

## Original article

# Awareness of Medical Interns and Trainees about Technics of Controlling and Prevention from Nosocomial Infections

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### Abstract:

**Aim:** This study was done to evaluate the awareness of medical interns and trainees about technics of controlling and prevention from nosocomial infections.

**Methods:** In this cross-sectional research, 252 medical interns and trainees (92 boys and 160 girls) from Shiraz and Fasā medical universities were selected. 37 multiple choice questionnaires were prepared and distributed among them to assess their awareness.

**Results:** 33% of students were in low group, 50% were in mean group, and 17% were in the favorite awareness group. About recognizing ethanol application in hospital, awareness was in mean level. There was more favorite data about application of safety box for sterilization, removal of needles and syringes for injection, and 62.8% of trainees and 60% of interns knew their usage.

**Conclusion:** we concluded that for medical and para-medical students and staff to pass the training courses of nosocomial infections control practices.

**Keywords:** *Trainees, Technics, infections*

## Introduction

Nosocomial infections are called to the ones appearing 48 to 72 hours after patient hospitalization in hospital or 10 to 30 days after patient's discharge. Nosocomial infections can occur since 1 year after patient's discharge when an external object is inserted in patient's body. Urinary tract infections are the most common, pneumonia, and lethal nosocomial infections (1). According to the study by WHO on 55 patients from 12 countries of the world, it was shown that 8.7% of the hospitalized patients are infected to nosocomial infections (2). There is no accurate statistics in Iran about the prevalence of nosocomial

infections and their human and financial complications. In a study in Shiraz (1998), the prevalence of nosocomial infections was estimated 3.6% (3).

Diseases such as the acquired and congenital immunodeficiency, liver cirrhosis, diabetes, chronic obstructive pulmonary, and renal failure have more probability of nosocomial infections. In addition, skin physical defense and mucous membrane are injured after burns, surgery, endoscopy, and putting intravenous catheters, and in minor cases, indiscriminate prescribing of antibiotics and antacids repress mucosa and

skin natural bacterial flood and provide proper condition for pathogenic microorganisms growth (4). Different microorganisms can make nosocomial infections in endemic and epidemic forms that are function of conditions such as underlying disease, the use of invasive means and antibiotic usage (5). *Escherichia coli* is the most common factor of urinary tract infection, *staphylococcus aureus* is the most common factor of infection in surgery wounds, *pseudomonas aeruginosa* and *staphylococcus aureus* are the most common bacteria of lower respiratory tract, and gram-positive cocci is the most common microorganism in making the primary bacteremia (6). The main objective of nosocomial infections controlling plan is reducing the risk of getting infections by patients, hospital staff, and patients' companions and preventing from infection prevalence by hospital staff and patients' companions. One of the main responsibility of infection control committee is formulation of the teaching plans. The infection controller nurse has the principal role in execution teaching plans (7). Teaching hospital staff about controlling diseases, sterilization, disinfection, and proper use of equipment, hygiene, and protection against blood-borne diseases is so important. This research was executed to study the awareness of medical interns and trainees about technics of controlling and prevention from nosocomial infections.

## Methods

In this cross-sectional research, 252 medical interns and trainees (92 boys and 160 girls) from Shiraz and Fasā medical universities were selected. 37 multiple choice questionnaires were prepared and distributed among them to assess their awareness. They were asked to answer the questions alone.

The questions were designed in a way that all nosocomial infections aspects were considered to increase precision of assessment. Practical Handbook of the World Health Organization was used for prevention of nosocomial infections to prepare questions and the related answers. Cases such as awareness about underlying conditions, the most common nosocomial infection generating microorganisms, and hospitals sectors with occurred infections were studied. Moreover, students identification of disinfection and sterilization technics, and responsibility of infection control committee were assessed. In order to simplify interpretation of the results of this research, students with 1-18 correct answers were put in weak group, with 19-25 correct answers were put in mean group, and with 26-37 correct answers were put in favorite group. The obtained results after collecting questionnaires and correcting them were analyzed in SPSS18 software.

