Clinical audit of hand washing in the first six months of 1396 at Taleghani Tabriz Educational Center

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2. Head of Taleghani Educational Center, Tabriz, Iran
3. Midwife, Management of Taleghani Nursing School, Tabriz, Iran
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ARTICLE INFO

Abstract

Introduction: Health care-associated infection causes a great burden on the patient. Hand hygiene is the most important way to save others. Clinical Audit, as a method of improving the quality of services, can have a potential impact in this regard.

Materials and Methods: In this descriptive cross-sectional study, hand hygienic compliance was assessed using a five-point checklist of the World Health Organization during the four-week period in March 1395 and the amount of hand disinfectant (alcohol-based) solution used in the measurement section then compares the amount of solvent consumption with its standard according to the WHO formula. Due to the need to upgrade the present situation, after the results were presented at the hospital infectious disease control committee, there was a need for promotion and necessary measures. The re-evaluation was carried out in September 1396 and the upgrade was estimated.

Results: The findings showed that the level of hand hygiene before the promotion was 34% and after it, 49.48% and out of 1033 cases in the first six months of 1396, 507 cases (49%) performed hand hygiene and 526 (51%) did not. Of the 1854 cases observed in the second six months of 1395, 616 cases (33%) performed hand sanitization and 1238 (67%) did not.

Conclusion: The present study showed that the use of clinical audit as one of the methods for improving the quality of hand hygiene can be effective in improving the process of hand hygiene, which leads to increased safety of patients.
Use of ozone in the treatment of intra-abdominal abscess in patient with LAD

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According to the chosen therapeutic concentration ozone can produce its immune-modulating, anti-inflammatory, anti-bacterial, viral, fungal and other effects. Our patient is a 4.5 month old infant suffering from immunodeficiency disease LAD (leukocyte adhesion deficiency) that has been hospitalized for about two months before for FTT and severe infections. At the last time, the patient was admitted due to the intra-abdominal abscess (size 55 * 35 mm) with fistula to the umbilical. Due to lack of medical response he was Candidate for bone marrow transplantation. Unchanged in previous antibiotics (linezolid & levofloxacin) according to consultation with pediatric infectious specialist. The ozone was given PO to the patient twice in day from the first time of hospitalization. A report of wrinkled abscess size in ultrasound (US) was received on day 14 of hospitalization. WBC count was zero on the 19th Admission day and during this time, an uncontrollable high fever did not occur. Compared to the previous abscess size was not only exacerbated but also abdominal US was observed smaller size. Abscess and fistula were not detected in US on the 30th day after BMT. Ozone therapy is a form of alternative medicine treatment, used to disinfect and treat disease. Some conditions may benefit from treatment with Ozone Therapy include: Cancer, Meniscal tears and joint disorders, Shingles (Herpes zoster) and Herpes Simplex, Diabetic ulcers and venous stasis.
We recommend this method in cases resistant to medical and surgical therapy.

Keywords:
Ozone, Ozone Therapy, LAD, Immunosuppressive
Prevalence of multi-drug resistant bacteria isolated from patients with cardiac diseases admitted to the Seyedolshohada Hospital of Uremia

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ARTICLE INFO

Keywords: Patients with non-infectious diseases such as cardiac diseases who have to stay in hospital for long period are high risk for nosocomial infections.

ABSTRACT

Introduction: Patients with non-infectious diseases such as cardiac diseases who have to stay in hospital for long period are high risk for nosocomial infections.

Materials and Methods: In this cross-sectional study, bacteria isolated from cardiac patients admitted in the second half of 1396 were enrolled.

Results: Total 547 samples were cultured and 58 (10.60%) of them were positive. Among culture-positive samples: 40 samples from urine, 13 blood and 4 wound. *Escherichia coli* 30 (75%), *Enterobacter cloacae* 4 (10%), *Staphylococcus Epidermidis* 2 (5%), *Klebsiella pneumoniae* 1 (2.5%), *Staphylococcus saprophyticus* 1 (2.5%), *Citrobacter diversus* 1 (2.5%) and *Staphylococcus lugdunensis* 1 (2.5%) were recorded. Antibiotic-resistant *Escherichia coli* mostly related to sulfamethoxazole/trimethoprim (62.5%), Ciprofloxacin (59.4%), cefotaxime (56.2%), Ceftriaxone (46.9%), Piperacillin (37.5%) and Cefixime (34.4%).

Conclusion: We suggested that antibiogram should be taken into account when prescribing antibiotics.
Frequency of Isolated Bacteria from Blood Culture of Patients in the Hematology Unit at Pediatric SubSpecialty Hospital of Dr. Sheikh in Mashhad in the first 9 months of the year 2017-2018

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**ARTICLE INFO**

**Abstract**

**Keywords:** Bloodstream infection, hematology ward, pathogens

**Introduction:** Bloodstream infection is one of the most important causes of mortality in patients hospitalized in the hospital, especially in hematology wards.

**Materials and Methods:** In this cross-sectional study, conducted over 9 months in Dr Sheikh hospital from April to December 2017, 2958 blood samples from patients in different parts were studied, which 492 samples belonged to the hematology ward. Blood samples were inoculated into BD and were placed inside the BD machine via automation. Then positive samples on usual subculture environments were identified by morphological and biochemical tests.

**Results:** Among 492 samples of hematology ward, 128 were positive. Isolated pathogens included 27 coagulase-negative *Staphylococcus* (21%), *Burkholderia* and yeast each 15 (11.7%), *Stenotrophomonas* 13 (10.1%), *Staphylococcus aureus* 12 (9.37%), 6 of them were MRSA, non-fermented gram-negative bacteria 11 (8.99%), *E. Coli* 7 (5.46%), *Klebsiella* 5 (3.9%), *Enterococcus* 4 (3.1%), *Candida*, *Diphtheroeid* and *Streptococcus pneumonia* 3 (2.34%) *Enterobacter*, *Micrococcus* and *Staphylococcus haemolyticus* 2 (1.56%) and *pseudomonas aeruginosa* and alpha hemolytic *Streptococci* 1 (0.8%).

**Conclusion:** According to the results of this study and the high variation of bacteria in blood culture samples in the critical section of hematology, it is more important to pay attention to children at risk for blood infections and to reduce the risk factors.
Evaluation of perception, Knowledge and performance of Nurses in ICU in order to Prevent Ventilator-associated pneumonia (VAP)

Giti Afsharipour, Elham Hajipour, Najmeh Shahsavari, Asma Hajalizadeh, Maryam soltani
Shahid Bahonar Medical Education Center, Kerman-Iran

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Hospital infections have been associated with morbidity, mortality and cost in hospitalized patients. About 25% of hospital infections are reported in ICU. VAP is an infection that the medical team members, especially nurses have an active role to prevent it. The purpose of this study was to determine the knowledge and performance of ICU nurses to prevent ventilation related pneumonia and their perception of prevention barriers of VAP in 1396.</td>
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<tr>
<td>Ventilator-associated pneumonia nurse</td>
<td><strong>Materials and Methods:</strong> This is a descriptive-analytic cross-sectional study. The statistical population consisted of all the nurses in ICU department. A random sampling was performed according to Morgan's table including 52 nurses. A questionnaire including demographic characteristics, knowledge, performance and prevention barriers of Ventilator-associated pneumonia were used. Data were analyzed by SPSS-20 software. Descriptive statistics were used including tables central tendency and dispersion and analytical tests (Pearson correlation coefficient, independent t-test, ANOVA, or equivalent nonparametric for data analysis)</td>
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<tr>
<td>Knowledge</td>
<td><strong>Results:</strong> More than 70% of the nurses responded to the awareness questionnaire and follow the protocol's performance, and had correct perception of barriers to prevent of Ventilator-associated pneumonia.</td>
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<td>Performance barriers</td>
<td><strong>Conclusion:</strong> Statistical tests showed that there was a significant direct relationship between knowledge and performance of nurses.</td>
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The Study of effective factors on hand hygiene in nursing staff of ICU in Sanandaj educational hospitals using Planned Behavioral Model in 2017

Sheida Kheirolahi*, Hooman Ghasri, Faeze Foruzanfar, Anoosh Aryanejad
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<td>Keywords:</td>
<td>Introduction: The WHO estimated the incidence of hospital infections over 25% in some developing countries. Hand hygiene is the easiest and most effective way to prevent the transmission of infections and disease. This study is aimed to assess the effective factors on hand hygiene in nursing staff of ICU in Sanandaj educational hospitals using Planned Behavioral Model.</td>
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<tr>
<td>Hand Hygiene</td>
<td>Materials and Methods: This study is a cross-sectional and descriptive-analytic study which included all nursing staff of ICU in Sanandaj educational hospitals by census sampling. Data was collected using WHO Standard Checklist about hand hygiene and Planned Behavioral Model questionnaire. Data were analyzed using descriptive and inferential statistics.</td>
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<td>Critical Care Units</td>
<td>Results: Only in 42% of participated nurses the hand hygiene observance was above average. Their level of awareness (78%) and attitude (86%) about hand hygiene were high and there was a significant relationship between subjective norms and hand hygiene (p&lt;0.05).</td>
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<td>Hospital Infection</td>
<td>Conclusion: Given the great importance of ICU in risk of hospital infections, nurses need more training in this field and it seems necessary to provide appropriate context in order to removing obstacles of improving hand hygiene behavior.</td>
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Knowledge, Attitude and Performance of Nurses toward Hand Hygiene in Hospitals

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3 Department of Nursing, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, IR Iran

ARTICLE INFO

Keywords: Knowledge, Attitude, Performance, Nurses, Hand Hygiene

ABSTRACT

Introduction: Health Care-Associated Infection (HCAI) is the most frequent adverse event for hospitalized patients. Based on recommendations from World Health Organization (WHO), Hand Hygiene (HH) is simple, important, basic factors and effective solution to protect patients from HCAI. This study aimed at assessing Knowledge, Attitude and Performance (KAP) among nurses about HH at teaching hospital, Tehran, Iran.

Materials and Methods: This cross-sectional KAP study was conducted on 270 nurses from teaching hospitals in Tehran city at center of Iran in 2015. Data was collected using a translated version of the World Health Organization (WHO) Hand Hygiene Questionnaire. Data were analyzed through descriptive and statistical tests in the SPSS-PC (v.21.0). The level of significance was set at below 0.05.

Results: The majority of nurses had good knowledge 208 (77 %), positive attitude 151 (55.9%) and poor performance 153 (56.6%). Multivariable analysis showed that work experience (p=0.008), ward (p<0.001) and formal training (p<0.001) were the most important predictors of participants' KAP about HH.

Conclusion: According to the results, nurses’ knowledge regarding hand hygiene was good and hand hygiene practice in poor. Many nurses had negative attitude regarding HH. Based on these results, it is necessary to multimodal and continuous training program for all the categories of nursing staff to increase nurses’ KAP regarding HH.
Hand hygiene compliance among healthcare workers in an emergency ward in Tehran

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2 Department of Medical Surgical Nursing, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran, IR Iran.
3 Department of Nursing, Imam Khomeini Hospital Complex, Tehran University of Medical Sciences, Tehran, IR Iran.

ARTICLE INFO

Keywords: Compliance hand hygiene healthcare workers infection control

ABSTRACT

Introduction: Hand Hygiene (HH) is a cost-effective method in preventing infection transmission. Research findings show that HH compliance has not been satisfactory in Health Care Workers (HCWs). The prevalence of infection due to inappropriate HH will increase enhance morbidity, mortality and costs. This study aimed at assessing HH compliance among HCWs in a emergency ward in Tehran.

Materials and Methods: This was a cross-sectional observational study using direct observation technique, during One year (Oct 2015- Oct 2016) in emergency in a selected general hospital in Tehran. During this analysis, 1735 HH opportunities were observed. HH compliance was tested for all 5 moments as per WHO guidelines.

Results: Overall compliance according to WHO Guidelines was 10.2%. Nurses had an adherence rate of 13.1%; nurse assistant adherence was 10.4%. HH compliance with the WHO moments was 3.6% before touching a patient, 6.3 before clean/aseptic procedures, 62.8% after body fluid exposure/risk, 33.4 after touching a patient and 52.1% after touching patient surroundings. Glove use was more common in 68% of the opportunities.

Conclusion: The observance of HH is still low in emergency ward. Educational programs, assessment and monitoring, encouragement and punishment system recommended to be improved HH in emergency wards.
Evaluation of the level of hand hygiene in intensive care units personnel of Mehr Hospital of Mashhad in autumn of 2017

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Mehr Hospital, Mashhad, Iran

**ARTICLE INFO**

**ABSTRACT**

**Keywords:**
hand hygiene
Hospital Infection
Intensive Care Unit personnel

**Introduction:** Intensive Care units have the highest risk for hospital infections among hospital wards. Studies have shown 60 to 70 percent of hand hygiene compliance in advanced countries and 40% to 50% in Iran. Hand hygiene is the simplest, least costly and most effective method of preventing hospital infections. The aim of this study was to determine hand hygiene compliance in the personnel of Intensive Care units of Mehr Hospital in Mashhad.

**Materials and Methods:** This was a descriptive cross-sectional study which covered 100 personnel of the Intensive Care Units (Dialysis, ICU, CCU, NICU, Open Heart ICU) in the hospital and was conducted by observing 650 positions created in autumn of 2017. The data gathering tool was a checklist approved by Mashhad University of Medical Sciences. Finally the data were analyzed via SPSS software.

**Results:** The average age in this group was 28 years and 62% of the personnel were women. NICU with 57.5% and Open Heart ICU with 37.4% had the highest and lowest percentages of hand sanitation, respectively. In these observations the personnel had the highest rate of hygiene hand with 34.5%, after touching the secretion of the patients. In general, the rate of hand hygiene was 47.3% in the Intensive Care Units.

**Conclusion:** It is suggested that using the high-quality disinfectant solutions, enough advertising about the importance of hand hygiene, more continuous training as well as continuous supervision of head nurses in Intensive Care units can increase hand hygiene compliance.
Assessment of Hand Hygiene by Nursing Students in Apprenticeship

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2. Infectious Diseases and Tropical Medicine, Kermanshah University of Medical Sciences, Iran
3. Ph.D. Nursing Students, Mashhad University of Medical Sciences, Iran

ARTICLE INFO

Abstract

Keywords: Hand Hygiene Nursing Students

Introduction: Care-taking infections are the challenges of health centers. To reduce the incidence of these infections, the most effective, simple and cost-effective way is to recognize the hygiene of the hand by the care provider personnel. Performing different student nursing procedures for patients increases the incidence of infection, and hence the importance of hygiene in preventing hospital infection in sections is important. Objectives: The purpose of this study was to evaluate the level of hand hygiene by nursing students in teaching hospitals affiliated to Kermanshah University of Medical Sciences.

Materials and Methods: The study was performed on 100 nursing students who were trained in educational hospitals of Kermanshah University of Medical Sciences. To collect the data, a checklist including 10 items related to all aspects of hygiene compliance was set up. Each of the subjects of the study population was 6 times and 600 times in total.

Results: The average score of hand hygiene (48.5%) and the total score in the majority of research units (57.7%) were weak. The least amount of handwashed articles was handwashed, hand washing with soap and water (6.3%) and later (10.8%) were followed by hand washing and hand washing after leaving the hand gloves (6/15%); in addition, the majority (42.3%) wear gloves while taking care of the patient.

Conclusion: In this study, the degree of hygiene of the majority of students was weak, as well as the students had defects in hand washing with soap and water before and after care and use of gloves for patient care. Also, in view of the importance of comprehensive health care, it is necessary to take measures to fully comply with this important action and to remove the barriers to its implementation.
## Article Info

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<th>Keywords</th>
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| Hand hygiene, Nurses, satisfaction | **Introduction:** Hand hygiene is the first step in preventing and controlling health-care associated infections. This study has been conducted to evaluate nurses' level of satisfaction about facilities needed for hand hygiene in Shariati hospital.  

**Materials and Methods:** This cross-sectional study was carried out on 144 employed nurses in 2016. All nurses completed the questionnaire. The questionnaire contained ten questions about the product needed for hand rub, hand wash and hand scrub. The data were analyzed by SPSS software.  

**Results:** According to the results of this study 49.3% of nurses chose good option for the quality of liquid hand rub, 40.2% chose good option for the quality of the liquid hand wash. The quality of the hand scrub was good only in 21.5%. They chose 45.1% good for the quantity of hand rub liquid item in the wards. Overall, 58% of nurses satisfied about hand hygiene product.  

**Conclusion:** According to this study it is necessary for health centers to promote hand hygiene culture and check their employees' satisfaction about the quality and the quantity of hand hygiene products.
The Effect of Different Educational and Cultural Methods on Hand Hygiene in Payambar Aazam Hospital, Kerman 2016-2017

Mahdiyeh Yasaman

Master of nursing, infection control Supervisor and at Payambar Aazam Hospital, Kerman, Iran

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<td>Keywords:</td>
<td>Introduction: Hand hygiene is considered the most important, effective and least costly measure to reduce health-care associated infections. This study was conducted with the aim of the effect of different educational and cultural methods on hand hygiene.</td>
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<td>Educational</td>
<td>Materials and Methods: In this study, health-care workers divided into four groups: nurses; medical staff, auxiliary, and others. Hand hygiene compliance was measured in six months using ministry health checklist. Interventions include hand hygiene workshop, pamphlet, hand hygiene poster, installing dispenser for each bed, distribution of pocket hand gel, holding hand hygiene festival with gifts, nurses day, food festival etc., Data were analyzed using SPSS16 software and statistical tests.</td>
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<td>Cultural Methods</td>
<td>Results: Prior to intervention hand hygiene compliance was 40% in nurses, medical staff 21%, auxiliary 24% and others 17%. After intervention, hand hygiene compliance increased to 46% in nurses group, medical staff 23%, auxiliary 25%, others 22%. There was a significant difference between hand hygiene compliance before and after intervention (P &lt;0.05).</td>
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<td>Conclusion: Cultural and educational interventions have good impact on hand hygiene compliance.</td>
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A study of the awareness and attitude of nurses working in neonatal intensive care unit about hand hygiene compliance

Reza saeidi¹, Azra Izanloo², Ahmad Shahfarhat¹, Ashraf Mohammadzadeh¹

¹. Neonatal Research Center, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
². Razavi Cancer Research Center, Razavi Hospital, Imam Reza International University, Mashhad, Iran

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| Keywords:     | Introduction: As we know, about a quarter of infant mortality is caused by infection and hand hygiene can significantly reduce the death rate of neonates. It is therefore important to raise awareness of healthcare workers and adjust their attitudes about the guidelines of hand hygiene. To this end, this study seeks to investigate knowledge and attitude of nurses working in neonatal intensive care units in public and private hospitals.  
| Awareness    | Materials and Methods: A 23-item questionnaire was designed based on the study of Gonzalez et al. regarding the knowledge and attitude of nurses about hand hygiene compliance. The questionnaire was completed by 20 nurses in the public hospital and 19 nurses in the private hospital. The data was analyzed using SPSS software after encoding.  
| NICU         | Results: In this study, 39 female nurses with a bachelor's degree in nursing with a mean age of 35.87 ± 1.8 years completed the questionnaire on knowledge and attitude of health hygiene compliance. The mean score of knowledge and attitude of nurses was 78.57 ± 6.72 and 78.65 ± 6.7 in public and private hospitals respectively, and there was no significant difference between the two groups in this regard (p = 0.937). More than 25% of nurses stated that they were more likely to follow hand hygiene guidelines under supervision and more than 53% declared that if their colleagues adhered to hand hygiene guidelines, they would feel bound to follow suit.  
| hand hygiene | Conclusion: Since knowledge and attitudes are indicators and predictors of behaviors in individuals, and the results of the study suggested that nurses considered supervision and performance of their colleagues as factors affecting hand hygiene compliance, it seems that more accurate training and monitoring in this regard is required.  
| hand washing | |
A study of the Essential Situations of Hand Hygiene Compliance in Neonatal Units in Public and Private Hospitals

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ARTICLE INFO

Keywords:
hand washing
hand hygiene
NICU

INTRODUCTION
Hand hygiene has been recognized as the main factor in controlling and reducing hospital infections. However, little attention has been paid to the observance of hands washing guidelines. The purpose of this study is to investigate the essential situations that require hand hygiene compliance in neonates units in public and private hospitals.

