Medical Surveillance Program Oversight

Oversight of the medical surveillance program should be assigned to qualified health- care professionals informed and knowledgeable about potential workplace exposures, routes of exposure, and possible health effects related to nanomaterials.

What Are Biological Tests Available?

There is no clinical test to measure:

- Transdermal nanoparticle absorption
- Transneural nanoparticle absorption
- Gastrointestinal nanoparticle absorption
- Respiratory nanoparticle absorption

Currently, other respiratory tests are unsuitable for detecting early effects of exposure to nanomaterials

Who Should Participate in the Surveillance Program?

- Workers exposed to concentrations of carbon nanotubes (CNT) or carbon nanofibers (CNF) over the REL (i.e., at above 1 µg/m^3 EC as an 8-hr TWA).
- Workers exposed to more than 0.3 mg/m^3 for ultrafine titanium dioxide
- Workers in areas or jobs that have the potential for intermittent elevated airborne concentrations of any nanomaterials.

Screening Elements: Initial Evaluation

People working with nanomaterials should have an initial (baseline) evaluation done by a qualified health-care professional that consists of the following:

- An occupational and medical history, with respiratory symptoms assessed by use of a standardized questionnaire, such as the American Thoracic Society Respiratory Questionnaire

How to Use an Incentive Spirometer

- A physical examination with an emphasis on the respiratory system
- A spirometry test
- A baseline chest X-ray (digital or film-screen radiograph)
    - A board-certified physician should clinically interpret all baseline chest images.
- Other examinations or medical tests deemed appropriate by the responsible health-care professional

This is an image of a respirable dust sampling (top right) and pre-weighed cassettes for gravimetric sampling (bottom).

Screening Elements: Periodic Evaluation

Evaluations should be conducted at regular intervals to ensure consistent care and health due to the nature of work. Conduct periodic evaluations:

- Post-incident as deemed appropriate by the responsible health-care professional
- Based on data gathered in the initial evaluation ongoing work history
- Periodic analysis of the medical screening data to identify trends or patterns
- Changes in symptoms such as new, worsening, or persistent respiratory symptoms, and when process changes occur in the workplace (e.g., an unintentional “spill”)

If you have any questions or concerns, please contact Environmental Health & Safety (EHS) at 934-2487.