CTCA POSITION ON TB EXAMINATION OF SCHOOL EMPLOYEES AND VOLUNTEERS

Introduction

Although progress has been made, tuberculosis (TB) continues to be a significant public health problem; appropriate TB examination followed by treatment of latent TB infection is an important strategy for the control of tuberculosis. The California Conference of Local Health Officers (CCLHO) Communicable Disease (CD) Committee requested that the California Tuberculosis Controllers Association (CTCA) render a position on the mandated practices of TB examination of teachers and other school employees and volunteers. With diminishing resources, it is important to focus on evidenced based interventions that will move California towards TB elimination.

This position statement will discuss the CTCA recommendation that mandated practices of TB examination of teachers and other school employees and volunteers be replaced with a TB risk assessment questionnaire administered to teachers and other school employees on hire and volunteers on initial volunteer assignment, and TB testing based on the results of the TB risk assessment.

Background

California Education Code, Section 49406 (Attachment I), mandates the following:

(1) “…no person shall be initially employed by a school district in a certificated or classified position unless the person has submitted to an examination within the past 60 days to determine that he or she is free of active tuberculosis…”
(2) “This examination shall consist of either an approved intradermal tuberculin test or any other test for tuberculosis infection that is recommended by the federal Centers for Disease Control and Prevention (CDC) and licensed by the federal Food and Drug Administration (FDA), which, if positive, shall be followed by an X-ray of the lungs…”
(3) “Thereafter, employees who are test negative by either the tuberculin skin test or any other test for tuberculosis infection recommended by the CDC and licensed by the FDA shall be required to undergo the foregoing examination at least once each four years or more often if directed by the governing board upon recommendation of the local health officer for so long as the employee's test remains negative.”

California Health and Safety Code, Sections 121525-121555 (Attachment I), mandates the following:

(1) “…no person shall be initially employed by a private or parochial elementary or secondary school, or any nursery school, unless that person produces or has on file with the school a certificate showing that within the last 60 days the person has been examined and has been found to be free of communicable tuberculosis.”
“The examination shall consist of either an approved intradermal tuberculin test or any other test for tuberculosis infection that has been recommended by the CDC and licensed by the FDA, that, if positive, shall be followed by an X-ray of the lungs.”

“Thereafter, those employees who are skin test negative, or negative by any other test for tuberculosis recommended by the federal Centers for Disease Control and Prevention (CDC) and licensed by the federal Food and Drug Administration (FDA), shall be required to undergo the foregoing examination at least once each four years, or more often if directed by the school upon recommendation of the local health officer, for so long as the employee remains test negative…”

“The governing authority of a private school providing for the transportation of pupils under authorized contract shall require as a condition of the contract that every person transporting pupils produce a certificate showing that within the last 60 days the person has been examined and has been found to be free of communicable tuberculosis…”

“All volunteers in [a private or parochial elementary or secondary school, or any nursery school] … shall also be required to have on file with the school a certificate showing that within the last four years the person has been examined and has been found to be free of communicable tuberculosis.” “…this section shall not apply to volunteers whose functions do not necessitate frequent or prolonged contact with pupils.”

The California Department of Education defines certificated and classified staff as follows:

Certificated Staff:
A teacher is defined as an employee of the school district who holds a position requiring certification and whose duties require direct instruction to the pupils in the school(s) of that district.

Pupil services personnel are certificated employees who provide direct services to students but are not teachers. Pupil services employees include counselors, nurses, psychologists, social workers, research specialists, speech specialists and other medical personnel. Administrators are certificated employees who are not teachers or pupil services personnel. Administrators include principals, assistant principals, program directors or coordinators, and other certificated staff not providing direct services to students.