MATERIALS AND METHODS: In this study, the healthcare workers dealing with patients were monitored secretly and the hand hygiene control checklist for five situations was completed for them. Data collected from public and private hospitals were analyzed using SPSS software.

RESULTS: 456 situations in the public hospital and 164 situations in the private hospital were monitored. 155 (25%) situations were before any contact with patients, in which more than 47.1% of nurses used alcohol. 138 (22.3%) situations were before the adoption of any aseptic action in which more than 34.8% of the subjects used alcohol solution. 124 (20%) situations were after contact with patients, where more than 63.7% of subjects used soap and water. 112 (18.1%) situations were after contact with patients, in which more than 42% of subjects used an alcoholic solution, and 91 (14.7%) situations were after environmental contact where more than 40.7% of subjects did not employ any necessary actions.

In all emergency situations, there was a significant difference between the public and private hospitals in terms of hand hygiene compliance (p = 0.0001). However, there was no significant difference between the two hospitals after contact with body fluids. (p = 0.199)

CONCLUSION: Despite the importance of hand hygiene in controlling and reducing infection, this issue has not received adequate attention. Therefore, more in-depth interventions and supervisions on staff performance are required.
Evaluation of the Level of Hand Hygiene at Samen Al-aemah Hospital (Chenaran) in 1396

Ameli Zahra*; Nikmaram Mahnaz
MS in nursing, Samen Al-aemeh Hospital, Mashhad University of Medical Sciences, Chenaran Iran.

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Hands are as one of the main ways of transmission of infections and hand hygiene is one of the most effective preventive measures and control of nosocomial infections. Existence of a uniform method for the measurement of hand hygiene in hospitals could have a major impact on the prevention of infection. The aim of this study was to determine the level of hand hygiene and the effect of educational interventions on hand hygiene at Samen-Al-aemeh Hospital, Chenaran.</td>
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<tr>
<td>Hand Hygiene</td>
<td><strong>Materials and Methods:</strong> In this research, data were extracted from the pre-hospital emergency mission forms, which were collected from the EMS stations in Mashhad and suburbs through systematic random sampling. In addition, supplementary information was obtained from the ambulance dispatch cards and emergency communication center forms.</td>
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<td>Infection Control</td>
<td><strong>Results:</strong> In this study, the mean compliance of hand hygiene in five situations was 55.2% in nurses (n=70), 39.4% in physicians (n=15) and 36.6% in help nurses and departmental officers (n=23). Also, the highest rate of hygiene compliance was reported for situations after contact with the patient's secretions (60.66%), and the least compliance was related to the situations before contact (30.66%).</td>
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<td>Nursing Staff</td>
<td><strong>Conclusion:</strong> According to the results of this study, it is necessary that more trainings be given to improve hand hygiene compliance, some arrangements be made to avoid overwork of personnel, and the equipment required for this health behavior be provided.</td>
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Evaluation of the level of knowledge of health care worker and supervisor about hand Hygiene in Shohada hospital, in Tabriz

Khadije Naziri*; Alireza Khodaei; Hasasn Asrari; Fariba Kheravi; Soraya Golipoor Khanmiri
Medical Research & Training Hospital, Tabriz

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| Keywords:     | **Introduction:** compliance of hand hygiene among staffs is one of the most important ways of hospital infection control. Existence of a uniform method for the measurement of hand hygiene in hospital could as a major impact on the prevention of infection. The aim of this study was to evaluate the level of knowledge of health care worker and supervisor about hand hygiene in Shohada Hospital in Tabriz
|               | **Materials and Methods:** This study was conducted as a descriptive- sectional study on Shohada hospital for health care worker and supervisor in 2013. To collect the data two questioners and checklist were used:
|               | 1- The checklist sent from the Ministry of health (recommended by WHO) used for evaluating 567 opportunities.
|               | 2- The two questioners made by researcher (It used for Health care worker, other one for supervisor).
|               | **Results:** In this study, the mean of knowledge of health care worker was 78%, but the mean of compliance of hand hygiene was 24%. The mean knowledge of supervisor was %30 and their ability to check hand hygiene compliance was 30%.
|               | **Conclusion:** In this study, supervisor's ability to check hand hygiene compliance was low, therefore it is recommended supervisors must be able and knowledgeable for what is oversees.
Investigating the effect of hand hygiene on the rate of nosocomial infection by years 93-96 in the ICU section

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**ARTICLE INFO**

**ABSTRACT**

**Keywords:** nosocomial infection, hand hygiene

**Introduction:** Nosocomial infection is an infectious disease that occurs 48 to 72 hours after hospitalization and the patient has not illness at the time of admission and has not been during the incubation. The most important factor in the controlling and preventing nosocomial infection is the observance of hand hygiene by all of the care team, patient and patient companions. The control of nosocomial infections is one of the major objectives of the strategic plan and the mission of the hospital, improving the patient's safety, reducing hospitalization time and reducing costs. For this purpose, to achieve organization to the mentioned goals, the ratio of the number of nosocomial infections in the ICU section to the rate of hand hygiene was studied.

**Materials and Methods:** The study was conducted in a direct observation of all hospital service providers in the ICU section. This was done on the basis of a hand hygiene measurement checklist in five positions by the infection control interface and the supervisor.

**Results:** The average of the hand hygiene compliance in the studied department in the years of 93 to 96, was 38%, 42.6%, 45.4% and 45.7%, respectively and the rate of nosocomial infection in the aforementioned years was 0.39%, 0.36%, 0.35% and 0.35%.

**Conclusion:** According to the obtained results, the highest level of hand hygiene has performed by nursing staff, doctors and other careers. And, also the highest position of hand hygiene was during the time of clear contamination of blood and carcasses infected on the hands and after contact with the patient, respectively.
Assessment of staff satisfaction with hand wash facilities in selected military hospital of Mashhad

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2. BSc in Nursing, Nursing Department, Police Hospital of Mashhad, Iran.
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**ARTICLE INFO**

**ABSTRACT**

**Keywords:** hand hygiene, hospital facilities

**Introduction:** The role of hands is recognized as an important factor in the transmission of infection in hospitals and hand sanitization is the first recommended step to control infections. The prevalence of infection due to inappropriate hand sanitation will increase mortality and costs. In this study, we evaluated the satisfaction rate of handlers from hand hygiene facilities.

**Materials and Methods:** The level of satisfaction of personnel at the Military Hospital in the year 1395 was evaluated by a checklist containing five indexes of Hand rub Quality, Hand rub Quantity, Liquid Soap Quality, Napkins Quality and Moisturizing Cream Quality from all health care departments. The data obtained by EXCEL software was evaluated and analyzed.

**Results:** The results of this study showed that the level of satisfaction of the personnel was 70% handrub quality, 78% number of handrub, 52% quality of soap liquid, 77% access to paper napkins and 58% access to moisturizing cream. Also, the lowest satisfaction rate was in the pediatric ward.

**Conclusion:** Considering the importance of hand sanitization in controlling nosocomial infections, increasing the satisfaction of employees from the facilities to hand hygiene is necessary. For this reason, more attention should be paid to improving the quality of the relevant facilities, including appropriate skin-friendly hygiene products, in the plans of the authorities.
Improvement of hand hygiene rate among personnel of police hospital staff
an action research

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2. BSc in Nursing, Nursing Department, Police Hospital of Mashhad, Iran.
3. PhD(MD) in Internal Medicine, Police Hospital of Mashhad, Iran.

**ARTICLE INFO**

<table>
<thead>
<tr>
<th>Keywords:</th>
<th>Introduction: Hand sanitation is one of the important strategies in reducing Nnasocomial infections that prevent the spread of antibiotic resistance and increase the patient’s safety. This article uses corrective measures to promote hand hygiene among staff.</th>
</tr>
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<tr>
<td>hand hygiene</td>
<td>Materials and Methods: This study was an action research and 20 medical staffs in the health care units were monitored by an infection control supervisor in the first season of 1396 for half an hour by hand sampling with a handwashing checklist. This monitoring was carried out consciously and in five washing situations. In the second quarter, corrective actions were carried out in three pathways: training, incentives and equipments. In the third quarter, the staffs were monitored again and the results were analyzed by Excel and using descriptive statistics.</td>
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<td>hospital</td>
<td>Results: The results obtained from this study showed that the average hand hygiene rate in the first quarter, was 42% and after corrective measure this rate reached 45%. Although in some wards such as maternity, surgery this rate reduced, the overall rate was increased.</td>
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<td>corrective actions</td>
<td>Conclusion: Despite the implementation of corrective actions, hand hygiene is still at an unsatisfactory level, and it is suggested that the culture and institutionalization of hand sanitation be revised and training and monitoring programs be put in place.</td>
</tr>
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</table>
Hand Hygiene Compliance among Clinical Workers in Allame Bohlool Hospital in 2017

Ahrari Z1; Tavakolizadeh Noghabi M1*

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<th>ARTICLE INFO</th>
<th>ABSTRACT</th>
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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Nosocomial infections affect nearly 10% of hospitalized patients. The majority of nosocomial infections are transmitted by contact, primarily by hands of health care workers. Hand hygiene compliance of health workers is important to control nosocomial infections. This study carried out to determine hand hygiene compliance rate among health workers of in Allame Bohlool Hospital.</td>
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<tr>
<td>Hand Hygiene</td>
<td><strong>Materials and Methods:</strong> The study was a descriptive-cross sectional. The study carried out in september 2017 in Allame Bohlool hospital. Health workers were physicians, nurses and other workers. Observation for hand hygiene behavior of health workers was blind. Sample collection was based on randomized observations for hand hygiene opportunities. The data collected were then analyzed in SPSS-20.</td>
</tr>
<tr>
<td>infection control</td>
<td><strong>Results:</strong> Hand hygiene compliance rate of health workers was 1058 out of 3015 opportunities (35%). Hand hygiene compliance rate among physicians was 28%, for nurses 42% and for other workers 30%.</td>
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<tr>
<td>hospital</td>
<td><strong>Conclusion:</strong> Hand washing is the single most important, simplest and the least expensive way for preventing infection’s spreading. Hand hygiene compliance rate of Clinical workers in Allame Bohlool hospital was low. These findings suggest that on job training of health-care team need to be undertaken.</td>
</tr>
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<td>Health workers.</td>
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Assessing the effect of verification on improving hand hygiene observing in two professional nurse- practical nurse and nurse’s assistant – Servants groups in Ahwaz Salamat Hospital-1395

Azita Ali Nourizadeh1*, Saeed Asgharian2, Afshin Sadeghipour3, Shokroallah Salmanzadeh4

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2. Master of Health Information Management
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ARTICLE INFO

Keywords:
Hospital Infection
Hand Hygiene
Verification

ABSTRACT

Introduction: The importance of hands in transmitting hospital infections is completely clear and the risk of infections transmission will be reduced through proper hand hygiene (compliance rate at least 50 % ). Given the hand hygiene process; it is one of the most valuable subjects to verification.

Materials and Methods: The present study was an interventional one (before and after) which was done in a verification method using Health Ministry checklist for hand hygiene.

Results: The rate of hand sanitation (operation) was (69%) in the nurse-practical nurse group (before intervention) which improved to (78%) in (after intervention), and it was (49%) in the nurse assistant-servants group in (before intervention) that increased to (59%).

Conclusion: In the current verification, the level of hand sanitation standards was assessed in moderate that was upgraded to acceptable level of standards through the interventions.
Evaluation of Knowledge, attitude, and practice of patients admitted in Mousabne Jafar hospital (Quechan) about hand hygiene during first six months of 1396

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ARTICLE INFO

Keywords: knowledge, attitude, performance, hand hygiene

ABSTRACT

Introduction: The most important step in preventing hospital infections is hand washing. Since the first step in programming hand hygiene training for patients is the careful examination of knowledge, attitude and analysis of learner's functions. This study aimed to determine the knowledge, attitude and practice of patients admitted to Musa bin Ja'far hospital about hand hygiene in the first six months of 1396.

Materials and Methods: This descriptive-analytic study was done on 132 patients with admission criteria at Mousabne Jafar hospital in Quechan during the first six months of 1396 by convenience sampling. The data collection tool was a researcher-made demographic questionnaire and knowledge, attitude and practice of patients about hand washing. Data were analyzed by SPSS software version 16.

Results: The results of the study showed that 83.6% of the patients had a moderate knowledge of hygiene. The average attitude of individuals was 22.6% and in the weak range. 89% of the patients in this study also had a low-level function.

Conclusion: According to the results of this study, the level of knowledge of patients about hygiene is minimal and hand hygiene in different situations is not satisfactory. Many patients also have a negative opinion about hand hygiene; therefore, regarding the importance of hand hygiene in nosocomial infections, it is recommended that more training programs be carried out to improve the level of knowledge, attitude and practice of patients in the hospital.
Nurses attitudes toward hand hygiene barriers in Quechan Mousabin Jafar hospital

Khadijih ghadiri moghadam

Master of science in nursing, Mashhad University of Medical Sciences, Quechan Medical Education Complex, Quechan, Iran

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| **Keywords:** Barriers Hand Hygiene Nurses | **Introduction:** One of the most important reasons for increasing the hospitalization time, heavy costs and increasing the mortality rate is Hospital infections. Hand hygiene is the first and most effective steps in controlling these infections. The nurses have a unique role in preventing these infections; Because they have direct contact with patients. This study was done to determine the Nurses attitudes toward hand hygiene barriers in Quechan Mousabin Jafar hospital.

**Materials and Methods:** This descriptive cross-sectional study was done in 1396 by census method on 146 nurses working in Mousa bin Ja'far Hospital. The data collection tools were a demographic data form and a researcher-made questionnaire. The data was analyzed by SPSS software version 16.

**Results:** The mean work experience of participants was 6 ± 3 years. Most of them were female (74%) and had Bachelor of Nursing(98.3%). The barriers toward hand hygiene were include: lack of facilities such as tissue and gloves, overcrowded unites, hand drying of the skin through the use of disinfectants, non-compliance with hand hygiene by other health care workers, believed in hand hygiene using nylon gloves. No statistically relation was found with other demographic variables.

**Conclusion:** Considering the priority of the mentioned barriers, it seems that provision of supplies for hand hygiene such as tissue, good disinfectants, standardization of number of patients in unites and finally the commitment of all health care workers to hand hygiene are the most important priorities for improving hand hygiene in the hospital.
Attitude of hand hygiene among Emam Khomeini hospital’s nurses in Mahabad City, Iran

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Emam Khomeini hospital, Mahabad-Iran

Keywords:
Attitude
hand hygiene
nurses

ARTICLE INFO

Introduction: Healthcare workers' hands are the most common vehicle for the transmission of healthcare-associated pathogens from patient to patient and within the healthcare environment.

Materials and Methods: A cross-sectional study was conducted on 105 nurses from Emam Khomeini hospital in Mahabad city at northwest of Iran in 2015. The demographic and a researcher made questionnaire based on Ministry of Health and Medical Education’s protocol were used to collect data. The data were analyzed using SPSS, version 18.

Results: The majority of nurses was female 89 (84.6%), had BSc degree 101 (96.1%) and was married 78 (77.2%). The majority of them had a positive attitude 96 (91.4%). In this study, there was no statistically significant difference between work experience, sex, work experience, employment status and service area in terms of hand hygiene. Considering the unwillingness to compliance hand hygiene by nurses, a large number of hospitalized patients and low-quality hand washers were considered as the most important factors for unwilling. The nurses believed that in terms of the equipment, the hospital conditions for hand hygiene were not appropriate and most of them did not wash their hands before and after care according to the instructions for washing hands and the use of disinfectant solution. On the other hand, most nurses were satisfied with the amount necessary for hand washing in the wards, but they were confident that this would not be use for the patients. Unfortunately, most of the nurses mentioned that before and after removing the glove, they did not wash their hands again and considered the glove to do sterile work without handwashing before wearing the gloves.

Conclusion: The nurses had a positive attitude. It seems to be more necessary by holding educational classes and courses in cases where they have less knowledge to address the gaps in KAP regarding hand hygiene. Easy access and adequate supply of hand rub solutions, continuous training, performance feedback and verbal reminders will be needed to sustain adherence to hand hygiene.
Surgical Wound Infection Index

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ARTICLE INFO

ABSTRACT

Keywords: Surgical Wound Infection, Patient

Introduction: Surgical wound infection is the second common cause of nosocomial infections, up to 20% of which has been reported. The cause of nearly 80% of deaths in operated patients is infection, which leads to an increase in antibiotic use, hospital costs and the stay of patients in the hospital. Independent variables such as underlying illness and dependent variables are such as high age and immune deficiency makes the surgical wound susceptible to infection. The present study evaluates the rate of surgical ulcer infections in the period of 6 months - 21 March to 22 September 2017 in sina training-medical center.

Materials and Methods: In this cross-sectional study patients in the surgical wards were selected. The data were completed using infection reporting forms.

Results: The mean 6-month index was calculated according to the ratio of cases of post-operative infection to the total number of operated patients during one month. 17 wound infections with incidence 2.89 per thousand are reported.

Conclusion: It is essential that the predisposing factors of wound infection, including underlying diseases are considered and the infection control standards are monitored. The most important limitation in this study is the lack of access to post-discharge patients and their referral to the clinic, which can affect in this index.
Campylobacter jejuni Bacteremia in a Patient with Acute Lymphocytic Leukemia (first report in Iran)

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1. Professor Alborzi Clinical Microbiology Research Center, Nemazee Hospital, Shiraz University of Medical Sciences, Shiraz, Iran
2. Department of Microbiology, School of Medicine, Gonabad University of Medical Sciences, Gonabad, Iran

ARTICLE INFO

Introduction: Campylobacter jejuni is a slender, motile, non-spore-forming, helical-shaped, gram-negative bacterium. It is one of the most common causes of human gastroenteritis in the world. The aim of this study was to present a patient with acute lymphocytic leukemia (ALL), who was infected with Campylobacter jejuni.

Materials and Methods: We describe the medical records of a pediatric ALL patient with bacteremia caused by C. jejuni, who was diagnosed at Amir hospital, Shiraz, Iran. This 14-year-old male visited the emergency department of Amir hospital with night sweats, severe polar high-grade fever, reduced appetite, and nausea in August 2013. Given the suspected presence of an anaerobic or microaerophilic microorganism, aerobic and anaerobic blood cultures were performed using an automated blood cultivator, the BACTEC 9240 system. In order to characterize the isolate, diagnostic biochemical tests were used. Antibiotic susceptibility testing was done with the disk diffusion method. The primary culture was found to be positive for Campylobacter, and the subculture of the solid plate yielded a confluent growth of colonies typical for Campylobacter, which was identified as C. jejuni by morphological and biochemical tests. The isolate was resistant to ciprofloxacin, cefotaxime, cephalaxin, piperacillin/tazobactam, nalidixic acid, aztreonam, cefuroxime, cefixime, ceftazidime, and tobramycin.

Results: C. jejuni should be considered in the differential diagnosis as a potential cause of bacteremia in immunosuppressed patients. In cases where the BACTEC result is positive in aerobic conditions but the organism cannot be isolated, an anaerobic culture medium is suggested, especially in immunocompromised patients.
Identification and antifungal susceptibility of Candida species isolated from blood culture of hospitalized patients in Mashhad

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2. Department of Medical Microbiology, Imam Reza Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
3. Mycology Research Center, Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran.

