

OCCUPATIONAL RESPIRATORY DISEASES



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Anatomy



- Upper respiratory tract:
 - ✦ nasal passages
 - ✦ pharynx and associated structures

- Lower respiratory tract:
 - ✦ Larynx
 - ✦ Trachea
 - ✦ Bronchi
 - ✦ Bronchioles
 - ✦ alveolar ducts and alveoli

Anatomy (Functional)



○ **CONDUCTING PORTION**

nasal passages all the way down to terminal bronchioles

○ **TRANSITIONAL & RESPIRATORY PORTION**

respiratory bronchioles, alveolar ducts and alveoli

Respiratory System Functions



1. ventilation
2. Air conditioning
3. Gas exchange
4. Phonation
5. Contains receptors for smell
6. Rids the body of some excess water and heat
7. Acid-base balance
8. Pulmonary defense
9. Metabolism and handling of bioactive materials

Toxic Inhalation by Ventilation



- Gases
- Vapors
- Aerosols
 - ✦ Dust
 - ✦ Mist
 - ✦ Fog
 - ✦ Fume
 - ✦ Smoke

TOXIC EFFECTS



- Gas or aerosol properties
- Site of action
- Duration and intensity
- Defense mechanisms
- Minute ventilation
- Personal factors

ANATOMIC SITES



- Particle size
- Geometry
- Surface area
- Inertia
- Electrostatic Charge
- Coagulability
- Hygroscopy
- Solubility

ACUTE RESPIRATORY RESPONSES TO TOXINES



- Rhinosinosis
- Laryngitis
- Airway obstruction
- Bronchitis
- Alveolitis
- Pulmonary edema

CHRONIC RESPIRATORY RESPONSES TO TOXINES



- Asthma
- COPD
- Bronchitis
- Parenchymal fibrosis
- Pleural fibrosis
- Cancer

OCCUPATIONAL LUNG DISEASES



Asthma

Pneumoconiosis

(Silicosis – Asbestosis)

OCCUPATIONAL ASTHMA



- Definition
- Etiologic and Predisposing factors
- Diagnosis
- Treatment
- Prevention

PNEUMOCONIOSIS



BENIGN

- Iron oxide
- Tin
- Barium
- Antimony
- Zirconium
- Titanium

COLLAGENOUS

- Silica
- Asbestos
- Coal dust
- Talk
- Beryllium
- Aluminum

SILICOSIS



- CHRONIC or CLASSICAL
- ACCELERATED
- ACUTE

Exposure to free crystalline silica

OCCUPATIONAL EXPOSUER

- Foundry
- Mining, Tunneling
- Abrasives, Sand blasting
- Stone cutting, Polishing
- Glass manufacturing
- Ceramics





SILICOSIS



- High mortality and morbidity
- Preventable by avoidance of exposure

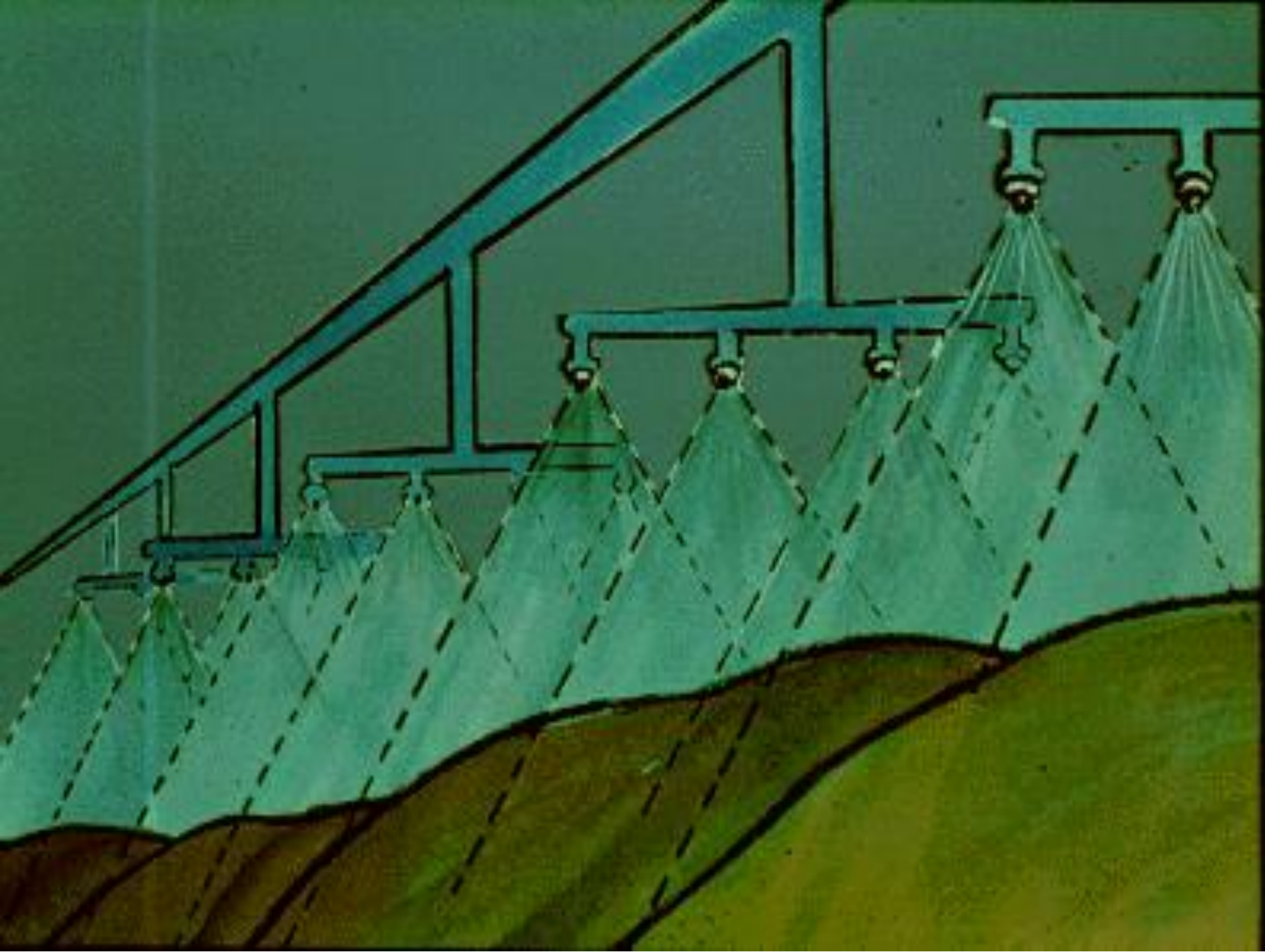
Medical surveillance is one of the main parts of its primary prevention

