



Medical Surveillance for Silica

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OSHA's "Respirable Crystalline Silica" Standard

h) Medical Surveillance

- "The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for 30 or more days per year."
- "The employer shall ensure that all medical examinations and procedures required by this section are performed by a physician or other licensed health care professional (PLHCP)."

Medical Report for the Employee

The employer shall ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to respirable crystalline silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators;
- Any recommended limitations on the employee's exposure to respirable crystalline silica; and
- A statement that the employee should be examined by a specialist if the chest X-ray provided in accordance with this section is classified as 1/0 or higher by the B Reader, or if referral to a specialist is otherwise deemed appropriate by the PLHCP.

Medical Report for the Employee

The employer shall obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following:

- The date of the examination;
- A statement that the examination has met the requirements of this section; and
- Any recommended limitations on the employee's use of respirators.

Silica Medical Surveillance

- **Physical Examination**
- **Pulmonary Function Test (PFT)**
- **B-Read Chest X-Ray**
- **Tuberculosis Test (TB Test, PPD, Mantoux)**
- **Respiratory Medical Questionnaire**
- **Respiratory Fit Test**

Must be made available to employee within 30 days of initial assignment

Physical Examination



- Focus on respiratory system
- Required every three (3) years
- Surveillance aims at creating snapshots (through examinations) of an employee's health on a periodic basis to be used for a comparative basis for previous exams. Surveillance has a **preventative** focus.

Estimated Cost \$50 - \$70

Pulmonary Function Test (PFT)

- Spirometry is a common pulmonary function test that measures how well a person moves air in and out of the lungs. Must be performed by a NIOSH certified technician.
- Measuring lung function including FVC, FEV1 and FEV1/FVC ratios
- Required every three (3) years

Estimated Cost \$35 - \$40



B-Read Chest X-Ray



- Digital or film
- Interpreted and classified according to the ILO International Classification of Radiographs of Pneumoconioses by a physician who is a NIOSH-certified B-reader
- Required every three (3) years

Estimated Cost \$250 - \$270



Tuberculosis Test (TB Test, PPD, Mantoux)

- Administered to check for a latent tuberculosis infection
- MUST be read by a licensed healthcare professional within 48 – 72 hours of administration or test result is considered invalid and will need to be re-administered
- Required only during initial examination

Estimated Cost \$25 - \$30

1 Administration

For each patient, conduct a risk assessment that takes into consideration recent exposure, clinical conditions that increase risk for TB disease if infected, and the program's capacity to deliver treatment for latent TB infection to determine if the skin test should be administered.

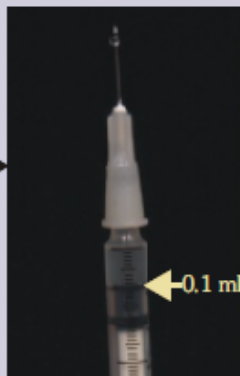
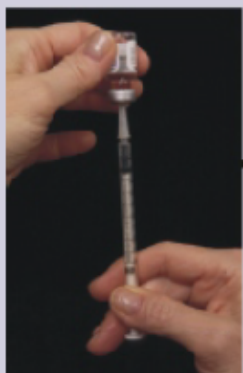
1 Locate and clean injection site



2 to 4 inches below elbow joint

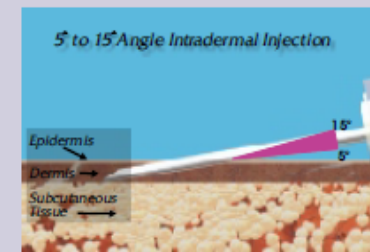
- Place forearm palm side up on a firm, well-lit surface
- Select an area free of barriers (e.g., scars, sores) to placing and reading
- Clean the area with an alcohol swab

2 Prepare syringe

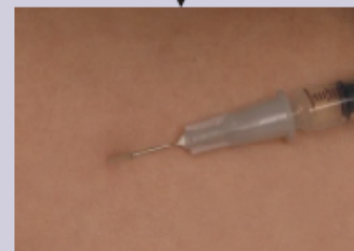


- Check expiration date on vial and ensure vial contains tuberculin (5 TU per 0.1 ml)
- Use a single-dose tuberculin syringe with a ¼- to ½-inch, 27-gauge needle with a short bevel
- Fill the syringe with 0.1 ml of tuberculin

3 Inject tuberculin



- Insert slowly, bevel up, at a 5- to 15-degree angle

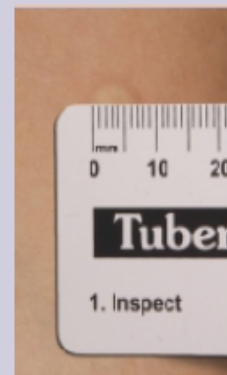


- Needle bevel can be seen just below skin surface



- After injection, a tense, pale wheal should appear over the needle

4 Check skin test



- Wheal should be 6 to 10 mm in diameter. If not, repeat test at a site at least 2 inches away from original site

5 Record information

- Record all the information required for documentation by your institution (e.g., date and time of test administration, injection site location, lot number of tuberculin)

2 Reading

The skin test should be read between 48 and 72 hours after administration. A patient who does not return within 72 hours will probably need to be rescheduled for another skin test.

