

## **MONITORING DISEASES OF LABOUR FORCE: THE TIP OF AN ICEBERG**

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### Introduction

National statistics and registries show that occupational diseases are reported infrequently compared to occupational injuries. Many reasons account for that including deficiencies of social insurance system that do not compensate appropriately occupational diseases, lack of public and workforce awareness, other political and social priorities, occupational health structure and lack of expertise professionals.<sup>1</sup> Also most of the conditions which can arise from work exposures can also be caused by many other factors, sometimes interacting with each other. For example, back problems may be provoked by poor posture at work or at home, while stress may result from work pressures or family problems.<sup>2</sup> Another special feature of occupational ill health is that, unlike injuries and fatalities, it may not occur immediately after exposure to the relevant hazard. There is typically a period of latency between hazardous exposure and the appearance of actual harm, which may range from a few hours in case of infectious diseases to several decades for types of cancer. When latency period is prolonged, evaluation of exposure may be especially difficult.<sup>2</sup>

In most countries surveillance and monitoring systems could be markedly different as legislation may do. Moreover, different approaches could be used by different parts (eg. occupational physicians, other health care professionals, employers and individual workers) reflecting their own perspectives, knowledge and awareness. Therefore occupational ill health cannot be defined or measured in a single, straightforward way. Judgements about the patterns of exposure likely to be causal may be made in legal implications or claims for compensation but these decisions have little value in determining the true extent of diseases caused by work, not least because of the absence of reliable exposure data.<sup>2,3</sup>

*Aim of this study is to predict the potential lack on reporting and recognition of occupational diseases in Greece through the comparison with European countries, given the assumption that true incidence is not markedly different.*

The comparison of data on occupational diseases has several limitations. Even though description of approach follows we have to keep in mind that these data are collected in a different way in each EU Member State, there are differences in the definition of diseases, in the system of notification, examination and approval of claims and, in compensation.<sup>4,5</sup>

## Methods

This article is based on published information on occupational diseases registered officially in European Union countries. Data collected for the period under study (1996-1999) on employment by economic activity and occupational diseases registered officially in European Union countries. Frequencies, derived from observed data, have been applied in Greek work force, postulated that risks and working conditions are similar in order to have a prediction of the possible size of underreporting. The way of reporting occupational diseases in each country under study differ:

In Sweden the report on work-related diseases is based principally on work injuries included in occupational injury register (ISA) at the Swedish Work Environment Authority (SWEA: former National Board of Occupational Safety and Health). That system is based on work injury reports received by the Social Insurance Office and registered at the Work Environment Inspectorate and the head office of SWEA. Data for the period under study were collected from SWEA.<sup>6</sup>

The Finnish Register of Occupational Disease provide data come from two sources. One is the insurance institution, which inform for every recognized occupational disease and for every suspected occupational disease. The second source is doctors, who are obligated to declare to the local Labor Inspection every disease, which might be relevant to the occupational environment. The registration includes all the employers and the farmers, while the self-employers are merely included.<sup>7</sup> Data collected from reports of Finnish Institute of Occupational Safety and Health (FIOH) and the Statistics of Finland. In addition research data were collected from research institutes as well as the funding organizations in the field of occupational safety and health.<sup>8</sup>

In Spain Occupational Official statistics are based on the information gathered from Work Accidents and Occupational Diseases registers and reaches the National Institute for Occupational Safety and Health (INSHT). Moreover, experiences and options of many organisms, technicians from the regional Occupational Safety and Health Services, trade unions, Social Partners and Work Accidents Insurance Companies, had been taken into account in order to correct and complete the first estimations. Data on work-related health damages were collected also in a basis of National Surveys of Work Conditions.<sup>9</sup>

In Italy report of a disease related to the working environment, is made by the employer or the doctor to the Insurance Institute (INAIL). INAIL covers most employees except workers in railways and maritime. A disease is considered an occupational one if it is included in the 1975 'closed' list: table of occupational diseases in industry, table of occupational diseases in agriculture.<sup>10</sup> Data related to occupational diseases collected from the Istituto Superiore per la Prevenzione e la Sicurezza del Lavoro (ISPESL).

The government in a statutory ordinance lists occupational diseases in Germany. If information on exposure-effect exists with respect to a particular illness then the ordinance will be extended accordingly. Occupational diseases are registered with the accident insurance funds or the Lander authorities responsible for occupational safety and health. Doctors, health insurance funds and employers are obliged to notify the authorities in a suspicion of occupational disease. Insured persons, their families and other agents may also report a suspected case. Every notification results in an administrative decision about whether the suspected case can be verified and whether an illness can be recognized as an occupational disease. Furthermore, for a series of illnesses additional legal requirements must be fulfilled. Data were collected from the national report.<sup>4</sup>

In Netherlands the registration of occupational diseases is made by the Dutch Center for Occupational Diseases (Nederlands Centrum voor Beroepsziekten -NCvB). The organization of the registration of occupational diseases by the Occupational Health Services (OHSs) in the Netherlands was officially assigned by the Ministry of Social Affairs & Employment to the Registration Bureau of the NCvB. In addition to the central registration system, which imposes a legal obligation on the OHSs to notify occupational diseases, the NCvB has also set up a number of other registration projects in order to provide supplementary information in this field. Data were collected from the Annual Report for 2000.<sup>11</sup>

A single source of information is not available in Great Britain on the nature and full extent of occupational or work-related ill health. Health and Safety Executive's (HSE's) policy is to make the fullest use of a range of sources, and develop new ones where necessary. The statistics are based on five main data sources, described briefly.

