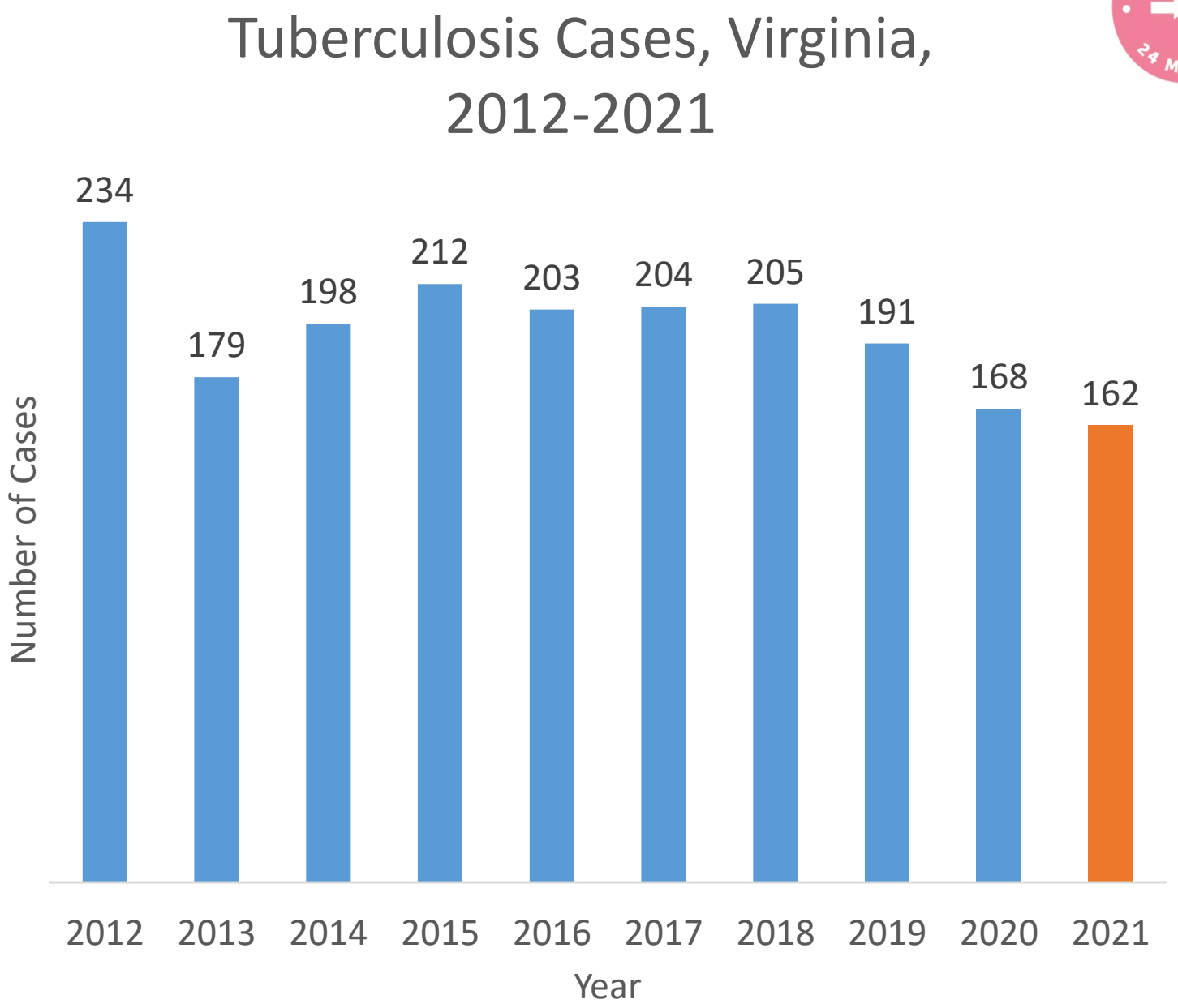
- Provisional 2021 United States case count: 7,860
- Provisional 2021: United States case rate: 2.4



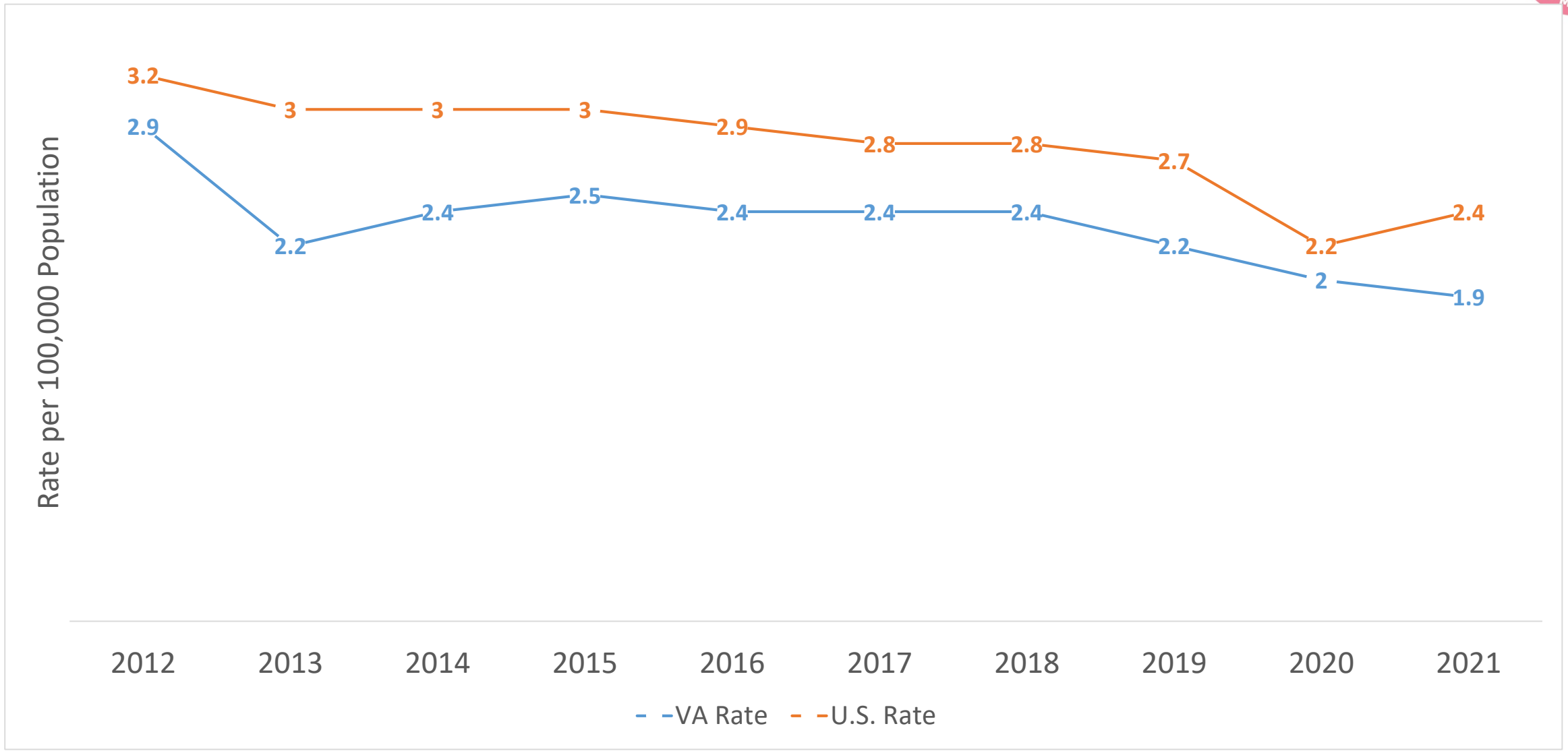
https://www.vdh.virginia.gov/tuberculosis/

Tuberculosis in Virginia, 2021

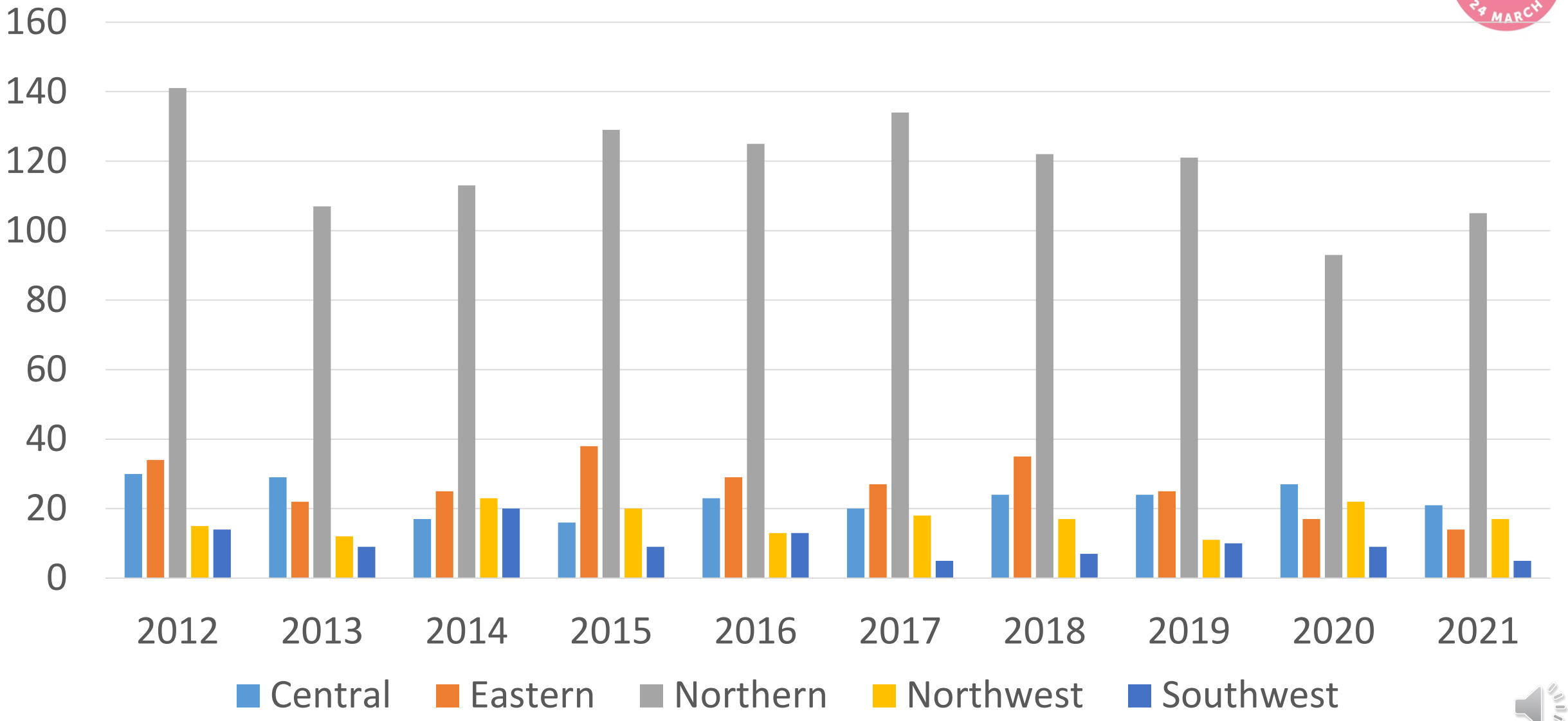
- 162 cases in 2021
- Rate of 1.9 per 100,000 population



