



## Exposure to Blood and Body Fluids among Medical Students in Faculty of Medicine of Rabat

Abi R<sup>1\*</sup>, Chikhi F, Elkochri S<sup>1</sup>, Tagajdid MR<sup>1</sup>, Elannaz H<sup>1</sup>, Laraqui A<sup>1</sup>, Adil FZ<sup>1</sup>, Younoussa FS<sup>1</sup>, Kasmy Z<sup>1</sup>, Lahlou Amine I<sup>1</sup> and Ennibi K<sup>1</sup>

<sup>1</sup>Department of Virology, Mohammed V Military Teaching Hospital, and Mohammed V University, Morocco

<sup>2</sup>Department of anesthesiology and resuscitation, Mohammed V Military Teaching Hospital, and Mohammed V University, Morocco

### Abstract

This study aims to determine the prevalence of blood and Body fluid Exposure Incidents (BEI) among students at the Faculty of Medicine and Pharmacy in Rabat. This descriptive and cross-sectional epidemiological study carried out over eight months, from October 2022 to April 2023. It focused on 284 medical students from the Faculty of Medicine and Pharmacy in Rabat. The research employed an individual, anonymous questionnaire designed to uphold the confidentiality of respondents. The questionnaire encompassed personal and administrative details such as age, gender, academic year, specific medical actions undertaken, frequency of exposure to blood incidents, and the mechanisms leading to these incidents. Additionally, the questionnaire gathered data on students' knowledge regarding the appropriate actions to take after a blood exposure accident. Among the 284 surveyed students, 52 individuals (18%) reported experiencing at least one BEI within the last 12 months. Needle recapping was the main factor, contributing to 70% of incidents. A mere 30% of the surveyed students had undergone training on immediate actions following blood exposure accidents. This study showed a high percentage of occupational exposure to blood and body fluids among Medical Students in Faculty of Medicine of Rabat.

**Keywords:** Blood and body fluids; Occupational exposure; BEI

### Introduction

Occupational exposure to blood and body fluids refers to inadvertent contact with these substances during medical interventions performed by healthcare workers. According to the World Health Organization (WHO), approximately 3 million individuals face exposure to blood-borne viruses annually, with 90% of these incidents occurring in developing countries [1].

This study aims to determine the prevalence of blood and Body fluid Exposure Incidents (BEI) among students at the Faculty of Medicine and Pharmacy in Rabat. Additionally, it seeks to evaluate the knowledge and practices related to infectious risks among these students.

### Material and Methods

This descriptive and cross-sectional epidemiological study carried out over eight months, from October 2022 to April 2023. It focused on 284 medical students from the Faculty of Medicine and Pharmacy in Rabat.

The research employed an individual, anonymous questionnaire designed to uphold the confidentiality of respondents. The questionnaire encompassed personal and administrative details such as age, gender, academic year, specific medical actions undertaken, frequency of exposure to blood incidents, and the mechanisms leading to these incidents. Additionally, the questionnaire gathered data on students' knowledge regarding the appropriate actions to take after a blood exposure accident.

To inform participants about the study's objectives, a fact sheet was created and disseminated through social networks. All responses were meticulously entered into Excel, and subsequent statistical analysis was conducted using SPSS 25.0.

### Results

Out of a total of 300 students, 284 actively participated in the study, resulting in a participation

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#### \*Correspondence:

Rachid Abi, Department of Virology,  
Mohammed V Military Teaching  
Hospital, Mohammed V University,  
Morocco

Received Date: 01 Feb 2024

Accepted Date: 16 Feb 2024

Published Date: 20 Feb 2024

#### Citation:

Abi R, Chikhi I, Elkochri S, Tagajdid MR, Elannaz H, Laraqui A, et al. Exposure to Blood and Body Fluids among Medical Students in Faculty of Medicine of Rabat. *Clin Case Rep Int*. 2024; 8: 1659.

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rate of 94%. The average age of the participating students was 22 years old, with female students constituting 62% of the respondents. Among the 284 surveyed students, 52 individuals (18%) reported experiencing at least one BEI within the last 12 months. This included 28 male students (26%) and 24 female students (14%). Notably, 30% of the BEI victims were students in their sixth year of medicine.

Analyzing the causes of Blood Exposure Accidents (BEA) revealed that needle recapping was the main factor, contributing to 70% of incidents, followed by pricking during wound suturing (20%), and blood splashes (10%).

A mere 30% of the surveyed students had undergone training on immediate actions following blood exposure accidents. Out of the 52 student victims, 32 (60%) had not received vaccination against viral hepatitis B.

## Discussion

In Morocco, limited objective data exists on BEI. The observed rate of 18% for BEA in our study aligns with the findings of a study conducted by Berahou among 500 medical students in Casablanca in 2017, reporting a prevalence of 17% for BEI [2].

Needle recapping emerged as the primary cause of BEI, consistent with studies among medical students globally and healthcare workers, as documented in a study at the University Hospital of Sfax-Tunisia, where needle recapping accounted for 78% of BEI [3].

Effectively preventing BEI requires ongoing training reaching all potentially exposed students. In our study, only 31% of respondents claimed to have received specific training on BEI. A similar study at the Faculty of Medicine in Strasbourg revealed that 67% of students were unaware of standard precautions, highlighting a deficiency in their knowledge acquired during studies or internships. Furthermore, over 50% of students lacked awareness of immediate actions following BEA.

Berahou's study demonstrated that only 38% of students knew how to apply standard BEA prevention precautions [2]. In the event of a BEA, immediate first aid involves cleaning the wound with running water and soap, followed by rinsing and disinfection using a chlorinated derivative or 70° alcohol, with a contact time of at least 5 min. If blood splashes onto mucous membranes, thorough rinsing with physiological serum or water for at least 5 min is recommended.

According to the World Health Organization (WHO), Morocco falls within the medium endemicity zone for viral hepatitis B [4,5]. In the absence of mandatory vaccination, the risk of Hepatitis B Virus (HBV) contamination after a percutaneous accident is close to 30%. In Morocco, vaccination against viral hepatitis B is not compulsory for health professionals, remaining entirely voluntary. The vaccination rate among medical students, found to be 48% in Berahou's study [2] and 43% in our study, highlights the need for implementing compulsory vaccination. Developed countries with high vaccination coverage among students have effectively eliminated the occupational risk of hepatitis B [5].

## Conclusion

This study has identified a notably higher percentage of occupational exposure to blood and body fluids among healthcare workers in the study area. It revealed that the lack of training on the prevention of occupational infections, incomplete Hepatitis B Virus (HBV) vaccination status, and the practice of recapping needles are independent predictors of occupational exposure to blood and body fluids among healthcare workers. In light of the current assessment, stakeholders should offer training on infection prevention, ensure the availability of prevention supplies, formulate strategies for a favorable work environment, and promote adherence to universal precautions among healthcare workers.

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