*SWI*: Household surveys of self-reported work-related illness. They are subject to sampling error.

*ODIN*: Voluntary reporting of occupational diseases by specialist doctors in the Occupational Disease Intelligence Network. These surveillance schemes are coordinated by the University of Manchester with HSE funding. They include schemes known as SWORD (Surveillance of Work-related and Occupational Respiratory Disease), EPIDERM (Occupational Skin Surveillance Scheme Reported by Dermatologists), OPRA (Occupational Physicians Reporting Activity), SIDAW (Surveillance of infectious disease at work), SOSMI (Surveillance of occupational stress and mental illness), OSSA (Occupational surveillance scheme for audiological physicians) and, MOSS (Musculoskeletal occupational surveillance scheme).

*The Industrial Injuries Scheme (IIS)* operated by the Benefits Agency on behalf of the Department for Work and Pensions for well-established occupational diseases especially new cases of disabled industrial workers.

*RIDDOR*: Statutory reports by employers under HSE's Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

There are also a few more specific sources like *Death Certificates (DCs)*, useful for monitoring the most serious forms of some types of occupational lung disease including cancers, and others which provide data limited to certain conditions (eg stress) or hazards (eg lead exposure). Information from all these sources are provided to the national focal point, from which data were collected.<sup>2</sup>

Additional data were collected from East European Countries by Estonian, Romanian and Hungarian Focal Points of the European Agency for Safety and Health at Work.<sup>13,14</sup>

In Greece the Social Insurance Institute (IKA) covers almost 50% of the Labour Force and is the referral point for requests on pensioning due to occupational illness. Claim was made by employees while notification of suspected cases was made from employers and physicians. There are not any other surveillance schemes, which could provide additional information on the occupational diseases.<sup>15</sup>

Data for the period under study (1996-1998) on employment by economic activity were also collected.<sup>16</sup> In any case frequency rates of occupational diseases per 1000 or 10000 workers were estimated.

## Results

Frequency rates of total recognised occupational diseases per 1000 workers were estimated. The median rate was around 0.7. This remains constant when more than ten European countries included in the analysis with the prerequisite of available data, like Romania, Estonia and Hungary. Scandinavian countries reports on recognised cases was placed within the upper limit of those presented in the previous table.

Taking into account that Greek work force reached 3872 thousands in 1996, we based on reported frequency rates to calculate a potential burden of unrecognised occupational diseases around 2500 cases. It's worth mentioning that numbers as high as 6500 disease-cases could be estimated by using countries with the higher reported frequencies.

When only claims for recognition was taken into account the medium burden of underreporting overcome 6000 with a possible higher of more than 16000 cases.

Another approach concerns reports on occupational diseases by economic activity. Three branches of economic activity were selected, because these sectors are comparable and well defined between countries and many data were available. Table 1 shows the frequency rates of occupational diseases by economic activity. It is worth mentioning that claims for recognition of occupational diseases in Scandinavian countries reach tenfold of median numbers of recognised elsewhere. In

agricultural sector more than 200 cases and in construction industry more than 250 are estimated as the potential burden of underreporting.

Table 1. Occupational diseases by economic activity in EU countries

	SPAIN 1997	ITALY 1997	GERMANY 1997	NETHERLANDS 1999
<b>Agriculture, fishing etc. Sector</b>				
(in thousands)	1067	1245	1049	230
Occupational diseases	260	107	697	59
Frequency per 1000 workers	0.24	0.09	0.66	0.26
<b>Mining &amp; manufacturing Sector</b>				
(in thousands)	2498	4906	8677	1120
Occupational Diseases	6546	1957	13021	1220
Frequency per 1000 workers	2.62	0.4	1.5	1.09
<b>Construction Sector</b>				
(in thousands)	1243	1564	3271	471
Occupational diseases	694	746	3500	588
Frequency per 1000 workers	0.6	0.48	1	1.25

From another point of view, reports on occupational diseases by type of disease were considered. Table 2 and 3 shows the frequency rates of occupational diseases. Occupational diseases of the skin, of respiratory system and hearing loss may account for 400, 300 and, 350 cases, respectively. The officially recognized cases in period under study were around 30, 25, and 2, respectively.