ARTICLE INFO

Introduction: Blood stream infections (BSIs) due to Candida species (Candidemia) are the most clinical manifestation of invasive candidiasis, and are a significant cause of morbidity and mortality in hospitalized patients. The aim of the present study was to identification and antifungal susceptibility of Candida isolates from blood cultures to fluconazole in Mashhad.

Materials and Methods: During January 2014 to December 2015, a total of 2500 blood samples from hospitalized patients at Imam Reza Hospital; Mashhad University of Medical Sciences was prospectively examined. Definitive identification of Candida sp. was done using CHROMagar Candida and API 20C AUX. antifungal susceptibility testing of isolates of Candida spp. was performed in accordance with the CSLI reference broth micro dilution method.

Results: Of 2500 blood cultures, 41 positive cultures were obtained. Among them 24 cases (58.5%) were male and 17 cases (41.4%) were female. The most cases of positive cultures were observed in the 50-64 age group (24.4%) and neonates (21.9%). Candida albicans was the most prevalent species, accounting for 17 (41.5%) of all isolates, followed by C. glabrata (17%), C. tropicalis (14.6%), C. krusei and C. kefyr (7.3%), C. parapsilosis (4.9%), C. famata (4.9%) and C. guillermondi (2.4%). Overall 58.5% of isolates were non-albicans species. Candidemia was more common in intensive care unit settings (68.3%). The main underlying conditions were cardiovascular disease (36.6) and the central Venus catheters were the most frequent predisposing factor. In vitro susceptibility to fluconazole revealed that 94.1% of Candida albicans isolates were susceptible to this drug. Fluconazole resistance of Candida glabrata was 28.6% and Candida albicans 5.9%. MIC90 of Candida albicans and Candida glabrata was 32 and 64 µg/ml, respectively.

Conclusion: we have demonstrated for the first time the frequency and antifungal susceptibility of Candida species recovered from Candida blood stream infections in Mashhad. Our results showed that Candida albicans was the commonest agent of candidemia and Candida glabrata was the most resistant species.
Evaluation of the effect of perioperative blood glucose level on surgical site infections in patients undergoing total mastectomy

Reza Taheri1*, Seyed Esmaeil Nejadhosseini1, Mohammad Reza Motie1, Samaneh Abolbashari2

1. Surgical Oncology Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2. Department of Modern Sciences and Technology, Medical Faculty, Mashhad University of Medical Sciences, Mashhad, Iran.

A R T I C L E I N F O

Keywords: Blood glucose Mastectomy surgical site infections

ABSTRACT

Introduction: Stress hyperglycemia during surgeries has been reported to increase the possibility of surgical site infections and worsen the patient's prognosis. The aim of the present study was to evaluate the association between perioperative blood glucose level and surgical site infections (SSIs) in patients undergoing mastectomy.

Materials and Methods: In this prospective case control study, 158 female patients undergoing mastectomy were included, with diabetes as an exclusive criteria. Blood glucose levels was measured in five phases for each patient.

Results: Among 158 studied patients, eight (5.5%) developed SSIs. 4 patients (2.74%) in the control group and 4 patients (50%) in the case group had hyperglycemia in at least one of the stages. Logistic regression analysis demonstrated associations between SSI development and any blood glucose value more than 150 mg/dl. Age, past medical history, current smoking, tumor characteristics, previous chemo-radiotherapy, duration of surgery and other surgical factors and prophylactic antibiotic did not seem to have a significant association with the SSI.

Conclusion: As hyperglycemia is an easily controllable factor, glycemic control during the perioperative period is recommended in patients undergoing breast surgeries to lower surgical site infection rate.
Use of PCR-RFLP for molecular identification of *Candida* species isolated from clinical samples

Zahra Salehi*, Sadegh Khodavaisy, Sassan Rezaie

**ARTICLE INFO**

**Keywords:** Vulvovaginal candidiasis *Candida* species PCR-RFLP

**ABSTRACT**

**Introduction:** Vulvovaginal candidiasis (VC) is a common mucosal infection in genital tract among women. Up to 75 percent of women may experience VC at least once in their lifetime. Rapid and accurate diagnosis of causative agents of VC with molecular techniques is necessary for epidemiological purposes and for effective treatment.

**Materials and Methods:** Fifty isolates from patients with suspicious symptoms of VC were identified by phenotypic methods and confirmed by molecular approaches based on PCR-RFLP.

**Results:** Twenty-seven (54%) of strains were C. albicans, 12 (24%) strains C. glabrata, 3 (6%) strains C. kefyr, 2 (4%) strains C. tropicalis. Like the most of similar studies performed in this field, the present study found Candida albicans as common species isolated from VC.

**Conclusion:** PCR-RFLP is rapid, sensitive, and reliable method that might be also used for other similar epidemiological studies and medical mycology laboratories.
Identification of invasive aspergillosis and candidiasis in patients with hematologic malignancy and recipients of transplantation by Real-Time PCR

Mohammad Javad Najafzadeh; Mohsen Dashti; Parisa Badiee; Mohammad Hasan Aelami; Monavvar Afzal Aghaei; Abdollah Banihashem; Zahra Badiee, Hamid Farhangi; Ali Ghasemi

Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Invasive Aspergillosis and Candidiasis are due to tissue invasion of two species of fungi, Aspergillus and Candida that occur in patients with leukemia and transplantation because of a severe reduction in the body's defense system. Diagnosis of infection without use of invasive methods (biopsy, BAL, etc.) with Real-Time PCR, and initiation of treatment in the early stages of the disease reduce mortality due to these fungal infections in hospitalized patients.</td>
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<td>Invasive Aspergillosis</td>
<td><strong>Materials and Methods:</strong> In order to investigate the presence of fungal contamination, 75 patients (100 samples) with different types of leukemia and transplant recipients were evaluated. This study was performed using TaqMan Real-time PCR technology using fluorescence probes and specific primers to detect fungal DNA on plasma or peripheral blood serum samples.</td>
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<td>Invasive Candidiasis</td>
<td><strong>Results:</strong> The most patients were ALL (45.3%) and AML (32%) respectively and the lowest was HLH patients (1.3%). The results of blood culture (BD) in the studied patients showed that Candida Non Albicans (13.3%) and Candida albicans (1.3%) and no culture was positive for Aspergillus. In this study, Real-time PCR (61) was negative (81.3%) and (5) 6.7% were positive for Candida albicans and (9) 12% were positive for Aspergillus.</td>
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<td>Real-Time PCR</td>
<td><strong>Conclusion:</strong> The Real-Time PCR is an appropriate test with a high sensitivity and specificity for the detection of invasive fungi, due to the limitations mentioned in other diagnostic tests, including pathology and culture and etc. This method is a reliable and rapid technical testing for early detection, treatment and follow up of asymptomatic patients at an early stages of the disease.</td>
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The effectiveness of luliconazole against planktonic and biofilm forms of 
*Candida albicans*

Maral Gharaghani1*, SiminTaghipour1, Sahar Heyvari 1,Ali Rezaei-Matehkolaei1, Ali Zarei Mahmoudabadi1.

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**ARTICLE INFO**

**ABSTRACT**

**Keywords:**
Candida albicans  
Luliconazole  
Biofilm  
Antifungal susceptibility

**Introduction:** Candida albicans is one of the most common opportunistic human pathogen with a high mortality rate among patients with invasive forms. Biofilms formation by C. albicans often are associated to implanted medical devices, especially, dentures, catheters, etc. Biofilms are resistance to multiple antifungals, so that the minimum biofilm inhibitory concentration (MBIC) of fluconazole for the biofilm of C. albicans is several times higher than those for planktonic forms. Although, several studies have shown that luliconazole is active against dermatophytes and saprophytic fungi, there is no data about the effect of it against biofilms of C. albicans. The aim of the present study was to evaluate luliconazole potency against clinical C. albicans biofilm in vitro and compare with theirs planktonic cells.

**Materials and Methods:** In the present study 29 clinical strains of C. albicans were examined against luliconazole in both planktonic and sessile forms. Luliconazole susceptibility against planktonic and biofilm forms was performed using standard methods. The used concentration of luliconazole ranged of 1024-64 µg/mL and 0.5 -<0.031 µg/mL for biofilm and planktonic forms, respectively. Minimum inhibitory concentration (MIC) and MBIC for all isolates against luliconazole were calculated.

**Results:** Our results show that the biofilms of *C. albicans* were more resistance to luliconazole than planktonic forms. Totally the MIC range for biofilm and planktonic form was 1024-64 and 0.5 -<0.031, respectively. The MBIC50, MBIC90 and MBICGM were 512, 512 and 309.9µg/mL for biofilms forms of tested were *C. albicans* isolates. In contrast, the MIC50, MIC90 and MICGM were <0.031, <0.031 and 0.059µg/mL for planktonic forms.

**Conclusion:** It is concluded that, although luliconazole was a more effective antifungal against planktonic form of *C. albicans* isolates, only high concentrations of drug can inhibit the grow of biofilms of *C. albicans* isolates in vitro.
Investigating Quality Indices of Central Sterile Services Department in Government Funded Hospitals of Shiraz in the Year 1396 (2017-2018)

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**ARTICLE INFO**

**Keywords:**
- Sterilisation process
- Surgical Site Infection (SSI)

**ABSTRACT**

**Introduction:** Surgical Site Infection (SSI) is the second most prevalent hospital-acquired infection, comprising about 15% of clean surgery and 30% of contaminated surgery cases. Considering the rising number of SSIs and the complications arising from it along with its financial burden, management and prevention is very important. The present study, therefore, aims to investigate sterilisation quality indices to come up with effective methods of SSI prevention.

**Materials and Methods:** Data was collected with descriptive method by the standard checklist of sterilization supervision approved by Health Ministry, which contains important indices in sterilisation quality control.

**Results:** All hospitals received standard point in effectiveness index. Five hospitals failed to receive expiration index point. All hospitals received standard point in proper packing of sterilised material. Six hospitals failed to receive safety index in CSSD. Five hospitals failed to receive standard point in internal users’ satisfaction index.

**Conclusion:** Data acquired from the present research show that in the studies hospitals there are defects in the following areas: personnel safety in CSSD; internal users’ satisfaction, and expiration date ignorance. It is recommended to define more effective operational methods along with the checklist to increase supervision over the sterilisation indices. Therefore, further research is required in this area.
Mucormycosis in ICU wards

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ARTICLE INFO

Keywords:
Rhizopus stolonifer
Mucormycosis
Lung infection
Mucor

ABSTRACT

Introduction: Mucormycosis is life-threatening infections mostly caused by species include Mucor, Rhizopus and Rhizomucor. Most mucormycosis infections are present in patients with underlying risk factors like diabetes mellitus, hematologic disorders, organ transplant recipients, AIDS and long term immunosuppressive therapy. The aim of this study was to evaluate the prevalence of mucormycosis in ICU wards in the university hospitals in Shiraz, Iran.

Materials and Methods: During 8 months from Jun 2017 to January 2018, patients were evaluated for fungal infections. Semi-nested PCR with two set of primers (ZM1, ZM2 and ZM2, ZM3) was done on serum of the patients. The PCR products were sequenced for diagnosis of the etiologic agents.

Results: from 609 patients suspicious to fungal infections, 85 patients (14%) were form ICU wards and entered in this study, 33 female and 52 male. The age related infection in patients was under 1 year. The most prevalent back ground disease was lung disorders, followed by congenital malformation and hematologic disorders. Positive Mucor PCR was observed in 10(10/58, 11/8) patients. By sequencing the most prevalent species were Rhizopus stolonifer and Rhizopus oryzeae. The most prevalent site of infection was lung. The mortality rate was 50%.

Conclusion: Mucormycosis was the problem in the ICU patients with high mortality rate. The physician must be knowledge of these infections for the best management and treatment strategies of the ICU patients care.
Isolation and identification of Candida species as agents of onychomycosis by mycological and molecular methods

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ARTICLE INFO

Keywords:
Onychomycosis
Candida
Mashhad
nondermatophyte onychomycosis

ABSTRACT

Introduction: Onychomycosis is defined as the infection of the nail apparatus caused by dermatophytes, nondermatophyte molds and yeasts. It is responsible for 50% of all nail disorders. The aim of the present study was to definite identification of Candida species as agents of onychomycosis in Mashhad.

Materials and Methods: The study was carried out at medical mycology laboratories, Imam Reza Hospital, Mashhad University of Medical Sciences. A total of 280 patients with different nail abnormalities suspected of having onychomycosis were examined. Nail clipping were collected from the clinically abnormal nails. Microscopic examination was done using KOH 20% preparations. The nail samples were inoculated on three different points of sabouraud dextrose agar (SDA) with chloramphenicol and gentamycin and SDA with chloramphenicol and cycloheximide. The cultures were incubated in 25°C and 37°C for 4 weeks and checked twice weekly. Initial identification of Candida colonies was done by using Candida chrome agar, germ tube and chlamydoconidia tests. After DNA extraction, internal transcribed spacer sequence analysis was done for Candida species identification.

Results: From 280 suspected cases of onychomycosis 112 (40%) revealed positive fungal growth. Candida accounted for 52 (46.5%) of total culture positive cases. Nondermatophyte molds 50 (44.6%) and dermatophyte 10 (8.9%). Among the candidal onychomycosis, female with 38 (73.1%) affected more frequently than male 14 (26.9%) and fingernails with 46 (87.5%) were affected more frequently than toenails 6 (11.5%). The most frequently affected were those in the age group 30-49 years. Candida albicans with 38.5% and Candida parapsilosis 26.9% were the most common isolates followed by C. tropicalis, C. orthopsilosis, C. glabrata and Meyerosyma (Candida) guilliermondii.

Conclusion: This study showed that the commonest causative agents of onychomycosis in our region are nondermatophytes fungi especially Candida species and these nondermatophytes should be considered as important pathogen.
Molecular identification of Candida species associated with Vulvovaginal Candidiasis by using DNA sequencing technique in Mashhad, Iran

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2. Allergy research center, Mashhad University of Medical Sciences, Mashhad, Iran
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Abstract

Introduction: Fungal infections are expanding because of increase in patients with immunodeficiency and vast using of antibiotics and corticosteroids. Probably 75 percent of women with vaginal candidiasis are experiencing at least once in their lifetime. The vaginal candidiasis is the second most common infection of the vagina. Vulvovaginal Candida species such as C. albicans, C. glabrata, C. krusei, C. tropicalis, and C. parapsilosis is created, but 75 to 90% of vaginal Candida infection is Candida albicans. Since the number of Candida spp. have inherent resistance to some antifungal drugs, accurate identification of Candida species is necessary in patients with vaginal candidiasis.

Materials and Methods: Two hundred fifty specimens of vaginal swabs obtained of the patients suspected to vaginal candidiasis. All specimens were cultured on Sabouraud dextrose agar and then put in 35°C incubator for 48-72 h. One hundred thirty three samples using direct examination and culture test were positive and then germ tube test, CHROMagar Candida species and ability to produce chlamyoconidia were identified. Some of the colonies (1 cm²) in 1/5 ml tubes containing distilled water were placed and then DNA was extracted by phenol-chloroform. ITS-rDNA all samples using primers ITS1 and ITS2, PCR and were sequenced.

Results: Of 250 specimens of suspected to vaginal candidiasis clinically, 133 cases had positive culture. Fifty two cultures were lost due to contamination to examine by PCR. 81 samples were sequenced that their results are as follows: candida albicans (80.2%), candida tropicalis (13/6%), candida glabrata (2.5%), candida parapsilosis (3.7%).

Conclusion: In all research conducted on vaginal candidiasis, Candida albicans is the most common cause of illness have been reported in this study, like other studies of pathogenic Candida albicans was the predominant species.
Determination of Drug Susceptibility of Candida Strains Isolated from Patients clinical samples

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1 Pro. Alborzi Clinical Microbiology Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

**ARTICLE INFO**

**Abstract**

**Keywords:** Candida, Caspofungin, fluconazole

**Introduction:** Infections caused by opportunistic yeasts such as Candida species, have increased recently. Their identification is crucial because resistance of some yeast species to antifungal agents is on the rise. This study aimed to evaluate in vitro susceptibility testing of Candida species isolated from patients against six antifungal drugs.

**Materials and Methods:** clinical specimens were examined by direct examination and culture on Sabouraud dextrose agar containing chloramphenicol. Candida spp. were identified by the RFLP method using ITS1 and ITS4 primers and MspI enzyme. Also, their susceptibility patterns to amphotericin B, caspofungin, voriconazole, fluconazole, posaconazole and itraconazole were determined using microdilution susceptibility test following the CLSI M27-A3 method. Data were then analyzed using SPSS for windows version 16.0.

**Results:** Overall, 194 Candida were isolated consisting of Candida albicans 64% (124/194), Candida krusei 12% (24/194), Candida glabrata 7% (13/194), Candida tropicalis 7% (14/194), Candida parapsilosis 4% (7/194) and others 6% (12/194). MIC50 for amphotericin B, caspofungin, voriconazole, fluconazole, posaconazole and itraconazole were 0.25, 0.032, 0.032, 0.25, 0.032, 0.032 µg/ml, respectively, and MIC90 were 2, 0.5, 0.125, 4, 0.25, 0.25 µg/ml, respectively.

**Conclusion:** Candida albicans was the most common species follow by C. krusei and C. glabrata. Resistance to amphotericin B was seen in some isolates and caspofungin proved very effective against Candida species. Determination of susceptibility patterns of the yeasts isolated from patients could be very helpful for the treatment of the systemic infections.
Survey of the incidence of surgical infections (SSI) in hospitals affiliated to Mashhad University of Medical Sciences in 1395

Mojtaba Taghvaei Ahmadi1; Dr Mohammad Jafar Sadeghi2; Omid Emamei3
1. Expert Health Center of disease - Mashhad University of Medical Sciences
2. Director of the Department of Diseases - Mashhad University of Medical Sciences
3. Expert Health Center of disease - Mashhad University of Medical Sciences

ARTICLEINFO

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<td>Surgical Infection, INIS, Mashhad</td>
<td><strong>Introduction:</strong> The site of the surgical infection is an infection that occurs after surgery in the part of the body where the surgery is performed, most of the patients undergoing surgery do not become infected. However, in 3 to 1 out of every 100 patients who have surgery, this may happen. The purpose of this study was to investigate the incidence of surgical infections (SSI) in hospitals affiliated with Mashhad University of Medical Sciences in 1395.</td>
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<td><strong>Materials and Methods:</strong> This is a descriptive-retrospective study in which all patients with Surgical infections in the program hospitals were enrolled and analyzed according to INIS software</td>
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<td><strong>Results:</strong> In the year 1395, there were 3589 registered hospital infections and 578 cases of infections with an infection rate of 0.13. 52% of the cases were positive and 48% were clinically diagnosed. The incidence of infection was 41% in men and 59% in women. The age group of 15-64 years old with 77.6% had the highest incidence. The highest incidence of infection in the surgical ward was reported with 47.5%. The most important risk factor is surgery with 75% and the most important underlying disease of diabetes with 15.5%. Most of the observed microorganisms are Acinetobacter with 53 cases. The reported deaths in this group are 18 cases.</td>
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<td><strong>Conclusion:</strong> According to the results of this study, the most important way to reduce hospital infections is to continue training on handwashing and paying attention to the proper use of the equipment used by the patients by the personnel.</td>
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Study of the effect of caspofungin against *Candida species* isolated from *Candida vaginitis*

Ali Zarei Mahmoudabadi¹, Ali Rezaei-Matehkolaei*, Shokoofe Shafiei¹

¹ Health Research Institute, Infectious and Tropical Diseases Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Vulvovaginal candidiasis (VVC) is a common fungal infection among women during reproductive age with worldwide distribution. <em>Candida albicans</em> was accounted as the first agent of VVC followed by <em>C. glabrata</em>, <em>C. tropicalis</em>, and <em>C. krusei</em>. Clotrimazole and fluconazole are two azoles usually prescribed for <em>Candida vaginitis</em>. Although, fluconazole was routinely used for the treatment of vaginal candidiasis, the rate of resistance varies in different study, 94%, 76% and 11.8%. Caspofungin is a new echinocandin that used during last two decades for therapy of invasive fungal infections and few reports are available associated to its resistance. The aim of the present study was to evaluate the antifungal effect of caspofungin compared with fluconazole and clotrimazole against VVC agents in vitro.</td>
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<td>Caspofungin</td>
<td>Materials and Methods: The antifungal susceptibility tests with caspofungin, fluconazole and clotrimazole were applied using microdilution and Resazurin dye methods against 34 <em>Candida</em> strains including <em>C. albicans</em> (30; 88.2%), <em>C. glabrata</em> (3; 8.8%) and <em>C. kefyr</em> (1; 2.9%) isolated from women suspected with vaginitis.</td>
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<td>Fluconazole</td>
<td><strong>Results:</strong> Our study showed that only one isolate of <em>C. albicans</em> was resistant to caspofungin at the concentration of 2 µg/mL after 24h incubation and increases to 2 isolates after 48h incubation. MICs50 and MICs90 for all isolates, were found at 1µg/mL. All isolates were sensitive to fluconazole at the MIC ranges 1-0.25 µg/mL. The 88.2% of isolates were inhibited at 0.25 µg/mL of clotrimazole, whereas three isolates were dose dependent and only one isolate resistant to clotrimazole.</td>
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<td>Clotrimazole</td>
<td><strong>Conclusion:</strong> given to the low frequency of resistance to caspofungin, this echinocandin can potentially be used as the first line therapy for <em>Candida vaginitis</em>.</td>
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Effect of Quality Management and Health Promotion on Lowering Cardiac Surgery Induced Site Infection in at Mazandaran Heart Center-2016-2017

Maryam Mirzakhani*, Aлиreza Davoodi, Afсне Mirzakhani, Reza Kalantari

Mazandaran Heart Center, Mazandaran-Iran

**ARTICLE INFO**

**Keywords:**
surgery site infection
quality management
health promotion

**ABSTRACT**

**Introduction:** Infection caused by bacterial contamination before, during, after surgery depending on its type increases morbidity and mortality, hospitalization period and medical expenses. Quality management in hospital as a health supporting environment at three levels of prevention is significant. The current study aims to identify infection preventive and control strategies.

