

INTRODUCTION

For many years, health care and social service workers have faced a significant risk of job-related violence. Assaults represent a serious safety and health hazard within these industries. Several studies indicate that violence often takes place during times of high activity and interaction with patients, such as at meal times and during visiting hours and patient transportation. Assaults may occur when service is denied, when a patient is involuntarily admitted, or when a health care worker attempts to set limits on eating, drinking, or tobacco or alcohol use. Today more than 5 million U.S. hospital workers from many occupations perform a wide variety of duties.

They are exposed to many safety and health hazards, including violence. Recent data indicate that hospital workers are at high risk for experiencing violence in the workplace. According to estimates of the Bureau of Labor Statistics (BLS), 2,637 nonfatal assaults on hospital workers occurred in 1999—a rate of 8.3 assaults per 10,000 workers. This rate is much higher than the rate of nonfatal assaults for all private-sector industries, which is 2 per 10,000 workers. The average annual rate for physicians is 16.2; for nurses, 21.9; for mental health professionals, 68.2; and for mental health custodial workers, 69. Accidents in Italian hospitals in 2005 amounted to 429, of which 234 involved nursing staff and 7 doctors in the following areas: emergency services, hospital and district psychiatric structures, waiting areas, geriatric services, continuous assistance services. This study was designed to assess the risk of aggression, in line with Italian and European regulations, among emergency health workers (EHWs) in the ARES 118 unit, in the Lazio Region. Aggression to the Unit workers during working hours was examined by analyzing incidents reported by them between 1 January and 31 December 2007; the quantitative risk was evaluated on the basis of variables such as the days off work for each episode, the total number of aggressive attacks, the type of health intervention involved, etc.

DEFINITIONS

AGGRESSION physical violence by one human being to another

VIOLENCE in the workplace: any physical aggression, threatening behavior or verbal abuse occurring at work (National Institute for Occupational Safety and Health - NIOSH).

METHODS

The method employed for risk assessment involved two levels of analysis: a) analysis of accidents; b) assessment taking account of the type of healthcare intervention required, involving contact with the patient in an uncontrolled setting, applying different procedures. Homogeneous groups of hospital emergency unit workers (EW) were identified as likely to be exposed to the same risk of aggression (users with similar characteristics, from the same region).

Assessment was aimed at constructing a numerical index, combining the two levels of analysis, to quantify the risk of aggression at work for each EW group. Accidents during 2007 were analyzed for each group, as follows: 1) total days of absence because of aggression-related accidents (days off); 2) total aggressive events to the group members (no. events). From this we worked out a **severity factor due to accidents (SF)**, describing the effects of the aggression on health. This involved calculating the ratio of days off to the number of events for each EW group, considering the number of workers involved in each event, which could be a single episode of aggression. Each group therefore had its own SF, which served to assign the following numerical values to the risk of aggression (RAGGR) (Table 1). We then calculated a probability factor (P) for each group, using the number of times the emergency unit was called out, and the number of working days involved (no. calls/workdays). Units on continuous call (24h/day) were assigned a value of 1, and those on duty half-days (12h/day) were assigned 0.5. This gave four frequency classes, set out in Table 2.

[day off/no. events]	SF (number assigned)
< 1 or 0	1
1-3	2
4-10	3
> 10	4

TABLE 1

No. calls	P factor
>5	1
5-10	2
11-20	3
>20	4

TABLE 2

Aggression-related events	Multiplication factor W
No aggression-related accidents in 2005-2006	1
Aggression-related accidents in 2005-2006	1.25

TABLE 3

These risk indicators were then multiplied, to give the risk of aggression (**RAGGR = SF x P**). Clearly, since this is the first time it has been calculated, referring to only one year (2007), the aggression risk index may well be either an over- or an under-estimation. The **RAGGR** value found is correct with a multiplication weighting (**W**), based on the aggression-related events recorded in 2005-6, as indicated in Table 3. The complete aggression risk index is therefore **RAGGR = SF x P x W** which can be interpreted on the basis of Table 4.

$R_{AGGR} = 1$	1 NEGLIGIBLE RISK
$R_{AGGR} > 1 - \leq 4$	LOW RISK
$R_{AGGR} > 1 - \leq 8$	MODERATE RISK
$R_{AGGR} > 8$	HIGH RISK

TABLE 4

RESULTS

The rate of accidents related to aggression during working hours at the ARES 118 emergency unit in Rome was 6%, which is significantly higher than the 2% reported for the entire healthcare sector. Quantitative analysis enabled us to design preventive measures to limit these episodes. A quantitative assessment of the risk of aggression was done for each EW group. Table 5 summarizes the findings.