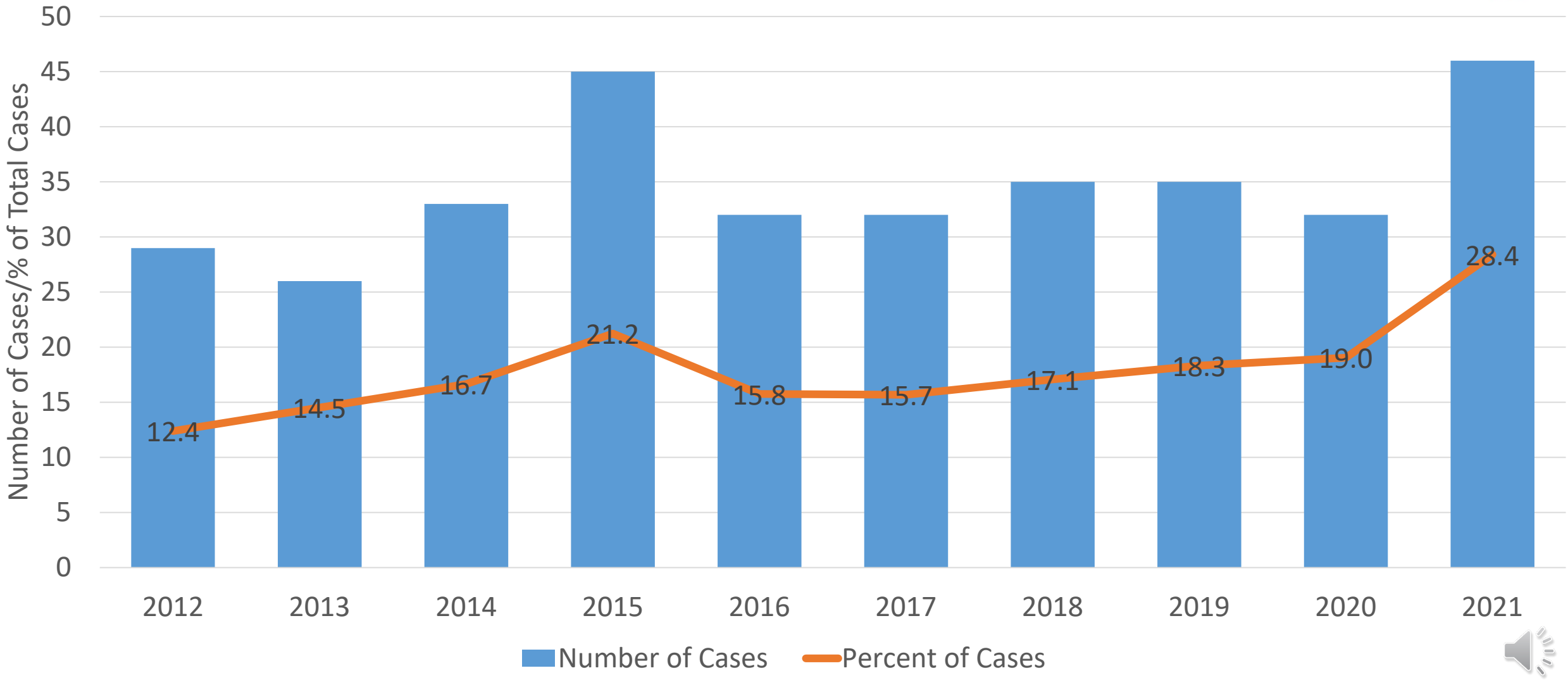
Tuberculosis Incidence Rate, Virginia and the United States, 2012-2021



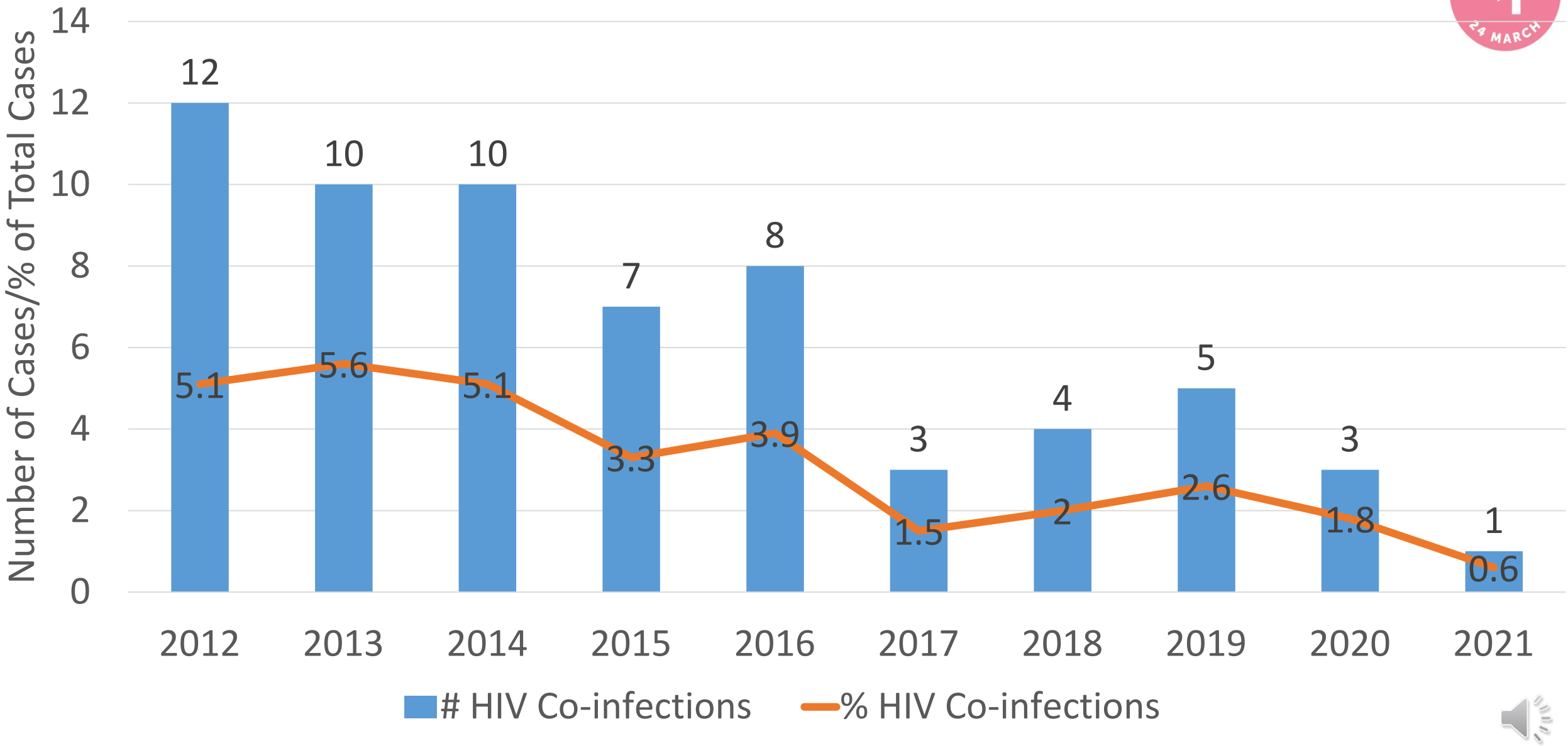
Tuberculosis Case Distribution by Region, Virginia, 2012-2021



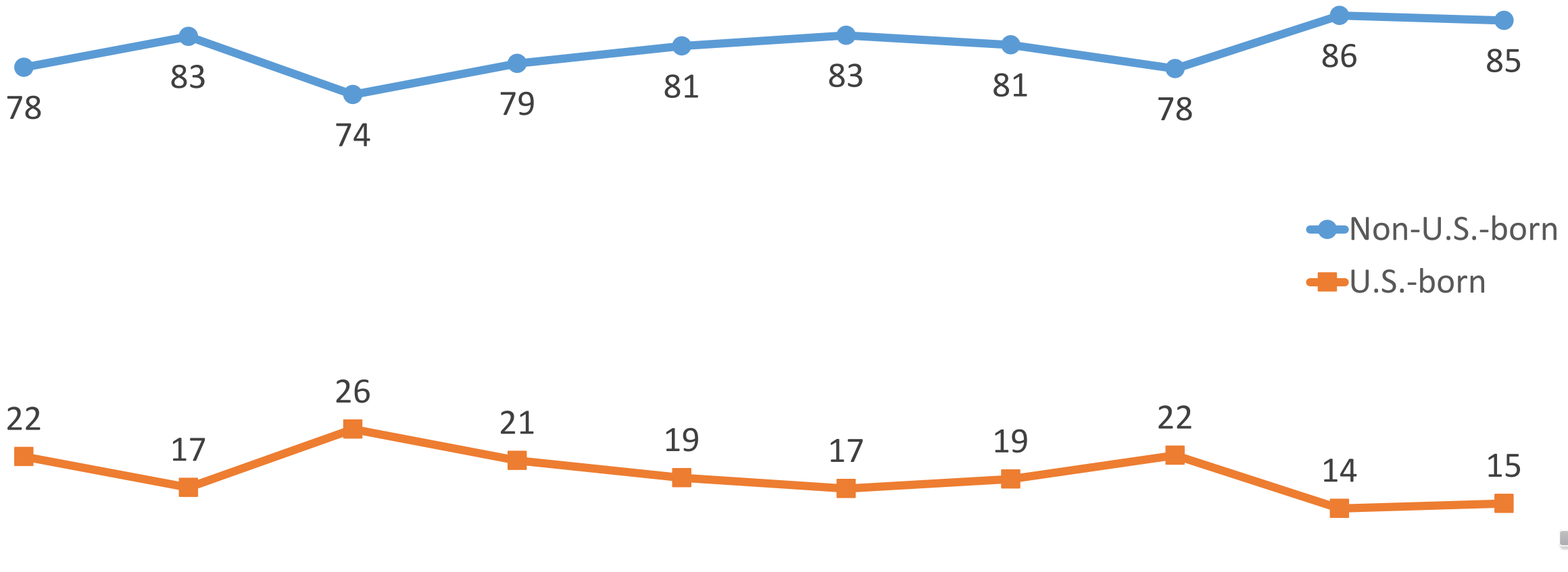
Number and Percent of Tuberculosis Cases with Diabetes, Virginia, 2012-2021



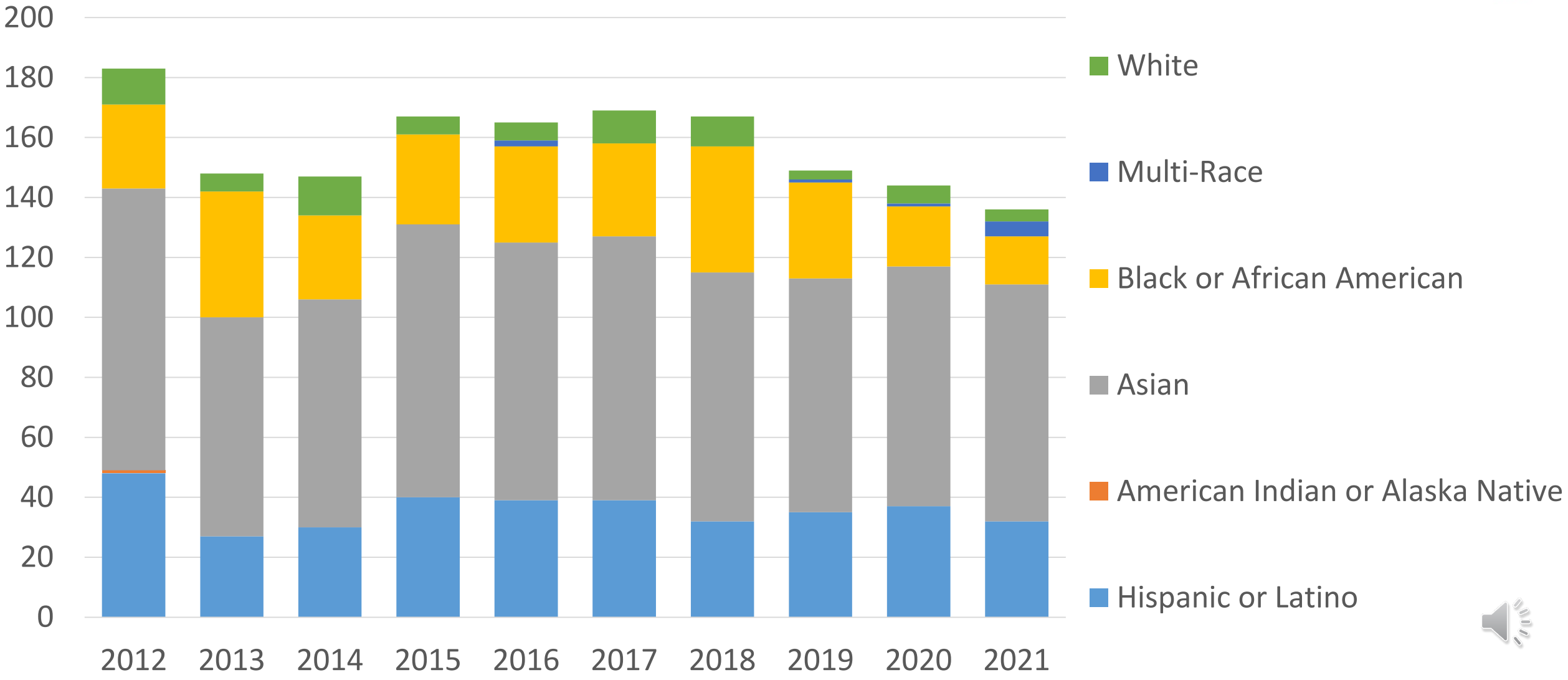
Tuberculosis Cases with HIV Co-infection, Virginia, 2012-2021