**Materials and Methods:** This research investigates the effect of quality management and health promotion on reducing surgery site infection at Mazandaran Heart Center in 2016 and 2017. To do this, collaborative research action was applied. The surgical site infection causes were identified using a checklist and with a 10-step model of quality management, the program for reducing the site of surgical infection was developed and implemented through the cooperation of the ICUOH and CCU and heart surgery personnel.

**Results:** Of the effective factors creating infection, we can mention low level of knowledge of the patients and their attendants and not being aware of self-care, having underlying illnesses and high weight, failing to follow correctly and not executing 5 hand-hygiene requirements. By implementing quality management, surgery infection level dropped 34% in 2017 compared with 2016.

**Conclusion:** The most effective, the cheapest and the most optimal method to fight hospital-acquired infections is prevention, that hand hygiene compliance is the most effective, the simplest and the cheapest way of such measures. In addition, training and increasing knowledge is the most effective method to fight nosocomial infections. To standardize working processes, identify working processes problems, plan correctly, and work as a team and hold training courses are of such measures applied to reduce infection level.
Storage and Control Stock for surgical sets in operating room

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² Assistant Professor, Ph.D. Nursing, Wound Healing Research Center, Department of Operating Room, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran
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ARTICLE INFO

Keywords:
Surgical Site Infection
Surgical Instruments
operating room

ABSTRACT

Introduction: The Centers for disease Control and Prevention have established standards to prevent the contamination of surgical sets stored in sterile storeroom. The goal of this study is to provide a solution for faster access and better monitoring of expiry date of surgical sets in order to lesser manipulating of surgical sets.

Materials and Methods: This research performed undergo Action Research method with checking the expiry dates of sterilized surgical sets by census method. Then numbered all the Stocks of surgical sets and comprehensive list of surgical sets prepared and the front of the each surgical set marked with a Stock number. The correct layout of the surgical sets inside the stocks trained by the FIFO method to the storeroom staff. Then, after the intervention, the expiration date of all items checked and the personnel satisfaction evaluated to access to the desired set.

Results: Of the 305 surgical set viewed, 72(24%) items at the first stage, 35 (11%) at the second stage and 18 (6%) at the third stage recorded, that were expired according to the time specified by the hospital. After the intervention, the number of expired sets was 9 items (3%). A total of 45 personnel were asked about the designed list and the layout of the surgical sets, 40 People (89%) said that access to desired surgical sets was easier and faster than before.

Conclusion: This designed surgical sets list reduced the number of expired sets, was corrected layout, and led to faster access of personnel to the sets.
# Isolation and identification of *Candida* species from different wards of Jundishapur educational hospitals

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Nosocomial infections commonly occur during hospitalization in specialized wards, urology, surgery, ICUs, NICUs and infectious wards. Hospital infections are a serious infection with significant mortality rates. <em>Candida</em> infections are one of the most important nosocomial infection that has been increased 3.5 to 14-fold over the past two decades. Although, the sources of infection are human normal flora, hospital environments have undeniable role. The aim of this study was to determine of <em>Candida</em> species profile in different hospital wards in Ahvaz.</td>
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<td>Candida species</td>
<td><strong>Materials and Methods:</strong> Two hundred and twenty one samples, including hospital environments, hospital workers, and clinical samples using moisture swabs. Swabs were inoculated on CHROMagar <em>Candida</em>, incubated at 35°C and detected all isolated <em>Candida</em> species using morphological, microscopy and molecular methods (PCR-RFLP).</td>
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<td>PCR-RFLP</td>
<td><strong>Results:</strong> Out of 72 positive samples, 92 <em>Candida</em> isolates belonging to 10 different species were detected. The most common isolates was <em>C. albicans</em> (n=43, 46.74%) followed by <em>C. glabrata</em> (n=21, 22.8%), <em>C. tropicalis</em> (n=12, 13%), <em>C. parapsilosis</em> (n=6, 6.52), <em>C. krusei</em> (n=3, 3.26), <em>C. lusitaniae</em> (n=1, 1.08%), <em>C. guilliermondii</em> (n=1, 1.08%), <em>C. rugosa</em> (n=2, 2.17%), <em>C. famata</em> (n=2, 2.17%) and <em>C. kefyr</em> (n=1, 1.08%).</td>
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<td>Hospital environment</td>
<td><strong>Conclusion:</strong> <em>Candida albicans</em> was majority of species that obtained from oral sample. Non- albicans species with non- common frequency were obtained from hospital environment samples.</td>
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Genetic structure of *Aspergillus flavus* isolates in hospital environments and their possible public health hazards

Sadegh Khodavaisy\(^1\), Hamid Badali\(^2\), Sassan Rezaie\(^1\)*, Keivan Gohari Moghadam\(^4\), Shirin Afhami5, Sayed-Jamal Hashemi\(^1\), Jacques F. Meis\(^6\)*

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\(^2\) Department of Medical Mycology and Parasitology, Kurdistan University of Medical Science, Sanandaj, Iran.
\(^3\) Department of Medical Mycology and Parasitology, Mazandaran University of Medical Science, Sari, Iran.
\(^4\) Department of Pulmonary Medicine, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran.
\(^5\) Department of Infectious Disease, Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran.
\(^6\) Department of Medical Microbiology and Infectious Diseases, Canisius-Wilhelmina Hospital, Nijmegen, The Netherlands

**ARTICLE INFO**

**Keywords:**
Aspergillus flavus
Microsatellites
Environment

**ABSTRACT**

**Introduction:** *Aspergillus flavus* is the second most important *Aspergillus* species causing human infections in tropical countries. Despite an increasing number of infections of *A. flavus* in Iran, the molecular epidemiology of clinical and environmental strains has not been well studied. We used a panel of nine microsatellite markers to analyze the genetic relatedness of clinical and environmental *A. flavus* isolates.

**Materials and Methods:** The environmental and clinical *A. flavus* isolates in two hospitals were evaluated for their genetic relatedness. The *A. flavus* isolates were genotyped by using a panel of nine microsatellite markers that consists of three multiplex PCRs that target each three loci.

**Results:** The STR typing of 143 pure *A. flavus* isolates (n=119 clinical and n=24 environmental) revealed 118 different genotypes could be recognized. Among all genotypes, 102 genotypes were only found once and 21 clusters of related genotypes could be identified differing only at a single locus. A possible outbreak at a pulmonary ward was discovered. Four environmental hospital *A. flavus* isolates with four clinical isolates were of the same genotype.

**Conclusion:** The genetic heterogeneity of *A. flavus* isolates probably reflects the diversity of conidia because they were all collected from different patients either at different wards of hospital, or at different timepoints. High resolution typing method such as microsatellite analysis in the present study yielded better understanding of the molecular epidemiology of *A. flavus*. 
Duration of Hospitalization and Its Related Factors in Neonates with Positive Blood Culture Admitted to NICU of Alzahra Hospital, Tabriz

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2. Lecturer of nursing and midwifery faculty, Tabriz, Iran
3. Nurse, Alzahra hospital, Tabriz, Iran

A R T I C L E I N F O

ARTICLE INFO

Introduction: Bacterial septicemia is one of the common causes of death in infants. The aim of this study was to determine the duration of hospitalization and its related factors in infants with positive blood culture.

Materials and Methods: In this descriptive cross-sectional study, 1270 infants who admitted to NICU in Tabriz's al-Zahra hospital, in the first nine months of 1396, were evaluated. The cases of neonates with positive blood culture (42 neonates) were evaluated for the duration of admission and related factors. Data were analyzed by SPSS software version 13 using descriptive and analytical statistics.

Results: 78.6% of the infants with positive blood culture were discharged and 21.4% were died. The minimum duration of hospitalization in discharged group was 12 and the maximum duration was 100 days and the mean was 44.81 ± 28.02 days. The mean in dead infants was 2.5 ± 2.2 days, indicating the death of the infant in the early days. The relationship between hospitalization duration and sex, age and type of microorganism were analyzed by t-test and one-way ANOVA. Findings showed that “Klebsiella” has the most duration of hospitalization in newborns. But this difference was not statistically significant (PV > 0.05). There was a significant relationship between sex and duration of hospitalization, females had more duration. (PV = 0.04)

Conclusion: Considering the high mortality rate and hospitalization duration especially in cases of infection with gram-negative bacteria such as Klebsiella, it is necessary to pay more attention to the health of environment and especially hand washing instructions.

ABSTRACT

Keywords: Septicemia Positive blood culture NICU
The relationship between the type of microorganisms detected in blood culture and the implications of newborns admitted to NICU

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2. Nurse, Nursing Research Committee of Alzahra, Tabriz University of Medical Sciences
3. Teacher, Nursing and Midwifery Faculty, Nursing Research Committee of Alzahra, Tabriz University of Medical Sciences
4. Assistant professor, Health Nursing, Nursing and Midwifery Faculty, Tabriz University of Medical Sciences
5. Nurse, Nursing Research Committee of Alzahra, Tabriz University of Medical Sciences.

A R T I C L E I N F O

A B S T R A C T

Keywords:
Microorganism
Blood culture
Neonatal intensive care unit

Introduction: Infant sepsis is the third leading cause of infant mortality and a major health problem, especially in developing countries. Although recent improvements in medical care improve infant care, many challenges remain in the diagnosis and management of infections in infants. The aim of this study was to investigate the relationship between the type of microorganisms identified in blood culture and neonatal outcomes.

Materials and Methods: In this descriptive cross-sectional study, 1270 infants admitted to special infants in Tabriz Al-Zahra Hospital. Neonates with positive blood culture (42 neonates) was examined for the relationship between the type of microorganisms detected in blood culture and birth weight. Data were analyzed by descriptive statistics using SPSS 13 software.

Results: The findings showed that among 1270 newborns admitted to the NICU section of al-Zahra hospital, 30.3% had positive blood culture. The type of microorganisms involved were Staphylococcus aureus (35.7%), Enterobacter (21.4%), Acinetobacter (15.2%) and Escherichia coli (11.9%), respectively. 78.6% of these babies were discharged from hospital and 21.4% died.

Conclusion: Although Gram-positive organisms are the most common causes of hospital infections, gram-negative bacteremia has a high risk of severe sepsis, septic shock, and death. It is suggested that each unit evaluates the causative agents and antimicrobial susceptibility in order to select the appropriate empirical treatment for sepsis.
Effect of Principles of Prevention and Infection Control on possible ventilator- associated pneumonia with Acinetobacter in ICU Patients, Payambar Aazam Hospital, Kerman, 2017- 2016

Mahdiyeh Yasaman*

*Master of nursing, infection control Supervisor and at Payambar Aazam Hospital, Kerman-Iran

**Keywords:** possible ventilator- associated pneumonia, Acinetobacter

**Introduction:** The ICU division is considered to be the most risky place for health-care associated infections especially respiratory infection. Infections are transmitted via personnel`s hands, supportive ventilation, non-compliance with sterile points and ... Acinetobacter is a negative gram opportunistic pathogen which is closely related to possible ventilator- associated pneumonia and resistant to most antibiotics. This study was conducted with the aim of influencing the principles of infection control in patient care on possible ventilator- associated pneumonia.

**Materials and Methods:** The study was conducted within a six-month period in the ICU. The incidence of respiratory infections was calculated before and after infection control interventions. Interventions include the requirement and full supervision of hand hygiene, Replacing hand disinfection solution, having a program to replace ventilator filter, use sterile distilled water, 24-hour clean up and disinfection of equipments, education programs, Isolation of patients with prolong hospitalization, disposable utensils, requirement for disposable wear and sterile gloves when suctioned and etc. Finally, the data were analyzed by SPSS software and statistical tests.

**Results:** The rate of respiratory infections in the second six months 2016 was about %12.81 and in the first six months of the year 2017 decreased to %8.62, the statistical test showed significant difference between before and after intervention (p<0.05).

**Conclusion:** The use of infection control principles and methods in ICU, through monitoring and precise control of personnel, has a beneficial effect on the reduction of health-care associated infections.
Enterococcus resistance in critically ill pediatric patients in Zahedan Ali Ebne Abitaleb hospital

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2. Assistant professor pediatrician, Zahedan University of Medical Sciences, Zahedan, Iran

ARTICLE INFO

Keywords:
Vancomycin-resistant enterococci, colonization, Infection, pediatric intensive care unit

ABSTRACT

Introduction: From relative obscurity, Enterococcus has become a leading cause of nosocomial infection. This has been attributed, in part, to the growth in susceptible host populations, increased use of intravascular devices, prolonged hospital stay, and widespread antibiotics use. Furthermore, the facility with which Enterococcus acquire resistance characteristics coupled with their capacity to survive in the environment renders them uniquely suited as nosocomial opportunists and have resulted in global dissemination of resistant strains. We aimed to determine the frequency of vancomycin-resistant enterococci (VRE) infection occurrence, Enterococcus resistance with linezolid and colistin in children in a pediatric intensive care unit (PICU) and burned ward to identify associated risk factors and reduce Enterococcus resistance prevalence.

Materials and Methods: Blood culture and wound cultures were taken from 250 children 18 years old or younger who were admitted with serious systemic illness in PICUs and burned ward from January 2016-December 2017. This database was reviewed to obtain information about Enterococcus resistance infection.

Results: A total of 250 patients with a mean age of 30 ± 22.5 months were enrolled in this study. 48 patient were positive blood culture with Enterococcus. The prevalence of VRE in positive Enterococcus blood culture was 52%. Enterococcus resistant to linezolid reported in 28% and to colistin was 24%.

Conclusion: VRE colonization has important consequences in pediatric critically ill patients. Strict infection control measures should be implemented to prevent VRE colonization and thereby VRE infections and enterococcus resistance to multidrug. Furthermore, irrational antibiotic use should be restricted.
Examination and determination of microorganism resistance pattern of isolated *Staphylococcus aureus* from patients’ samples in Sina hospital of Tabriz

Fariba Rasti 1; Behrouz Naghili 2; Fariba Faraji 3; Azam Ghorbani 4

1. infection control expert, Sina educational remedial center
2. infectious expert and faculty member of Tabriz medical science
3. head nurse of infectious ward of Sina educational remedial center
4. scald ICU ward nurse of Sina remedial educational center.

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<td>Keywords:</td>
<td><strong>Introduction:</strong> <em>Staphylococcus aureus</em> is one of the common causes of hospital infections usually treated with antimicrobial drugs. The aim of this study was to determine sensitivity and antibiotic resistance of isolated <em>S aureus</em> from patients’ samples in Sina hospital of Tabriz.</td>
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<td>Antimicrobials hospital infection <em>Staphylococcus aureus</em> drug resistance</td>
<td><strong>Materials and Methods:</strong> In this study 1265 samples from wound blood, and bronchial aspirates from the beginning of Farvardin to the end of Azar of 1396 cultured. After diagnostic tests 69 isolates were identified and <em>S aureus</em> resistance pattern to vancomycin, erythromycin, gentamicin, cefazolin, ciprofloxacin, rifampicin, penicillin, co-trimoxazole and teicoplanin.</td>
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<td><strong>Results:</strong> Isolated <em>S aureus</em> from patients did not showed any resistance to teicoplanin. <em>S aureus</em> showed 85% resistant to penicillin; erythromycin 64%, ciprofloxacin 62%, clindamycin 59%, rifampicin 55%, gentamicin and cefazolin 48%, co-trimoxazole 9% and vancomycin 4%.</td>
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<td><strong>Conclusion:</strong> Results of this research represent increasing resistance of <em>S aureus</em> to various antibiotics. It is suggested that before starting antibiotics all necessary samples should be sent for culture. Illogical use of antibiotics should be avoided and for initiating of antibiotics consultation with an infectious specialist should be done.</td>
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</table>
Keywords: Intensive Care Units, Bacterial resistance, Acinetobacter

Introduction: Primary infection and nosocomial infection are common in intensive care units. Sepsis and septic shock are the most important causes of morbidity and mortality in the ICUs. Proper protocols for empirical treatment in the ICU seem to be essential based on common microorganisms and their resistance pattern.

Materials and Methods: A cross-sectional study was conducted on all cultures of samples taken from patients admitted in four ICUs at Imam Reza Hospital in Mashhad from March 2014 to February 2015. Information about cultures and antibiograms of the patients was extracted from HIS and compared with patients' records in case of need. Chi-square test was used to analyze the data.

Results: Out of 1569 microbial cultures, in 674 cases, the result was positive (42.95%), the highest amount of negative culture was observed in blood cultures (61.7%). Acinetobacter (32.9%) was the most common isolated microorganism. Candida (12.6%), Staphylococcus aureus (12%) and Klebsiella (8.7%), were ranked in order respectively. The most effective antibiotic against acinetobacter was colistin with 0.9% resistance; this microorganism was resistant to carbapenems by more than 95%. In the studied samples, resistance to cefazolin and piperacillin was 100%.

Conclusion: In the ICUs of Imam Reza Hospital, more than half of infections were caused by gram-negative bacteria, the most common of which were Acinetobacter with a high resistance to most tested antibiotics except for colistin. Due to the nature of the multi-drug resistance of these microorganisms, a review of infection control processes and standard antibiotic prescribing in ICUs is essential.
Assessing the level of knowledge of nurses in the intensive care unit on the basis of evidence-based guidelines on the prevention of ventilator-dependent pneumonia in Sina's educational center in 1395

Malihe Faraji*, Massomeh Mirzaie, Maryam Jalili-Ebrahim Mohammad, Javad Taherinia, Zahra Motazedi

Sina Hospital, Tabriz University of Medical Sciences, Tabriz-Iran

A R T I C L E I N F O

A B S T R A C T

Keywords: Knowledge, VAP, Evidence based guidelines

Introduction: Evidence-based care is the application of the results of the best research, together with knowledge, expertise, clinical experiences and attention to the patient's values in providing care. To this end, the application of the principles of the evidence-based guide and the quality control of clinical guidelines Evidence based on intensive care needs. One of the most commonly diagnosed infections in the intensive care unit is ventilator-dependent pneumonia, which occurs 24 hours after intubation or mechanical ventilation. The purpose of this study was to evaluate the knowledge of nurses in intensive care units on the basis of evidence-based guidelines for the prevention of ventilator-dependent pneumonia.