Classified Staff:
A classified employee is an employee of a school district, in a position not requiring certification. Classified staff are assigned to one of three subgroups, with an individual staff member counted in only one of the subgroups. The "Paraprofessional" subgroup includes teaching assistants, teacher aides, pupil services aides, and library aides. The "Office/Clerical" staff are those with clerical or administrative support duties, such as a school secretary. The "Other" subgroup includes all the remaining non-certificated staff, such as custodians, bus drivers, and cafeteria workers. The numbers of classified staff do not include preschool, adult education, or Regional Occupation Program classified employees.

During school year 2010-2011, there were an estimated 23,659 new California Certificated and Classified Staff, including 10,865 new K-12 teachers. In total, there were 624,235 Certificated and Classified Staff, including 286,969 K-12 teachers.¹

Data is not available from the California Department of Education on volunteers; therefore, data on volunteers is not presented.
Occupational risk of exposure to K-12 Teachers

The California 2010 TB incidence rate for 5-17 year olds (per 100,000) is 1.16. Assuming a pupil to teacher ratio of 23, the risk to teachers of having a student with TB is 0.02%.

**Estimated number of TB cases in new and existing Certificated and Classified Staff**

If Certificated and Classified Staff are ages 25-64 years and have the same incidence of TB as the rest of population, then the estimated number of TB cases that could conceivably be detected by examination is as follows:

New Certificated and Classified Staff: 1.07 cases
New K-12 Teachers: 0.42 case
Existing (not new) Certificated and Classified Staff: 6.80 cases
Existing (not new) K-12 Teachers: 2.66 cases

Since this is a one-time examination (and Certificated and Classified Staff may be younger, and have lower incidence than the rest of population), this estimate of TB cases is an upper limit of the number of cases that could conceivably be detected by examination.

**Positive TSTs detected in new Certificated and Classified Staff TB examination**

If Certificated and Classified Staff have the same latent TB infection (LTBI) prevalence as the rest of population (4.2%), then the estimated number of positive TST and true positive TST are as follows (assuming best possible TST performance of 100% sensitivity and 99% specificity):

Annual Number of New Certificated and Classified Staff: 23,659
Estimated Number of Certificated and Classified Staff with Positive TST: 1,221
Estimated Number of Certificated and Classified Staff with True Positive TST: 994

If New K-12 Teachers have the same LTBI prevalence as the rest of population with education level beyond high school (3.72%), then the estimated number of positive TST and true positive TST are as follows:

Annual Number of New K-12 Teachers: 10,865
Estimated Number of New Teachers with Positive TST: 507
Estimated Number of New Teachers with True Positive TST: 402

**New Certificated and Classified Staff TB examination costs**

The following TB examination costs are direct costs, and do not include indirect costs (e.g. time away for work). Examination costs include TST placement and reading ($18), and chest x-ray ($50) if TST positive (true positive and false positive TST).
New Certificated and Classified Staff Examination Costs: $486,912
Examination cost per True Positive TST (994): $490
Examination cost per prevalent TB case detected (1.07): $455,058

New K-12 Teacher Examination Costs: $219,870
Examination cost per True Positive TST (402): $547
Examination cost per prevalent TB case detected (0.42): $523,500

Existing Certificated and Classified Staff TB examination costs

Assuming one-quarter of Certificated and Classified Staff who are not new Certificated and Classified Staff (600,576) are repeat TST tested each year (since testing is mandated every 4 years) and those with positive results receive chest x-rays**:

Annual numbers of repeat TSTs of TST negative Certificated and Classified Staff: 150,144
Annual cost of examination TST negative Certificated and Classified Staff: $2,777,664

Annual numbers of repeat TSTs of TST negative K-12 Teachers: 69,026
Annual cost of examination TST negative K-12 Teachers: $1,276,981

**For TST negative persons, the likelihood that a positive TST from a second sequential TST represents conversion is 1.0%.7

Total Certificated and Classified Staff TB examination costs and cost per TB case detected

Total annual numbers of Certificated and Classified Staff screened: 173,803
Total annual cost of examination Certificated and Classified Staff: $3,264,576
Examination cost per TB case detected (7.87): $414,813

Total annual numbers of K-12 Teachers screened: 79,891
Total annual cost of examination K-12 Teachers: $1,496,851
Examination cost per TB case detected (3.08): $485,991

TB Skin Test Limitations

The test for TB infection currently administered to the vast majority of persons is the Mantoux tuberculin skin test (TST). Developed a century ago, the TST continues to be a very valuable tool in determining the presence of TB infection. However, when the TST is applied in low-incidence populations, its positive predictive value is greatly compromised,8 and test results include a high number of false positives.

