

## Brief Introduction to Occupational Health in Korea

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- Occupational Health Services
  - Legislations & Labor Administration
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- Health Problems of Workers
  - Industrial Accident
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## Occupational Health Services

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- Legislation
- Labor administration
- Manpower
- Occupational Health Programs and Services organization

## Legislations

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- The Labor Standards Law in 1953
  - 1<sup>st</sup> legal acts were stated in Chapter IV
  - Provide measures for worker's safety & health
- The Industrial Accident Compensation Insurance Law in 1963
  - Insurance benefit to injured workers
  - Protection against industrial accidents

## Legislations

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- Industrial Safety & Health Law in 1981
  - Existing Labor Standards Law was not enough to regulate the swift increase in industrial accidents
  - Specific & practical law
    - To secure the safety & health of worker
    - To improve working conditions and environment

## Industrial Safety & Health Law

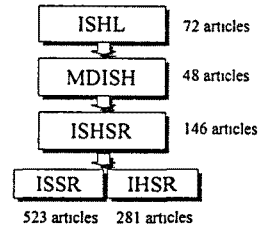
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- To promote the safety and health of workers by preventing industrial accidents via the establishment of safety and health standards
- Total number of 72 articles
- Amended if necessary in response to many changes
  - last amended on Dec. 31 2003

### ISHL structure

- Ministerial Decree of the Industrial Safety and Health law (MDISH)
- Industrial Safety & Health Standard Regulations (ISHSR)
- Industrial Safety Standard Regulation (ISSR)
- Industrial Health Standard Regulation (IHSR)

### ISHL Structure



### Ministerial Decree of the Industrial Safety & Health Law (MDISH)

- Established in 1982
- Provides detailed procedure to implement the mandates of the ISHL
- Amended if necessary

### Industrial Safety Health Standard Regulation (ISHSR)

- Established in 1982
- Provide the majority of industrial safety & health requirements
  - Specific rules for safety
  - Industrial hygiene, general health, materials handling, PPE, noise, dust, lead, MSD, biological agent, medical examination, exposure assessment

### Labor Administration

- The Ministry of Labor started its operation in 1948 with the Labor Bureau under the Ministry of Social Affairs
- In 1963, Labor Bureau was promoted to the Labor Agency
- Ministry of Labor (MOL) on April of 1981

### Ministry of Labor (MOL)

- Four Bureaus
  - Labor Relations, Labor Standards, Industrial Safety and Equal Employment
  - Industrial Safety Bureau
    - Implementation of law and regulation
    - National plan & policy making for OHS
- Six Regional Labor Agencies
  - 39 regional labor offices under 6 Agencies

<Table 1> Number of labor inspectors in Korea and some other countries

Country	No of Labor Inspectors (person)	No of Workers (1000 persons)	No of Workers per Inspector(person)
Korea	251	7,545	30,060
Japan	3,960	50,020	12,631
Germany	4,560	29,966	6,571
England	1,447	13,200	9,122

Source: Ministry of Labor, 2000

- ### Korea Industrial Safety Corporation(KISCO)
- Created in 1987
  - Organization
    - Head office with three bureaus
    - Occupational Safety & Health Institute
    - Occupational Safety & Health Training Institute
    - Three Regional Head offices and 17 Area Offices

- ### Korea Industrial Safety Corporation(KISCO)
- To improve health & safety conditions for workers
  - To promote employers accident prevention measure
    - To provide the means of researching, developing, and disseminating prevention methods of industrial accident

<Table 2> Number of Personnel of the KOSHA (2000)

	Total	Engineer	Researcher	Training and public relations	Management
Total	1,406	486	126	191	243
Head Office	180	53	-	55	72
Affiliated Organization	866	433	126	136	171

\* Profession Degree: 27 doctorate degrees, 9 medical doctors, 246 professional engineers and 410 engineers

- ### Manpower
- Industrial Hygienists
  - Occupational Physicians
  - Occupational Nurses
  - Occupational Toxicologists

- ### Industrial Hygienist
- The Korean Industrial Hygiene Association (KIHA) in 1990
    - 1,097 members employed at workplaces, government, institution

### Occupational Physician

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- Employers hiring more than 2,000 workers are required to appoint full-time Occupational Physician
- Korean Society of Occupational & Environmental Medicine in 1988
  - Specialists certification program in 1996
  - 456 certified specialists

### Occupational Nurse

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- More than 1,400 registered nurses
- The Korean Association of Occupational Health Nurses in 1987

### Occupational Health Services

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- ISHL mandates employers to conduct periodic medical examination, work environment measurement, & health management