Homogeneous worker group (EW)	Total days of accident	No. events	SF	P	W	R _{AGGR}
C.O. Frosinone	0	0	1	1	1	1
C.O. Latina	0	0	1	1	1	1
C.O. Rieti	0	0	1	1	1	1
C.O. Roma	0	0	1	1	1.25	1.25
C.O. Viterbo	0	0	1	1	1	1
Cori	0	0	1	1	1	1
Cisterna	0	0	1	1	1	1
Sezze	0	0	1	1	1	1
Priverno	0	0	1	1	1	1
Fondi	0	0	1	1	1	1
Formia	0	0	1	1	1	1
Ponza	0	0	1	1	1	1
Minturno (Summer only)	0	0	1	1	1	1
Ventotene	0	0	1	1	1	1
Frosinone	0	0	1	1	1.25	1.25
Sora	0	0	1	1	1	1
Ceprano	0	0	1	1	1	1
PonteCorvo	0	0	1	1	1	1
Ceccano	0	0	1	1	1	1
Ferentino	0	0	1	1	1.25	1.25
Alatri	5	2	2	2	1	1
Veroli	73	1	4	4	1	1
Anagni	0	0	1	1	1	1
Fiuggi	0	0	1	1	1	1
Atina	0	0	1	1	1	1
Cassino	0	0	1	1	1	1
Isola del Liri	0	0	1	1	1	1
Arpino	0	0	1	1	1	1
Rieti Ambulance (February – December 2007)	0	0	1	1	1	1
Rieti (February – December 2007)	0	0	1	2	1	2
Amatrice (February – December 2007)	0	0	1	1	1	1
Leonessa (February – December 2007)	0	0	1	1	1	1
Magliano Sabina (February – December 2007)	0	0	1	1	1	1
C. Storico	0	0	1	1	1	1
Acilia	0	0	1	2	1	2
Aurelia H.	5	1	3	2	1	6
Briziarrelli	5	1	3	2	1.25	7.5
CTO	0	0	1	2	1.25	2.5
Capannelle	0	0	1	2	1	2
Cesano	10	1	3	1	1	3
Cinecittà	0	0	1	2	1	2
Fiumicino	0	0	1	2	1	2

TABLE 5

DISCUSSION

One of the first steps when considering the prevention of work-related stress and violence is an assessment or diagnosis of the relevant hazards and situations at risk. From a first examination of the ARES 118 accident register, an important figure stands out: about 6% of the accidents reported between 1 January 2005 (when the register was started) and 31 December 2007 refer to episodes of aggression during working hours, when staff were on duty. This differs substantially from the 2% reported for the healthcare sector as a whole (source: AIRESPA –multicentric study of accidents in healthcare between 2000 and 2005.) A study in 2002 at the Policlinico S. Matteo di Pavia, examining the accident statistics for 1995-8, found that the figure for aggression by third parties towards healthcare staff rose from one in 1995-96 to three in 1997-98. In 2005 INAIL (the Italian national insurance agency for accidents at work) recorded 429 accidents due to episodes of violence in Italian hospitals. Unfortunately there are no figures for non-hospital emergency services, but presumably episodes of aggression are only slightly more frequent than accidents because if no-one is actually harmed the worker concerned often does not report them. The present assessment is largely based on analysis of the register for aggression-related events. These may in fact be only the “tip of the iceberg”, as most such episodes are not reported as accidents. The working group that drafted the procedure described therefore proposes a form, to be completed by the health worker every time an episode of aggression occurs – even if only a threat – and forwarded to the Prevention and Protection Unit. The group also proposes risk management on the basis of quantification, as summarized in Table 6.

GENERAL MEASURES

It is essential that action be undertaken at different levels:

- at the *primary level*, action is needed to identify and address problems at the level of the organization and the environment (i.e. eliminate any object or unnecessary furnishing that might act as an obstacle or be used to strike someone, replace all such risky items in the emergency unit with objects that present no danger – exceptions are equipment needed for clinical work).
- at the *secondary level*, interventions can be developed to help individual employees or groups of employees coping with violence;
- at the *tertiary level*, assistance can be provided to employees to help cure the symptoms and to workers who have been subject to violence to recover from it.

Not least set up information and training programs reflecting the risk index found.

NEGLIGIBLE OR LOW RISK

A pamphlet describing what is meant by episodes of aggression is useful, specifying the procedure for reporting any such events.

MODERATE RISK

In addition to the measures suggested for negligible and low risk, a training course is useful to raise healthcare workers' confidence in their ability to cope with situations with high emotional impact. It should boost their ability to foster team responses, specify what exactly anyone who has suffered aggression at work should do, and set specific rules to ensure safety in clinical work.

HIGH RISK

Besides the measures suggested for moderate risk, a second course could be organized in the workplace on how to manage aggression.

TABLE 6

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