In order to use the TST most effectively and to avoid the administration of unnecessary tests, which create significant social and financial burdens for patients, and potentially hepatotoxic TB infection treatment regimens, which pose preventable risks for those who have false positive TST results, the TST (or any currently-available FDA-approved TB infection test) should be applied routinely only among high-risk populations. The position is consistent with the Centers
for Disease Control and Prevention (CDC), U.S. Preventive Services Task Force (USPSTF), American Thoracic Society (ATS), American Academy of Family Physicians (AAFP), Infectious Diseases Society of America (IDSA), American Academy of Pediatrics (AAP), and California TB Control Branch.\textsuperscript{9,10,11,12}

Conclusion

The best public health and medical evidence suggests that universal TB testing is neither necessary nor cost-effective. The number of Certificated and Classified Staff cases is low, and universal testing results in a number of false positives. This can result in persons being unnecessarily placed on potentially toxic treatment regimens.

CTCA recommends the following:

(1) Replacing the mandated (a) TB examination of school employees on entry into the school system and (b) TB examination of TST negative school employees at least once each four years with a TB risk assessment questionnaire administered to teachers and other school employees on hire, and TB testing based on the results of the TB risk assessment.

(2) For volunteers, replacing TB examination (within the last four years) of volunteers with “frequent or prolonged contact with pupils” in private or parochial elementary or secondary schools, or nursery schools with a TB risk assessment questionnaire administered to volunteers on initial volunteer assignment, and TB testing based on the results of the TB risk assessment. This recommendation would also apply to volunteers in public school districts, which was not included in the original mandate.

Each TB Control Program must utilize the epidemiology of TB in their jurisdiction to decide how best to apply this strategy at the local level. These recommendations are consistent with guidelines from numerous expert bodies and will allow the TB Control Programs to work most effectively to detect and control TB in California.
References

CALIFORNIA CODES

EDUCATION CODE

SECTION 49406

49406. (a) Except as provided in subdivision (h), no person shall be initially employed by a school district in a certificated or classified position unless the person has submitted to an examination within the past 60 days to determine that he or she is free of active tuberculosis, by a physician and surgeon licensed under Chapter 5 (commencing with Section 2000) of Division 2 of the Business and Professions Code or a physician assistant practicing in compliance with Chapter 7.7 (commencing with Section 3500) of Division 2 of the Business and Professions Code. This examination shall consist of either an approved intradermal tuberculin test or any other test for tuberculosis infection that is recommended by the federal Centers for Disease Control and Prevention (CDC) and licensed by the federal Food and Drug Administration (FDA), which, if positive, shall be followed by an X-ray of the lungs in accordance with subdivision (f) of Section 120115 of the Health and Safety Code.

The X-ray film may be taken by a competent and qualified X-ray technician if the X-ray film is subsequently interpreted by a physician and surgeon licensed under Chapter 5 (commencing with Section 2000) of Division 2 of the Business and Professions Code.

The district superintendent or his or her designee may exempt, for a period not to exceed 60 days following termination of the pregnancy, a pregnant employee from the requirement that a positive intradermal tuberculin test be followed by an X-ray of the lungs.