### Periodic Medical Examination

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- Medical examination for general officers
- Occupational medical examination for workers exposed to potential work hazards
  - Since 1972 to detect early health effects
  - Once a year
  - 120 types of hazardous work

### Periodic Medical Examination

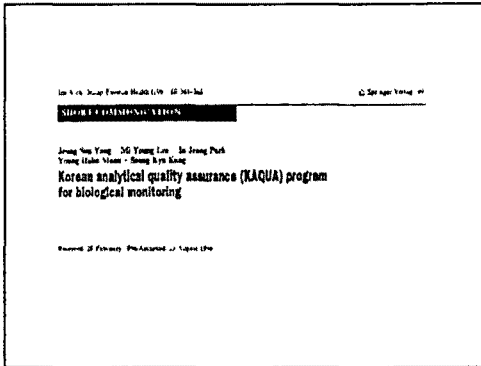
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- Occupational medical examination for workers exposed to potential work hazards
  - 118 Workers' Medical Examination service institutions providing occupational medical examinations

### Periodic Medical Examination

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- Quality Control Program(QCP) was initiated in 1995
  - Analysis of biological samples
  - Audiometric testing
  - Chest radiograph interpretation
- The rate of proficient
  - Biological monitoring : 85-97 %



### Work Environmental Measurement

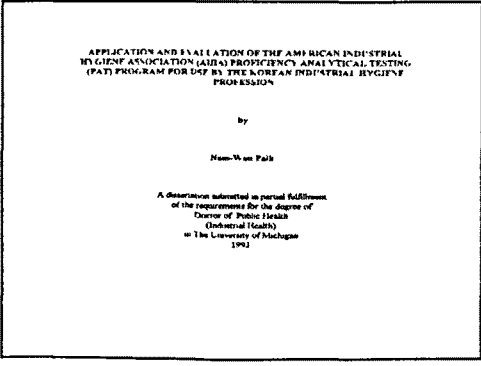
- Stipulated as mandatory since 1981
- Carried out twice a year
- Exposure to
  - 698 occupational hazards with TLV
  - Physical agents
  - Ergonomic factors and biological agents

### Work Environmental Measurement

- 108 institutions provide work environment measurement
  - 30 workplaces have their own work environment measurement services

### Work Environmental Measurement

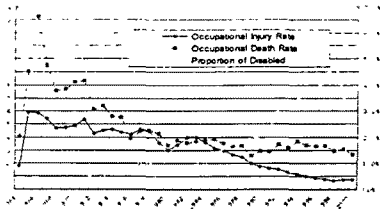
- Korea Quality Control (KQC) Program was initiated in 1992
- Items
  - Metal : Pb, Cd, Mn, Cr and Cu
  - Organic solvent : BTX, TCE and PCE
- The rate of proficient
  - 51.7 % in the first round of 1992
  - 85 – 98 % since 2 round



### Health Problems of Workers

- Industrial Accidents
- Occupational Diseases

### Industrial Accident

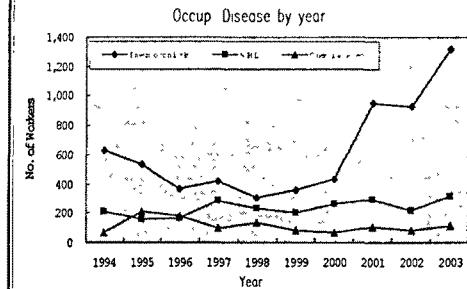


### Industrial Accident Statistics

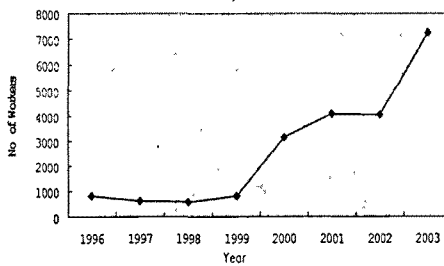
- Occupational injury rate
  - Reduced dramatically since 1983
  - Was not reduced from 1997
- The death rate per 10,000 workers
  - Was successively decreased through 1970 until 1980
  - Remained around 3

### Occupational Disease

- Approximately 2 per 10,000 insured workers
- Pneumoconiosis and NIHL accounted for more than 90 % up to 1994
- Significant increase in the number of other diseases category such as MSD