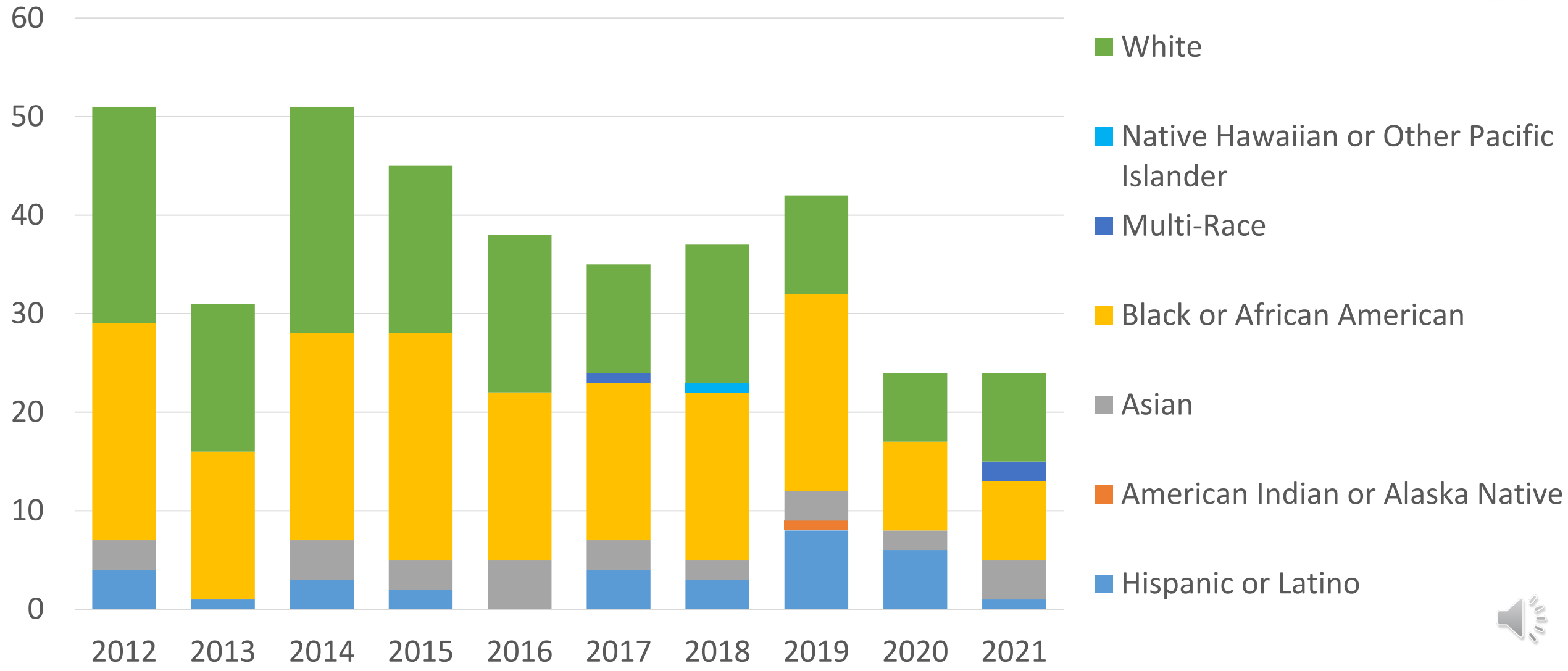
Percent of Total Tuberculosis Cases by Nativity, Virginia, 2012-2021



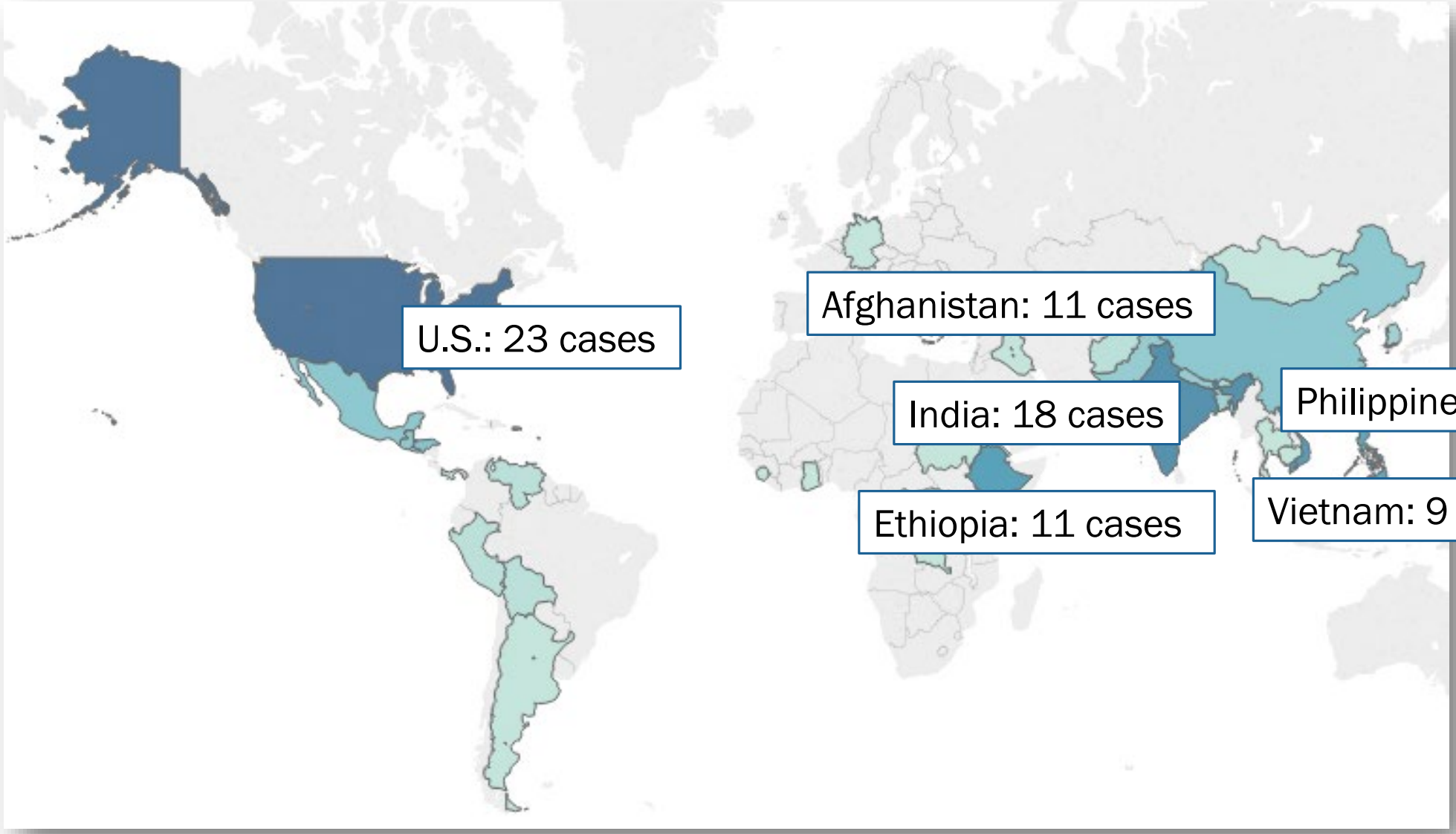
Tuberculosis Cases by Race and Ethnicity Among Non-U.S.-Born Cases, Virginia, 2012-2021



Tuberculosis Cases by Race and Ethnicity Among U.S.-Born Cases, Virginia, 2012-2021

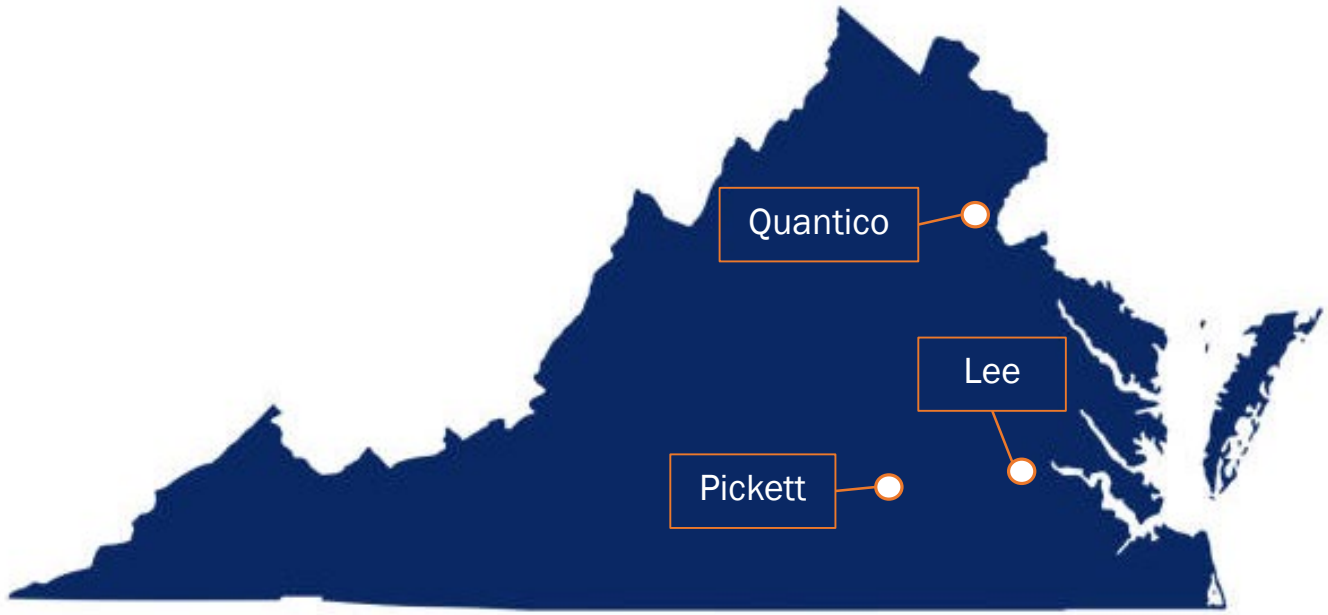


County of Birth of Tuberculosis Cases, Virginia, 2021

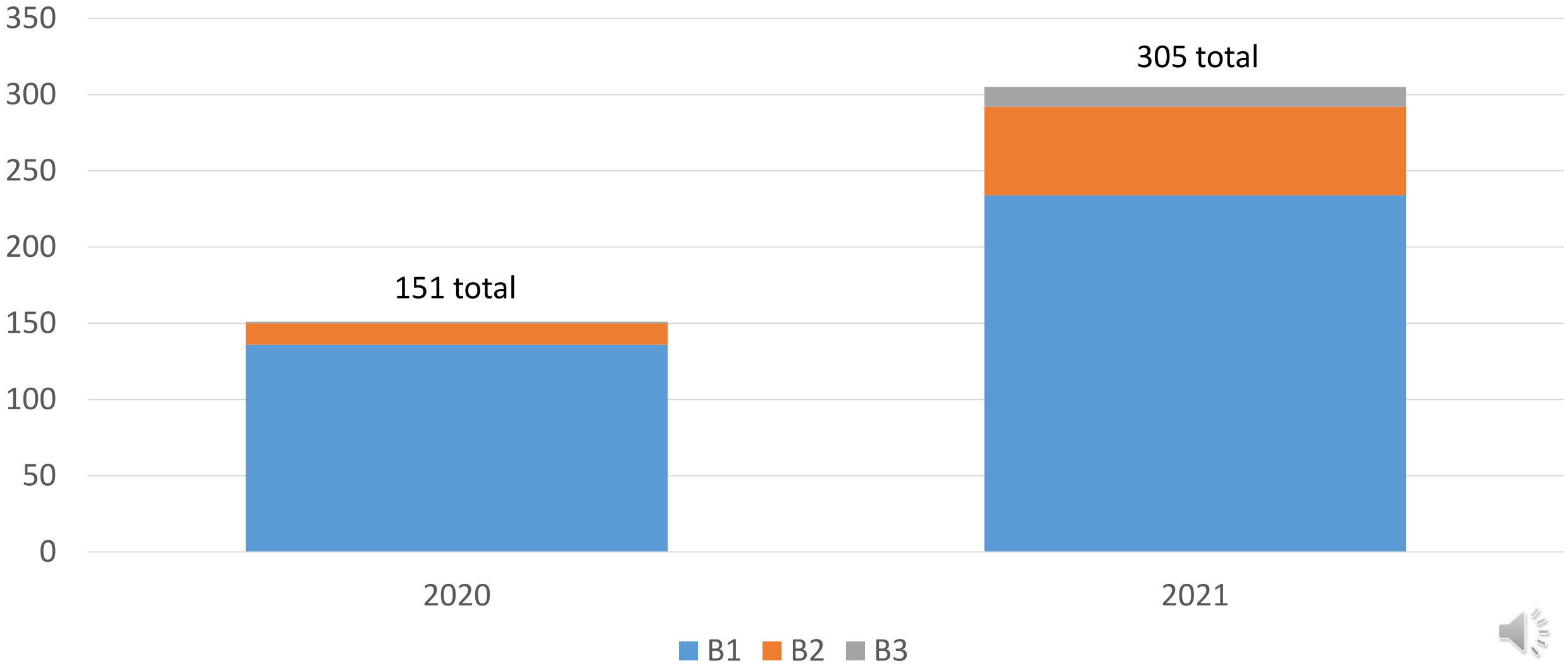


Impact of Operation Allies Welcome in Virginia

- 3 Virginia safe havens: Fort Pickett, Marine Corps Base Quantico, and Fort Lee
- Total refugees processed:
  - Ft. Pickett: 7,480
  - MCB Quantico: 5,081
  - Ft. Lee (as of Oct. 2021): 1,200

