

Public Health Surveillance and Descriptive Tuberculosis Epidemiology for TB Program Managers

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Learning Objectives

- Describe public health surveillance and the uses of descriptive data
- Describe the role of epidemiology in TB control
- Find data resources
- Describe requirements for TB reporting

Definition of Surveillance

- The ongoing systematic collection, analysis, and interpretation of outcome-specific data for use in the planning, implementation, and evaluation of public health practice.
- Includes data collection, analysis, and dissemination to those responsible for prevention and control.

Purpose of Surveillance

- To assess public health status, to define public health priorities, to evaluate programs, and to stimulate research.
 - Tells us where the problems are, who is affected, and where the programmatic and prevention activities should be directed.

Authority for Disease Surveillance

- Disease reporting is required by the Code of Virginia, hence we have statutory authority to collect surveillance data see §32.1-12, §35-35 and §32.1-49
- In Virginia, Tuberculosis and TB infection in children are reportable as well as any laboratory result or clinical suspicion of Tuberculosis

Authority for Disease Surveillance

- The statutes are elaborated in the Disease Reporting Regulations promulgated by VDH
- The Division of Disease Surveillance in the Office of Epidemiology keeps the regulations up to date
- <http://www.vdh.virginia.gov/Epidemiology/Regulations.htm>

Data Sources

- Laboratory reports
- EPI-1
- Reports from other states
- Phone calls from ICP, lab, physicians, nursing homes, jails, prisons.

Surveillance Data

- Quantitative estimates of the magnitude of a health problem
 - including sudden or long-term changes in trends, patterns
- Portrayal of the natural history of disease (clinical spectrum, epidemiology)

Surveillance Data

- Detect epidemics and outbreaks
- Document distribution and spread of a health event
- Evaluate control & prevention measures

Surveillance Data

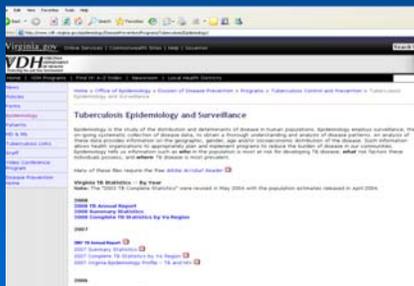
- Monitoring changes in infectious agents and host factors Detection of epidemics
- Detecting changes in health practice
- Facilitate planning

Analysis of Surveillance Data

- Descriptive epidemiology
 - Person, place, time
- Incidence and Prevalence
 - Rates -- crude, specific, standardized
- Trends and seasonality
- Geographic clustering (maps)

Virginia TB Data

<http://www.vdh.virginia.gov/epidemiology/DiseasePrevention/Programs/Tuberculosis/Epidemiology/>



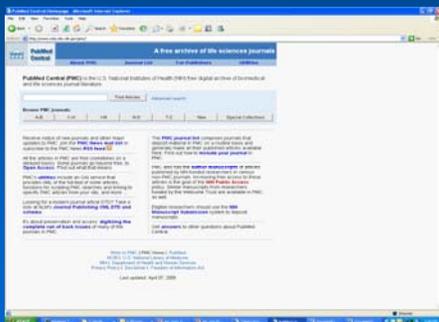
US TB Data

<http://www.cdc.gov/tb/statistics/default.htm>



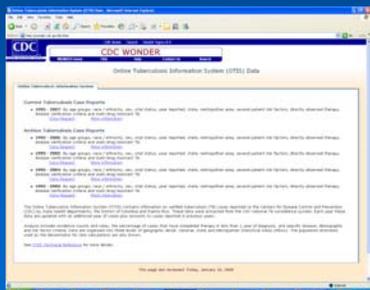
Free Online Journal Articles

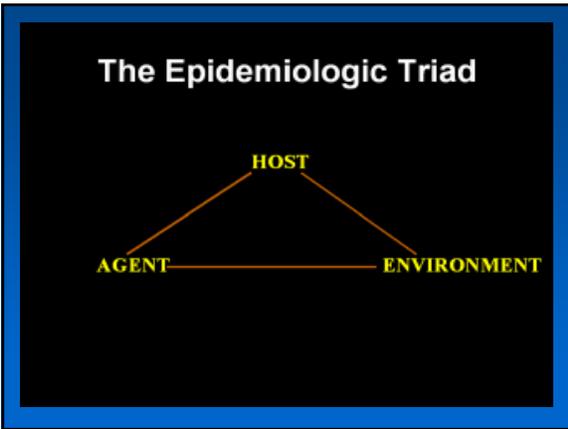
<http://www.ncbi.nlm.nih.gov/pmc/>



CDC Wonder OTIS

<http://wonder.cdc.gov/tb.html>





TB Epi Investigations “Shoe leather epidemiology”

- Cases identified through surveillance
 - What kind of investigation is warranted?
 - Who is population at risk?
 - Do need a social network approach?
- Conduct investigation
 - Identify and evaluate contacts
 - Identify contacts with TB or LTBI
 - Assess for level of concern, is this an outbreak?

