Data collected by the Italian Funds for Occupational Injuries and Diseases (INAIL) on incidence and mortality for occupational injuries in Italy during 1951–2001 are described with respect to the two main occupational sectors, Industry and Services, and Agriculture. Comparisons with other EU countries are included to place the current severe phenomenon in context. An ad hoc analysis aimed at verifying the completeness of the data on occupational fatal accidents collected by INAIL in Tuscany is reported: a linkage between the INAIL data and those registered by the Tuscan Regional Mortality Registry highlights that a number of working areas are not covered by INAIL, a problem whose solution would be useful for primary prevention. Key words: fatal accidents; work-related injuries; trend; statistical data.

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A thorough knowledge of the time trends of occupational injuries is essential to the development of strategies to prevent these events. In Italy the main source of information about occupational injuries is the Institute of Insurance for Occupational Illness and Injury (Istituto Nazionale per l’Assicurazione degli Infortuni sul Lavoro; INAIL), which now covers nearly all workers. Sparse data on occupational injuries collected by INAIL have been available since 1883. The first reliable and complete national statistics date back to 1951, and since then every year INAIL has supplied data based on the whole Italian working population. This registration system, based on census data and not on samples, is one of the most complete in Europe. Nonetheless, the INAIL data have some limitations for interpretation of the phenomenon of occupational injuries in Italy, as described below.

OCCUPATIONAL INJURIES IN 1951–2001

INAIL has reorganized and standardized the data on compensated occupational injuries and professional diseases, reported during 1951–2001. In 2000, the incidence of occupational injuries resulting in temporary disability causing absences from work longer than three days in Italy was very similar to the mean value for the 15 countries of the European Union (Figure 1). The definitions of occupational injuries that cause absences from work and temporary inability to work lasting three or more days are similar in most European countries.

The temporal trends of incidence rates specific for the two sectors Industry and Services and Agriculture, have been very different, as shown in Figure 2. For the former, between 1951 and 1980, the shape of the “epidemic” curve is strongly reminiscent of changes in the Italian manufacturing sector. The peak at the beginning of the 1960s, for instance, corresponds to the so-called economic boom in the middle of the period of the post-war reconstruction and industrial development. Also, the strong decrease in the rate of accidents in the 1970s and ’80s is consistent with the trends in production. The progressive decrease in occupational injuries registered in the Industry and Services sector is also attributable to the extension of the insurance coverage to white-collar workers, which increased the denominator of the rates. In absolute terms, occupational injuries became stable, fluctuating between 666,691 in 1983 and 614,228 in 2001 (a 7.9% decrease vs a 34.2% increase in the number of hours worked) In this sector, from 1951 to 2001, workers sustained 41,500,000 occupational injuries.

Interpretation of the data regarding injuries in the Agriculture sector is more difficult. Three distinct periods are identifiable in Figure 2: 1965–1970; 1981–1992; and 1993–2001. The changes seem to be more correlated with changes that occurred in the insurance legislation, and therefore with the insured population, than with a real trend in risk (INAIL, 2001). In total, in the Agricultural sector in the period 1951-2001, nearly 6 million farmers were wounded.

FATAL ACCIDENTS

A decreasing trend of fatal occupational injuries was observed in Italy in the last 50 years according to the
recent evaluation made by INAIL, as shown in Figure 3. Deaths registered from 1951 to the beginning of the 1970s were around 3,000 yearly, more than twice those observed during the 1990s. Rates were somewhat higher than in other European countries (Figure 4), presumably because of a more complete notification of these events compared with nonfatal injuries. It has been suggested that minor injuries may have not been reported, especially among illegally hired workers. There are estimated to have been almost 4 million such workers, 300,000 of them engaged in agricultural jobs.
The decreasing trend of fatal accidents has been more marked and linear in industry and services than in agriculture (Figure 3). The interpretation of these data requires caution also, as they have been influenced by the disappearance or the drastic reduction of risks in some high-risk sectors (e.g., mining, steel mills). The data confirm the high price paid by Italian workers in the industrialization process that in our country reached completion after the Second World War. In 1951–2001 there were 89,664 deaths in the Industry and Services sector, compared with 32,683 fatal events among farmers.