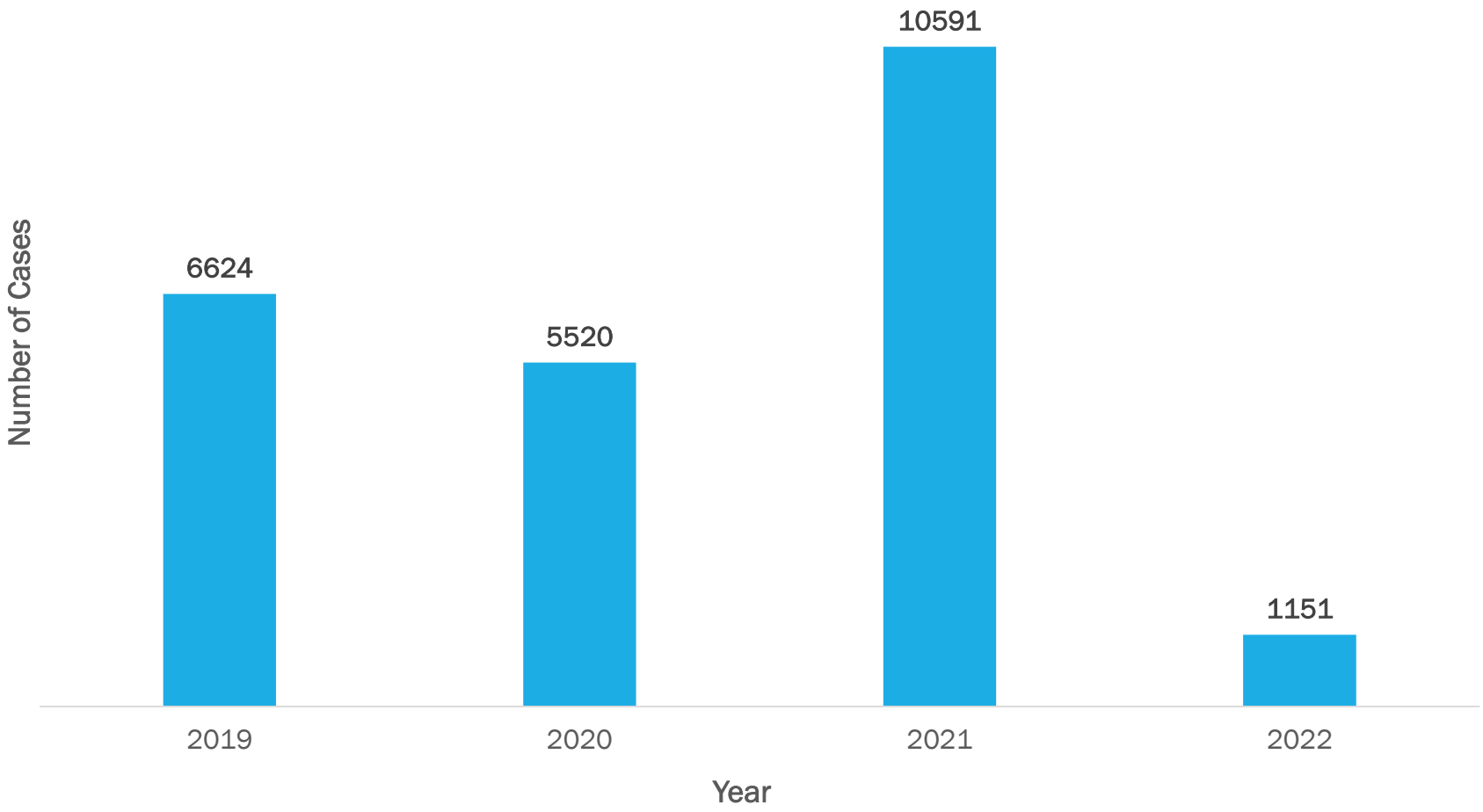


Tuberculosis Class B Arrivals to Virginia, 2020 and 2021

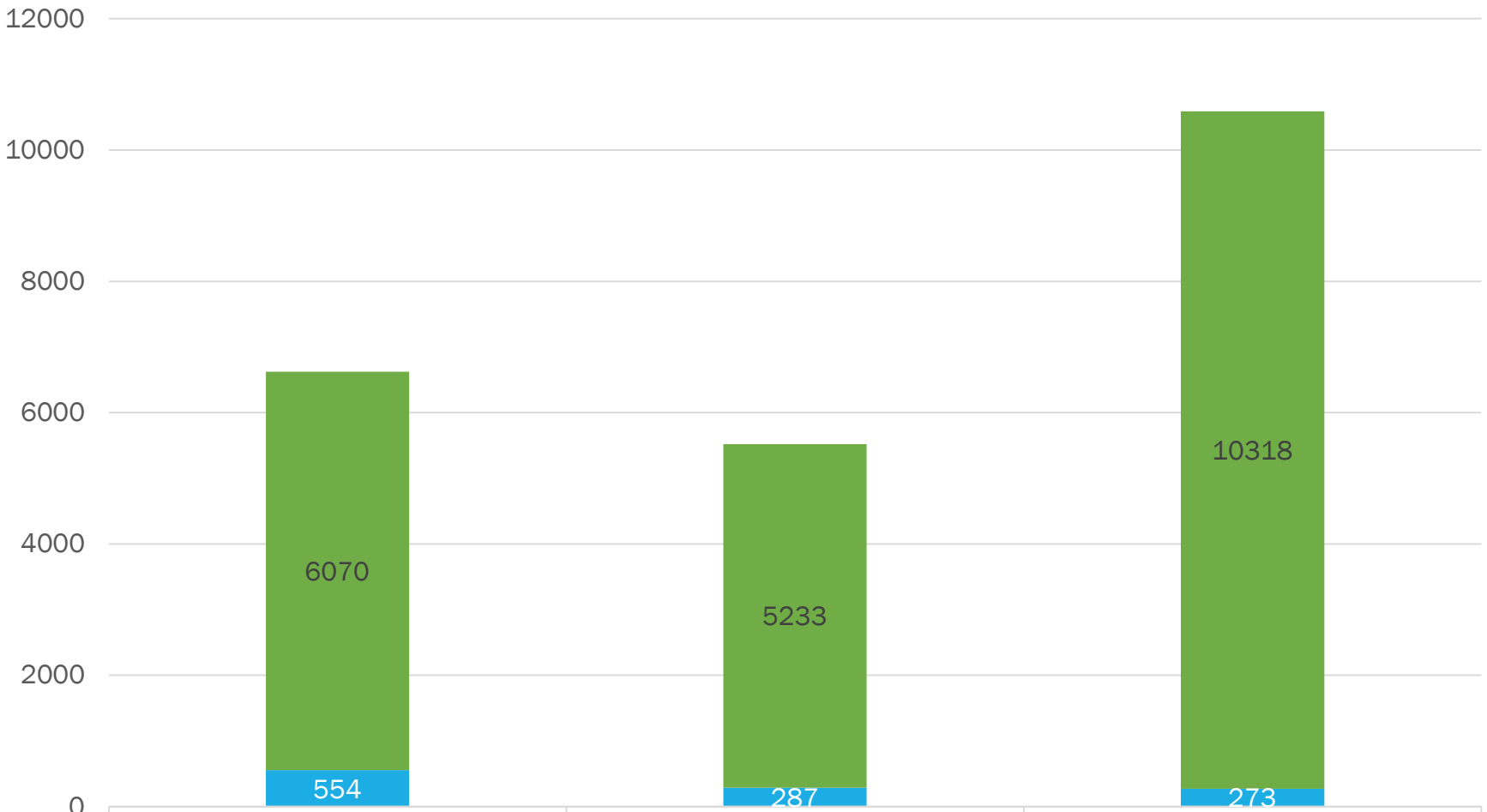


LTBI in Virginia

LTBI Cases in Virginia, 2019-2022

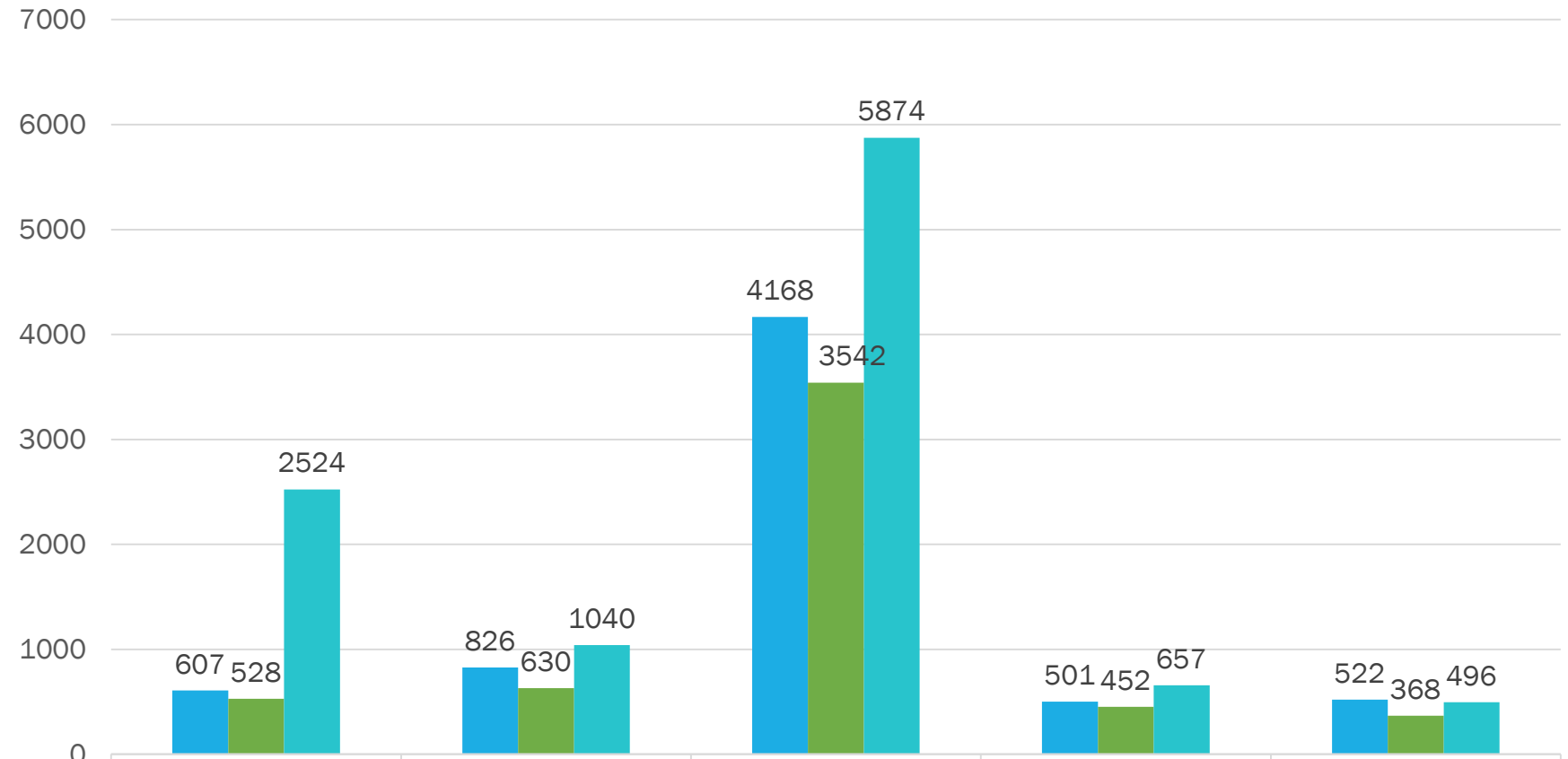


LTBI Cases by Case Status, Virginia, 2019-2021



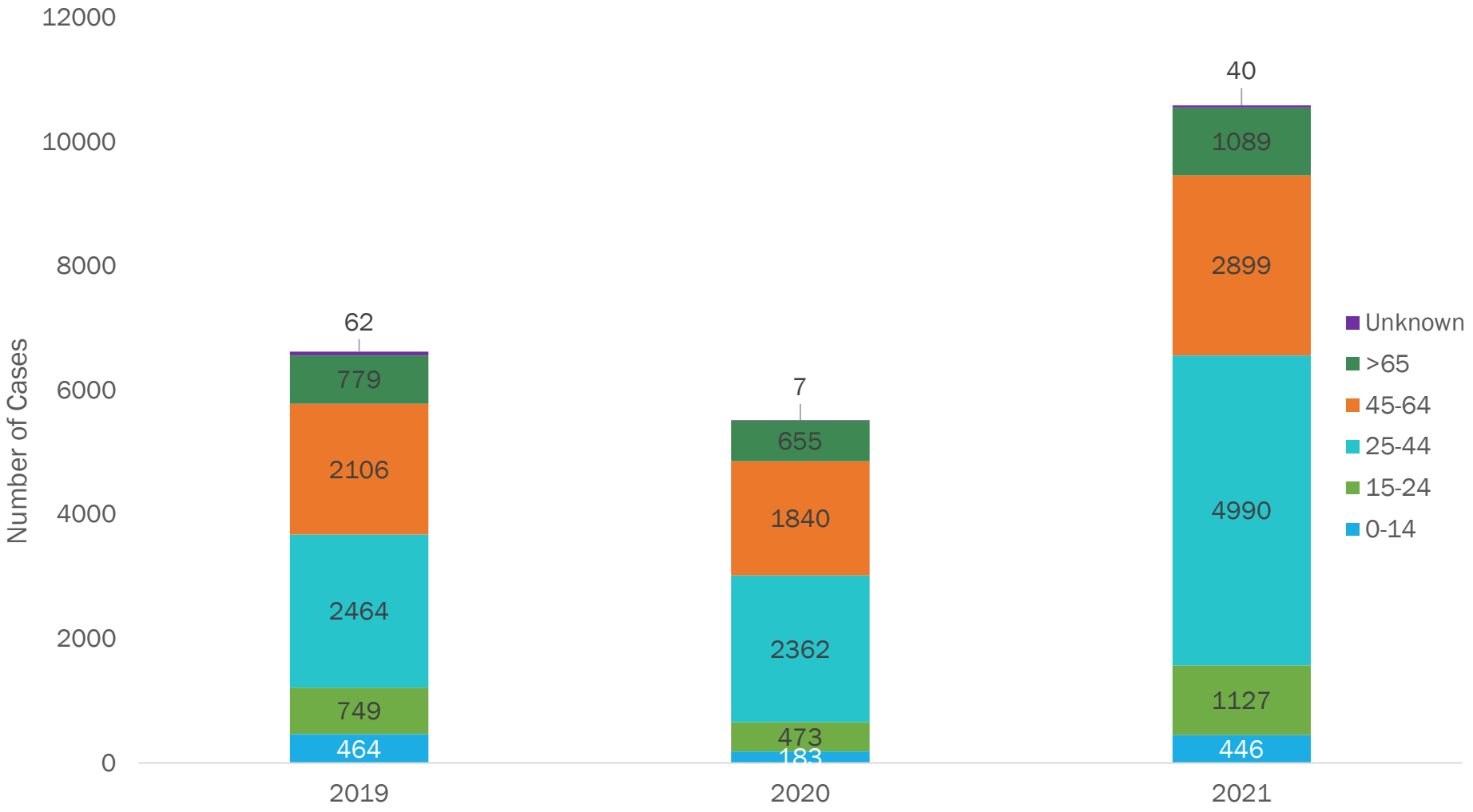
	2019	2020	2021
Suspect	6070	5233	10318
Confirmed	554	287	273

LTBI Case Distribution by Region, Virginia, 2019-2021

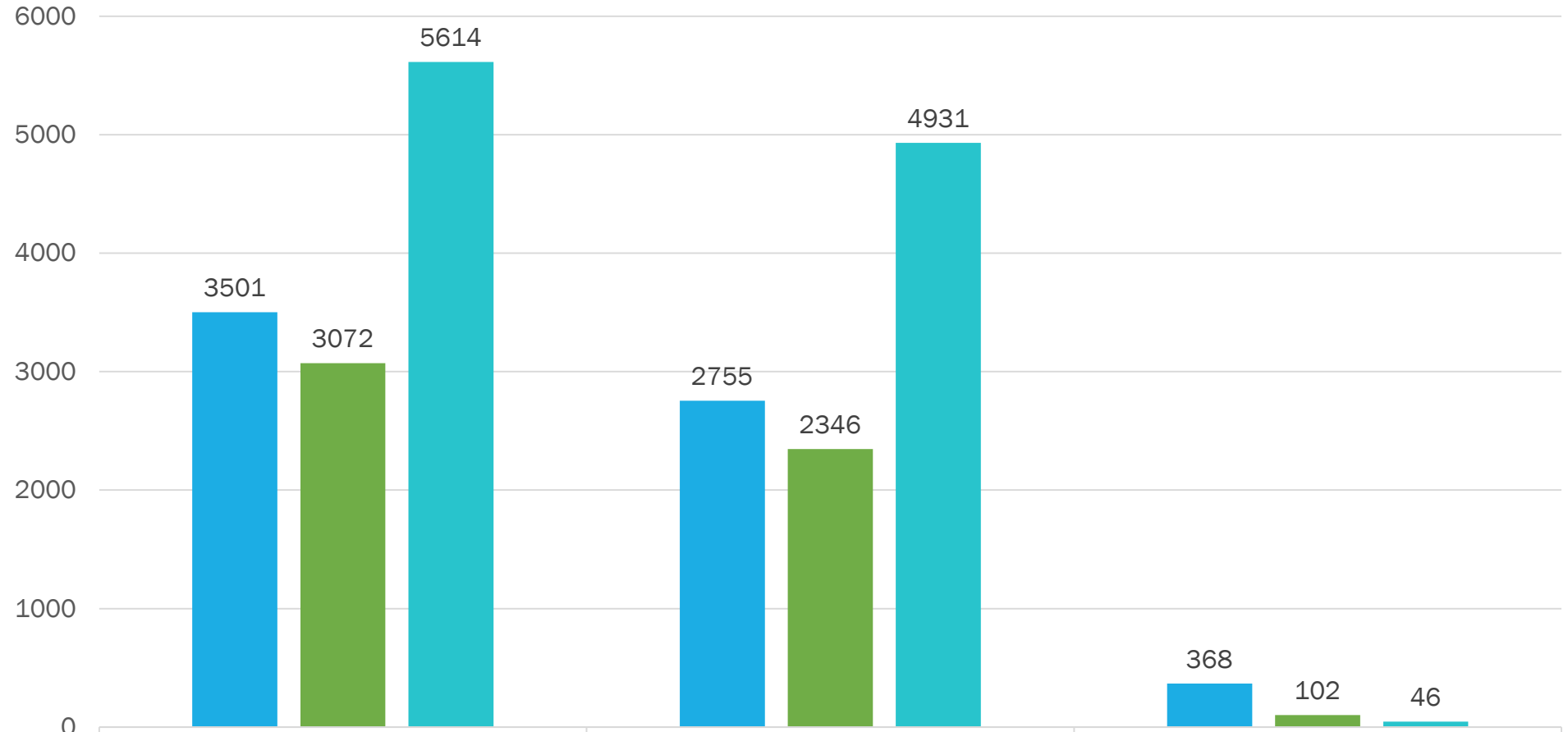


	Central	Eastern	Northern	Northwest	Southwest
2019	607	826	4168	501	522
2020	528	630	3542	452	368
2021	2524	1040	5874	657	496

LTBI Cases by Age Group in Years, Virginia, 2019-2021



LTBI Cases by Sex, Virginia, 2019-2021



	Female	Male	Unknown
2019	3501	2755	368
2020	3072	2346	102
2021	5614	4931	46

Top Five Reporters for LTBI - 2021

1. LabCorp (5,710)
2. Quest Teterboro (1,674)
3. Quest Diagnostics – Nichols (1,444)
4. Sunrise Medical Laboratories (295)
5. Fairfax Public Health Laboratory (279)

Questions?

Contact Us:

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LTBI Epidemiologist