### MSD by Year



### Carbon disulfide (CS<sub>2</sub>) poisoning

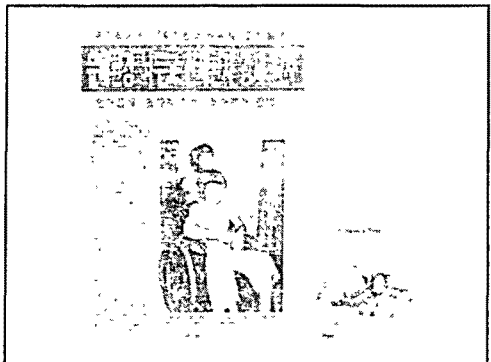
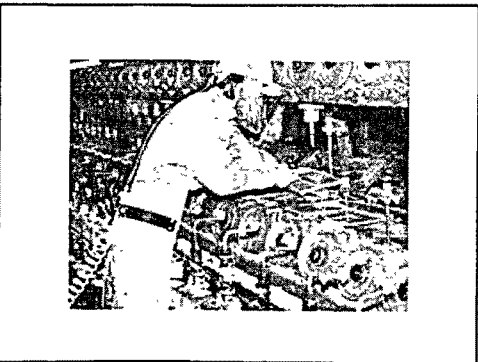
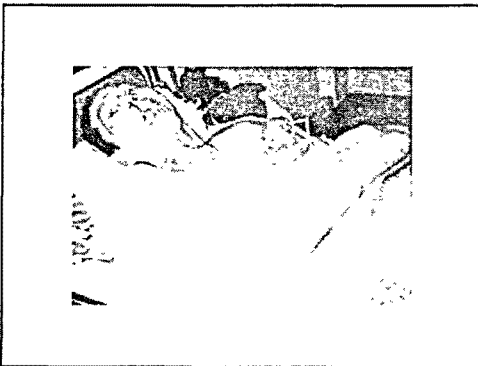
- CS<sub>2</sub> had been used in WONJIN rayon company which was built by used machines from Japan in 1962
  - The 1<sup>st</sup> CS<sub>2</sub> was found in 1981
  - The total number of patients reached 867 by 2000 (including 51 dead)
- Finally went out of business on July of 1993
  - Exported to China

## Carbon disulfide (CS<sub>2</sub>) poisoning

- The biggest social problem
- Turing point for big change in the field of industrial health in Korea

<Table 3> The number of patients and dead due to carbon disulfide poisoning by year

	Total	Before 1992	1993	1994	1995	1996	1997	1998	1999	2000
Total	867	207	110	46	179	97	84	72	45	27
No of dead	51	2	-	2	4	2	4	1	4	4



### Reproductive disorder due to 2-BP

- 23 out of the 33 workers were exposed to Solvent 5200, a detergent
- Chief element of a detergent was 2-BP
- Developed reproductive and/or hematopoietic disorder in 1995

### Reproductive disorder due to 2-BP

- Occupational disease caused by new chemicals previously known as non-hazardous substitute for CFC for the first time in the history of the world

Scand J Work Environ Health 1996;22:387-91

#### Hematopoietic and reproductive hazards of Korean electronic workers exposed to solvents containing 2-bromopropane

by Yangho Kim, MD,<sup>1</sup> Kayrahl Jung, MD,<sup>2</sup> Tayoung Haeng, MD,<sup>2</sup> Gyeongwoo Jung, MD,<sup>2</sup> Hyojin Kim, MD,<sup>2</sup> Joosung Park, MD,<sup>2</sup> Joonyoung Kim, MD,<sup>2</sup> Jungeun Park, MD,<sup>2</sup> Dongwook Park, PhD,<sup>1</sup> Seunghyun Park, BSc,<sup>1</sup> Kyeongsok Choi, MD,<sup>1</sup> Youngtaek Moon, MD<sup>1</sup>

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Journal of Occupational Health

#### An Outbreak of Hematopoietic and Reproductive Disorders Due to Solvents Containing 2-Bromopropane in an Electronic Factory, South Korea: Epidemiological Survey

Jung Sun Park, Yangho Kim, Daeng Wook Park, Kyeong Sook Choo, Seung Hyun Park and Young-Hahn Moon

Industrial Health Research Institute, Korea Industrial Safety Corporation (KISA)

J Occup Health 2004; 46: 221-229

#### Case Study

#### Exposure to Lead and its Particles Size Distribution

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#### Effect on Blood Lead of Airborne Lead Particles Characterized by Size

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### **Hot Issues**

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- **MSD & new emerging hazardous agents**
- **Toxic effects of toxic contaminants at low levels**
- **Occupational Health Program for small-sized enterprises**
- **Total Quality Management for Occupational Health & Industrial Hygiene Institutions**