Epi Investigations

- An outbreak is more than an expected or unusual number of confirmed cases for a given population within a given time period

TB Epi Investigations

- Conduct literature review as needed
- Identify epidemiologic links between cases
- Utilize genotyping to assist with investigation
- Genotype matches may prompt recognition of on-going transmission, new questions and new avenues for investigation

CDC Tuberculosis Surveillance Data Report of Verified Case of Tuberculosis (RVCT)



Case Definition TB

http://www.cdc.gov/nceh/di/ss/nndss/casedef/tuberculosis_current.htm



RVCT (Report of Verified Case of Tuberculosis)

- Substantial revision to CDC RVCT form in 2009 (first time in a decade)
- Response to change in technologies: rapid detection tests, IGRA's
- Additional risk factors: diabetes, TNF-alpha inhibitors
- Timeliness measures: report dates, etc.

Case Reporting

- Surveillance and epidemiology field staff collect the required RVCT data from local health department records

Contact Investigation Reporting

- CDC requires submission of aggregate data for program evaluation also known as the ARPE
- These data are compiled from individual contact investigations as recorded on the 502

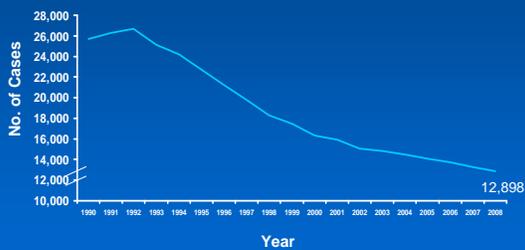
New Reporting Requirements for Contact Investigation (502)

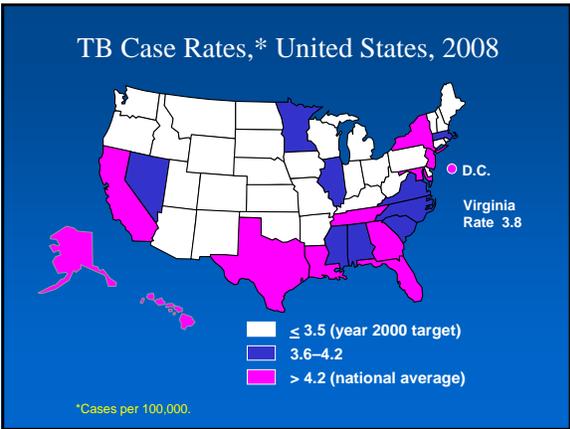
- **First report:** submit 502 or local spread sheet to State TB Control within **4 weeks**.
- **Second report:** submit completed contact investigation 502 to State TB Control (excluding completed dates for contacts on treatment for LTBI) within **4 months**.
- **Final Report:** submit updated 502 to State TB control after the contacts have completed treatment for LTBI (INH 9 months) or (Rifampin 4 months)