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References

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

Filardo TD, Feng P, Pratt RH, Price SF, Self JL. Tuberculosis — United States, 2021. MMWR Morb Mortal Wkly Rep 2022;71:441–446. DOI: http://dx.doi.org/10.15585/mmwr.mm7112a1external icon.

DCLS

Division of

Consolidated Laboratory Services

DGS

DEPARTMENT OF GENERAL SERVICES

World TB Day: New Nucleic Acid Amplification Testing (NAAT) at DCLS

Rana Mehr

March, 24 2022

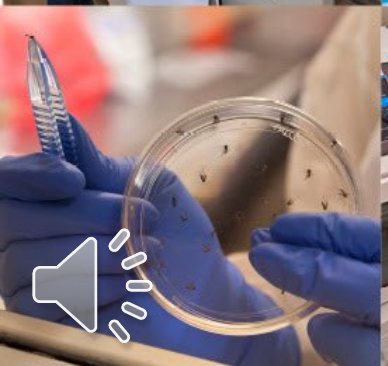
DCLS

Division of

Consolidated Laboratory Services

DGS

DEPARTMENT OF GENERAL SERVICES

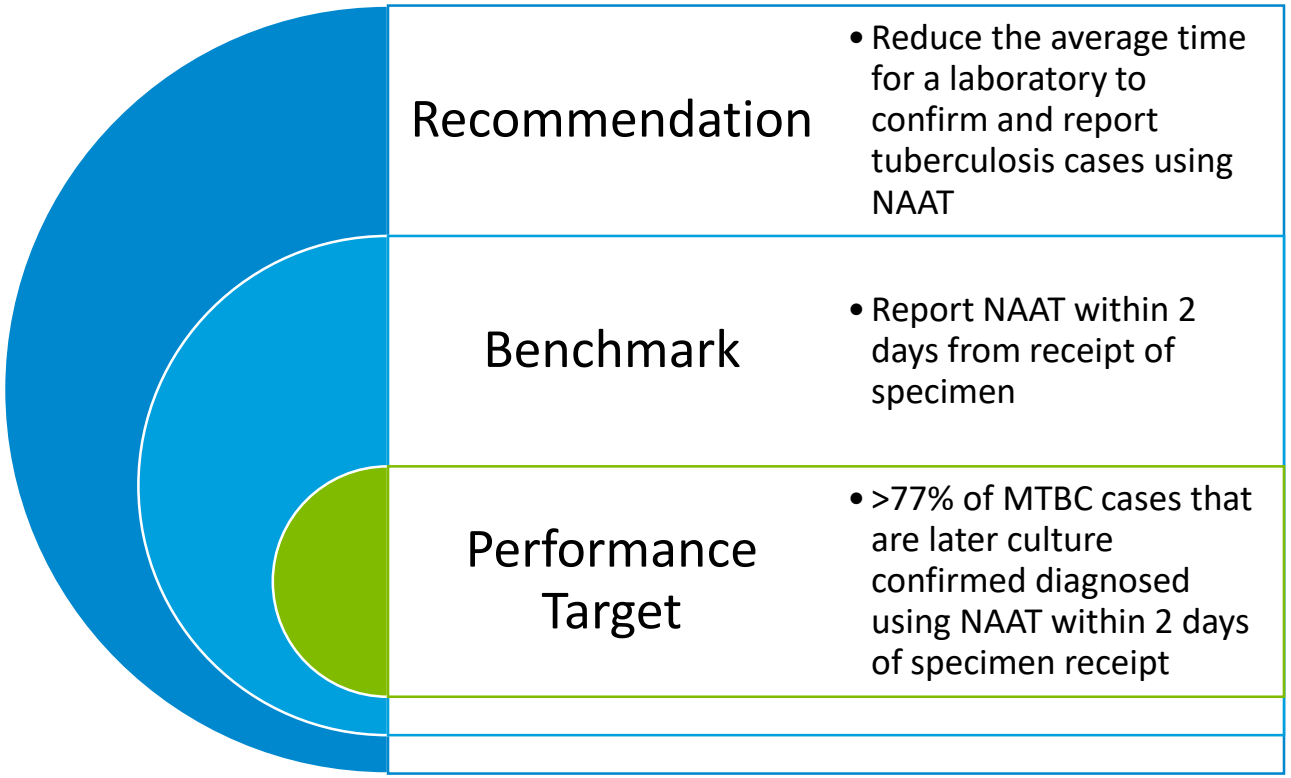


World TB Day: New Nucleic Acid Amplification Testing (NAAT) at DCLS

Rana Mehr

March, 24 2022

Background


Recommendation
• Reduce the average time for a laboratory to confirm and report tuberculosis cases using NAAT
Benchmark
• Report NAAT within 2 days from receipt of specimen
Performance Target
• >77% of MTBC cases that are later culture confirmed diagnosed using NAAT within 2 days of specimen receipt