WHO and ILO joint program



"International Program on Global Elimination of Silicosis" (since 1995)

One of the main parts of this program is the formulation of national and regional action plans



FLUORINE

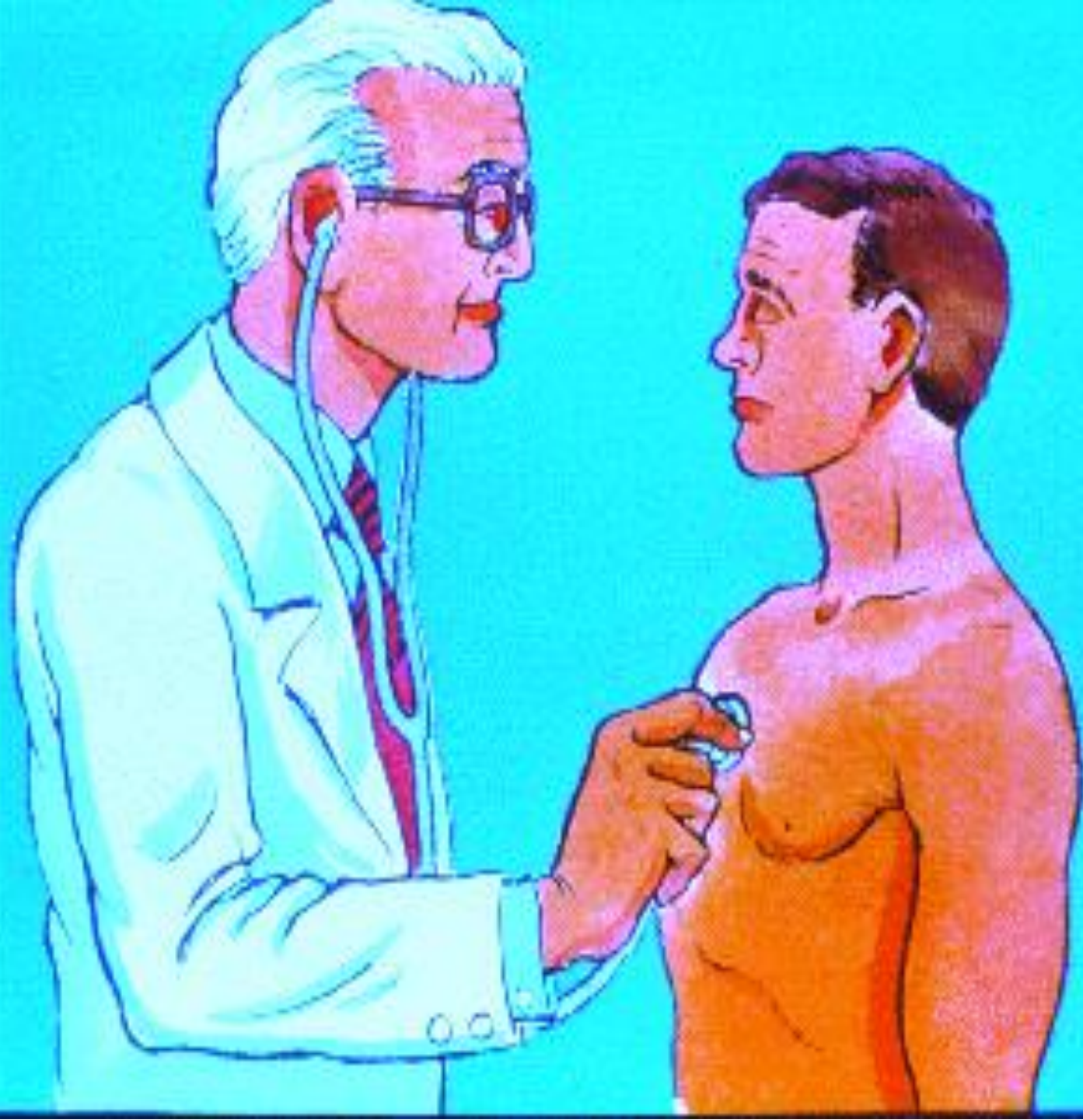
CHLORINE
TRIFLUORIDE

MANGANESE
TRIOXIDE

OXYGEN
DIFLUORIDE

~~SILICA~~





ASBESTOSIS



Inflammatory granulomatous reactions to asbestos
over the course of years

- Fiber cement production
- Insulation and fire proofing
- Reinforced plastics
- Textiles
- Paper
- Filter

