Korean Experience on Occupational Health Services

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Korea Occupational Safety and Health Agency

Taiwan IOHS Conference
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## Legal system and Social security

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<td>Complexity</td>
<td>Complexity</td>
<td>General, comprehensive</td>
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<tr>
<td></td>
<td>Follow the process</td>
<td>comprehensive</td>
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<td>Generous on the result</td>
<td>Autonomy in the process</td>
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<td></td>
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<td>Responsibility at the result</td>
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<th>Workers’ Compensation</th>
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<td>Causal – relationship</td>
<td>Social agreement</td>
<td>Social agreement</td>
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</table>

- Korean system for OHS rely on detailed legal Statement, Specify every obligation of relevant subjects
Government Agency responsible for OHS

Ministry of Labor
Ministry of Health & Welfare
Ministry of Environment
MOL and MOH (MOE)
Korean OHS

- Ministries for Workers’ Health Service
  - Ministry of Employment and Labor
    - Work related matters: prevention (health promotion), early diagnosis, compensation, rehabilitation
  - Ministry of Health and Welfare
    - Promotion, prevention, treatment, national insurance
  - Ministry of Environment
    - Environmental hazard control, compensation
Government Agencies Responsible for OHS

• Safety (Accident Protection)
  – Occupational
    • Ministry of Labor
  – Non-occupational:
    • Ministry of Public Admin and Security
      – National Emergency Management Agency
    • Ministry of Land, Transport and Maritime Affairs

• Health (Disease Protection)
  – Occupational
    • Ministry of Labor
  – Non-Occupational
    • Ministry of Health
    • Ministry of Environment
Two Aspects of Occupational Health

• Environmental Issues
  – Ministry of Labor
  – Ministry of Environment Protection

• Health Issues
  – Ministry of Health
  – Ministry of Labor (workers)
General Status of OHS
Major Events in Occupational Health

• Late 1980s to early 1990s
  – Poisoning by heavy metal (Pb, Hg, Cd) and Solvents
  – Carbon disulfide poisoning at a viscose rayon factory

• 1990s’
  – Reproductive problem caused by 2-bromopropane
  – Fulminant hepatitis caused by dimethylformamide
  – Parkinson syndrome in welders by manganese exposure
  – Job-related cardio-cerebrovascular diseases

• 2000s’
  – Benzene exposure in petrochemical industry
  – Work-related musculoskeletal disorders
  – Peripheral neuropathy caused by n-Hexane in IT industry
  – Death by cardiovascular diseases at a tire manufacturer
  – Leukemia in a semi-conductor factory

• 2010s’
  – Carcinogenic substances and Occupational Cancer
Korean Economy in 2013 (World Bank)

• Population
  – Total population: 50.9 million (26th in world ranking)
  – Economically Active Population: 25.8 million (2013)
  – Wage Workers: 18.4 million
  – Employees under Workers’ Compensation: 15.5 million

• Economy (high-income, OECD)
  – GDP USD 1,014 billion (13th in world ranking)
  – GNI per capita USD 19,890 (ppp USD 29,010 )
  – Proportion of the trade amounts of world: 2.7 % (9th)
Wage Workers (17.05 million 2011. 3.)

- Regular: 61.2%
- Contractor: 12.3%
- Part-time: 17.7%
- Atypical: 8.7%

Legend:
- Regular
- Contractor
- Part-time
- Atypical
Distribution of Industry (2010)

- Agriculture, fishing, logging: 4%
- Mining: 0%
- Manufacturing: 13%
- Electricity, Gas: 0%
- Construction: 5%
- Wholesale, Hotel, Restaurant: 17%
- Service: 27%
- Publishing: 2%
- Transport: 4%
- Banking, Insurance: 3%
- Education: 5%
- Health, welface: 5%
- Other: 15%
Distribution of Manufacturing Industry (2012)

- Car, Ship building: 16%
- Machine: 16%
- Eletronics: 17%
- Metal: 14%
- Chemical: 15%
- Paper Print: 3%
- Nonmetal: 3%
- Wood: 2%
- Leather, shoe: 1%
- Textile: 6%
- Food: 6%
- Other: 1%
- Machine, Ship building: 16%
- Eletronics: 17%
- Metal: 14%
- Chemical: 15%
- Paper Print: 3%
- Nonmetal: 3%
- Wood: 2%
- Leather, shoe: 1%
- Textile: 6%
- Food: 6%
- Other: 1%
Classification of Occupational Accidents and Diseases

• Occupational Accidents
  – Traumatic injuries: fracture, amputation, bruise etc
  – Traffic accidents: commuting, TA during business trip
  – Non-traumatic injuries
    • overexertion, asphyxia, burn, violence, animal bites, sports activities