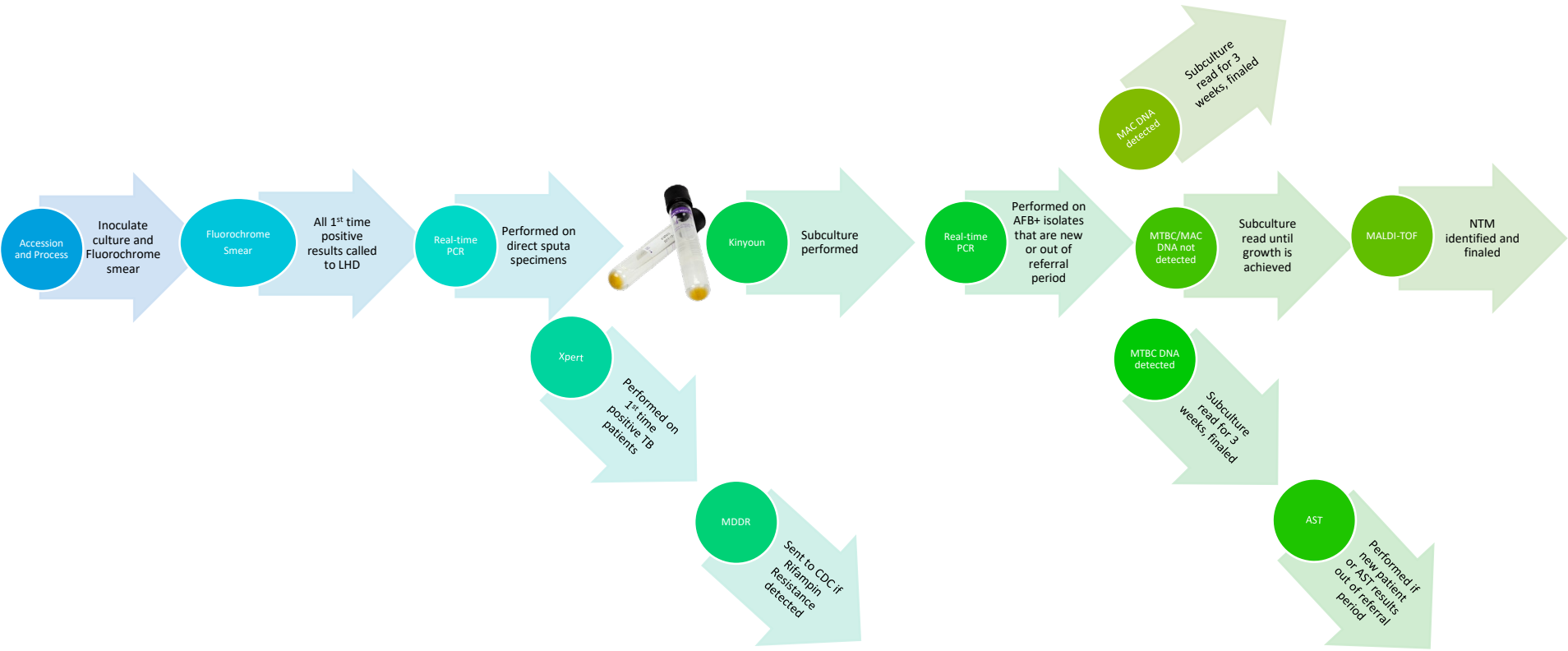
New Testing

- New testing provided by DCLS beginning April 1, 2022
- NAAT for detection of *Mycobacterium tuberculosis* complex (MTBC) and *Mycobacterium avium* complex (MAC) from clinical sputa

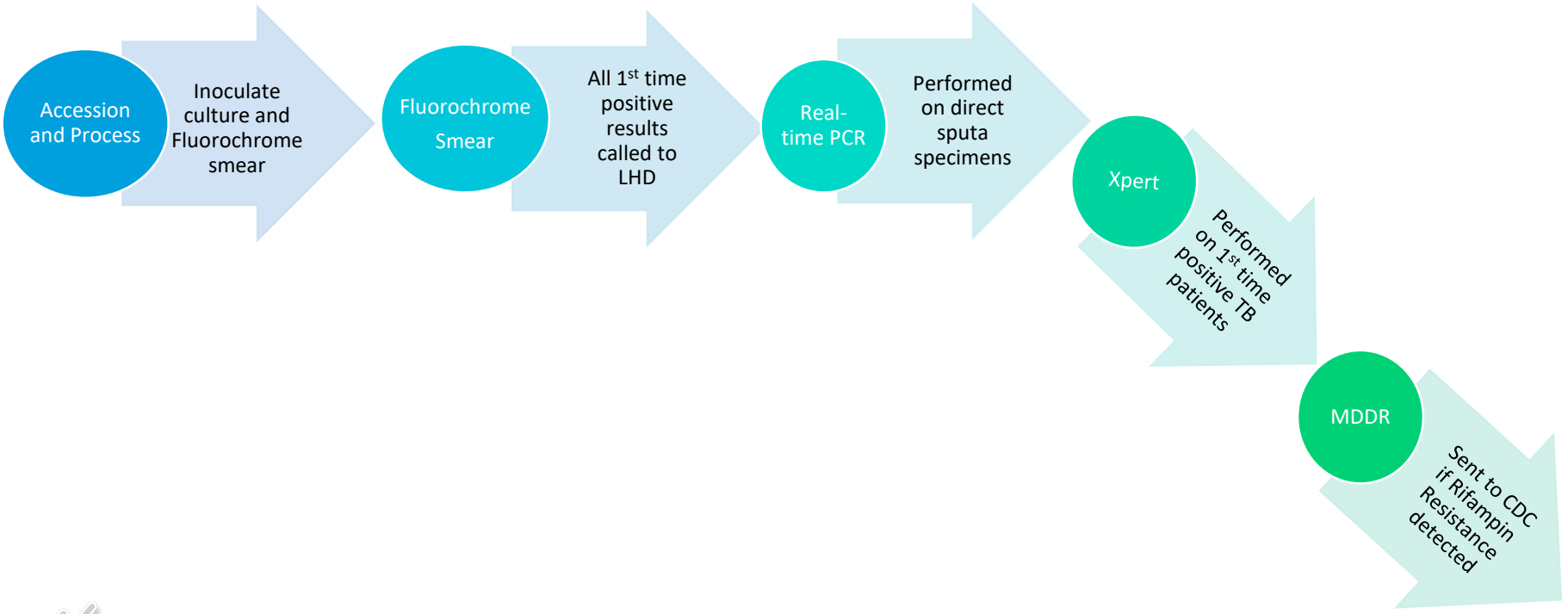
Implications of Direct Sputa Real-time PCR for Tuberculosis Diagnosis and Treatment

- Advantages of rapid results:
  - Earlier treatment initiation
  - Improved patient outcomes
  - More rapid opportunities to disrupt transmission
  - Effective public health intervention
- Disadvantages:
  - Detects non-viable MTBC
  - Specimen may contain inhibitors (false negative)
  - Negative test does not exclude possibility of isolating MTBC from sputum culture

TB Laboratory Testing Algorithm



NAAT Algorithm for Sputa



NAAT Criteria

Real-time PCR on direct sputa

- Patients currently not on anti-tuberculosis therapy
- Patients without a previous positive MTBC result (NAAT and/or culture) within the past 12 months

Xpert MTB/RIF on direct sputa

- Patient on anti-tuberculosis therapy for less than 3 days
- Sufficient volume
- Non-pediatric patients

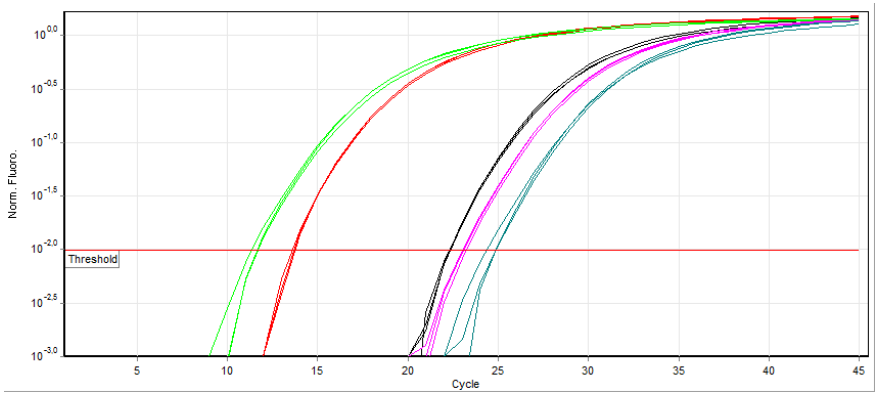
Real-time PCR method

Direct Sputa and Positive AFB Cultures are heat inactivated

DNA Extraction

Mastermix and samples are added to 96 well plate

Real-time PCR occurs on ABI



Samples are analyzed for detection of DNA

Direct Real-time PCR Results

- Both MTBC and MAC results are released via preliminary report
  - MTBC
    - DNA detected
      - HD notified via phone if initial positive result
    - DNA not detected
    - Inconclusive
    - Inconclusive due to inhibition
  - MAC
    - DNA detected
    - DNA not detected
    - Inconclusive
    - Inconclusive due to inhibition

PRELIMINARY REPORT

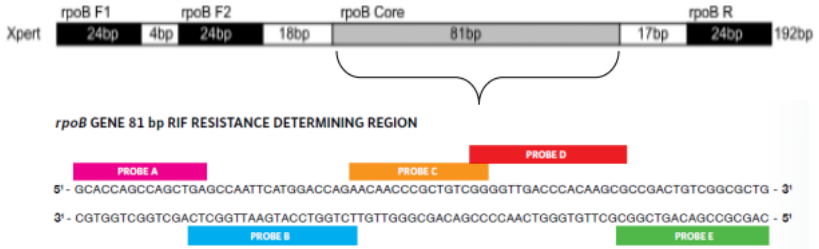
Direct PCR M. tuberculosis complex/M. avium complex **Date Released:**

Mycobacterium avium complex DNA by real-time PCR: DETECTED
Mycobacterium tuberculosis complex DNA by real-time PCR: Not Detected
Disclaimer: This test has not been cleared or approved by the U .S. Food and Drug Administration . The performance characteristics of this test have been validated by DCLS . The results from this assay should not be used independently to make decisions regarding the management of patient care or public health .