Table 2. Respiratory and Skin occupational diseases in EU countries

	SPAIN 1997	GERMANY 1997	NETHERLANDS 1999	UNITED KINGDOM 1998
Total Employment (in thousands)	12765	35805	7601	27116
Respiratory diseases	314	7595	93	3009(SWORD/OPRA)
Frequency per 10000	0.25	2.12	0.12	1.11
Skin diseases	1287	2319	230	4579(EPIDERM/OPRA)
Frequency per 10000	1	0.65	0.3	1.69

Table 3. Hearing damage due to working conditions in EU countries

	SPAIN 1997	GERMANY 1997	NETHERLANDS 1999
Total Employment (in thousands)	12765	35805	7601
Hearing damage	120	7976	805
Frequency per 10000 workers	0.094	2.22	1.06

Table 4. Estimated annual average number of diseases attributable to occupational exposure. Morbidity, Greece 1997.

Causes of disease	No. of diseases		Estimated percentage attributed to occupation		No. of diseases attributed to occupation		Total No. of diseases attributed to occupation
	Men	Women	Men	Women	Men	Women	
Cancer	66356	56234	6% <sup>(1,2)</sup>	6% <sup>(1,2)</sup>	3981	3374	7355
Lung cancer	13262	1759	15% <sup>(1,3)</sup>	5% <sup>(3)</sup>	1989	88	2077
Liver cancer	1397	573	4% <sup>(3)</sup>	1% <sup>(3)</sup>	56	6	62
Bladder cancer	5159	874	10% <sup>(1,3)</sup>	5% <sup>(3)</sup>	516	44	560
Prostate cancer	2946	–	1% <sup>(3)</sup>	–	29	–	29
Stomach cancer	2358	1384	15% <sup>(1,3)</sup>	5% <sup>(3)</sup>	354	69	423
Leukemia	2364	1519	10% <sup>(3)</sup>	5% <sup>(3)</sup>	236	76	312
Chronic Obstructive Pulmonary Diseases	18685	10589	10% <sup>(1,2,4)</sup>	10% <sup>(1,2,4)</sup>	1868	1059	2927
Occupational asthma	3580	3781	10% <sup>(1,2,4)</sup>	10% <sup>(1,2,4)</sup>	358	378	736
Pneumoconioses	194	226	100% <sup>(3)</sup>	100% <sup>(3)</sup>	194	226	420
Coronary heart disease	81278	44507	7.5% <sup>(2)</sup>	7.5% <sup>(2)</sup>	6096	3338	9434
Cerebrovascular disease	14484	10381	7.5% <sup>(2)</sup>	7.5% <sup>(2)</sup>	1086	779	1865
Total No. of diseases attributed to occupation					16763	9437	26200

Refers to the age group: 15-79 years old (men and women)

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The last approach was in a literature way. We collected data from the Greek National Statistical Office for the period under study concerning patients discharged by category of diseases and sex for the year 1997 (table 4). The age group include pensioners but most of presented diseases required long latency periods, so we did not exclude them. Then, we find from several sources the estimated percentage attributed to occupation, in order to apply these percentages to the true national data. It is more than 25000 cases could be attributed to occupation only for 1997 in Greece based on sound scientific data without taking into account musculoskeletal disorders, skin diseases and deafness which comprise the majority of work-related disorders.

## Discussion

As already mentioned the comparison of data on occupational diseases has several limitations. These data are collected in a different way in each EU Member State and there are differences in the definition of diseases, in the system of notification, examination and approval of claims and, in compensation.<sup>4,5</sup> The diagnosis of occupational diseases requires specific knowledge, thorough patient examination, investigation of the working environment and epidemiological data. Hence it is not an easy case the recognition of an occupational disease. Most important it requires a safe and useful motivation for employee, doctor and employer besides legal obligations.

In our study, by comparison with foreign occupational disease statistics, there seems to be a considerable under-reporting in Greece. This could be explained by the fact that a registration system simply does not exist. The fact that occupational diseases are not reported means deficiencies on surveillance system rather than non existence of the problem. Furthermore it is widely accepted that the reported and estimated figures are considered to be an underestimate of the true burden since most occupational diseases are not readily identifiable with current reporting methods. In our study, a first attempt to estimate the true burden was done through scientific literature. A detailed approach has to be done in the fields that available data exist.

Another aim has to be to simplify the notification and registration analysis and presentation data. Apart from the notification and registration of occupational diseases by occupational physicians, the Labour Administration (Labour Ministry, Labour Inspection, Institute of Social Security) has to use other instruments to track the incidence and spread of occupational diseases. The contribution of Health Administration (with the development of an occupational health information system for surveillance system and tools design, health workers training in Occupational Health), Social Partners (employers, trade unions), mandatory insurance organisations and, enterprises may be essential. Education and intensive communication among specialised occupational physicians and OHSs is also necessary. In addition surveys may be important in order to find out companies representatives assessments to their company's working environment but also to get an overview of employees' assessments.

The main aim of such reports is to guide both research and practical work on different levels including the workplace level and to help the decision makers to develop national programmes and set priorities which are the most important and useful for the development of working life in every country. The reports is the main way to draw public attention and to put the topic of occupational diseases on the political and social agenda as a source of considerable damage in both economic and health terms, both prerequisites to prevention.

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