(b) Thereafter, employees who are test negative by either the tuberculin skin test or any other test for tuberculosis infection recommended by the CDC and licensed by the FDA shall be required to undergo the foregoing examination at least once each four years or more often if directed by the governing board upon recommendation of the local health officer for so long as the employee's test remains negative. Once an employee has a documented positive test for tuberculosis infection conducted pursuant to this subdivision which has been followed by an X-ray, the foregoing examination is no longer required, and a referral shall be made within 30 days of completion of the examination to the local health officer to determine the need for followup care.

(c) After the examination, each employee shall cause to be on file with the district superintendent of schools a certificate from the examining physician and surgeon or physician assistant showing the employee was examined and found free from active tuberculosis. The county board of education may require, by rule, that all their certificates be filed in the office of the county superintendent of schools or shall require their files be maintained in the office of the county superintendent of schools if a majority of the governing boards of the districts within the county so petition the county board of education, except that in either case a district or districts with a common board having an average daily attendance of 60,000 or more may elect to maintain the files for its employees in that district. "Certificate," as used in this section, means a certificate signed by the examining physician and surgeon or
physician assistant practicing in compliance with Chapter 7.7 (commencing with Section 3500) of Division 2 of the Business and Professions Code or a notice from a public health agency or unit of the American Lung Association that indicates freedom from active tuberculosis. The latter, regardless of form, shall constitute evidence of compliance with this section. Nothing in this section shall prevent the governing board, upon recommendation of the local health officer, from establishing a rule requiring a more extensive or more frequent physical examination than required by this section, but the rule shall provide for reimbursement on the same basis as required in this section.

(d) This examination is a condition of initial employment and the expense incident thereto shall be borne by the applicant unless otherwise provided by rules of the governing board. However, the board may, if an applicant is accepted for employment, reimburse that person in a like manner prescribed in this section for employees.

(e) The governing board of each district shall reimburse the employee for the cost, if any, of this examination. The board may provide for the examination required by this section or may establish a reasonable fee for the examination that is reimbursable to employees of the district complying with the provisions of this section.

(f) At the discretion of the governing board, this section shall not apply to those employees not requiring certification qualifications who are employed for any period of time less than a school year whose functions do not require frequent or prolonged contact with pupils.

The governing board may, however, require an examination described in subdivision (b) and may, as a contract condition, require the examination of persons employed under contract, other than those persons specified in subdivision (a), if the board believes the presence of these persons in and around school premises would constitute a health hazard to pupils.

(g) If the governing board of a school district determines by resolution, after hearing, that the health of pupils in the district would not be jeopardized thereby, this section shall not apply to any employee of the district who files an affidavit stating that he or she adheres to the faith or teachings of any well-recognized religious sect, denomination, or organization and in accordance with its creed, tenets, or principles depends for healing upon prayer in the practice of religion and that to the best of his or her knowledge and belief he or she is free from active tuberculosis. If at any time there should be probable cause to believe that the affiant is afflicted with active tuberculosis, he or she may be excluded from service until the governing board of the employing district is satisfied that he or she is not so afflicted.

(h) A person who transfers his or her employment from one school or school district to another shall be deemed to meet the requirements of subdivision (a) if that person can produce a certificate which shows that he or she was examined within the past four years and was found to be free of communicable tuberculosis, or if it is verified by the school previously employing him or her that it has a certificate on file which contains that showing.

A person who transfers his or her employment from a private or parochial elementary school, secondary school, or nursery school to a school or school district subject to this section shall be deemed to meet the requirements of subdivision (a) if that person can produce a certificate as provided for in Section 121525 of the Health and Safety Code that shows that he or she was examined within the past four years and was found to be free of communicable tuberculosis, or if it is verified by the school previously employing him or her that it has a certificate on file which contains that showing.
(i) Any governing board or county superintendent of schools providing for the transportation of pupils under contract authorized by Section 39800, 39801, or any other provision of law shall require as a condition of the contract the examination for active tuberculosis, as provided by subdivision (a), of all drivers transporting these pupils, provided that private contracted drivers who transport these pupils on an infrequent basis, not to exceed once a month, shall be excluded from this requirement.
121525. (a) Except as provided in Section 121555, no person shall be initially employed by a private or parochial elementary or secondary school, or any nursery school, unless that person produces or has on file with the school a certificate showing that within the last 60 days the person has been examined and has been found to be free of communicable tuberculosis.

