Occupational Diseases

They are the diseases which arise out of or in the course of employement. They are grouped as under.

1) Diseases due to Physical agents:

1. Heat - Hyperpyrexia, Exhaustion, Syncope, Cramps, Burns, Prickly heat.
2. Cold - Trenchfoot, chilblains, Frost bite.
3. Light - Cataract, Miners nystagmus
4. Pressure - Caissons disease, Air embolism
5. Noise - Deafness.
6. Radiation - Cancer, leukemia, Aplastic anemia, Pancytopenia
7. Mechanical - Injuries, Accidents.
8. Electricity - Burns.

2) Diseases due to chemical agents:

1. Gases: CO_2, CO, HCN, NH_3, N_2, H_2S, HCl, SO_2
2. Dusts (Pneumoconiosis).
   - i) Inorganic dusts
     - a) Coal - Anthracosis
     - b) Silica - Silicosis
     - c) Asbestos - Asbestosis
     - d) Iron - Siderosis
   - ii) Organic dust (Vegetable)
     - a) Cane fibre - Bagassosis
     - b) Cotton dust - Byssinosis
     - c) Tobacco - Tobaccosis
     - d) Hay or grain dust - Farmers lung.
3. Metals: Lead, Mercury, Cadmium, Arsenic, Chromium
4. Chemicals: Acid, Alkalies, pesticides.
5. Solvents: chloroform, Trichloroethylene, Benzene

3) Disease due to biological agents.

- Brucellosis, leptospirosis, Anthrax, actinomycosis, Tetanus, Encephalitis, Fungal infection etc.

4) ~~Disease~~ due to Occupational Cancer - CA skin, lung, Bladder
5) Occupational dermatosis - Dermatitis, Eczema.
6) Disease of Psychological origin - Neurosis, Psychosis, PTSD

PNEUMOCONIOSIS

It Constitutes a group of Interstitial lung disease (ILD) caused by occupational inhalation of dusts.

Inorganic - Coal, Silica, Asbestos.
Organic - Cotton dust, Cane fibre, Hay "or" grain

- Dusts are finely divided solid particles with size ranging from 0.1 to 150 microns. They are dealened into atmosphere by cutting, grinding, abrading, loading and unloading.
- Dusts are produced in mines, foundry, quarry, pottery, textile, stone or wood industries.
- Dusts of larger than 10 microns settles down rapidly and smaller than 5 microns are suspended in air and directly inhaled into lungs and retained here. They are called "respirable dust" causing pneumoconiosis.

The hazardous effects of dusts depend upon factors such as

1) chemical composition
2) Fineness.
3) Concentration of dust
4) Period of exposure
5) Health status of the person.

- There maybe superinfection like TB.
- The important dust Diseases are.

1) Silicosis -
2) Anthracosis -
3) Byssinosis -
4) Bagassosis -
5) Asbestosis -
6) Farmers lung -

1) Silicosis:

(1) It is the irreversible fibrosis of the lung caused by inhalation of free silica dust (Silicondioxide).
(2) People working in mining, ceramic, pottery industry, sand blasting, metal grinding, building and construction, slate pencil industry, Iron and steel industry.
(3) It depends upon the chemical composition, fibers, concentration, exposure and susceptibility.
(4) It may coexist with anthracosis.
(5) Incubation period of few months to 6 years.
(6) Pathology → The silica particles are ingested by phagocytes and block the lymph channels.
(7) C/F → and produces "nodular" fibrosis.
(7) C/F: Insidious onset, Irritant cough, dyspnea on exertion, pain in chest, haemoptysis.
(8) Investigation → X ray → Diffuse nodular lesion, "Snow storm" appearance, Total lung capacity is impaired.
(9) Complication → Prone to develop tuberculosis "Silico-Tuberculosis", But rarely rupture shows Tubercular Bacilli.
(10) Treatment and Prevention → No effective Treatment. Fibrotic changes cannot be reversed so controlled by i) Dust control measures ii) Regular physical Examination of workers.

2) Anthracosis (Coal Workers Pneumoconiosis)

(1) Previously as war inert.

