



## Age and years in practice as factors associated with needlestick and sharps injuries among health care workers in a Portuguese hospital

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### ABSTRACT

Health care workers are attributed to the group at highest risk of occupationally acquired bloodborne diseases as the result of contact with blood and body fluids. A cross sectional study was conducted between November 2009 and February 2010 in the North of Portugal, to identify potential risk factors for needlestick and sharps injuries. A questionnaire was provided to 363 health care professionals. Logistic regression was used to identify risk factors associated to needlestick and sharps injuries, calculating odds ratio (OR) and their 95% confidence interval (CI). Sixty-five percent of health care workers (64.5%, 234/363) reported needlestick and sharps injuries in the previous 5 years. Of the injured workers, 74.8% were nurses. Of the total injuries reported, the commonest were from syringe needle unit. The multivariate logistic regression model showed that the strongest risk factor was having more than 10 years or more of work in health services (OR 3.37, 95% CI 1.82, 6.24). Another significantly related factor was being over 39 years-old (OR 1.94, 95% CI 1.03, 3.63). In Portugal, there is a lack of epidemiological evidence related to needlestick and sharps injuries. Considering that patients infected with hepatitis B and C virus are commonly encountered in the hospital environment and that the prevalence of HIV infection in Portugal is one of the highest in Europe, these results should be considered in the design of biosafety strategies at the Hospital Center.

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### 1. Introduction

Health care workers (HCWs) are among those at highest risk of occupational infection from biological factors, as they are exposed to human body fluids daily. Every year, hundreds of thousands of HCWs are at risk of occupationally acquired bloodborne diseases as the result of needlestick and sharps injuries (NSSIs) (Stein et al., 2003; Nagao et al., 2007). NSSIs have been one of the major issues in the protection of HCWs, and vigorous preventive action has been practiced worldwide in recent decades. NSSIs may lead to serious and potentially fatal infections from bloodborne pathogens such as hepatitis B virus (HBV), hepatitis C (HCV), or human immunodeficiency virus (HIV) (Koh, 2010) and other bloodborne pathogens including cytomegalovirus, herpes simplex virus and parvovirus B19 (Wicker et al., 2008). In Europe, Portugal has the second highest HIV incidence rate (251.1 cases per million inhabitants), whereas the HCV prevalence is around 1.5–2.0% (Marques et al., 2011). Percutaneous exposure to HIV results in a seroconversion rate of around 0.3% (CDC, 2001), and the figure for Hepatitis C is

estimated between 3 and 10% (Jefferies, 1995; Wicker et al., 2008). The risk of transmission of hepatitis B infection by NSSI is up to 30% for susceptible HCWs without post exposure prophylaxis or sufficient hepatitis B vaccination (Deisenhammer et al., 2006; Wicker et al., 2008). The Centers for Disease Control and Prevention (CDC) estimates that about 600,000–800,000 needlestick injuries are reported annually among U.S. HCWs. It is further estimated that about half of NSSIs go unreported (CDC, 2001)

The Centers for Disease Control and Prevention (CDCs) have strongly supported the prevention of occupational sharps injuries (CDC, 1998, 2001), however, NSSIs still remain a major risk for HCWs (Hofmann et al., 2002; Gillen et al., 2003; Nagao et al., 2007; Colombo et al., 2011).

Activities associated with the majority of needlestick and sharps injuries are injecting medications, recapping needles, handling trash and drawing blood. Other contributing factors were sharps disposal, contact with waste, and patient handling (Quinn et al., 2009).

NSSIs are an important occupational hazard in health care, and the distribution of risk does not occur at random (Aiken et al., 1997). It is important to investigate injury determinants of so as to design effective prevention strategies. In Portugal, there is a lack of epidemiological evidence relating to NSSIs among HCWs. In

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