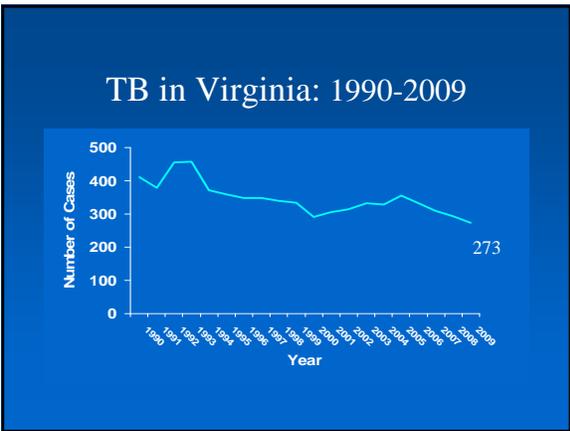
Measurements

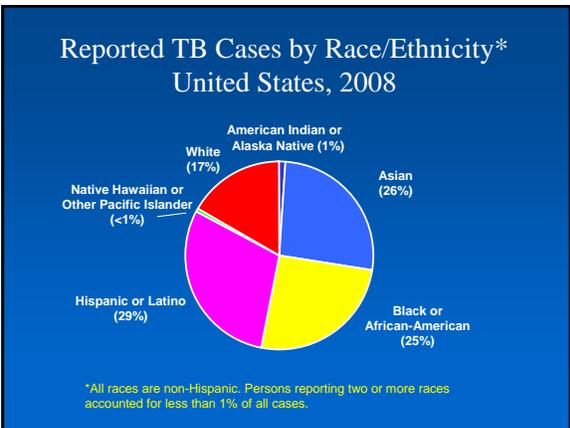
- Number of cases
- Rate
- Percent

TB in the United States, 1990-2008

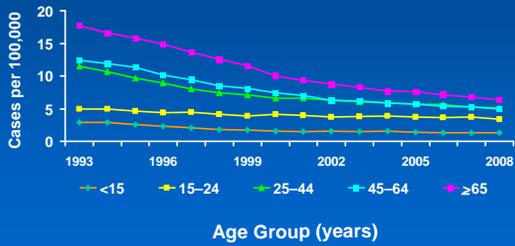






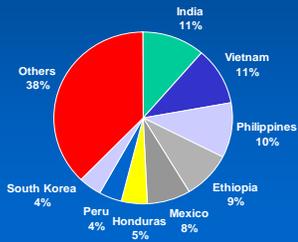


TB Case Rates* by Age Group United States, 1993–2008

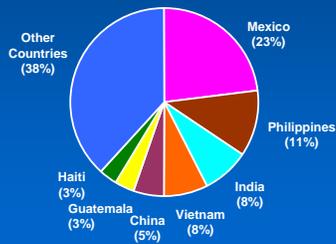


*Updated as of May 20, 2009.

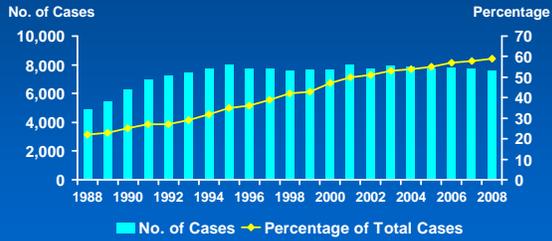
Countries of Birth of Foreign-born Persons with TB Virginia, 2008



Countries of Birth of Foreign-born Persons Reported with TB United States, 2008

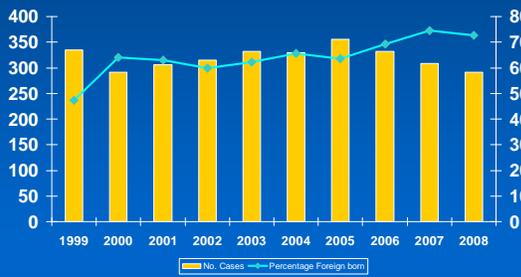


Trends in TB Cases in Foreign-born Persons, United States, 1988–2008*

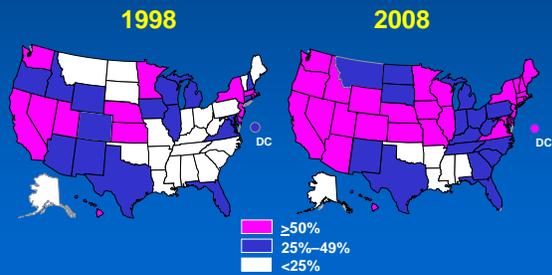


*Updated as of May 20, 2009.

Trends in Foreign-born Cases, Virginia : 1999-2008



Percentage of TB Cases Among Foreign-born Persons, United States*



*Updated as of May 20, 2009.

Virginia Report Quintessential Descriptive Data

<http://www.vdh.virginia.gov/epidemiology/DiseasePrevention/Programs/Tuberculosis/Epidemiology/>

So How is this Relevant to TB Control?

- Surveillance and epidemiology are the backbone of prevention!
- You need to know what, who, when and where to control the disease and to know if your intervention worked

Final Thoughts

- Surveillance and epidemiology tell us who, what, when and where.
- The flow of information from the District to the State and back to the District is a collaboration.
- The surveillance and epidemiology program at TB Control is always available to you for consultation and assistance.

With gratitude

- To you for your time and attention
- To all the people and institutions from whom I borrowed slides