Currently, there are about 1,300 fatal occupational accidents yearly that are compensated by INAIL. Rates increase with age. According to INAIL, farmers are the most affected group (25.7%), followed by bricklayers (14.4%), professional drivers (9%), garage workers (4.6%), clerks (3.8%), truck drivers (2.7%), and electricians (2.6%).

As the working world is changing, so also are fatal work-related accidents changing. There is a high-risk group of workers characterized by working alone, in a less regulated way, and with more rush work orders: it is difficult to remove or reduce the impact of risk determinants related to the professional, cultural, and psycho-physical backgrounds of these workers. However, it seems feasible to prevent injuries among these workers, improving their knowledge of and attitudes toward risk factors in order to encourage them to adopt correct habits in critical situations. There is also still room for improvement of work organization and environments (tools and conditions), even for preventing those accidents that are considered almost unpreventable, such as traffic accidents occurring during work hours. Nowadays, almost half of fatal occupational accidents in Italy happen on the public roads; these accidents are too often considered not strictly related to working conditions and organization. For most of them, the dynamics and the risk factors involved are usually not well collected.

**FATALITIES: COMPARISON OF TWO DATA SOURCES**

Although the most complete source of fatal occupational accidents in Italy is considered to be INAIL, a survey of cases in Italy during 1981–95 estimated that INAIL failed to record 30% of pertinent accidents, which were therefore excluded from the official national statistics.6

Both the fluctuation of the INAIL insurance coverage (particularly among farmers) and awareness that a substantial number of workers are not insured have stimulated an attempt to integrate the INAIL data with information about fatal occupational injuries evidenced by other current health data, such as mortality data. Such integration has been achieved in Tuscany for deaths occurring during 1992–96.7,8 The INAIL files on fatal work-related deaths, road accidents excluded, were linked to those registered by the Regional Mortality Registry (RMR): the INAIL database was found to include only about 60% of total cases. In 1997–2000, when, for each death certificate, the RMR database included the workplace as well as the place of death, this percentage was as low as 41.1%.

As shown in Table 1, cases registered by the two sources differ greatly in age distribution: INAIL cases are younger than RMR cases. Probably, older and
retired people, if still working, have irregular employment contracts or are engaged in concealed labor, or more simply are working in homes or family enterprises. Not surprisingly, the majority of RMR cases that were not registered by INAIL related to work in agriculture (45.2%) and the building industry (16.6%). In these two sectors there are high prevalences of seasonal or daily workers, many of whom may be officially retired from previous jobs. Compulsory insurance may be illegally omitted for workers hired in marginal work areas or with unusual contracts. It is also probable that the new types of employment contract are not consistent with national obligatory insurance criteria for inclusion of workers among INAIL’s policy holders. Certain other categories appear only in the RMR data because in the period concerned they were not covered by INAIL insurance, e.g., army and police and railway workers.

CONCLUSION

Beginning with the data of 2001 and, in a more stable way, those of 2002, INAIL has adopted the new classification of occupational injuries defined within the ESAW (European Statistics on Accidents at Work) Project. In the future, this will allow more reliable comparisons between Italy and other EU countries, and thus a better understanding of the causes of such injuries, which are difficult to interpret at present.

In Italy, INAIL’s official statistics underestimate the numbers of occupational deaths and injuries because they include only cases that are compensated among subjects insured by INAIL itself. Similar phenomena have been observed in other countries. It is of the outmost importance that more attention be devoted to those marginal or new working areas that are not covered and monitored by INAIL. These seem to carry high risks in terms of occupational deaths, as the mortality data suggest.

Despite the fact that the INAIL data are not complete, they remain the most reliable available source of information for understanding the occurrence of occupational injuries in Italy.

TABLE 1 Fatal Occupational Accidents by Age Groups and Types of Data Sources (INAIL and RMR), 1992–2000, in Tuscany, Italy

<table>
<thead>
<tr>
<th>Age Group</th>
<th>INAIL</th>
<th>RMR</th>
</tr>
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<tbody>
<tr>
<td>15–44 years</td>
<td>187 (42.2)</td>
<td>244 (40.4)</td>
</tr>
<tr>
<td>45–65 years</td>
<td>224 (50.6)</td>
<td>243 (40.2)</td>
</tr>
<tr>
<td>&gt; 65 years</td>
<td>32 (7.2)</td>
<td>117 (19.4)</td>
</tr>
</tbody>
</table>

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