HISTORIC PERSPECTIVE ON OCCUPATIONAL DISEASE

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Research that makes a Difference.
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

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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
18th century

- 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
20th century

- 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 Govt’l 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
- Hariett 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
Mid 20th century

- 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
Mid 20th century

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
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

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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
Reflection

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”
21st century

- 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