## Results

33% of students were in low group, 50% were in mean group, and 17% were in the favorite awareness group. The maximum awareness was for girl trainees with 22.4% favorite awareness, and the minimum awareness was for girl interns with 10% awareness. 2 students answered correctly just to 4 questions, and 6 students succeeded to answer 30 from 37 questions correctly. Trainees have favorite awareness level about 19.8%, but interns just had 10% favorite awareness. Boys' awareness was significantly more than girls' (17.4% against 16.3%). According to identification the underlying reasons for nosocomial infections, 88% of trainees, and 90% of interns recognized the most common nosocomial infection generators, but their

awareness about the most common and dangerous nosocomial infections was not favorite; as though, 34% of trainees and 35% of interns recognized the most common and dangerous nosocomial infections. According to recognizing the duty of physicians in infection control committee, there was no mean awareness. 50% of trainees and 45% of interns answered to the related questions positively. According to the awareness level of students about all types of hospital waste disposal, there was little awareness. 9.3% and 5% of interns correctly answered to the related questions about hospital waste disposal. According to recognizing all types of disinfectants and sterilizers, there was no favorite awareness. About recognizing ethanol application in hospital, awareness was in mean level. Therefore, 67.4% of trainees and 55% of interns answered correctly. There was little awareness about application of savlone in hospital and actually only 31.4% of trainees and 30% of interns knew the application of savlone. Students' awareness was not efficient about application of chlorhexidine in hospital, and only 38.4% of trainees and 15% of interns answered correctly. There was more favorite data about application of safety box for sterilization, removal of needles and syringes for injection, and 62.8% of trainees and 60% of interns knew their usage. There was mean data about identification responsibilities of various hospital units, and 61.6% of trainees and 50% of interns didn't know about responsibilities of central sterilization unit (CSR), and only 46.5% of trainees and 65% of interns had efficient awareness about responsibilities of laundry unit.

## Discussion

Inefficient awareness of medical trainees and interns shows that nosocomial infections

issue isn't taught practically and theoretically to students. Based on studies in teaching hospitals of Shiraz and Fasā medical universities, lack of active observation system of nosocomial infections controlling committee, lack of reporting systems, and lack of constant organizational post for infection controller nurses, and frequently replacement of them interrupt in controlling nosocomial infections. According to problems reports and nosocomial controlling solutions, lack of academic training centers for infection controller nurses, lack of epidemiologist application at the hospital, and finally unfamiliarity of medical and other paramedical disciplines' students prevent from favorite controlling and prevention from nosocomial infections (7). Unfortunately, there is no accessible accurate and precise statistics about nosocomial infections. In a study (1998) on nosocomial infections in teaching hospitals of Ahwaz medical sciences universities, role of training in reduction nosocomial infections and transferring them was shown. It was emphasized in this research for medical and para-medical students and staff to pass the training courses of nosocomial infections control practices.

## Conclusion

The following matters are suggested in order to modify the existed defects:

- Theoretical and practical course of prevention and controlling nosocomial infections to medical and para-medical students and assistants.
- Attribution constant organizational post for infection controller nurse in hospitals with more than 200 beds, and academic training to nosocomial infection control team.

- Emphasis of infection controller nurse on washing hands, separation patients, obeying points and principles of disinfection and sterilization, healthy disposal of garbage, and immunization of hospital staff.

### References:

1. Gaynes RP. Surveillance of nosocomial infection .In:Benth JV,Brachman PS,editors.Hospital infection.4<sup>th</sup> edition,U.S.Lippuncott-Raven.1998;p:65-84.
2. WHO-EMRO.Surveillance of communicable disease.WHO.1998
3. Marc F,Force LA The control of infection.In:Benth JV,Brachman PS,editors.Hospital infection.4<sup>th</sup> edition,U.S.Lippuncott-Raven.1998;p:3-17.
4. Weder DJ,Rassch R, Ruralr WR.Nosocomial infection in the ICU;The growing imporyance of antibiotic resistant pathogens .
5. Mangram AJ.Guidelines for prevention of SSI.Infect Control Host Epidemiol 1999;20(4):247-78.
6. Jarvis WR.Selected aspect of socioeconomic impact of nosocomial infection.Infect Control Host Epidemiol 1996;17(8):657-61.
7. Garmer JS,Favero MS. Guidelines for hospital environmental control. Hospital Infectin Program.CDC, U.S.A. 1999.