HEALTHY CHICAGO
CHICAGO DEPARTMENT OF PUBLIC HEALTH

Natural History of Untreated Pulmonary Tuberculosis

March 19, 2019
2019 Chicago Tuberculosis Conference
In commemoration of World TB Day

Kathy Ritger, MD, MPH
Chicago Department of Public Health

Kathy Ritger has disclosed that there is no actual or potential conflict of interest in regards to this presentation. The planners, editors, faculty and reviewers of this activity have no relevant financial relationships to disclose. This presentation was created without any commercial support.

RUSH UNIVERSITY MEDICAL CENTER

2019 Chicago Tuberculosis Conference

March 19, 2019

Kathy Ritger

The planners, editors, faculty and reviewers of this activity have no relevant financial relationships to disclose. This presentation was created without any commercial support.

To obtain credit you must:

- **Complete an electronic evaluation**
- **After completing the evaluation you can generate your certificate immediately.**

In support of improving patient care, Rush University Medical Center is accredited by the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing education for the healthcare team.

Rush University Medical Center designates this live activity for a maximum of 3.5 AMA PRA Category 1 Credit(s)™. Physicians should claim only credit commensurate with the extent of their participation in the activity.

ANCC Credit Designation – Nurses
The maximum number of hours awarded for this CE activity is 3.5 contact hours.

This activity is being presented without bias and without commercial support.

Rush University is an approved provider for physical therapy (216.000272), occupational therapy, respiratory therapy, social work (159.001203), nutrition, speech-audiology, and psychology by the Illinois Department of Professional Regulation.

Rush University designates this live activity for 3.5 Continuing Education credit(s).

Learning Objectives

At the conclusion of this course participants will be able to:

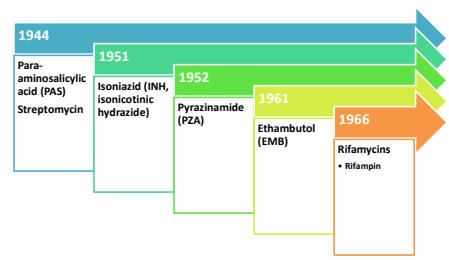
- Discuss the prognosis and mortality rate of untreated pulmonary TB
- Recall local, state, and national TB data trends; Define whole genome sequencing (WGS) and how it is used in TB epidemiologic and contact investigations.
- Describe steps needed for a mass TB screening; identify appropriate TB test for individual patients.
- Identify strategies to reduce or stop alcohol consumption among patients with TB
- Identify components of nurse care management, as it pertains to tuberculosis and discuss various approaches to challenging situations

Tuberculosis in the Pre-Antibiotic Era

Consumption / Phthisis

- Sanitaria movement mid-19th to mid-20th centuries
  - Fresh air, high altitude
  - Bed rest
  - Nutrition
  - Collapse lung (pneumothorax)
  - Resect lung (pneumonectomy)
- National Jewish Health (Denver) estimates 2 of 3 patients died within 5 years of diagnosis

Development of Anti-TB Antibiotics



Why Wouldn't You Treat TB??

- Low resource countries
  - TB may go undetected & undiagnosed
  - Free treatment might only be available to smear+ cases
  - Patients co-infected with HIV and those drug resistance may have a prognosis similar to that of untreated TB
- High resource countries
  - TB may go undetected & undiagnosed
  - Lack of patient cooperation

How to Study Untreated TB?

- Unethical to do a study
- "Natural History of Tuberculosis: Duration and Fatality of Untreated Tuberculosis in HIV Negative Patients: A Systematic Review"

  Authors: Tiemersma, EW; van der Werf, M; Borgdoff, MW; Williams, BG; Nagelkerke, NJD.

  Journal: PLoS ONE, Vol. 6, Issue 4, April 2011

Systematic Review - Methodology

- Eligibility criteria
  - Adult populations (>15 years of age)
  - Pulmonary TB
  - Written in English, French, German, Spanish, or Dutch
- Search strategy
  - Electronic search (PubMed, etc.) yielded no eligible papers
  - Therefore, "snowball sampling" performed, starting from a classic textbook and researching references
  - Studies included if sound methodology, original data, distinguished between smear+ and -, sufficient follow up time, and no effective chemotherapy provided

Systematic Review - Results

- 2256 records identified
  - 85 excluded because of insufficient reference
  - 2062 excluded after review of title or article not available for review
  - 109 articles assessed
    - 87 excluded b/c unclear description of type of TB, insufficient info to calculate survival rate or duration of disease, or biased patient population
    - 22 eligible for qualitative synthesis
      - 16 of these eligible for synthesis of case fatality

Systematic Review - Discussion

- Studies were heterogeneous, so unable to do a formal meta-analysis
- Main findings
  - 10-year case fatality for *smear-positive* patients is between 53% and 86%, with a weighted mean of 70%
  - 10-year case fatality of *culture-positive smear-negative* is indirectly estimated to be ~20% (uncertain precision)
  - Duration of TB from onset to cure or death is about 3 years (similar for smear+ and smear-)

HEALTHY CHICAGO
CHICAGO DEPARTMENT OF PUBLIC HEALTH

@ChiPublicHealth /ChicagoPublicHealth
HealthyChicago@CityofChicago.org www.CityofChicago.org/Health