Materials and Methods: This is a descriptive cross-sectional study. The knowledge of specialist nurses about the evidence-based guidance principles in the prevention of ventilator-dependent pneumonia was investigated. Data were collected using a questionnaire and data were analyzed by SPSS 17.

Results: The results showed that out of a total of 74 nurses, 65 people participated in this study. Most of the participants (76.6%) were female (42.2%) in the range of 24-28 years old (87.5%). Experts and nurses (92.2%) were nurses. The highest knowledge of nurses in the special department (84.4%) about respiratory tract humidifiers (82%) about oral intubation (73.4%) was in control of cuff pressure and the lowest level of knowledge (54.7%) about the frequency of replacement of tubes connected to the ventilator (56.3%) about the time of discharge of the cuff of the tracheal tube.

Conclusion: The findings showed that nurses' knowledge of evidence-based guidelines is in the prevention of VAP and it is suggested that all other personnel should be advised in order to promote other evidence-based training classes. Also, in the 6 sections examined The necessary equipment (an endotracheal tube trachea with a pathway of subclinical suction and centigrade) was not available to implement the principles of evidence-based guidance.
**Antibiotic Resistance pattern of *Pseudomonas Aeruginosa* Isolated From Intensive Care Unit in Shahrekord, Iran**

Fahimeh Nourbakhsh¹*; Samira barangi¹; Elaheh Tajbakhsh²

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². Department of Microbiology, Faculty of Basic Science, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.

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<th>ABSTRACT</th>
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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> <em>Pseudomonas aeruginosa</em> is one of the most important causes of hospital infections, especially in the intensive care unit (ICU). Increasing antibiotic-resistance of <em>P. aeruginosa</em> in some cases, lead to septicemia and death. In fact, infections with MDR and PDR strains often result in increased costs of treatment, lengthy stay, and overall morbidity and mortality. This cross-sectional study aimed to determine the pattern of drug resistance in <em>P. aeruginosa</em> infection in ICU of Shahrekord hospital (Shahrekord, Iran).</td>
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<td>Intensive Care Unit</td>
<td><strong>Materials and Methods</strong>: 80 isolates of <em>P. aeruginosa</em> from different clinical specimens from ICU wards of Shahrekord hospital were isolated. Antibacterial susceptibility test for antibiotic resistance pattern performed using disk diffusion (Kirby-Bauer) method.</td>
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<td><em>Pseudomonas Aeruginosa</em></td>
<td><strong>Results</strong>: Of 80 separated isolates, (87.2%) were of MDR and (56%) were of PDR strain. 78.2% were resistant to ceftazidime and 73.6% to piperacillin. In fact, majority of isolates were resistant to both antibiotics.</td>
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<td>Antibiotic Resistance</td>
<td><strong>Conclusion</strong>: This study shows that overuse of antibiotics in hospitals has increased drug resistance and development of the PDR and MDR strains. The outcomes propose that antibiotic resistance can be determined by choosing the suitable drug to treat patients.</td>
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Effect of comprehensive strategies for prevention of ventilator-associated pneumonia in hospitalized patients in intensive care units

Maryam Souroush
Master of nursing, Yazd University of Medical Sciences, Yazd-Iran

**ARTICLE INFO**

<table>
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<th>Keywords:</th>
<th>Ventilator-associated pneumonia, intubation</th>
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**ABSTRACT**

**Introduction:** Ventilator-associated pneumonia (VAP) is the second most common nosocomial infection and the commonest infection in intensive care units. The present study aimed to determine the impact of the implementing comprehensive strategies for prevention of ventilator associated pneumonia on incidence of the disease in hospitalized patients in intensive care units.

**Materials and Methods:** This was a randomized clinical trial on 86 ventilated patients in intensive care unit. The participants were divided into two groups. Treatment group received comprehensive strategies for prevention of ventilator-associated pneumonia. Control group received routine care. Data collection form consisted of demographic and clinical data as well as "Modified Clinical Pulmonary Infection Score (MCPIS). The collected data was analyzed using SPSS 20.

**Results:** showed that mean score of MCPIS was not statistically significant in both groups (P > 0.05). Mean score of MCPIS was significantly lower in the treatment group than the control group on the fourth and fifth days of the project (P < 0.05). Trend of incidence of pneumonia was not significant in the treatment group over time (P > 0.05) but statistically significant in the control group (P< 0.05).

**Conclusion:** Therefore, it is recommended that infection control authorities and critical care nurses should use comprehensive prevention strategies in order to reduce the incidence of VAP.
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| ICU, INIS, Mashhad   | **Introduction:** The prevalence of nosocomial infections in the hospitalized patients is 15-5%. Although only 5% of hospital beds belong to the ICU and less than 10% of the total number of patients are treated in this department, but more than 33-35% of cases of nosocomial infections ICU is dedicated. The purpose of this study was to investigate the status of nosocomial infections in the ICU sector covered by Mashhad University of Medical Sciences in 1395.  
**Materials and Methods:** This is a descriptive-retrospective study in which all patients with ICU hospital infection in the program hospitals have been studied and analyzed according to INIS software.  
**Results:** In 1395, out of a total of 3,589 cases of hospital infection, 1429 (39.8%) cases of ICU had nosocomial infections. The incidence rate of infection in the ICU segment was 7.99%. 49% of cases of respiratory infection, 22% of urinary tract infections, 14% of blood infections, 4% of surgical infections and 11% of other infections have been diagnosed. The number of reported deaths in hospital ICU infections was 158 cases.  
**Conclusion:** Considering the studies done to reduce the number of hospital infections in the ICU, the use of staff, continuous personnel control and monitoring of infection control methods by the personnel should be considered. |
Frequency assay of ica genes on biofilm and slime formation in clinical isolates of Staphylococcus aureus harboring mecA gene

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ARTICLE INFO

Keywords:
Methicillin resistant
Staphylococcus aureus
Biofilm
Slime
ica

ABSTRACT

Introduction: Prevalence of methicillin resistant Staphylococcus aureus (MRSA) strains is one of the most important health care problems and life-threatening in worldwide. The methicillin resistant S. aureus strains producing biofilm and slime have potential to colonize and transmit. The present study was conducted to understand the molecular correlation of ica genes on biofilm and slime formation in methicillin resistant S. aureus harboring mecA gene.

Materials and Methods: In this cross-sectional study, a total of 85 bacterial isolates suspected to S. aureus were prepared from clinical samples. The antibiotic susceptibility testing of bacteria to the penicillin, gentamicin, oxacillin, ciprofloxacin, ofloxacin and vancomycin was carried out based on disk diffusion agar method. Biofilm and slime formation of bacteria were examined by tissue culture polystyrene plate (TCP) and Congo red agar (CRA). The presence and frequency of ¬icaA, ¬icaB, ¬icaC, icaD and mecA genes were detected by multiplex PCR.

Results: 45 out of 85 (52.94%) S. aureus isolates were resistant to the methicillin. All of methicillin resistant S. aureus were able to produce biofilm and slime. Consumedly surface hydrophobicity was seen in 55.55% and 100% of strains producing strong biofilm and slime, respectively. The ¬icaA, ¬icaB, ¬icaC, icaD genes were detected in all isolates carrying mecA gene.

Conclusion: It seems that the ¬icaA, ¬icaB, ¬icaC, icaD genes are required for polysaccharide intercellular adhesion, bacterial attachment, biofilm and slime production in S. aureus isolates. Further molecular studies on ica operon and related mechanisms are needed to accurate understanding of the process.
The prevalence of virulence genes in different phylogenic group of *Escherichia coli* isolates in urinary tract infections

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¹. Burn and Wound Healing Research Center, Shiraz University of Medical Science, Shiraz, Iran

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Uropathogenic <em>Escherichia coli</em> (UPEC) express a multitude of virulence factors (VFs) to break the inertia of the mucosal barrier of the urinary tract. Many of virulence genes are located on transmissible genetic elements and/or in particular locus on the chromosome called pathogenicity islands (PAI). The aim of this study was to determine the presence and frequency of most important virulence factors (fimH, papC, sfa/focDE, region-AfacC) in <em>Escherichia coli</em> isolates from young women with urinary tract infection referred to Shiraz city clinics.</td>
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<td>Uropathogenic <em>Escherichia coli</em></td>
<td><strong>Materials and Methods:</strong> Total of 100 E. coli were gathered from patients with confirmed urinary tract infection referred to Shiraz clinics during seven months in 1395. These isolates were checked for introduced genes following determine their phylogenic typing by molecular methods.</td>
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<td>urinary tract infection</td>
<td><strong>Results:</strong> In following the successful setup for four genes all of the samples (100%) were harbor fimH, while 22% of them contain papC, 21% AfacC, while only 9% of them were harbor sfa/focDE.</td>
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<td>virulence genes</td>
<td><strong>Conclusion:</strong> UTI is more common in middle aged females and in community set-up. The knowledge of virulence factors of <em>E. coli</em> will help in better understanding of the organism pathogenicity and guided empirical therapy can result in better treatment outcome.</td>
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<td>drug resistance</td>
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Elevated prevalence of multidrug-resistant *Pseudomonas aeruginosa* in Shiraz Amir-al-momenin burn hospital

Amir Emami¹, Atena Kazemi¹, Neda Pirbonyeh¹, Fatemeh Droodi¹, Abdolkhalegh Keshavarzi¹, Mitra Zardosht¹, Maasoomeh Shojaee¹, Maasoomeh Kherad¹

Burn and Wound Healing Research Center, Shiraz University of Medical Science, Shiraz, Iran

### Abstract

**Introduction:** *Pseudomonas aeruginosa*, a leading nosocomial pathogen which can cause a vast range of infections in surgical sites and other fulminating infections such as sepsis. Multidrug resistant (MDR) *P. aeruginosa* strains make treatment of this infectious harder. Knowing the pattern of isolates in each center will be helpful to manage treatment of patients and control the infection more properly.

**Materials and Methods:** The study was performed at Burn and Wound Healing research center on *P. aeruginosa* isolates from burn samples (wound, sputum, pus, and urine) of hospitalized patients at Amir-al-momenin Hospital among January 2015 to January 2016. *Pseudomonas aeruginosa* isolates were detected by routine standard microbiological techniques. Susceptibility pattern of confirmed isolates by disk diffusion test on Muller-Hinton medium and was carried out matching to the Clinical Laboratory Standard Institute (CLSI) guidelines.

**Results:** Out of 33 samples of *P. aeruginosa* was isolated from samples during study time. According to the pattern results the most isolates were most resistant to co-amoxiclav (75.8%), cefotaxime (93.3%), azithromycin (87.9%), gentamicin, ceftazidime, doripenem, imipenem (81.8%) and ciprofloxacin, levofloxacin (78.8%).

**Conclusion:** The high incidence of antibiotic resistant *P. aeruginosa* isolates in our hospital warrants for the judicial use of antibiotics and application of infection control measures to avoid therapeutic crisis resulting from multidrug-resistant isolates such as *P. aeruginosa*.

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<td><strong>Conclusion:</strong> The high incidence of antibiotic resistant <em>P. aeruginosa</em> isolates in our hospital warrants for the judicial use of antibiotics and application of infection control measures to avoid therapeutic crisis resulting from multidrug-resistant isolates such as <em>P. aeruginosa</em>.</td>
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Investigating the ability of biofilm production and drug resistant pattern of *Pseudomonasaeruginosa* isolates collected from burn patients in Amir-al-Momenin burn hospital – Shiraz using disc diffusion method

Negar Velayati, Amir Emami

MSc student of microbiology, Azad university of Shiraz, Shiraz, Iran
Shiraz Burn and Wound Healing research center, Amir almomenin burn hospital, Shiraz university of medical science, Iran

**ARTICLE INFO**

**ABSTRACT**

**Keywords:**
Burn
Wound infection
Biofilm
Antibiotic resistance
*Pseudomonas aeruginosa*

**Introduction:** *Pseudomonas aeruginosa* is a non-fermented, and aerobic bacillus bacterium that is considered as the third opportunistic hospital pathogen and the first cause of bacterial burn wound infections. This bacterium has several pathogenicity factors and, besides, it tends to form biofilms. *P. aeruginosa* has a genetic capacity to produce at least 3 types of secretion polysaccharides, named as Alginate, PSL and Pel, which are essential for the formation of biofilms. We aimed to focus on strains of *P. aeruginosa* that are collected from burn patients and they have the ability to produce biofilms and investigating the type of secretory polysaccharides of these strains, examine the presence of genes such as algK, algE, pslB and pelG that play a role in biofilm formation and also evaluate the antibiotic sensitivity pattern by disk diffusion method.

**Materials and Methods:** In this descriptive and cross sectional study, about 200 bacterial specimens were collected from the wound, urine and swab of the throat and nose of patients admitted to the Amir-al-momenin hospital of Shiraz. After confirmation isolates by phenotypes and API systems, then Antibiotic resistance of the isolates were determined by disc diffusion method according to the CLSI instruction.

**Results:** 88 samples of *P. aeruginosa* were identified. The percentage of antibiotic resistance obtained in this study were ciprofloxacin 50(56.8%) and aztreonam 40(45.5%), piperacillin 55(62.5%) and carbencylcin 66(75%), meropenem 44(50%), imipenem 55(62.5%) and ceftazidime 56(63.6%), gentamycin 58(65.9%), tobramycin 58(65.9%) and colistin 1(1/1%). Total of 78(88.6%) of the isolates were biofilm positive while 79.5%, 60.2% and 67% were harbor pelG, pslB and algE/K genes respectively.

**Conclusion:** The results indicate a high prevalence of biofilm production and an increase in the rate of *pseudomonades* antibiotic resistance to routine antibiotics used in hospitals, due to protocols for AB use in clinical states.
Frequency of methicillin-resistant *Staphylococcus aureus* in the nose and mobile phone of staff working in emergency department of Ghaem Hospital of Mashhad in 1995-96

Hadi Safdari; Mohamed Abvsany; Nasser Navaii

Position & Department paramedical university medical tech group, Mashhad-Iran

**ARTICLE INFO**

**ABSTRACT**

**Keywords:**

*Staphylococcus aureus*

HA-MRSA

susceptible test

**Introduction:** *Staphylococcus aureus* is the normal flora of nose in most people by the time using mobile at work, the bacteria can spread from breathing or hands of someone who has previously been infected with nasal discharge and from there to the patient.

**Materials and Methods:** Two-hundred samples from noses of 100 emergency medical staff from Ghaem hospital in Mashhad and their mobile surfaces were sent for the presence of hospital-acquired-methicillin resistant *Staphylococcus aureus* (HA-MRSA). The samples were cultured in medium broth and keep at 37 °C for 18 hours then cultured on agar medium. After 18 hours incubation we got the colonies then we examined by biochemical tests and *Staphylococcus aureus* diagnostic. Sensitivity tests on bacteria were performed by MIC agar dilution method and E-test and agar diffusion (Using Kirby).

**Results:** After performing biochemical tests and detection of *Staphylococcus aureus*, out of 200 (100 from nose and 100 from their surface mobiles) specimens, 43 specimens were diagnosed as beta-lactamas positive then sensitivity test was performed on them which 1 specimen resistance to vancomycin, 2 specimen resistance to Ceftriaxone, 2 specimen resistance to cefotaxime, 1 specimen resistance to cefoxitin, 1 specimen resistance to piperacillin, 2 specimen resistance to imipenem and 39 specimen resistant to aztreonam.

**Conclusion:** From six samples nasal secretion and their mobile surface isolated the same bacteria with HA-MRSA and these bacteria resistance the same antibiotic which can transfer by user cellphone to bed patient and patient get secondary infection. Therefore, it is suggested the people are working in the wards should be identified for methicillin resistant of *Staphylococcus aureus*. It is recommended that employees who are working the area do not use their cellphone.
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<td>Port</td>
<td><strong>Introduction:</strong> Implantable ports (Polysite) are routinely used as a long term central venous access for pediatrics in hematology- oncology ward who needs multiple chemotherapy treatments. These children are highly predisposed to infections due to immune compromised status and poor general condition. Fever with unknown origin is not rare among these patients and the implanted port is a usual suspect in all cases. We had to extract the ports in such patients with FUO while the ports are critically useful among these cases that obtaining a venous access is very difficult for them. More ever, implanting and extraction of ports are done in operation room and under general anesthesia with their own risks and psychological and physical side effects. In this study we evaluated the infection rate and type among extracted ports in hematology – oncology patients.</td>
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<td>Infection</td>
<td><strong>Materials and Methods:</strong> All cases who operated to extract the implantable port for any reason were included in our study. The study was conducted in Dr Sheikh Children’s hospital. We opened the port reservoir after port extraction and used the inner materials (blood clots mostly) to obtain a culture. We also assessed the simultaneous blood culture that was mostly done as the routine protocol of sepsis work up. Plates were incubated aerobically at 37-degree C for 48 hours while colonies were counted at 24 and 48 hours. We evaluated the infection rate of extracted ports and accordance of the results of port and blood culture.</td>
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<td>Culture</td>
<td><strong>Results:</strong> Rate of implantable port reservoir among patients was 45%. 23% in elective asymptomatic cases and 67% in febrile or septic patients. Blood- port culture accordance rate was 63%.</td>
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<td>Oncology pediatric</td>
<td><strong>Conclusion:</strong> Although the port culture may be positive among most febrile patients , but It is not the source of infection necessarily .</td>
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Investigating the incidence of nosocomial infections in the NICU department of Mashhad University of Medical Sciences in 1395

Mojtaba Taghvaei Ahmadi
Expert Health Center of disease - Mashhad University of Medical Sciences, Mashhad-Iran

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<td><strong>Keywords:</strong> NICU, INIS, Mashhad</td>
<td><strong>Introduction:</strong> Hospital infections are one of the common complications in hospitalized patients, especially in patients in the wards. Infant infections in NICU are inevitable due to low birth weight, premature and infantile underlying conditions. The purpose of this study was to evaluate the status of nosocomial infections in NICU in hospitals affiliated to Mashhad University of Medical Sciences in 1395.</td>
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<td><strong>Materials and Methods:</strong> This is a retrospective descriptive study in which all patients with NICU hospital infection in the program hospitals were enrolled and analyzed according to INIS software.</td>
<td><strong>Results:</strong> In the year 1395, out of a total of 3,589 cases of nosocomial infection, 273 (7.6%) cases of NICU were infectious. The incidence of infection was 3.2% in the NICU section of the hospital. 16% of cases of respiratory infection, 4% of urinary tract infections, 65% of blood infections, 0.5% of surgical infections and 14.5% of other infections have been diagnosed. The number of reported deaths in NICU hospital infections was 10 cases.</td>
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<td><strong>Conclusion:</strong> Given the high frequency of interventions in patients with nosocomial infections, these measures should be used in certain circumstances and in the least. Also, full hygiene should be taught to the staff and medical staff of the departments.</td>
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Antibacterial Activity of Lawsonia inermis (Henna) Extract against Escherichia coli Isolated from Urinary Tract Infections and Comparison with Selective Antibiotics In-vitro

Mohammad Mehdi Attarpour Yazdi1*

1. Faculty Member of Microbiology Department, Faculty of Medicine, Shahed University, Tehran, Iran.

ARTICLE INFO

Introduction: Escherichia coli is an important pathogen in the urinary tract infection (UTI). Increasing of antibiotic usage for E.coli infections, created antibiotic resistance. Medical herbs with anti-microbial activity have always been important role in traditional medicine. The purpose of this study was to determine the antibacterial activity of methanolic extract of Lawsonia inermis (Henna) plant leaves against E.coli isolated from UTI in vitro.