(2) Two phases.

i) Simple Pneumoconiosis associated with little ventilatory impairement - This phase requires 12 years of exposure to develop.

ii) Progressive Massive Fibrosis - PMF causes severe respiratory Disability and premature death

(3) Once simple Pneumoconiosis occurs then PMF occurs with or without further exposure

(4) Pathology ⇒ Coal exposure (Blackish appearance to the lesions) ⇒ Alveolar macrophages ⇒ Fibrosis ⇒ Centrilobular emphysema.

(5) C/F ⇒ Dyspnea with cough and purulent expectoration of blackish sputum.

x ray

(6) Nodular lesion when Caplans syndrome.

(7) Notifiable in Indian Mines act 1952 and Compensatable in Workmans Compensation Act 1959.

3) Byssinosis

(1) Inhalation of cotton fibre.

(2) 35% of textile workers develop this.

(3) Usually occupational lung disease not as Pneumoconiosis.

(4) Pathology ⇒ Stimulates Histamine from mast cells

(5) C/F ⇒ Cough, dyspnea, which > weekend < after work

(6) No Radiological evidences

(7) withdrawal from works -

4) Asbestosis → Inhalation of Asbestos.

① Asbestos are certain type of fibrous material made up of silicates. Silica may be combined with Mg, Fe, Ca, Al.

② Two types — ① Serpentine → Hydrated mg 90%
② Amphibole → little Mg →

③ Asbestos are used in current industry, as of filing, Brake lining, gaskets.

④ Path → Asbestos in alveoli → Fibrosis.
Fibrosis is due to mechanical irritation, diffuse, Basal in location. Contrary to silicosis.

	Asbestosis	Silicosis
	Cause - Asbestos Mechanism - Irritation	SiO_2 Lymph Blockage
	Type - Diffuse of fibrosis	Nodular
	Situation - Basal	- Upper part -

⑤ CI: - Dyspnea out of proportion to symptoms.
- BC → Cyanosis, clubbing.
Cardiac distress.

⑥ Investigation
Sputum - Asbestos bodies (Asbestos coated with fibrin)
X ray - Ground glass appearance in lower two third.

⑦ Complication
- Respiratory insufficiency and death.
- CA Bronchus (when combined with cigratte smoking)
- Mesothelioma of pleura and peritoneum.
- CA of GIT,

⑧ Prevention :- Use of safer asbestos, Rigorous dust control, Periodic examination of workers -

5) Bagassosis

① Inhalation of Baggare or sugarcane dust.
② Sugarcane fibre which went to waste earlier are now used for the paper, cardboard, rayon
③ Occurs due to Thermoactinomyces sacchari
④ Symptoms → Breathlessness, Cough, Haemoptysis, fev
⑤ Investigation → Skiagram shows Mottling of lungs, Impaired Pulmonary function test.
⑥ Treatment → If treated early reversible if not fibrosis, emphysema; Bronchiectasis
⑦ Prevention → ① Dust control, → Wet process, Exhaust
② Personal → Mask ③ Medical → check up, Examinati
④ Baggare control → keeping the moisture abov

⑥ Farmer's lung:

① Inhalation of mouldy hay or grain dust which has high moisture content so Bacteria and fungis grow easily:
↓
Rapid ↑ in temp of 40 to 50 deg.
↓
Thermophillic actinomycetes (Mainly Micropolyspora faeni).
② C/F → Respiratory symptoms and signs →
③ Complication → Pulmonary Fibrosis and cor pulmonale
④ In India bulk of population is agricultural work so high risk.

EMPLOYEE STATE INSURANCE ACT

- The ESI act was passed in 1948 (amended in 1975, 1984, 1989, 2010).
- It is important measure of social security and health insurance in this country.
- It provides certain cash and medical benefits to industrial employees in case of sickness, maternity and employment injury.

Scope

- The act extends to whole of India.
① The ESI act of 1948 covers all the power using factories other than seasonal factories where 10 or more persons are employed (excluding mines, railways and defence establishments)
② The ESI act of 1975 was extended to cover new classes
a) Small factories of 10 or more persons, where power is used in manufacturing do not.
b) Shops c) Hotels d) Cinema theatres.
e) Road-motor transport establishment f) Newspaper establishment g) Private medical or educational institution employing 20 or more person.
③ The ESI act of 2010 act covers all employees getting upto ₹15,000 per month, which is revised into ₹21,000 per month in 2016.