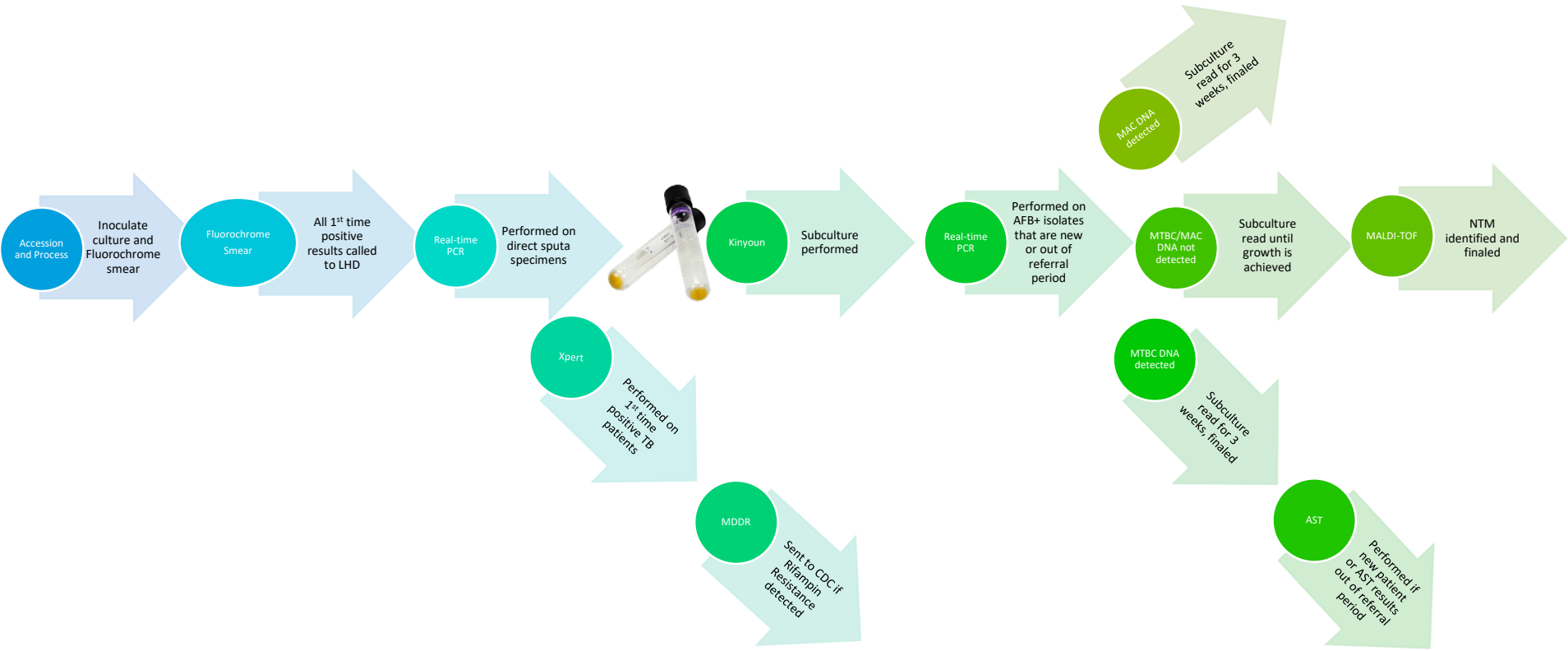
Xpert MTB/RIF Testing and MDDR

- MTBC DNA detected specimens are reflexed to Xpert MTB/RIF to test for Rifampin resistance

- If mutations in rpoB gene are detected, specimen reflexes to CDC for MDDR



TB Laboratory Testing Algorithm



NAAT Culture Testing Algorithm

Kinyoun

Subculture performed

Real-time PCR

Performed on AFB+ isolates that are new or out of referral period

MTBC/MAC DNA not detected

Subculture read until growth is achieved

MALDI-TOF

NTM identified and finaled

MAC DNA detected

Subculture read for 3 weeks, finaled

MTBC DNA detected

Subculture read for 3 weeks, finaled

AST

Performed if new patient or AST results out of referral period

Culture Real-time PCR Results

- MTBC DNA: Detected
  - Results verbally reported to HD if:
    - Initial positive clinical result or TB compliance isolate
- MAC DNA: Detected
- Culture PCR results will have a 1 month referral period

PRELIMINARY REPORT

Culture PCR M. tuberculosis complex/M. avium complex **Date Released: 01/18/2022**

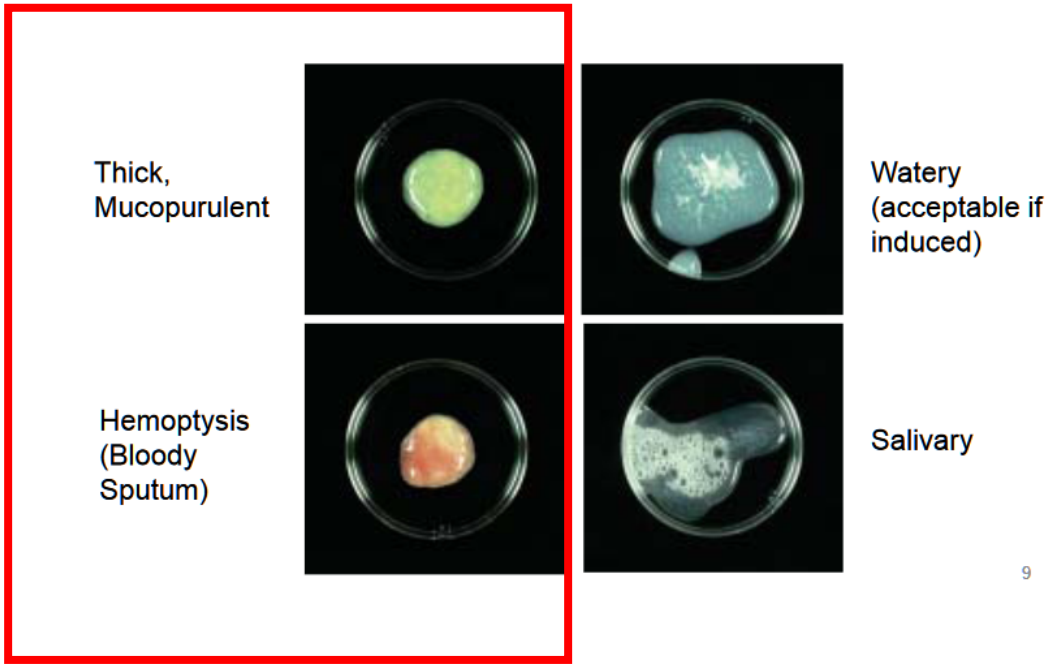
Mycobacterium tuberculosis complex DNA by real-time PCR: DETECTED

Disclaimer: This test has not been cleared or approved by the U .S. Food and Drug Administration . The performance characteristics of this test have been fully established by DCLS . The results from this assay should not be used independently to make decisions regarding the management of patient care or public health.

Results phoned to

Contact Name	Date	Called by	Comments
VIRGINIA BEACH CITY HEALTH DEPARTMENT	01/18/2022	Terri Bateman	LEFT VOICEMAIL FOR [redacted] REGARDING PCR RESULT.

Reminder: Good Quality Sputa is Critical for NAAT and Cultures



- 1st morning sputum
- Observed collection
- Thick, not watery
- Sputum produced from deep lung cough

- 5mL sputa volume is critical to perform all testing:
  - Processing
  - Direct PCR
  - Xpert MTB/RIF
  - MDDR

Questions?

Contact TB laboratory (804)648-4480 ex. 255

Toolkit Launch!

How to Harness the Power of Your Community to Address TB

VDH VIRGINIA DEPARTMENT OF HEALTH

To protect the health and promote the well-being of all people in Virginia.

Background

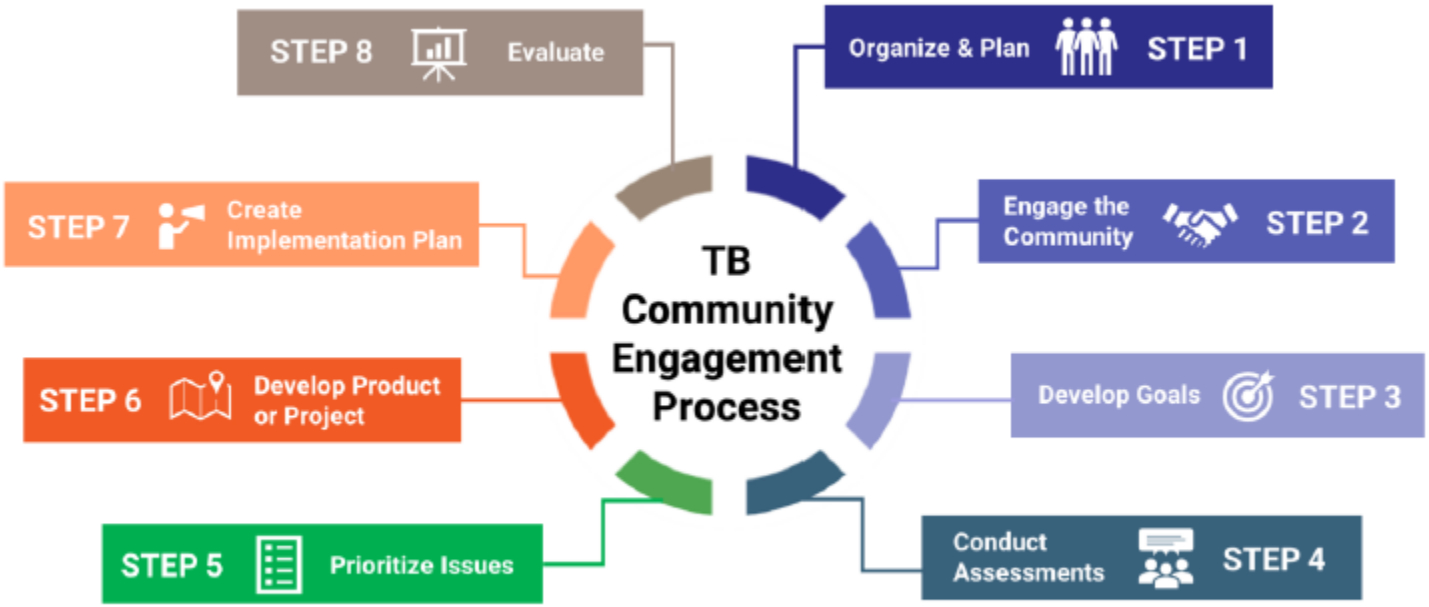
- Toolkit for public health departments
- Collaboration between NOVA health departments and VDH
- Focus on community engagement

Community Engagement Matters

- Understand their needs
- Make better decisions
- Increase involvement and satisfaction
- Do this with them, *not for them*!

Goal

- Share a flexible process and model of community engagement to help health departments identify and reach their target TB populations