Materials and Methods: First, a sample of methanolic extract of the Henna plant leaves (from Shah -dad region of Kerman, Iran) was prepared by maceration method and then its antibacterial activity against E.coli isolated from 115 samples of UTI was evaluated by well diffusion and agar dilution methods for determining of MIC. Also, we studied the activity of selective antibiotics (amikacin, ceftazidime, ceftizoxime and co-trimoxazole) on them by disk diffusion method.

Results: The frequency distribution tables, diagrams, and anova test (by SPSS program) were used to describe and analyze the data. The results from the antibacterial tests demonstrated that the MIC50 and MIC90 of the Lawsonia inermis methanolic extract against E.coli were 0.5 and 1 mg/ml. A significant statistical relationship was observed between sensitivity of bacteria isolated to the extract and four antibiotics: Amikacin, Ceftazidime, Ceftizoxime and Co-trimoxazole. (F<0.05).

Conclusion: This study demonstrated that methanolic extract of Lawsonia inermis have excellent antibacterial activity against E.coli isolated from Urinary Tract Infection and its effect is better than four selective antibiotics. However, we need more investigation In-vitro and In-vivo.
Measurement of Metaloproteines (MMP-2 and MMP-9) levels in sera of blood donors infected by HTLV1 virus in Mashhad

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2. Department of Biochemistry, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
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ARTICLE INFO

Keywords:
- Elisa
- HTLV1
- MMP
- Western blotting
- Zymography

Abstract

Introduction: Metaloproteines are endopeptidases with different roles including disintegration of extracellular matrix (ECM) while, considerably increase in infected HTLV1 sera persons. The virus belongs to Retroviruses family and is a tumorigen virus. Measuring elevated sera level of MMP-2 and MMP-9 in healthy blood donors (HTLV1 infected) in endemic area could regard as a screening tool in identification of asymptomatic infected cases.

Materials and Methods: A total of 38136 serums of donors were screened using Elisa in 450 nm and 0.030 absorbance for negative control and 0.225 absorbance for cut-off. Western blotting performed on suspected positive samples and finally Zymography accomplish by Multi Gage software on the confirmed positive samples. Value of each band was normalized by Graph pad Prism V5 software. Then data was analysis by SPSS16.

Results: The 171 cases screened as suspicious positive by Elisa while in western blotting (60/171) cases confirmed as positive observing P19 with or without P24 band and two other (rgp46 and Gd21) bands. In Zymography assays two distinct bands 72 and 92 KD band appeared in zymogram for MMP-2&MMP-9 respectively.

Conclusion: Prevalence of HTLV1 infection in asymptomic donors was 0.160%. Zymography on serum of HTLV1 positive patients showed that MMP-2 and MMP-9 values has significant increase in comparison to control group (p<0.01). Follow and treat in such cases by suppressing this enzymes could led to prevent acute phase of the disease caused by the HTLV1 virus in the earliest phases. Future investigations proposed on monitoring studied enzymes in healthy blood donors.
The rate of implementation of antibiotic prophylaxis in women's surgery in Sina Hospital

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² Sina Hospital, Mashhad university of Medical Sciences, Mashhad, Iran.
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ARTICLE INFO

Keywords: antibiotic prophylaxis
Sina Hospital
Surgical site infection
Cefazolin

ABSTRACT

Introduction: Prescribing antibiotic prophylaxis before surgeries is one of the most effective factors in reducing the risk of surgical wound infections. While prescribing antibiotic prophylaxis, appropriate antibiotic, appropriate dose, appropriate method, duration of using the antibiotic and observing the time interval of using the antibiotic must be considered. This study has been conducted with the purpose of evaluating the rate of implementation of antibiotic prophylaxis in women's surgeries.

Materials and Methods: In years 2015 and 2016 a cross sectional study was conducted on 2618 women's surgeries for six months in Sina hospital in Mashhad. Tools were prepared based on the management caring instructions by a research team. The kind of antibiotic, surgery, time of prescription, appropriate dose and prescribing method were evaluated. The checklist was filled by the head nurse after surgeries and the data was analyzed by SPSS software.

Results: According to the findings, appropriate antibiotic, appropriate injection method based on the kind of the surgeries had been used for 2466 (94.2%) of the patients. 5.8% of the patients had not received any kind of antibiotics. The most common antibiotic was Cefazolin. The average duration of antibiotic prophylaxis injection before the surgery was 29.07±7.6 minutes.

Conclusion: The study proved that the implementation of antibiotic prophylaxis instruction in this center is acceptable.
Evaluation of Transient proteinuria in children with febrile illness

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2. Research Center for patient safety, Mashhad University of Medical sciences, Mashhad, Iran.

**ARTICLE INFO**

| Keywords: | 
| --- | --- |
| Child | 
| Fever | 
| Proteinurias | 

**ABSTRACT**

**Introduction:** Transient proteinuria in the absence of underlying renal disease was detected in children with an acute febrile illness. Proteinuria resolve spontaneously after cessation of causal factor. This study was designed to identify the association of transient proteinuria with fever.

**Materials and Methods:** 230 children with fever who referred to hospital were studied. Proteinuria was noted only in children whose fever was higher than 38 °C. Patients with renal disease were excluded. The blood sample test and urine analysis was done for all patients. Inflammatory markers such as CRP and ESR were evaluated for each patient. To determine whether the proteinuria was persistent in patients with proteinuria, a urine sample was obtained within one weeks after recovery of the febrile episode.

**Results:** Transient proteinuria was detected in 19 of 230 children (8.26%). 47.4% were male and 52.6% were female. Ages ranged from 3 months to 5.5 years and whose temperatures ranged from 38.2-40.5 °C. The most common clinical diagnosis for patients with proteinuria were gastroenteritis, viral infection and pneumonia.

**Conclusion:** Prevalence of transient proteinuria was 8.26% in febrile children. Gastroenteritis, viral infection and pneumonia were the most common causes.
Study of compliance of Prophylactic antibiotic with prescription instructions No.8 before surgery

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**ARTICLE INFO**

**ABSTRACT**

**Keywords:** Prophylaxis, Surgery, managed guideline No. 8

**Introduction:** More than 20% of patients undergoing intra-abdominal surgery suffer from wound infections. Correct use of antibiotics will reduce the risk of postoperative infection before surgery. The present study examines the rate of antibiotic prophylaxis compliance and its compliance with instruction No. 8 at the Sina-Tabriz Educational Center.

**Materials and Methods:** This is a descriptive cross-sectional study. Data from 400 patient's records were entered into a researcher-made checklist in a simple random sampling during the three-month period undergoing abdominal surgery. Data were analyzed using SPSS software.

**Results:** Adherence to the guidelines was 100% in patients with prostatectomy, 97% cholecystectomy and 86% appendectomy. Antibiotics have been prescribed for some surgical procedures, including herniorrhaphy, which did not require prophylaxis.

**Conclusion:** Drug prescription is required in accordance with the guidelines for the use of antibiotics, and in particular the observation of prophylaxis time. Failure to pay attention to prophylaxis time will increase antibiotic resistance, increase the length of hospital stay and treatment costs. Surgical surgeons need to follow the instructions and define the waiting time for surgery that affects prophylaxis. The above should be monitored by the Infection Control Committees.
The prevalence of self-medication and antibiotics in Pediatrics admitted to Dr. Sheikh Hospital

Ali Khakshour*1, Mahboube Davoudi KangSofla2, Mostafa Eghdami3

1. Assistant Professor of Pediatric, Dr. Sheikh Hospital, Mashhad University of Medical Sciences, Mashhad, Iran.
2. MSc Nursing Student, nurse of Pediatric emergency, Dr. Sheikh Hospital, Mashhad University of Medical Sciences, Mashhad, Iran.
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ARTICLE INFO ABSTRACT

Keywords: Antibiotics self-medication Pediatric

Introduction: Today, unnecessary consumption of medicine and self-treatment is one of the biggest social, health and economic problems of various societies, including Iran. This can be due to self-medication or voluntary use of drugs in the community. The voluntary use of drugs has led to increased factors such as bacterial resistance, lack of optimal treatment, unwanted and even intentional poisoning, side effects and unwanted side effects.

Materials and Methods: This study was a cross-sectional study. The statistical population included 198 children who referred to Sheikh Hospital. The sampling method was simple random.

Results: This study was determined that among the medicines used voluntary, antibiotics accounted for 49 cases (24.7%) of 198 different cases that are important. The most commonly reported conditions for self-medication included: colds, fever, gastrointestinal diseases, respiratory diseases, etc. The most commonly used drugs included Anti-fever medications, Cough medicine, antibiotics, etc. According to the results, the factors influencing the voluntary use of drugs in terms of parents were, respectively, the easy preparation of the drug without prescription, the availability of medications.

Conclusion: In general, due to the high levels of self-treatment, prepare of educational programs to raise public awareness about the complications of self-medication and the voluntary use of medication, is important, so that, the parents don’t take a without prescription and medication.
Frequency and pattern of antibiotic resistance in microorganisms isolated from urine culture in patients admitted to different parts of Musa ben Jafar Ghoochan hospital in 1395

Mitra Dindar; Bahare Payvar; Nahid Ghahremanloo; Narges Derakhshan

1. Msc of Nursing, Quchan higher health education center, Mashhad University of medical Sciences, Mashhad, Iran.
2. Infection Control Expert, Quchan higher health education center, Mashhad University of Medical Sciences, Mashhad, Iran.

Introduction: Urinary tract infection is the second most commonly occurring infection in humans and it is extremely important to treat it when it is appropriate. Unfortunately, in recent years, there is a problem of antibiotic resistance around the world. Therefore, recognizing the pattern of resistance and susceptibility of microorganisms to antibiotics in each hospital has an effective role in the proper selection of antibiotics and control of urinary tract infections. This study was conducted to determine the frequency and pattern of antibiotic resistance in isolated organisms from cultures inpatients in different parts of the hospital in 1395.

Materials and Methods: In this descriptive cross-sectional study, positive cultures of patients admitted to different parts of Musa ben Jafar hospital during the year 1395 were studied.

Results: Among 306 positive urine cultures, 65% were female and 35% were male, and the cause of urinary tract infection in these patients was 284 Gram-negative bacteria and 22 Gram-positive bacteria. In the vast majority, antibiotic resistance was highest against cefixime, cefotaxime, amikacin and ceftizoxime and the least resistance to nalidixic acid, ceftriaxone and ceftazidime.

Conclusion: According to the results of this study, the most common causes of urinary tract infection were E.coli, Coagulase-negative Staphylococci, and Klebsiella in adults. Nitrofurantoin, ciprofloxacin and imipenem antibiotics were identified as the most effective drugs for treating the majority of patients with urethra infections. Of course, due to the difference in the results in the infectious agent and antibiotic resistance patterns in different geographical regions, the use of regional antibiotic resistance pattern is necessary in the treatment of patients.
Frequency of Hospital Infections, its Related Factors and Antibiotic Resistance Pattern in Children's Hospital of Dr Sheikh Mashhad in 1395

Sara Jahangiri
Dr Sheikh hospital,Mashhad-Iran

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Hospital infections worldwide, as a major public health problem, have a significant burden on patients and the health care system, causing complications and serious problems. This study aimed to determine the frequency of hospital infections and its antibiotic resistance pattern in Dr Sheikh Children's Hospital in Mashhad.</td>
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<tr>
<td>Hospital Infection</td>
<td><strong>Materials and Methods:</strong> This is a descriptive-analytical study that was conducted on a retrospective survey on 16566 children admitted to the Dr Sheikh Pediatric Hospital in Mashhad. Data were collected using a questionnaire designed for the National Institutes of Internal Medicine Infection Monitoring System (INIS) to detect the prevalence of major hospital infections (blood, urinary, respiratory and burn), and all hospitalized patients were monitored for clinical signs and if they were suspected of being infected, they were confirmed by an infectious expert on the basis of clinical and laboratory symptoms.</td>
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<tr>
<td>Hospital</td>
<td><strong>Results:</strong> In the present study, a total of 16566 patients admitted during the year 1395, 60 cases of hospital infection (0.36%) were observed. The most common type of infection is respectively 0.19%, pneumonia 0.102%, urinary tract infection 0.036% and eye infection 0.030%. The most common bacterial agents in the most commonly reported type of hospital infection in children undergoing infections are <em>Staphylococcus aureus</em> (53.22%). The highest microbial infections caused by <em>Klebsiella</em> are 19.35% and the lowest is <em>Candida Albicans</em> 1.61%.</td>
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<td>Antibiotic Resistance</td>
<td><strong>Conclusion:</strong> The results of this study show a lower proportion of hospital infection in this center than the country’s statistics one of the reasons for this is the effect of observing handwashing by mothers of children in adolescents and staff, the effectiveness of health education to employees and mothers, as well as the proper use of disposable items. In this study, the highest incidence of infection related to blood infection, 32 cases, due to the fact that patients admitted to hematology and oncology departments are immunocompromised due to their individual circumstances and the nature of the disease; identifying the causes of these infections and the weaknesses in the care of patients admitted to this section is of great importance.</td>
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Extended spectrum beta lactamase producing *Escherichia coli* from urinary tract infection in northern Iran

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1. Infectious Diseases and Tropical Medicine Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, I.R. Iran.
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3. Shahid Yahyanejad Hospital, Babol Medical University, Babol, IR Iran

**ARTICLE INFO**

**ABSTRACT**

**Keywords:** Extended spectrum beta lactamase *Escherichia coli* Urinary Tract Infection

**Introduction:** The incidence of urinary tract infections (UTIs) due to extended-spectrum beta-lactamase (ESBL) producing *Escherichia coli* (*E*.coli) isolates, has increased worldwide and is considered a great problem in treatment of infections. The purpose of this study was to determine the prevalence and antibiotic susceptibility pattern of ESBL producing *E*.coli isolates in patients with UTI in Babol, North of Iran.

**Materials and Methods:** This cross-sectional study was done in shahid Yahyanejad Hospital, Babol, Iran from August 2016 to August 2017. A total 4957 urine samples were evaluated for bacterial culture using conventional methods. Antibiotic susceptibility test was done by disc diffusion method and prevalence of ESBL producing *E*.coli was assessed by Double-Disk method.

**Results:** A total of 352 samples showed growth of pathogens. Among 127 *E*.coli isolated from hospitalized patients, 40/94% were ESBL producers and among 84 *E*.coli from outpatients, the rate of ESBL production was 29/76%. In ESBL producers, the highest percent susceptibility was seen to piperacillin-tazobactam (95.6%), meropenem (93.3%), amikacin (93.8%) and nitrofurantoin (91/4%). While high percent of resistance was found against cefotaxime (95.8%), ceftriaxone (91/7%) and ceftazidime (73/3%) and ciprofloxacin (70/4%).

**Conclusion:** With regard to high percentage of ESBL producing *E*.coli and their susceptibility pattern in our study, Among the oral drugs, nitrofurantoin can be used in outpatients with UTI and between parenteral drugs piperacillin-tazobactam, meropenem and amikacin can be the alternative choice for inpatients.
Prevalence of nosocomial infections and the frequency of microorganisms in the medical units of Ayatollah Rouhani Hospital in Babol during 2011-2016

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ARTICLE INFO

Keywords: Prevalence nosocomial infections microorganisms

ABSTRACT

Introduction: Nosocomial infections increase the length of stay, mortality and cost in a hospital. The aim of this study was to determine the prevalence of nosocomial infections and the frequency of microorganisms in Ayatollah Rouhani Hospital of Babol during 2011-2016.

Materials and Methods: This retrospective, descriptive and analytical study was conducted on 100,172 patients admitted in this hospital during 2011-2016. Data were collected based on Ministry of Health No. 2, and their infection was examined and confirmed by an infectious disease specialist. The frequency of nosocomial infections was 2995 cases (2.98%) of all hospitalized patients (100,172) in all units. The infection of pulmonary, urinary, surgical wound and blood was 32.3%, 30.6%, 11.08%, 3.73%, and the frequency of microorganisms such as Pseudomonas, Candida, E.coli, Acinetobacter, Enterobacter and Staph aureus was 24%, 23%, 19.5%, 18.9%, 17%, 2.4%, respectively. Data were analyzed using SPSS 20 and a significant relationship was found between infection and type of microorganisms (p-value = 0.01).

Results: The most cases of infection are pulmonary, urinary, surgical wound, blood and most microorganisms are Pseudomonas, Candida, Acinetobacter, E.coli and Staph aureus respectively.

Conclusion: It is recommended the nurses to wash their hands for reducing the nosocomial infections, especially in intensive unit with one patient and observe the aseptic tips for treatment procedures (catheterization, tracheostomy, venipuncture and so on).
**ARTICLE INFO**

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<td>Hospital-Acquired Infections</td>
<td><strong>Introduction:</strong> Hospital-acquired infections (HAI) are a major public health challenge especially in developing countries, which increased length of stay and hospital costs and increase the mortality rates. The aim of this study was to determine epidemiology of hospital infections in Shaheed Sadoughi hospital. <strong>Materials and Methods:</strong> This cross-sectional study was performed. Infections were surveyed according to the definitions of the Centers for Disease Control and Prevention (CDC). The bacteria were identified to the species level based on a standard bacteriological method. Data were recorded and analyzed by SPSS. <strong>Results:</strong> In this study the incidence of nosocomial infections was 0.46%. The most common microorganisms were <em>Acinetobacter</em> with 51 cases (34.69%), <em>Pseudomonas aeruginosa</em> (25 cases17%) <em>Staphylococcus aureus</em>, <em>Escherichia coli</em>, each of 8 cases, was 5.44%, <em>Klebsiella</em>, with 4 cases 4.08% <em>Enterobacter</em> 2.72% <em>Staphylococcus epidermidis</em> with 3 cases 2.04%, <em>Enterococcus</em> with 2 cases 1.36%, <em>Staphylococcus spp.</em> and <em>Proteus</em> each of them with 1 cases 0.68%. <strong>Conclusion:</strong> The prevalence of nosocomial infection in different hospitals depends on the type of the service provided; therefore, comparing the results between different hospitals even those located in the same city is not feasible. The overall prevalence of nosocomial infection found in this study is comparable with the results of other studies.</td>
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Survey of Nosocomial Infections in Patients Admitted to Shaheed Sadoughi Hospital of Yazd in 2017

Maryam Souroush
Master of nursing, Yazd University of Medical Sciences, Yazd-Iran

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| **Keywords:** Nosocomial infections  
Prevalence  
Yazd | **Introduction:** Nosocomial infections are known as an important public health problem worldwide, which impose a significant burden on patients and health care system. The present study aimed to determine the rate of nosocomial infections in patients hospitalized in Shaheed Sadoughi hospital of Yazd.  
**Materials and Methods:** This cross-sectional study was carried out on 31654 patients hospitalized in wards of Shaheed Sadoughi hospital of Yazd in 2017. Data were collected based on the National Nosocomial Infections Surveillance System (NNIS) questionnaire to diagnose main nosocomial infections (respiratory, urinary, blood, surgical site). The significance level was considered as \( p<0.05 \).  
**Results:** In the present study, 147 patients (mean prevalence, 0.46%) were diagnosed with nosocomial infections. The highest rates of infection respectively belonged to the respiratory infection (0.20%) and surgical site infection (0.13%). The lowest rate of infection were reported for urinary tract infection (0.04%), blood infection (0.04%). The highest rate of infection was related to ICU2 with incidence of 9.7% (33 cases) and ICU 1 7.71% (56 cases).  
**Conclusion:** compliance with nosocomial infection control guidelines and use of invasive therapeutic procedures, only if necessary, along with health education could be helpful in the prevention of such infections. |
Blood infections (BSI) in hospitals affiliated to Mashhad University of Medical Sciences in 1395

Mojtaba Taghvaei Ahmadi1; Dr Mohammad Jafar Sadeghi2; Hamed Etemadi3

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2 Director of the Department of Diseases - Mashhad University of Medical Sciences, Mashhad-Iran
3 Expert Health Center of disease - Mashhad University of Medical Sciences, Mashhad-Iran

ARTICLE INFO

Introduction: Sepsis is a condition in which the body is fighting with a severe infection that is spread through the bloodstream. Five to ten percent of hospital infections are associated with blood infections. The purpose of this study was to determine the incidence of blood infections (BSI) in hospitals affiliated to Mashhad University of Medical Sciences in 1395.