• Occupational Diseases
  – Occupational Diseases
    • Diseases caused by chemical, physical and biological agents
    • Pneumoconiosis, NIHL, Poisoning, cancer, asthma, dermatitis
  – Work-related Diseases
    • Diseases aggravated by work condition or job stress
    • WRMDS, Cardio-cerebrovascular diseases
OHS Statistics and its Limitation

Targets for OHS service
Statistics of Occupational Safety and Health

• Official Statistics of Occupational Injuries and Diseases
  – Data from the workers’ compensation claims (Most)
  – Cases reported to the MOL (approximately 1% of all cases)
  ❖ The number of unclaimed cases are unknown

• Occupational injuries (2012)
  – Non-fatal: 83,349 (requiring 4 or more days of medical treatment)
  – Fatal: 1,134 cases (including 94 cases of traffic related fatalities)

• Occupational Diseases (2012)
  – Non-fatal: 6,742 cases (mostly MSDS)
  – Fatal: 730 cases (including 301 cerebro-cardiovascular diseases)
Occupational Accident and Fatality Rate

[Graph showing trends in accident and fatality rates from 1975 to 2010. The graph includes lines for accident rate, fatality rate, and accident fatality rate.]
Occupational Fatalities by Accidents

※ Included fatalities by commuting accidents
Lower injury rate, higher fatality rate than EU countries

**Numerator**
- Unclaimed cases
  - Non-serious, non-fatal injuries
- Compensated as a part of social welfare
  - Commuting accidents: doubled
  - Sports activities: increased up to 1,500 cases per year

**Denominator**
- Long working hours
  - May increase the possibility of accidents
Factors affecting to the Statistics (denominator)

- **Working hours**
  - Korea has the longest working hours among OECD countries
  - Longer working hour raises the possibility of an accident.
  - Should be adjusted by FTE (Full time equivalent)

- **Number of workers in the construction industry**
  - May be counted more than once
    - 70% of construction sites finish less than 6 months
  - Is 43.7% of workers in manufacturing industry according to EAPS data, but 100.7% according to compensation insurance data.
Occupational Safety and Health Service
OHS Service

• Prevention
  – Accidents : Occupational Safety Engineers
  – Diseases : Industrial hygienists, Occupational Physicians

• Treatment
  – Injuries : Clinicians (Surgeon, Orthopedic physician)
  – Diseases : Various specialties /Occupational physicians

• Rehabilitation
  – Medical Rehabilitation
  – Work or social rehabilitation
Role of Occupational Physician

• Prevention
  – Special Health Examination (特殊健康診断)
    • 186 items (169 chemicals and others)
  – Health management (Surveillance, follow-up)
    • In-house physician or physician of agencies (保健管理代行機關)
  – Out-patient clinic (職業環境醫學科 外來)
    • Not legally supported yet

• Compensation claim
  – Consulting physician (諮問醫) at the local office of COMWEL
  – Members of the Occupational Disease Award Commission (業務上疾病判定委員會) of Regional Office or Re-Review Commission for Compensation (産業災害補償保険再審査委員會) of the Ministry of Employment and Labor

• Treatment of injuries and diseases
  – No specific roles except for some cases of poisoning
Treatment

• General Hospital
  – Relevant clinics of university hospitals or other hospitals
  – Injured workers can be treated at any medical facilities.

• Korea Workers’ Compensation and Welfare Service
  – Responsible agency for workers’ compensation
  – Provides medical services through 9 Workers’ Compensation Hospitals (産災醫療院)
    • Similar to Japanese Rosai hospitals (mostly clinical physicians)
    • But, not much different from private hospitals except caring pneumoconiosis patients and bed-blockers
Special Health Examination (特殊健康診斷)

- Performed annually for a million workers
- Only certified occupational physicians are eligible to perform.
- 148 agencies across the country
  - 150 – 200 occupational physicians are involving
- Expense: paid by employers
  - KOSHA provides a subsidy to workplaces with less than 10 employees.
Suspected Cases by SHE (職業病有所見者)

<table>
<thead>
<tr>
<th>Year</th>
<th>Pneumococcosis</th>
<th>NIHL</th>
<th>Vibration</th>
<th>Solvents</th>
<th>Metals</th>
<th>Others</th>
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</thead>
<tbody>
<tr>
<td>1997</td>
<td>971</td>
<td>1389</td>
<td>0</td>
<td>30</td>
<td>106</td>
<td>1</td>
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<tr>
<td>2002</td>
<td>381</td>
<td>2000</td>
<td>0</td>
<td>4</td>
<td>25</td>
<td>22</td>
</tr>
<tr>
<td>2007</td>
<td>125</td>
<td>4229</td>
<td>15</td>
<td>41</td>
<td>34</td>
<td>15</td>
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</table>
### Compensated Occupational Diseases (2010)

