



HISTORIC PERSPECTIVE ON OCCUPATIONAL DISEASE

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Outline

- ▶ **Review history of occupational disease over time**
 - Prevention
 - Diagnosis and management
 - Compensation
- ▶ **Reflection**

Definitions – ILO 1993

▶ Occupational diseases

- Having a specific or a strong relation to occupation generally with only one causal agent and recognized as such

▶ Work-related diseases

- With multiple causal agents, where factors in the work environment may play a role, together with other risk factors, in the development of such diseases, which have a complex etiology

▶ Diseases affecting working populations

- Without causal relationship with work but which may be aggravated by occupational hazards to health

ILO List of Occupational Diseases

- ▶ **Diseases caused by agents**
 - Chemical, physical, biological
 - ▶ e.g. Beryllium
- ▶ **Diseases by target organ system**
 - Respiratory, skin, musculoskeletal
 - ▶ e.g. Pneumoconioses
- ▶ **Occupational cancer**
 - Cancer caused by the following agents
 - ▶ e.g. Asbestos

Ancient times

▶ Egypt, Greece and Rome

- Mining one of the oldest industries
- miners – slaves, criminals
- work = punishment
- manual trades – inferior
- miners used bags, sacks, animal bladders as masks to decrease dust exposure

Middle Ages

- ▶ **Central Europe – mining a feudal enterprise**
 - Serf labour – unskilled
- ▶ **Growth of trade - increased need for money and capital – mines of Central Europe**
 - Need for skilled labour
 - Mines deeper, conditions worsened

16th & 17th centuries

- ▶ **Mining, metal work and other trades flourished**
- ▶ **Some improvement in ventilation**
- ▶ **Shift from feudalism to capitalism**
- ▶ **Guilds – artisans – sickness benefits, funeral benefits**

16th & 17th centuries

▶ Awareness of health hazards

- Agricola
 - ▶ Town physician in Bohemia
 - ▶ 1556 – De Re Metallica – hazards of metal mining
- Paracelsus
 - ▶ Town physician in Austria
 - ▶ 1567 – occ diseases of mine & smelter workers
- 1572 – lead
- 1575 – carbon monoxide
- 1630 - arsenic

▶ Bernardino Ramazzini

- Physician, professor of medicine in Modena and Padua
- “Diseases of Workers” – 1700
 - ▶ Systematic study of trade diseases
- Father of Occupational Medicine
- “what is your occupation?”

18th century

▶ Hale – 1743

- Importance of ventilation

▶ Von Humboldt – 1790's

- Gas mask, safety lamps for miners

Industrial revolution

- ▶ Traditionally India home of cotton industry
- ▶ 10th century – cotton introduced into Spain
- ▶ Production spread throughout Europe
- ▶ Arrival of religious refugees from Antwerp brought cotton production to England
- ▶ Initially spinning & weaving cottage industry
- ▶ Late 18th century - mechanization - factory
- ▶ Spread to other industries and through Europe, North America

Industrial revolution

- ▶ **Shifts of population from rural to urban**
- ▶ **Living conditions**
 - Dirt, fuel, crowding, pests, sanitation
 - Epidemics – typhus, scarlet fever, smallpox
- ▶ **Mechanization**
 - Safety issues
- ▶ **Science of epidemiology developed**

Industrial revolution

- ▶ **Concept of insurance began to develop**
 - Payments of medical care, replacement of income lost as result of disability
 - 1750's – UK – Friendly Societies
 - Similar organizations sponsored by workers, employers, townspeople, religious groups, physicians - Scandinavia, Low Countries, Germany

Late 18th century, early 19th century

- ▶ **Liberalism, humanism**
- ▶ **Public concern – influenced government**
- ▶ **Employers**
 - Robert Peel, Robert Owen, Michael Sadler
- ▶ **Trade unions**
 - Act making trade unions illegal repealed in UK 1824
 - Organized labour – working conditions – hours of work

Late 18th century, early 19th century

► Medical Influence

- Percival Potts – 1775 - scrotal cancer and chimney sweeps
- Thomas Percival - mills
- Charles Thackrah – occ and disease
- Greenhow – dusts and fumes and resp disease
- Arlidge – potters' diseases

19th century

▶ Europe

- continual series of legislation related to working conditions
- UK – Factory Acts
 - ▶ hours of work, age of work, education for children, physician exams, inspectors, safety
- ? impact but established principle of government intervention