Materials and Methods: This is a retrospective descriptive study in which all patients with blood infections in the program hospitals were enrolled and analyzed according to INIS software.

Results: In the year 1395, out of 3,589 registered hospital infections, 636 people were infected with an infection rate of 0.14. Seventy-four percent of cases were culture positive and 26% were clinically diagnosed. The incidence of infection in men was 53% and in women 47%. The age group of 15-64 years old has the highest incidence of hospital infections 32%. The highest incidence of infection in the ICU was reported at 47.5%. The most important risk factor is intravenous catheter 68%. Most of the observed microorganisms are Acinetobacter with 85 cases. The reported deaths in this group are 64.

Conclusion: According to the results of this study, the most important way to reduce hospital infections is to continue training on handwashing and paying attention to the proper use of the equipment used for patients by personnel.
Investigation of the incidence of pneumonia (PENU) in hospitals affiliated to Mashhad University of Medical Sciences in 1395

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2. Director of the Department of Communicable Diseases - Mashhad University of Medical Sciences, Mashhad-Iran
3. Environmental health expert- Mashhad University of Medical Sciences, Mashhad-Iran

ARTICLE INFO

Keywords: Infection of pneumonia, INIS, Mashhad

ABSTRACT

Introduction: Hospital pneumonia is the second most common nosocomial infection after urinary tract infection in the United States. The risk of pneumonia is very high in people who are in intensive care units connected to the ventilator and subsequently intubated. The purpose of this study was to evaluate the incidence of pneumonia (PNEU) in hospitals affiliated to Mashhad University of Medical Sciences in 1395.

Materials and Methods: This is a descriptive-retrospective study in which all patients with hospital pneumonia in the program hospitals were enrolled and analyzed according to INIS software.

Results: In the year 1395, there were 3589 registered hospital infections, 977 of which infected with pneumonia with an infection rate of 0.21. The incidence of infection in men was 57% and women 43%. The age group of 15-64 years old has the highest incidence of 47%. The highest incidence of infection in the ICU was reported 72%. The most important risk factor was mechanical ventilation with 79% and the most important underlying disease was hypertension with 16.5%. The highest microorganism was Acinetobacter in 379 cases. The reported death rate in this group was 80.

Conclusion: According to the results of this study, the most important way to reduce hospital infections is to continue training on handwashing and paying attention to the proper use of the equipment used for patients by personnel.
Urinary tract infections (UTI) in hospitals affiliated to Mashhad University of Medical Sciences in 1395

Mojtaba Taghvaei Ahmadi¹, Zahra Nehbandani², Ramin Beizavi³

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² Director of the Department of Communicable Diseases - Mashhad University of Medical Sciences, Mashhad-Iran
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**Keywords:** Urinary Tract Infection, INIS, Mashhad

**ABSTRACT**

**Introduction:** Typically, 5-10% of hospitalized patients have nosocomial infections. 40-45% of nosocomial infections are urinary tract infection, about 80% due to catheter and about 20% due to urinary tract manipulation. The infection occurs in a collection bag at 24-48 hours later. The purpose of this study was to determine the incidence of UTI in hospitals affiliated with Mashhad University of Medical Sciences in 1395.

**Materials and Methods:** This is a descriptive-retrospective study in which all patients with Urdu infections in the program hospitals were enrolled and analyzed according to INIS software.

**Results:** In the year 1395, there were 3,589 hospitalized infections registered in 810 cases with edema infections with an infection rate of 0.18. 87% of cases with positive culture and 13% of cases are clinically diagnosed. The incidence of infection in men was 40% and women 60%. The age group of 15-64 years old had the highest incidence (51.3%). The highest incidence of infection in the ICU was reported at 38%. The most important risk factor is intravenous catheter with 77% and the most important underlying condition of hypertension with 13%. Most of the observed microorganisms are candidiasis with 248 cases. The reported deaths in this group are 37 cases.

**Conclusion:** According to the results of this study, the most important way to reduce hospital infections is to continue training on handwashing and paying attention to the proper use of the equipment used for patients by personnel.

Hamid GhahremaniSaghir*; Farshid Assoud; Ali Naghi Karimi; Mehran Ehsani; Siavosh Nadem

Guilan University of Medical Sciences, Rasht, Iran

ARTICLE INFO

Keywords: antibiotics, family physicians, Guilan

ABSTRACT

Introduction: Antibiotics are expensive and also have many side effects. Large numbers of prescriptions have antibiotics. The consumption and administration of antibiotics leads to antimicrobial resistance, adverse events and economic harm. The aim of this study was to determine the pattern of administration of antibiotics in family physicians of Guilan province in the years 2014 to 2017.

Materials and Methods: This is a descriptive cross-sectional study. Family physicians prescribed 1868335 prescriptions during 2014-2017. Trend and percentage of antibiotic administration was reviewed using the comprehensive pharmacy management system of the province's health department.

Results: Of the 1868335 prescriptions processed, 321,909 prescriptions (17%) had at least one antibiotic. Cephalosporin and penicillin groups had the highest administration rates. Among five most-consuming drugs cefixime (17.5%) was in third place.

Conclusion: Irrational administration and use of antibiotics is a global and regional problem that can be solved by training of medical groups on rational administration and prescribing, and also appropriate education of general population.
Study of common bacterial agents of urinary tract infections and determination of antimicrobial resistance pattern of isolates in patients referred to Razi hospital in Rasht, 1994-95

Hamid Ghahremani; Katayoon Zamini; Tooba Safighi
Guilan University of Medical Sciences, Rasht, Iran

**ARTICLE INFO**

**Abstract**

**Keywords:** Urinary tract infection, Antibiotic resistance pattern, *Escherichia coli*, Nitrofurantoin

**Introduction:** Urinary tract infections (UTI) are one of the most common bacterial infections. Appropriate treatment for urinary tract infections is the choice of an antibiotic of high efficiency and cheap price according to the antibiotic resistance pattern of the isolates. The aim of this study was to investigate the common bacterial agents in urinary tract infections and determine their antimicrobial resistance pattern in patients referred to Razi Hospital in Rasht.

**Materials and Methods:** This cross-sectional study was carried out on 628 patients referred to Razi Hospital in Rasht during the six months (Persian date Bahman 94 to tir 95), with a positive urine culture. Samples were cultured in Blag Agar and EMB. After isolating and identifying the infection agent, the antibiotic susceptibility test was done by disc diffusion method on the isolates and examined according to the CLSI table. The results were analyzed using SPSS-V 16 and Fisher test. The significance level was less than 0.05.

**Results:** According to this study, the most common bacterial strains of urinary tract infections were *Escherichia coli* (48.2%), *Citrobacter species* (17.5%), *Klebsiella* (16.7%), and *Enterococcus* (6.7%). *Escherichia coli* isolates showed the highest susceptibility to nitrofurantoin (69.7%) and the highest resistance to piperacillin (88%).

**Conclusion:** Considering the greater isolation of *E.coli* compared to other bacteria from urinary tract infection, nitrofurantoin seems to be effective in the treatment of urinary tract infections.
Studying the Relationship between Individual and Organizational Factors and Nurses' Perception of Patient Safety Culture

Taherzadeh Sharam*, Broomand Aniroda, Akbari Tokam, Mostafavi Irandokht
Mashhad University of Medical Sciences, Mashhad-Iran

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Safety culture is considered as an important factor in improving patient safety. Therefore, identifying individual and organizational factors affecting safety culture is crucial. This study was carried out to determine individual and organizational factors associated with nurses' perception of patient safety culture.</td>
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<td>Culture</td>
<td><strong>Materials and Methods:</strong> The present descriptive study included 1340 nurses working in ten training hospitals affiliated with Mashhad University of Medical Sciences. Data was collected through the self-report questionnaire of patient safety culture. Descriptive (number, percent, mean, and standard deviation) and inferential (t-test and analysis of variance) statistics were used to analyze the data in SPSS.</td>
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<td>Patient safety</td>
<td><strong>Results:</strong> Nurses' perception of patient safety culture was significantly correlated with marital status, workplace, and overtime hours.</td>
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<td>Nurses</td>
<td><strong>Conclusion:</strong> The results of this study revealed that some individual and organizational factors can impact on nurses' perception of patient safety culture. Nursing authorities should thus pay more attention to factors which promote patient safety culture and ultimately the safety of provided services.</td>
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<td>Clinical governance</td>
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Nurses' knowledge, attitudes and practices regarding control of nosocomial infections in 9th Day & Razi hospitals of Torbat-Heydarieh, Iran

Ebrahimi Fatemeh; Dehghanmoghim Hossein
Bachelors of Science in Nursing-Imam reza hospital, Mashhad-Iran

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| Keywords:    | **Introduction:** Hospitalization may lead to nosocomial infections which are considered as a significant reason for morbidity and mortality rates. This is an issue which calls for knowledge, attitudes and practice of nurses. The objective of this study was to assess the level of knowledge, attitudes and practice of nurses working in 9th Day & Razi hospitals of Torbat-Heydarieh.
| Knowledge   | **Materials and Methods:** In this cross-sectional study, using a convenience sampling, a total of 160 nurses were asked to fill a questionnaire. The questionnaire was distributed in different hospitals among nurses in 3 alternative shifts. After collecting the required data, they were analyzed by SPSS software.
| Attitude    | **Results:** The mean age of subjects was 34.3 years. As a whole, 51.5% had an average attitude. Also, 48.8% had adequate knowledge. Moreover, 8.3% had negative attitudes as compared to 96.2% who generally had positive attitudes. 18.8% had a typical practice as compared to 81.2% whose practice was good.
| Practice    | **Conclusion:** Fortunately, many of the nurses in our study had good knowledge and positive attitude and good performance in the field of hospital infection control. The level of knowledge, attitude and performance may be increased by providing regular and specific training programs, improved sanitation, and hiring enough number of personnel.
| nosocomial infections | nurse |
Investigating the Effect of Implementation of Waste Reduction Program on Waste Production in Sina Hospital

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ARTICLE INFO

Keywords: Designed program hospital waste reduction

ABSTRACT

Introduction: Considering the high diversity and volume of hospital wastes, especially wastes generated by infectious diseases an accurate and reliable monitoring of their management is essential. The aim of this study was to investigate the effect of a waste reduction program on the amount of waste produced in Sina Hospital.

Materials and Methods: This experimental study was conducted in Sina hospital for 2 years. The program was designed according to guidelines; standards were provided by the hospital infection control team. Executed programs for waste reduction in hospital was such as the use of digital thermometers, the storage of items for maximum period of one week, taking into account the date of consumption of items during their purchase and storage and their correct storage , use of high quality bread, planning to feed patients and staff on the basis of their desire and needs to reduce food waste, control of consumption of juice in laundry room to prevent the burnout of textiles, avoidance of disposables container for distribution of food and if necessary, use cellulose dishes and so on. SPSS software was used to analyze the data.

Results: According to the findings of this study, the average of waste production in the control group was 528.2 ± 0.17 kg/day and the test group was 562.7 ± 0.22 Independent T test showed a significant difference between two groups (P = 0.02).

Conclusion: According to the findings of the study, this program can be used to reduce waste. At the same time, more studies are needed in this regard.
Neonatal Outcome of Premature Rupture of Membranes in Mothers Receiving Cefotaxime and Ampicillin: A Randomized Clinical Trial

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1 Department of Pediatrics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
2 Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
3 Ovulation Dysfunction Research Center, Department of Obstetrics and Gynecology, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
4 Department of Pediatrics, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
5 Orthopedic Research Centre, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran.

ARTICLE INFO

Introduction: Premature rupture of membranes (PRoM) is one of the most common and important causes of premature births and peripartum mortality. Maternal antibiotic treatment affects the infantile prognosis. A comparison between the effects of Cefotaxime and Ampicillin on infantile complications of PRoM was done in this clinical trial.

Materials and Methods: 220 parturient with PRoM who needed antibiotic therapy were randomized in two groups of A: Ampicillin and B: Cefotaxime treatments. The maternal/fetal statuses up to accouchement and the infants’ status up to transfer to ICU, death, or discharge from hospital were followed. The Apgar score, cardiac, respiratory and nervous systems, infection, immaturity, asphyxia, and mortality rates were compared in both groups.

Results: The differences between the two groups were significant in: Apgar score min1 (P=0.013) and min5 (P=0.004), need for resuscitation (P=0.003), asphyxia (P=0.003), need for hospitalization (P=0.003), infection (P=0.034), and mortality rate (P=0.000).

Conclusion: Administration of Cefotaxime in parturient with PRoM improved the Apgar scores and decreased respiratory complications, infection, asphyxia, mortality rate, and need for ICU hospitalization in infants.
A Survey on Knowledge of Newlywed Nurses on Infection Control Topics and their Hand washing in the Sina Hospital of the Year 96

Ebrahim Mohammadi* - Javad Taherinia - Malihe Faraji - Friba Rasti - Zeynab Honarvar - Faranak Salehi - Javad Sharbafinejad

Sina Hospital, Tabriz-Iran

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| Keywords:    | **Introduction:** One of the members of the health care team who plays a unique role in controlling hospital infections is a nurse and for this reason nurses should have proper and adequate scientific information about the types of hospital infections and their prevention methods. Since the new staff is one of the most important elements in education, it is essential that in-service training be conducted in such a way as to increase the level of knowledge and the desired behavior in them. The aim of this study was to evaluate the level of knowledge and practice of nursing staff in controlling hospital infection.

**Materials and Methods:** This is a descriptive study and the study population consisted of 40 nurses who were entered into the study by available sampling method. Training on compilation tools includes 20 questions about infection control topics and the WHO handwriting checklist. The results were analyzed using SPSS.

**Results:** The results showed that out of a total of 40 newlyweds involved in this research (90%) were female, (25%) were project personnel and (75%) were corporate or formal nurses. The effect of education on knowledge was significant (p = 0.00). In the case of subtle-rated performance-based monitoring, 80% of newly-employed staff used gloves instead of hand-washing.

**Conclusion:** Training of newly employed staff is essential. The importance of hand washing and infection control should be emphasized.
What does it mean clean; without hospital-acquired infection risk?

Ghodratollah Karami*

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Introduction: During previous decades increase of hospital infections raised announces. In 2011, an estimated 721800 HAIs occurred in the United States, leading to 75 000 deaths. Surfaces of medical instruments such as blood pressure cuff, stethoscope and dialysis machine can accelerate infection transfer. In this research, determining of hygienic circumstances of instrument surfaces in Qom-Zahra Hospital was investigated.

Materials and Methods: This semi-experimental study was performed during 10 weeks before and after intervention. The intervention was cleaning program in hospital and its assessment was performed two times a week by ICNA and ACC method. Results were reported as clean and dirty. Statistical analysis was done with SPSS software V-22.

Results: Based on ICNA method, 122 objects (61%) and 79 objects (39.5%) was dirty respectively before and after intervention. While, based on ACC method, 152 objects (76%) and 139 objects (69.5%) were dirty respectively before and after intervention. Cleaning intervention had significant impact on increase hygienic quality according to both ICNA (Pvalue=0.00) and ACC (Pvalue<0.001).

Conclusion: Cleaning program can decrease contaminations on medical instrument surfaces effectively. Monitoring of surfaces with ICNA and ACC methods as a routine program, can be useful for enhancing cleanliness and reducing transmission of infections.
**Occupational Exposure: Prevalence, Reason of Injury, Source status and Type of exposure**

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Health care workers (HCWs) are at risk of occupational exposure to blood and body fluids which is a great risk factor in the transmission of infectious disease. The aim of this study was determine the prevalence of occupational exposure and reason of injury, source status and type of exposure.</td>
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<td>Occupational Exposure</td>
<td><strong>Materials and Methods:</strong> A cross-sectional study was conducted in Motahari teaching hospital in Urmia during 10 months. For data collection we used a questionnaire which was completed by healthcare workers, who had at least one exposure to blood or body fluids. The questionnaire was evaluated occupational exposures between HCWs.</td>
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<td>Health care workers</td>
<td><strong>Results:</strong> Among 917 HCWs 99 (about 11 %) had occupational exposure. Most injuries occurred in women (95%). Most of exposures were happened during surgery (29%) and absence of personal protective equipment (11%). The common reason of injury was damage by colleagues inadvertently (23%). Injuries in women were more than men (95%). About 3% of source patients were positive and (9%) unknown. Also 83% of exposures were percutaneous injuries.</td>
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<td>Urmia</td>
<td><strong>Conclusion:</strong> This study showed that most of exposures were among staff working in operating theaters and the most common accidents were needle stick injuries because of colleagues’ carelessness. So it can be reduced by interventions such as personnel training and managing the causes of exposure. More exposure rate in female HCWs can be related to hospital specialty (pediatrics and Obstetrics). Immunization of HCW’s against infectious diseases is necessary before starting work.</td>
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Audit of implementation of infection control standards in CCU department in selected hospitals of Babol University of Medical Sciences in 1396

Shokofe Darkhor¹; HooryeYoussefi Roshan²*; Samere Talaee_bora³; Zeinab Abolhasani¹; Sara Naserianpoor³

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| **Keywords:** nurse, hand washing, dressing, catheterization | **Introduction:** Hospital infections are a major health threat in patients, which is likely to occur in intensive care units. Hospital infections depend on the immune status, underlying diseases and invasive measures. Infections are directly or indirectly may cause death of the patient. The aim of this study was to determine compliance with infection control standards in CCU.  
**Materials and Methods:** In a descriptive cross-sectional study, a total of 14 CCU nurses enrolled in a selected hospital of Babol University of Medical Sciences during the six months. We used checklist provided by the Ministry of Health and Medical Education (dressing checklist, handwashing in nurses, observing the principles of Foley catheter insertion). Data analysis was done Using SPSS 22.  
**Results:** All nurses were female and there was no significant relationship between age, work experience, shift and degree of nurses with infection control standards. The mean of dressing change was 70%, the average handwashing scores were 54.5%, and the mean score for Foley catheter placement was 50%.  
**Conclusion:** Holding training classes about nosocomial infections, monitoring of staff performance. Improvement of manpower and equipment is effective in increasing compliance with infection control standards. It is recommended to improve the attitude of nurses about infection control from the student period.
**The survey of knowledge and practice of nurses in standard precautions to prevent nosocomial infections in hospitals of Mashhad University of Medical Sciences**

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| **Keywords:** Knowledge, Professional Practice, Nursing Staff, Nosocomial Infections | **Introduction:** Hospital infection is one of the most important problems which is considered by health care centers. Assessment and control of nosocomial infections is a global priority which decreases length of hospitalization and also significantly reduces the health care costs by minimizing infections. So the present study evaluated the knowledge and practice of nursing staff in Disciplines Standard Precautions to prevent nosocomial infection. **Materials and Methods:** This Cross-sectional and analytical study carried out on 130 nursing staff of hospitals of Mashhad university of medical sciences in 2017. Data collected with a valid and reliable questionnaire including of knowledge and practice of nursing staff in Disciplines Standard Precautions. Data was analyzed by SPSS software using descriptive and analytical statistical methods and Pearson correlation. **Results:** The mean score of knowledge was 46.92 ± 14.66, practice 49.46 ± 6.96. There was not significant relationship between knowledge and Practice, but there was a significant relationship between self-efficacy, knowledge, practice and marriage (p<0.05). Moreover there was a significant relationship between knowledge and gender. (p<0.05). **Conclusion:** Majority of nurses did not have appropriate knowledge about prevention of nosocomial infections based on the findings of this study. Considering the important role of nurses in prevention of nosocomial infections, training is necessary to increase the prevention behaviors in nurses. Therefore, paying more attention to apply actions for training of nurses is necessary.
The level of safety standards in implementing of therapeutic and caring procedures by emergency department personnel of an educational hospital related to Medical Sciences University of Dezful

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2. Ms.C of Health nursing, Medical Sciences university of Dezful. Dezful. Iran
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ARTICLE INFO

Keywords: Safety standards Therapeutic and caring procedures Emergency department

ABSTRACT

Introduction: Applying safety standards in implication of treatment and therapy in special conditions could be employed as general principle for safety of patients and protection of legal rights of staff and patients. This study was performed with the aim of determining the level of applying safety standards in treatment and therapy processes by the emergency personnel in 2016.