#### 業務上疾病 承認者

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumococcosis</td>
<td>435</td>
<td>1,994</td>
<td>931</td>
</tr>
<tr>
<td>ARD</td>
<td>261</td>
<td>302</td>
<td>266</td>
</tr>
<tr>
<td>NIHL</td>
<td>16</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>Physical</td>
<td>51</td>
<td>63</td>
<td>43</td>
</tr>
<tr>
<td>Heavy Metal</td>
<td>0</td>
<td>99</td>
<td>228</td>
</tr>
<tr>
<td>Chemical</td>
<td>129</td>
<td>56</td>
<td>35</td>
</tr>
<tr>
<td>Infection</td>
<td>1,950</td>
<td>1,834</td>
<td>638</td>
</tr>
<tr>
<td>Derm</td>
<td>487</td>
<td>1,926</td>
<td>1494</td>
</tr>
<tr>
<td>Other</td>
<td>522</td>
<td>975</td>
<td>4008</td>
</tr>
<tr>
<td>CVA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Detection rate of special medical examination

C1: Workers who have findings need to be observed
D1: Workers who have findings related with occupational diseases
Challenge of Special Health Examination

• Effectiveness
  – Good for detecting asymptomatic occupational diseases such as pneumoconiosis and NIHL
  – Less effective to detect symptomatic occupational diseases
    • Occupational cancer, asthma, musculoskeletal diseases, cardiovascular diseases, skin diseases have not been detected by this system
    • Few cases of occupational diseases have been detected through this system because of improved work environment

• Advantage
  – Increasing workers’ awareness for the toxicity of hazardous substances they are being exposed to
Occupational Safety Manager
Occupational Health Manager
Management

• Accident prevention
  – Safety Manager (安全管理者) : safety engineer (職業安全技士)

• Disease prevention
  – Health manager (保健管理者) : industrial hygienist, occupational health nurse, occupational physician

  ❖ But the obligation of hiring occupational physician is incapacitated by the Deregulation Act (企業活動規制緩和特別措置法)
Duty of Occupational Health Manager

- Duty recommended by the OHS Committee and the regulation
- Work management for preventing health effects
- Selection of safety equipment and PPEs
- MSDS related work
- Medical management
- Health education and health promotion
- Medical treatment
- Ventilation (local and general)

- Walk-around inspection
- Occuup disease investigation and prevention plan
- Maintaining OH statistics
- Appropriate measure to workers violated the regulation
- Others things related to work environment control
Occupational Health Management Model

- In-Company Model
- OHS Agency Model
- Small Scaled Enterprises Model
OH Service Model

OHS Agency Model

Public Service Model

In-Company Model
In-Company Model

• Multidisciplinary approach
  – Occupational Health(and/or Safety) Team
    • Physician, nurse, hygienist, ergonomist etc
  – Safety Management Team

• Single Professional
  ※ Legal requirement: at least one occupational health manager depending on the number of workers and type of industry
  – Occupational Health Manager
    • Industrial hygienists, nurses
  – Occupational Safety Manager
    • Industrial safety engineers

• Enterprises with more than 300 employees
OHS Agency Model

- Purchase service from OHS agencies
- OHS agencies
  - Provide service regularly (at least one visit per month)
  - By contract basis
  - Occupational physicians, nurses, hygienists, ergonomists etc
- Enterprises with more than 50 employees
Public Service Model

• OHS services to Small-scaled enterprises (SSEs)
  – Select high risk workplaces or workers
  – Provide service through OHS agencies
    • Duty of OHS managers
    • Provide education and information

• Workers’ Health Center
  – Started since 2007 (Industrialized complex)
  – 3 units (plan to expand up to 20 units)
  – Initially operated by KOSHA and transferred to OHS agencies

• Third party payment
  – Health Examination and Work Environment Measurement of extremely SSEs
KOSHA Subsidies for OHS Service (2011)

• Subsidies to SSEs (<50 employees)
  – Safety agencies: 10.6 billion KRW
  – Health agencies: 5.9 billion KRW
    • 2009: 14,000 (3.2 billion)/ 2010: 25,000 (5.9 billion)
  – Construction agencies: 3.7 billion KRW

• Third party payment (<10 employees)
  – Work Environment: 30 billion KRW
  – Health Examination: 49 billion KRW

• Workers Health Center
  – 0.5 billion KRW per unit
Revenue of OM Clinic at University Hospital

• Legal program
  – Income from Health Examination
  – Income from OH management service
  – Subsidy for OH management from KOSHA

• Autonomous activities
  – Grant for Occupational Diseases Surveillance
    • Disease (4 items) and Regional (2 areas)
  – Out-patient clinic
    • Follow-up workers,
    • Work compatibility assessment