Administration:

- The ESI scheme is under ESI corporation.
- The chief Executive officer is assisted by
1) Insurance commissioner 2) Medical commissioner
3) Financial commissioner 4) Actuary.

FINANCE

- The Scheme is run by employees and employer and from Central, State Government -
  Employer - 4.75 % of total wage bill
  Employee - 1.75 % of total wage -
  State Government - 1/8 of total cost of medical care
  ESI Corporation - 7/8 of total cost of medical care
- Employees getting payement of ₹ 100 are below exempted from payement of contribution.

Benefits to employees

1) Medical Benefit
2) Sickness Benefit
3) Maternity Benefit
4) Disablement Benefit
5) Dependants Benefit
6) Funerals expenses
7) Rehabilitation allowance.

1) Medical Benefit

- It consists of "Full medical care" including hospitalization, free of cost. It includes
(1) OP (2) IP treatment (3) Ambulance service
(4) Investigation (5) Drugs and dressing (6) Emergency service
(7) Antenatal, postnatal (8) Domiciliary (9) Immunization.
(10) Family planning (11) Health education (12) Specialist service
- Medical care is provided Directly through agency of ESI hospitals or Indirectly through Panel of private medical practitioners -
- Medical care is also given to the family members like "Restricted Medical care" → only outpatient & an Expanded Medical care full medical care is given.
- Other Medical Facilities (1) Dentures, Spectacle, Hearing aid.

(2) Artificial limbs (3) Hernia belts, walking sticks, spinal braces and jackets.

(2) Sickness Benefit:

- It consists of periodical cash payment to an insured person in case of sickness.
- Payable for maximum period of 91 days in any continuous 365 days, in a rate of 50% of daily wages.
- Extended sickness benefit for 2 years for the 34 long term diseases

1) Infectious Disease → TB, leprosy, Empyema, AIDS.
2) Neoplasm → Malignant disease
3) Endocrine, Nutritional, Metabolic → Diabetes with retinopathy, nephropathy
4) CNS → Monoplegia, Hemiplegia, Paraplegia, hemparesis, Intracranial space occupying lesion, Spinal cord compression, Parkinson, Myasthenia, Cataract, Detachment of Retina, Glaucoma
5) CVS → Coronary Artery disease - Congestive Heart Failure, Cardiomyopathies,
6) Chest → COPD, Interstitial lung disease. Bronchiectasis
7) GIT → Cirrhosis of liver with ascites.
8) Orthopedic → TB VDP, Non-union of fracture, osteomyelitis
9) Psychosis → Schizophrenia, Dementia, Depression
10) others → More 20% blindness, CKD, Raynaudes or Buergers disease,

- Cash Benefit is also applicable for tubectomy and vasectomy operation.

③ Maternity Benefit:
- The benefit is payable in cash to an insured woman for confinement → 26 weeks,
miscarriage → 6 weeks,
sickness after confinement → 30 days.

④ Disablement benefit
- Besides free medical treatment to, in the temporary or permanent disablement from the employement injury.
- 90% of wages till the temporary disablement life time pension in the total permant disablement calculated by the loss of earning capacity.

⑤ Dependants benefit
- In case of death due to employement injury
- 90% of wages which is shared in a fixed ratio.
- Son or daughter gets upto age of 18.

⑥ Funeral expenses
- Amount not exceeding Rs-10,000/-

⑦ Rehabilitation
on Monthly payment of Rs 10 the insured person and his family member continue to get medical benefit even after permanent disablement or retirement.

Benefit to employers
① Exception from ① Workmens Compensation Act ② Maternity Benefit act ③ Income Tax Act
④ Medical allowance to employees for medical care ⑤ Health worker force.

Rajiv Gandhi Shramik Kalyan Yojna.

-> It is new yojna which is covered by ESI Act
-> This scheme provides unemployment allowance to the employees who are rendered unemployed involuntarily due to closure of factory etc. after fulfilment of eligibility condition.
=> Gets unemployed allowance for 6 months.