19th century

- Statutory medical service for factory workers
 - ▶ Factory Inspectors
 - ▶ Medical certification for children
 - ▶ Certifying Surgeons
 - ▶ Workers with exposure to lead, white phosphorus, explosives, rubber – periodic exams
 - ▶ Notification of industrial disease – lead, phosphorus, arsenic, anthrax
 - ▶ 1898 – Thomas Legge – Medical Inspector of Factories

19th century

- ▶ **Common law – employer liable if negligent**
- ▶ **3 common defenses – “Unholy Trinity”**
 - Assumption of risk
 - Fellow servant rule
 - Contributory negligence
- ▶ **Workers rarely successful**
- ▶ **Late 19th century – WC legislation in Europe – 1883
Germany - Bismarck**

Early 20th century

- ▶ **WC legislation in North America**
- ▶ **Ontario – 1913 – Royal Commission – Meredith**
 - Historic compromise
 - ▶ Give up right to sue
 - ▶ No fault insurance system financed by employers
 - Elements from UK, Germany, US

▶ Workers' compensation

- Quickly moved from wage loss to clinical ratings, “meat chart”
- Many enquiries
- Continual modifications, additional benefits & coverage
- Occupational disease
 - ▶ 1913 – industrial disease – 6 listed in Schedule 3
 - ▶ 1926 – silicosis, pneumoconiosis
 - ▶ 1932 – cancer
 - ▶ 1944 – exposure length removed
 - ▶ WCB could add to Schedule 3
 - ▶ 1947 – generic definition of industrial disease

Late 19th, early 20th century

- ▶ **Development of government agencies and professional associations**
- ▶ **ILO**
 - created 1919 – declared anthrax occupational disease
 - 1925 – 1st list of Occupational Diseases
- ▶ **International Congress on workers' diseases in Milan - 1906 - ICOH**

Late 19th, early 20th century

▶ US government agencies

- 1884 - Bureau of Labor
- 1910 – Bureau of Mines
- 1914 – Office of Industrial Hygiene as part of the US Public Health Service

Late 19th, early 20th century

▶ Professional associations

- Am Assoc Railway Surgeons - 1888
- Am Society of Heating & Ventilating Engineers - 1894
- American Public Health Assoc
 - ▶ 1909 – section on preventive medicine, industrial hygiene, public health
- American Medical Assoc
 - ▶ 1915 - symposium on industrial hygiene
 - ▶ 1937 – Council on Industrial Health

Late 19th, early 20th century

► Professional associations

- National Safety Council – 1915
- Industrial Medical Association of Preventive Medicine – 1916
- American Standards Assoc - 1918
- Journal of Industrial Hygiene – 1919
- American Conference of Gov't Industrial Hygienists – 1938

20th century

▶ Academic programs

- 1905 – MIT – industrial hygiene
- 1906 – University of Pennsylvania Medical School – more complete instruction in industrial hygiene
- 1916 – Johns Hopkins
- 1918 – Harvard

▶ Clinics

- 1902 – Italy – Clinica del Lavoro
- 1910 – Cornell NY, first occ disease clinic

Late, 19th, early 20th century

▶ Employers

- Health services, hospitals for employees
- Industrial nurses, visiting nurses
- Employers groups – safety codes

▶ Labour

- Bargaining for:
 - ▶ Improved working conditions – accidents, diseases
 - ▶ Inspections
 - ▶ Workers' compensation

World War I

- ▶ **Increased industry**
- ▶ **Increased use of dangerous material**
- ▶ **Increased emphasis of safety, medical services, first aid**

Depression

- ▶ **Decreased interest in health and safety problems**
- ▶ **Labour concentrated on monetary issues and unionization**
- ▶ **Management concentrating on monetary issues**

World War II

- ▶ **Increased productivity**
- ▶ **Decreased number of workers**
- ▶ **Assess worker's ability to carry out certain jobs**
- ▶ **Rehabilitation**

20th century

► Physicians

- Alice Hamilton – occ diseases
- Harriett Hardy - Beryllium
- Irving Selikoff - Asbestos

Mid 20th century

► Renewed interest

- 1960's – industrial accident rate increased by 30%, coal mining disaster – W Virginia – 78 miners killed
- Increased recognition of occupational disease
- Increased public consciousness of environmental and health concerns
- Increased wages – rethinking of worker goals
- Benefit levels for compensation had not kept pace, % of labour force not covered, increased cost
- Problems with government agencies ability to deliver their programs

