

## Lessons learned from a prison tuberculosis (TB) investigation

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## Background

- California State Prison Solano (CSP-S)
  - Almost 6,000 inmates
  - 1,100 employees
  - Divided into four facilities, six buildings each
- TB outbreak in 1995 in HIV-positive population at neighboring California Medical Facility (CMF)

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## Notification

April 29<sup>th</sup>, 2004

- Warden notified SCHSS and TBCB of two inmate TB suspects and 56 inmate tuberculin skin test (TST) converters in one building, identified during annual screening.
- Ten-fold increase in TST conversion compared to 2003 testing among all inmates.

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## Definitions

- **Case:** TB disease identified in a person who resided or worked in the prison in 2004
- **Contact:** person who resided or worked in the prison who shared airspace with the index case
- **Infectious period:** defined per American Thoracic Society guidelines

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## Methods

- Case finding
  - Interviews of confirmed cases
  - Contacts identified by prison records review
  - Contacts evaluated to ATS classification
  - Chart review of TST converters
- Epidemiologic analysis
  - Questionnaires for inmates and employees
- Genotyping of case isolates

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## Results

- 2 culture-confirmed, epidemiologically and genotypically linked cases.
- 177 (4%) inmate TST converters (112 in 1<sup>st</sup> round, 65 in 2<sup>nd</sup> round).
- Increased TST conversion noted among employees.
- No risk factors for TST conversion identified, other than residing in same building as index case.

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## Conclusions

- Transmission from index case to inmates living in same building.
- No additional risk factors for TST conversion identified.
- No concrete explanation found for increased TST conversion in the rest of the prison.

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## Recommendations

- TB educational materials for inmates and employees
- Train nursing staff in TST placement and reading
- Document TST results in mm of induration
- Document TB screening results at time of TST (use existing form)

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## Lessons learned:

### Working with a prison population(1)

- Difficulty eliciting contacts
- Constant inmate movement (within prison, prison-to-prison, parole)
- Repercussions of restrictive controls

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Lessons learned:  
Working with a prison population(2)

- Frequent skin testing of inmates
- Unknown HIV status for most inmates
- Higher incidence of abnormal baseline chest x-rays among inmates

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Lessons learned:  
Coordination of diverse entities (1)

- Good collaborative effort key to success
  - CSPS, SCHSS, TBCB, other local health jurisdictions, state and local laboratories
  - Strong leadership by CSP-S warden and SCHSS TB controller

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Lessons learned:  
Coordination of diverse entities (2)

- CSP-S and SCHSS public relations specialists
- Monthly meetings of all stakeholders
- Unified message to media, public, and other stakeholders

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**Lessons learned:  
Data management**

- CSP-S shared existing inmate database
- TBCB database used to manage and analyze TB screening and questionnaire data
- Database essential in processing large amounts of data
- Database provided ability to quickly determine need to expand CI

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**Lessons learned:  
Room for improvement**

- TST placement and interpretation
- Potential use for cytokine-based assay (e.g., Quantiferon Gold)?
- TST documentation
- Timely follow-up of large number of abnormal chest x-rays
- Capacity to handle large-scale CI

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- Mark Maus, D.O., and SCHSS staff
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# CSP-Solano