1 Inspect site



- Visually inspect site under good light
- Erythema (reddening of the skin) – do not measure
- Induration (hard, dense, raised formation)

2 Palpate induration



- Use fingertips to find margins of induration

3 Mark induration



- Use fingertip as a guide for marking widest edges of induration across forearm

4 Measure induration (not erythema)



- Place “0” ruler line inside left dot edge
- Read ruler line inside right dot edge (use lower measurement if between two gradations on mm scale)

5 Record measurement of induration in mm

- If no induration, record as 0 mm
- Do not record as “positive” or “negative”
- Only record measurement in mm

3 Interpretation

Skin test interpretation depends on two factors:

- Measurement in millimeters (mm) of the induration
- Person's risk of being infected with TB and progression to disease if infected

The three cut points below should be used to determine whether the skin test reaction is *positive*. A person with a positive reaction should be referred for a medical evaluation for latent TB infection and appropriate follow-up and treatment if necessary. A measurement of 0 mm or a measurement below the defined cut point for each category is considered *negative*.

Induration of ≥ 5 mm is considered positive in

- Human immunodeficiency virus (HIV)-infected persons
- Recent contacts of TB case patients
- Persons with fibrotic changes on chest radiograph consistent with prior TB
- Patients with organ transplants and other immunosuppressed patients (e.g., receiving the equivalent of ≥ 15 mg/d of prednisone for 1 month or more)

Induration of ≥ 10 mm is considered positive in

- Recent immigrants (i.e., within the last 5 years) from countries with a high prevalence of TB
- Injection drug users
- Residents and employees* of the following high-risk congregate settings:
 - prisons and jails
 - nursing homes and other long-term facilities for the elderly
 - hospitals and other health care facilities
 - residential facilities for patients with acquired immunodeficiency syndrome (AIDS)
 - homeless shelters

- Mycobacteriology laboratory personnel

● Persons with the following clinical conditions that place them at high risk:

- silicosis
- diabetes mellitus
- chronic renal failure
- some hematologic disorders (e.g., leukemias and lymphomas)
- other specific malignancies (e.g., carcinoma of the head, neck, or lung)
- weight loss of $\geq 10\%$ of ideal body weight
- gastrectomy
- jejunioileal bypass

- Children <5 years of age

- Infants, children, and adolescents exposed to adults at high risk for developing active TB

Induration of ≥ 15 mm is considered positive in

- Persons with no known risk factors for TB

* For employees who are otherwise at low risk for TB and who are tested as part of an infection control screening program at the start of employment, a reaction of ≥ 15 mm is considered positive. Some health care workers participating in an infection control screening program may have had an induration >0 mm that was considered negative at baseline. If these health care workers have an increase in induration size upon subsequent testing, they should be referred for further evaluation.

Respiratory Medical Questionnaire

Before you can be medically evaluated, the following must be provided:

- Type and weight of your respirator;
- How long and how often you will be wearing the respirator;
- A copy of the OSHA Respiratory Protection Standard and employer's written respiratory protection program.
- Reviewed by PLHCP to determine ability to wear a respirator

Estimated Cost \$14 - \$20

Respiratory Fit Test



- Qualitative (irritant smoke or Bitrex)
- Quantitative (Port-A-Count or Quantifit)
- QNFTs use the same seven exercises as QLFTs, plus an additional “grimace” test where the subject smiles or frowns for 15 seconds.



Estimated Cost

Qualitative \$10 - \$20

Quantitative \$60 - \$75



Silica Medical Surveillance Cost Estimate

Physical Examination	\$50 - \$70
Pulmonary Function Test (PFT)	\$35 - \$40
B-Read Chest X-Ray	\$250 - \$270
Tuberculosis Test (TB Test, PPD, Mantoux)	\$25 - \$30
The following may be administered prior to the above provided that documentation is maintained as part of the medical surveillance file:	
Respiratory Medical Questionnaire	\$14 - \$20
Respiratory Fit Test	\$10 - \$20 \$60 - \$75
Total Estimated Costs	\$400 - \$500

Recordkeeping Requirements

- The OSHA Medical Records Standard requires employers to maintain medical records on employees for the duration of employment, plus an additional 30 years.
- Medical records may be maintained electronically long as they are easily accessible
- Exception: Employer is not required to keep medical records for any person employed less than one (1) year, but employer must provide a copy of the records to the employee once employment ceases. (Signed release form is recommended as proof.)

Medical Surveillance for Silica

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