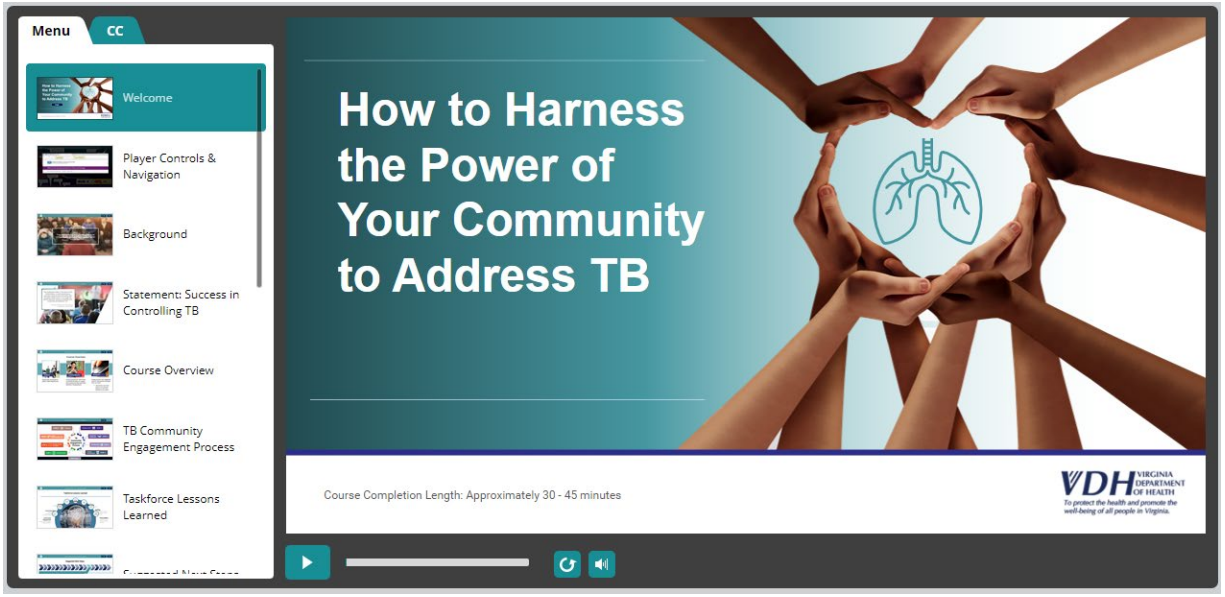
Learning Objectives

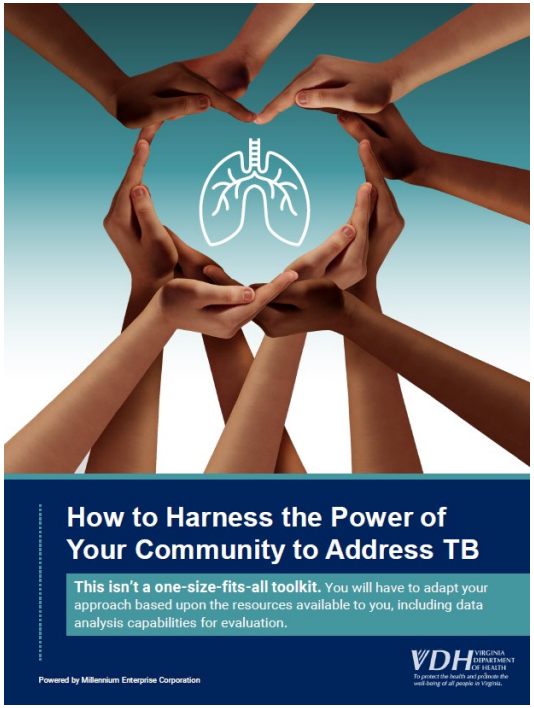
After completing the toolkit, participants will be able to:

- ☑ Describe the importance of engaging community to improve TB outcomes
- ☑ List the 8 steps in the community engagement process
- ☑ Identify next steps for their health department in the process
- ☑ Implement identified next steps

Format

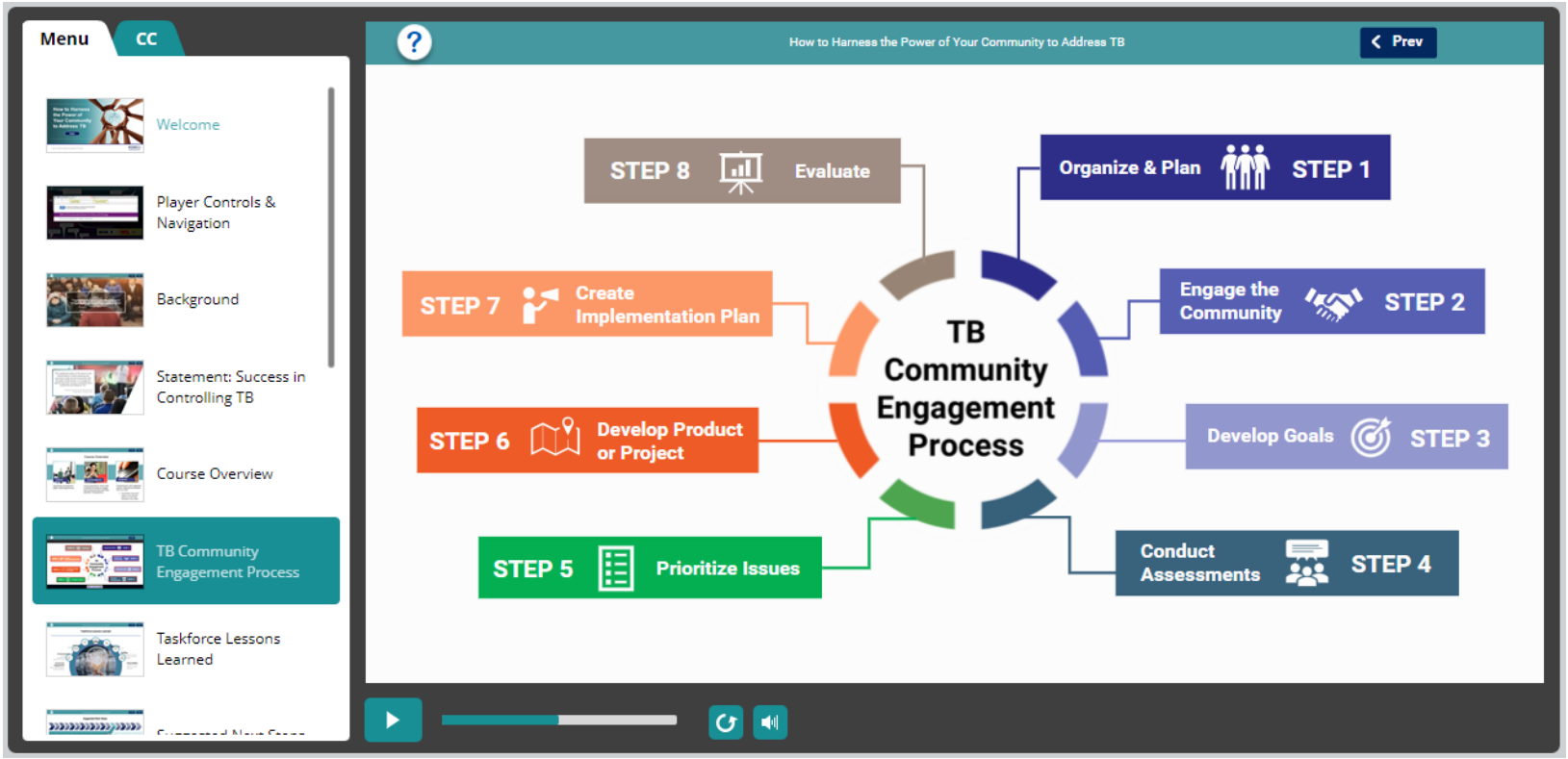
- Online and PDF formats
- Complete independently or with your team





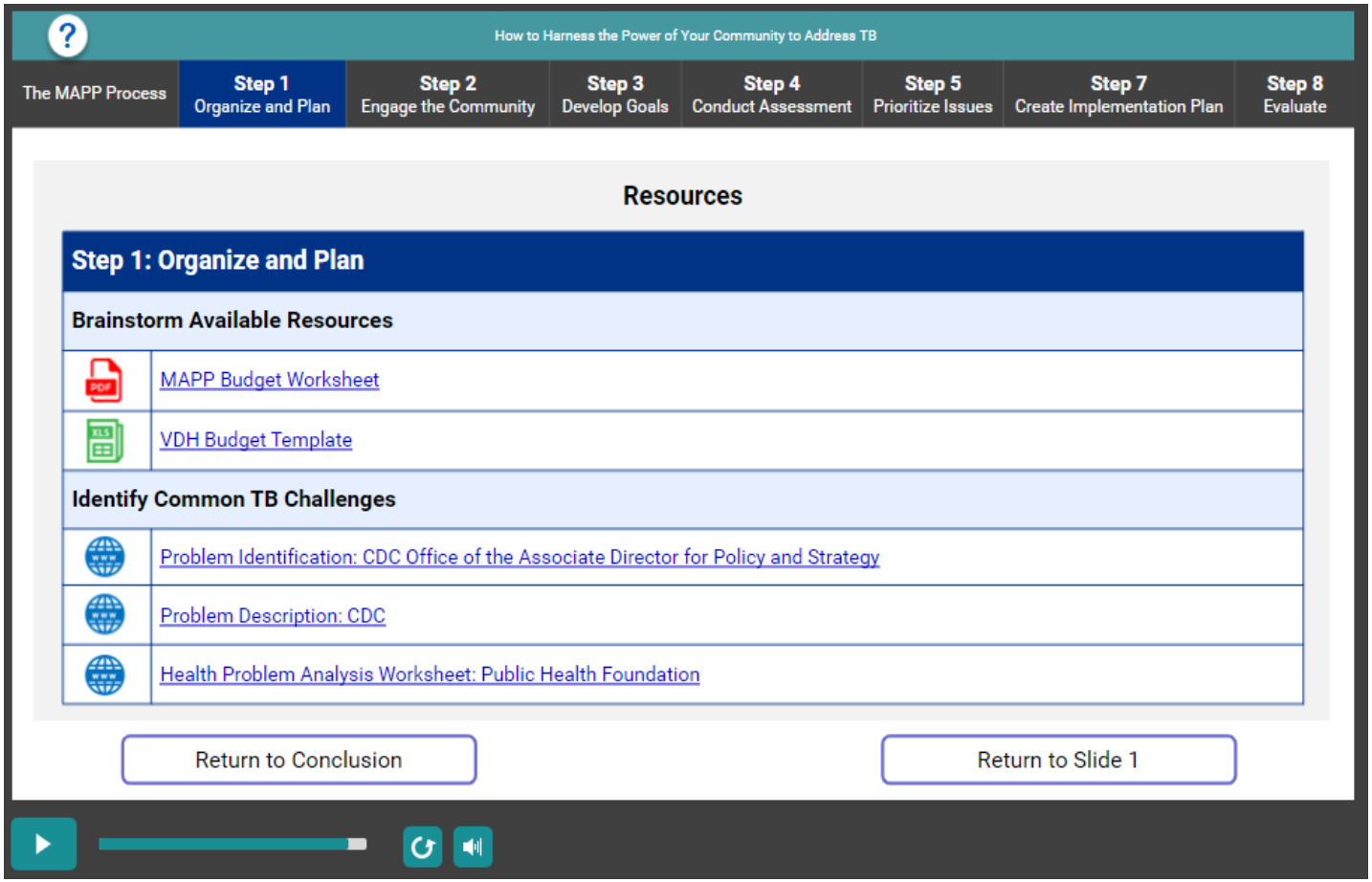
Features

- 8-steps
- Ability to navigate to specific steps
- 30-45 minutes for online course + time for engagement/project implementation



Features contd.

- Supplemental resources to explore topics further



- VA TRAIN: Course ID **1102425**
- https://www.vdh.virginia.gov/tuberculosis/community-engagement/

Help is just an email or phone call away!

tuberculosis@vdh.virginia.gov

804-864-7906

Community Engagement Toolkit Mini Grants

Community Engagement Toolkit Mini Grants

- $50,000 in CDC grant funding allocated to support mini grants for toolkit implementation
- For Health Districts across the Commonwealth
- Up to $10,000 per project will be awarded
- Total number of awards – dependent upon amount of funding requested in each awarded application
- Collaborative projects are allowable
  - Will be considered as one project with no more than $10,000 awarded

- This is starter funding to initiate the planning process
- Purpose:
  - To support the formation of a workgroup to implement the toolkit
  - To support the planning process outlined in the toolkit which leads to the identification of needs that exist within the communities served by the health district.
  - To support the planning process to develop activities and an implementation plan to meet the needs identified by the workgroup.

Ways to Use the Funding

- To support a portion of an existing staff salary to lead this initiative
- To support a paid internship for a bachelors or masters level student
- To support the hiring of a contractor to lead this initiative
- To support purchase of or the development of materials for recruitment and engagement of planning team members
- To support the purchase/development of materials for planning team meetings
- To support rental of space for planning team meetings
- To purchase supplies for meetings and/or workgroup activities.

Funding Restrictions

- Food
- Human Subjects Research
- Furniture or equipment
- Payment of pre-award costs
- Lobbying activities
- In-patient clinical care
- Use of funds to supplant state or local health department funds
- Purchase of drugs for treatment

Process and Timeline

- Review toolkit
- Determine desire to begin this planning process in 2022 and feasibility to do so
- Review application templates
- Apply for mini-grant by April 29, 2022
- Panel review of applications
- Mini-grant awarded by May 16, 2022
- Implement planning process - May 17, 2022
- Complete expenditures for mini-grant by Dec. 31, 2022

Step 1 → Step 2 → Step 3 → Step 4

- Application Template - Word
- Budget Template - Excel

- A final project report will be required at the end of the project period
  - 1-page summary which details the project accomplishments
- Completion of a short survey to provide feedback on the toolkit and its implementation
- **All expenditures must be completed and processed by Dec. 31, 2022.**

[TB Program Community Engagement Webpage]

Email: tuberculosis@vdh.virginia.gov