(b) Thereafter, those employees who are skin test negative, or negative by any other test for tuberculosis recommended by the federal Centers for Disease Control and Prevention (CDC) and licensed by the federal Food and Drug Administration (FDA), shall be required to undergo the foregoing examination at least once each four years, or more often if directed by the school upon recommendation of the local health officer, for so long as the employee remains test negative by any test for tuberculosis infection that has been recommended by the CDC and licensed by the FDA. Once an employee has a documented positive tuberculin test or any other test for tuberculosis infection that has been recommended by the CDC and licensed by the FDA, the foregoing examination is no longer required, and a referral shall be made within 30 days of completion of the examination to the local health officer to determine the need for followup care.

(c) At the discretion of the governing authority of a private school, this section shall not apply to employees who are employed for any period of time less than a school year whose functions do not require frequent or prolonged contact with pupils. The governing authority may, however, require the examination and may as a contract condition require the examination of persons employed under contract if the governing authority believes the presence of the persons in and around the school premises would constitute a health hazard to students.

(d) The governing authority of a private school providing for the transportation of pupils under authorized contract shall require as a condition of the contract that every person transporting pupils produce a certificate showing that within the last 60 days the person has been examined and has been found to be free of communicable tuberculosis, except that any private contracted driver who transports pupils on an infrequent basis, not to exceed once a month, shall be excluded from this requirement.

(e) The examination attested to in the certificate required pursuant to subdivision (d) of this section shall be made available without charge by the local health officer.

"Certificate," as used in this chapter, means a document signed by the examining physician and surgeon who is licensed under Chapter 5 (commencing with Section 2000) of Division 2 of the Business and Professions Code, or a notice from a public health agency or unit of the Tuberculosis Association that indicates freedom from active tuberculosis.

(f) Nothing in this section shall prevent the governing authority of a private, parochial, or nursery school, upon recommendation of the local health officer, from establishing a rule requiring a more
extensive or more frequent examination than required by this section.

121530. The examination shall consist of either an approved intradermal tuberculin test or any other test for tuberculosis infection that has been recommended by the CDC and licensed by the FDA, that, if positive, shall be followed by an X-ray of the lungs.

121535. The X-ray film may be taken by a competent and qualified X-ray technician if the X-ray film is subsequently interpreted by a licensed physician and surgeon.

121540. The school shall maintain a file containing an up-to-date certificate for each person covered by this chapter. It shall be the duty of the county health officer of each county to insure that the provisions of this chapter are complied with.

121545. (a) All volunteers in schools covered under this chapter shall also be required to have on file with the school a certificate showing that within the last four years the person has been examined and has been found to be free of communicable tuberculosis.

   (b) At the discretion of the governing authority of a private school, this section shall not apply to volunteers whose functions do not necessitate frequent or prolonged contact with pupils.

121550. Nothing in this chapter shall prevent the school from requiring more extensive or more frequent examinations.

121555. (a) A person who transfers his or her employment from one of the schools specified in subdivision (a) of Section 121525 to another shall be deemed to meet the requirements of subdivision (a) of Section 121525 if the person can produce a certificate that shows that he or she was examined within the past four years and was found to be free of communicable tuberculosis, or if it is verified by the school previously employing him or her that it has a certificate on file.

   (b) A person who transfers his or her employment from a public elementary school or secondary school to any of the schools specified in subdivision (a) of Section 121525 shall be deemed to meet the requirements of subdivision (a) of Section 121525 if that person can produce a certificate as provided for in Section 11708 of the Education Code that shows that he or she was examined within the past four years and was found to be free of communicable tuberculosis, or if it is verified by the school district previously employing him or her that it has a certificate on file.