▶ **Crisis in the Workplace - N Ashford – 1976**

- Increased injury rates
- Technological change
- Rise of environmental movement
- Changing character of the workforce
- Conflicts
 - ▶ Labour management
 - ▶ Insufficient database regarding nature and severity of health hazards
 - ▶ What is just and fair in public policy and appropriate limits to public policy
 - ▶ Various institutions, forces, mechanisms are not connected very well

Mid 20th century

▶ **Crisis in the Workplace - N Ashford**

- Potentially more important – occ disease
 - ▶ Subject hotly debated by management, labour, governments
 - ▶ Most part not reflected in injury stats
 - ▶ Last decade new and newly acknowledged occ disease – CWP, Asb-cancer, Be, VC

Mid 20th century

- ▶ **Renewed interest resulted in commissions, reviews in many countries**
 - Robens – UK
- ▶ **Principles**
 - Self regulation
 - Persuasion over sanctions
 - Worker rights

Mid 20th century

▶ Ham Royal Commission

- Concerns

- ▶ Health and safety of miners
- ▶ Effectiveness of safety programs

- Purposes

- ▶ Investigate all matters related to health & safety involved in the working conditions & working environment in mines in Ontario
- ▶ Identify relevant data related to silicosis & other occupational hazards of miners in Ontario
- ▶ Review present basis for workers' compensation board awards as they relate to environmental health matters affecting miners
- ▶ Make recommendations in relation to above

▶ Ham Royal Commission cont'd

- Conclusions

- ▶ Major problem – policy and performance of responsibility system
- ▶ Lack of information – workers & public
- ▶ Confrontational character – labour vs mgt
- ▶ Split jurisdictions
 - Federal – provincial
 - Provincial - Ministry to Ministry + lack of clearly defined roles
- ▶ Crisis management

Mid 20th century

- ▶ **Occupational Health and Safety legislation**
- ▶ **EU directive**
 - General duty
 - Evaluation of risk
 - Program of prevention
 - Establishment of preventive services
 - Worker rights
 - ▶ Knowledge
 - ▶ Participation
 - ▶ Refuse unsafe work and freedom from reprisals

1970's - WC

- ▶ **Era of increased discontent**
- ▶ **Ham Commission**
- ▶ **Effective lobbying – unions, IW, Ombudsman**
- ▶ **Employers – increasing costs**
- ▶ **Increasing unfunded liability**

► Weiler - occupational disease

- Until 1970's generally not high recognition of multicausal long latency diseases
- Inherently difficult to tell whether a cancer caused by toxic agent at work or in general environment of personal risk factors
- WC – need a yes or no – but medical science is not exact
- Number of occ disease claims increasing but regularly encountered medical and legal hurdles
- “Age of innocence was over”

Late 20th Century

- ▶ **WHO – 1985 – Identification and control of work-related diseases**
 - Musculoskeletal, chronic non specific respiratory, behavioural
 - Adverse psychological factors at work, ergonomics, other environmental hazards

Late 20th Century

- ▶ **National OHS organizations developing research agenda**
- ▶ **US, UK, Italy, EU, Japan**
- ▶ **NIOSH**
 - 10 leading occupational diseases
 - Prevention strategies
 - NORA

2000's

- ▶ **ILO – Recording & notification of occupational accidents and diseases and ILO list of occupational diseases**
- ▶ **ILO Global Strategy on Occupational Health & Safety 2003**

- ▶ **“Both ancient and modern societies have been slow to recognize and control the health hazards associated with work. Sigerist (1943), the medical historian, tells us that a history of developments in occupational health will help to reveal the factors involved – those that retard and those that accelerate developments, and so enable a modern society to act more intelligently and pave the way to the future”**

▶ **Wide variation in occupational health standards & practice**

- Humanity of a society
- Wealth of society
- Social status of worker
- Political organization of workers and their representation in government
- Pioneers advocating improvements by revealing facts about loss of life and sickness caused by workplace
- Improvements in the future will depend on medical and technological skills being generally available rather than on the expertise of the few

► Recognition of occupational disease

- Lack of occupational health knowledge & skills in health care providers
- Pioneers - improvements in the future will depend on medical and technological skills being generally available rather than on the expertise of the few
- Divided jurisdictions – gov't depts of labour and health

“It’s been discussed a great deal but in most instances little or nothing is done about it”

▶ **Burden of occupational disease – ILO/WHO**

- Worldwide

- ▶ 1.9-2.3 million deaths attributed to occupation
- ▶ 1.6 million deaths attributed to work-related diseases
- ▶ 217 million cases of occupational disease