Materials and Methods: This is a descriptive study with random sampling from all the population. Overall 120 cases of nasogastric intubation, bladder catheterization, intramuscular and intravenous injections done by emergency staff enrolled in our study. The data were collected by a two-section checklist including demographic features and 4 sheets of observation. The data were then analyzed by descriptive statistics.

Results: The results showed that the level of compliance with safety standards was 63.3% in intramuscular injection, 86.7% for intravenous injection, 90% for bladder catheterization and 80% for nasogastric intubation. There were no statistically significant differences in variables such as age, education and experience and work shift.

Conclusion: More education about safety standards for therapeutic and caring procedures is needed.
Introduction: There are some studies suggesting that a timely identification of a patient at risk of infection in home care is difficult. For this purpose, we conducted a qualitative study to investigate the process of illness identification and initiating management in episodes of acute infection in home care.

Materials and Methods: Qualitative study using focus groups and in-depth semi-structured interviews of patients, nurses, and physicians involved in episodes of acute-illness care in home care. Focus groups included nurses and physicians with experience in nursing home care. Interviewees included six home care setting, eleven nurses, and four physicians or their staff. Identifying themes from focus group contributions and content analyses of interviews.

Results: Content analysis interviews showed that several factors affect the timeliness of effective care. We identified five main themes as barriers to illness identification and management. Factors that influenced timeliness of effective care. Barriers included: (1) Communication channel defect with home care providers; (2) evening or weekend illness onset with lack of access to the doctor and nurse; (3) Intervention of family decision-makers in clinical matters; (4) the communication of inappropriate or inaccurate information; and (5) inadequate information transfer at shift changes.

Conclusion: Effective identification and management of acute infections in home care requires successful communication at multiple levels; however, breakdowns are common. Our model provides a framework for improving acute illness care in home care, which offers important insights potentially useful in quality improvement activities in home care.
Bloodstream Infections in South of Iran: Microbiological Profile (common nosocomial bacteria, *Streptococcus pneumoniae, Brucella*), and Antibiotic-Resistant Patterns of Isolates (MRSA, VRE, and ESBL strains)

Mojtaba Anvarinejad¹(MSc); Masoomeh Khalifeh¹(MSc); Gholamreza Pouladfar¹(MD); Bahman Poorabbas¹(PhD); Babak Shabbazi¹(MSc); Mohammad Ali Dehyadegari(BSc); Pejman Abbasi¹(MSc)

¹ Professor Alborzi Clinical Microbiology Research Center, Nemazee Hospital, Shiraz University of Medical Sciences, Shiraz, Iran

**ARTICLE INFO**

**Keywords:** Bloodstream bacterial infections antibiotic resistance

**Abstract:**

**Introduction:** Blood stream infection cause to significant morbidity and mortality in patients especially in developing countries. Changing the epidemiological pattern of microorganisms as well as the growing trend of antibacterial resistance makes it an important health problem in Iran. The aims of this study were: 1) to evaluate the spectrum of pathogens causing BSI’s in hospitalized patients in Shiraz (Iran), 2) as well as their antimicrobial resistance patterns, 3) characterization ESBL, MRSA and VRE isolates.

**Materials and Methods:** In this retrospective study, 1585 positive blood samples were analyzed in one-year period from March 2013 to March 2014. Samples from all hospital throughout the Shiraz were forwarded to Professor Alborzi Clinical Microbiology Center. Identification of isolates was done according to standard methods such as API system and antibiotic susceptibility patterns were established consistent with CLSI recommendations.

**Results:** Coagulase negative staphylococci (39%), *Staphylococcus aureus* (15.3%), *E.coli* (8.5%), *Pseudomonas spp.* (7.5%), *Enterococcus spp.* (7.3%) and *Acinetobacter spp.* (6.6%) were the most frequent bacteria isolated from the blood cultures. Linezolid and vancomycin had the highest effectiveness against gram positive bacteria and gram negative bacteria had high sensitivity to polymyxin B and colistin. Totally, 56.2% of *Enterococcus* isolates were vancomycin resistant (VRE) and 55.2% (122) of *S. aureus* were methicillin resistant (MRSA). 59.02% (72) of *E. coli* isolates, 33.3% (5) of *Serratia spp.* and 42.85% (33) of *Klebsiella spp.* were ESBL positive.

**Conclusion:** In our study the emergence of potentially highly resistant isolates such as MRSA, VRE and ESBL strains is alarming, as a feasible outcome would be a severe clinical result concomitant with critical restrictions in antibiotic therapy.
Evaluation of knowledge of Kermanshah nursing students about hepatitis

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ARTICLE INFO

Keywords:
Awareness
Nursing student
Hepatitis

ABSTRACT

Introduction: Hepatitis is one of the five infectious agents and the premature death of humans around the world. Every year, at least one million people in the world die from the disease. Prostate cancer patients and people with head and body fluids and work, are at increased risk and are more likely to become infected than the normal population. This research was conducted to evaluate the knowledge of medical students of medical science in Kermanshah regarding hepatitis.

Material and Methods: This is a descriptive-analytic study. The sample size was 100 nursing students of Kermanshah Medical Sciences University. The research environment was Imam Khomeini Hospital in Kermanshah province. The data gathering tool was a questionnaire of 15 questions that included student information about viral hepatitis virus transmission, prevention, viral hepatitis symptoms, and immediate interventions after contact with blood or hepatitis C virus secretions. Data analysis was done using SPSS version 20.

Results: The results showed that the mean age of the students was 21.87%, 83% were immunized against hepatitis, 21% had history of contact with needle, knowledge of 52.39% of students was moderate, 28%, 95% had good knowledge about hepatitis and 18.66% had a poor knowledge of this issue.

Conclusion: Increasing knowledge of nurses and nursing students is essential for viral hepatitis. Regarding the results, 52.39% of nursing students had moderate awareness about viral hepatitis; therefore it is necessary to hold training courses about the prevention of viral diseases such as hepatitis, as well as vigorous follow-up for vaccination against hepatitis.
Assessment of knowledge, attitude and practice toward prevention of hepatitis B virus infection among healthcare workers of Mashhad University of medical science, Iran

Farzane Rahimpour¹, Mona Najaf Najafi², Afsoon Barzegar¹*, Lahya Afshari Saleh¹

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2. Department of Community Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

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<td>Knowledge</td>
<td><strong>Introduction:</strong> Exposure to patient's blood and body fluid is one of the most important hazards for healthcare workers (HCWs). The aim of this study is to assess the level of knowledge, attitude and practice (KAP) toward the ways to protect against &quot;Hepatitis B&quot; among the HCWs of four Teaching Hospitals in Mashhad.</td>
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<td>Attitude</td>
<td><strong>Materials and Methods:</strong> A cross-sectional study was conducted from February 2016 to Oct 2017. The HCWs were included into the study using a systematic random sampling technique. Data were collected using self-administered structured questionnaire and analyzed by using SPSS version 16.</td>
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<td>Practice</td>
<td><strong>Results:</strong> A total of 681 HCWs with a mean age of 30.9±6.01 entered to the study and 64.7% were female and 35.3% were male. The knowledge level of the participants was acceptable (79% had good level). The attitude and practice level was almost 70% and 75% respectively. The highest level of practice was among the nurses and the lowest was among operating room staff. We noted a significant positive relationship among the knowledge and attitude level (P value=0.01).</td>
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<td>HBV infection</td>
<td><strong>Conclusion:</strong> We suggest a multi-level Educational program among the HCWs in order to improve the attitude and practice toward hepatitis prevention.</td>
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1. Department of Occupational Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
2. Department of Community Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.
Detection of mecA gene in *Staphylococcus aureus* isolated from hamburgers

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1. Department of Food Microbiology, School of Public Health, Tehran University of Medical Science, Tehran, Iran.
2. Food Microbiology Research Centre, Tehran University of Medical Sciences, Tehran, Iran.

**ARTICLE INFO**

**Objectives:** The aim of present study was to investigate the frequency of methicillin resistance *Staphylococcus aureus* isolates in hamburger samples.

**Materials and Methods:** One hundred samples of packed and handmade hamburgers from markets were investigated for the presence of *S. aureus* and detection of mecA gene in Iran-Tehran. Sensitive and specific polymerase chain reaction (PCR) technique as a gold standard assay was employed.

**Results:** Results showed that 39% of samples were positive for *S. aureus*. PCR analysis detected the mecA gene in 6 isolates (15.38%).

**Conclusion:** The results of this study indicate that the PCR for detection of mecA gene is a fast, accurate and valuable diagnostic method. The high presence of *S. aureus* in hamburgers requires policies that will lead to hygienic practices in the industrial and ready-made foods. Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Point (HACCP) systems in food industries are recommended to overcome current problems.
Clinical and laboratory findings of disseminated BCGitis patients in Emam Reza hospital, between 1382 and 1396

Samaneh Boroumand-Noughabi*, Mohammad Reza Keramati, Mohammad Hasan Aelami, Niloofar Malek, Shirin Taraz-Jamshidi, Mohammad Saeed Sasan

Emam Reza hospital, Mashhad University of Medical Sciences, Mashhad-Iran

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<td><strong>Keywords:</strong></td>
<td>Introduction: Disseminated BCGitis is one of the rare and life threatening complications of BCG vaccine. Clinical and laboratory findings of 17 cases of this complication have been reviewed in this study.</td>
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<td>BCG vaccine</td>
<td><strong>Materials and Methods:</strong> During 1382 to 1396, 17 cases of disseminated BCGitis have been admitted in Emam-reza referral hospital, Mashhad, Iran. They have been diagnosed based on identification of Acid Fast Bacilli in their bone marrow aspirations, using Ziehl-Neelsen stain. Their clinical and laboratory findings were extracted from hospital files.</td>
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<td>BCGitis</td>
<td><strong>Results:</strong> The mean age of patients were 5.6 months (range: 2-11 months). 82% of them were male and in 79% of them the parents had family relation. The most common clinical presentations were including: Fever (100%), lymphadenopathy (82%), splenomegaly (92%), hepatomegaly (69%) and local presentations at the site of injection (71%). Most of our cases had leukocytosis (54%), anemia (94%), thrombocytopenia (56%), elevated liver enzymes (AST: 90%, ALT: 50%) and high ESR (90%). 41% of them proved to have SCID and 23% of them expired during admission.</td>
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<td>Acid fast bacilli</td>
<td><strong>Conclusion:</strong> As the BCG vaccine is used for all newborns in Iran and regarding to overlap of clinical and laboratory findings of disseminated BCGitis with lots of hematologic disorders including hemophagocytic syndromes, some cases may be missed. Application of sensitive tests (such as PCR) may help in earlier diagnosis.</td>
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<td>Laboratory findings</td>
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<td>clinical presentation</td>
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Does NRBC/100 WBC change in early onset sepsis compared normal preterm infants?

Boskabadi1* H, Sadeghian2 MH, Maamouri GH1, Zakerihamidi M3

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ARTICLE INFO

Keywords: Early onset Sepsis, Nucleated Red Blood Cells (NRBC), Neonates, Blood culture

ABSTRACT

Introduction: In spite of significant advances in medical care, neonatal sepsis remains an important risk factor for neonatal morbidity and mortality. Accordingly, the present study was conducted to compare the number of Nucleated Red Blood Cells per 100 white blood cell (NRBC/WBC) in neonates with early onset sepsis and non-infectious neonates.

Materials and Methods: In this cross-sectional study, of 156 neonates admitted to the NICU of Ghaem Hospital in Mashhad, Iran within the first three days of life, during 2014 to 2016, the characteristics of 44 neonates identified early onset sepsis (Case group) were compared with 112 non-infectious neonates (Control group). After the confirmation of sepsis in neonates based on positive culture and laboratory results, a researcher-made questionnaire containing neonatal characteristics (gestational age, weight, first minute Apgar scores, fifth minute Apgar score, duration of oxygen therapy, and mechanical ventilation duration) and neonatal laboratory profiles (using neonatal venous blood samples CBC (complete blood count), Absolut NRBC, NRBC/100 WBC and CRP) was filled in.

Results: The results of this study showed that the absolute number of NRBC in neonates with negative blood culture was 630.54 ± 1320.65 and in neonates with premature sepsis was 6773.61 ± 13099.72 (P = 0.003). Also, the number of NRBC per 100 white blood cells in the neonates with negative blood culture was 6.14 ± 11.41 and in neonates with sepsis was 49.34 ± 120.02 (P = 0.022). The absolute number of NRBC for the detection of early onset sepsis had a good sensitivity (73%) and NRBC/100WBC was high specificity (89%).

Conclusion: This study indicated that NRBC/100 WBC and absolute NRBC count can be helpful in the diagnosis of early onset sepsis and have an acceptable sensitivity and specificity.
Introduction: The risk of getting infections increases in elderly patients. Despite the progress made in tracking, diagnosing and treating infectious diseases in the elderly, infection is still the reason for 30% of elderly mortality. This study is aimed to evaluate common infections in elderly patients admitted to infectious department of Sanandaj city’s hospitals.

Materials and Methods: In this cross-sectional study, we used descriptive-analytical method. The study population included all patients over 65 years old who were admitted to the infectious department of Sanandaj city’s educational hospitals from April to December 2017. Using Morgan table, 300 patients were selected by simple random sampling, their physical history and examination were done and laboratory and imaging tests were carried out. Data were entered into a checklist containing demographic information, clinical symptoms and laboratory findings. Data analysis was done using descriptive statistics.

Results: According to the findings, 54.9% of patients were female. The mean age of patients was 75 years. The most common infectious diseases among the elderly were pneumonia (22.6%), urinary tract infection (15.4%) and septicemia (12.1%).

Conclusion: It seems that the most common infectious diseases leading to hospitalization and death in the elderly are pneumonia and urinary tract infection. Paying attention to clinical symptoms, especially weakness and lethargy, can affect the early onset of treatment and thus reducing mortality.
Survey of animal bite cases during seven years (1378-1395) in Khorasan province

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**ARTICLE INFO**

**INTRODUCTION:** Rabies is a lethal viral disease of the central nervous system. It is transmitted to human via bite of rabid animal. It is clinically diagnosed through acute and advance nervous symptoms. The rabid patient goes into a coma as early as ten days. All cases should be regarded as rabies transmission risks. Vaccination should be done for suspicious cases with animal bite.

**MATERIALS AND METHODS:** All cases of history of animal bite during seven years (1378-1395) in Khorasan province were enrolled in our study. Questionnaire included demographic, epidemiologic and clinical characteristics were filled by health center workers. Data were analyzed using Epi 6 computer software program.

**RESULTS:**

1) The feel and legs are most often hurt in animal bites (50 percent)

2) The great number of animal bites happens in villages (60 percent)

3) The highest frequency was observed in the age group of 10-19 years old (27 percent)

4) The largest number of animal bites cases occur for men (75 percent)

5) Students are the largest number of the victims (%22.5)

6) The three-stage curative treatment is the most frequent treatment (%88.5)

7) The greatest number of deaths results from the rabid dogs (%80)

8) The greatest number of deaths is caused by the wounds in hands and face (%60).

**CONCLUSION:** Since most bites occurred in feet and legs, wearing boots and protective covering is important. Rural areas should receive more attention for educational programs. Young adults, adolescents and students should have priority for these educational programs. Dogs must be vaccinated and to be owned.
The effect of education on quality of life in patients with diabetic foot in hospital of Urmia

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**ARTICLE INFO**

**ABSTRACT**

**Keywords:** quality of life, education, diabetic foot

**Introduction:** One of the most important health issues of the international community that is associated with many complications, such as infection, foot ulcers is mellitus diabetes. It sometimes can lead to gangrene and even amputation and impose financial burden, psychological complications and reduce quality of life in patients. The present study aimed to show the effects of education on quality of life in patients with diabetic foot in a teaching hospital in Urmia in 1394.

**Materials and Methods:** This quasi-experimental study was conducted in two stages, before and after the intervention on 136 diabetic patients. They were randomly divided into two Intervention and control groups. Data Collection tool was specific quality of life questionnaire for patients with diabetic foot ulcers (DFS). An educational program for intervention group was conducted. Data analyzed by SPSS 18 software using descriptive statistics, Paired t-test and ANOVA.

**Results:** Seventy-two percent of participants were men. The average age was 58/53 years. Statistically significant relationship was found between age, gender, financial status, education level, marital status and quality of life in both groups. Also mean and standard deviation of intervention and control groups showed that after the education, various dimensions of quality of life in the control group was lower than the experimental group and the impact of education on quality of life in patients with diabetic foot was significant(p<0.05).

**Conclusion:** The findings suggest that providing appropriate education in the prevention and treatment of diabetic foot complications and delays in healing through improving patients' knowledge can increase quality of life in patients with diabetic foot.
The prevalence of Diarrheagenic *Escherichia coli* Pathotypes in patients with gastroenteritis infection referred to Shiraz teaching hospitals

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**ARTICLE INFO**

**Abstract**

**Keywords:** diarrheagenic *Escherichia coli* (DEC) Pathotypes Shiraz.

**Introduction:** *Escherichia coli* can be an innocuous resident of the gastrointestinal tract; it also has the pathogenic capacity to cause significant diarrheal and extra intestinal diseases. Pathogenic variants of *E. coli* pathotypes cause much morbidity and mortality worldwide. The seriousness of pathogenic *E. coli* is exemplified by dedicated national and international surveillance programs that monitor and track outbreaks; unfortunately, this surveillance is often lacking in developing countries. This comprehensive review highlights recent advances in our understanding of the intestinal pathotypes of *E. coli*.

**Materials and Methods:** In this study, the prevalence of diarrheagenic *Escherichia coli* (DEC) from patients with gastroenteritis infection referred to Shiraz University of Medical Science hospitals were evaluated. The polymerase chain reaction (PCR) was used to detect six pathotypes of DEC.

**Results:** In 1050 patients with diarrhea, 306 DEC infections were detected. Diffusely adherent *E. coli* (DAEC) (59.7%) was the most common pathotype. Enterotoxigenic *E. coli* (ETEC), (UPEC), Enteroaggregative *E. coli* (EAEC), enterohemorrhagic *E. coli* (EHEC) and enteroinvasive *E. coli* (EIEC) were found in 46.53%, 22.9%, 17.4%, 12.5% and 4.9% of cases, respectively. Enteropathogenic *E. coli* (EPEC) was not detected.

**Conclusion:** Our research has highlighted that two pathotypes of DAEC and ETEC are two most important strains have role in diarrhea. In this study, we provide a clinical perspective on the management of patient’s infection or colonized with different type of *E.coli*. 
Check the positive performance of hand hygiene in 5 positions (according to WHO’s Standards) in the Post-Angiography Section at Imam Reza Hospital in 1396-1395

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ARTICLE INFO

Keywords:
Hand hygiene
Compliance rate
Hospital

ABSTRACT

Introduction: Hand hygiene is the most effective way to control healthcare associated infections. The aim of this study was to investigate performance of hand hygiene in post-angiography section at Imam Reza hospital.

Materials and Methods: We used a checklist on the basis of World Health Organization hand hygiene guideline in post-angiography section at Imam Reza hospital during 1395-96. We observed 15 healthcare workers between 5 to 12 times during the study period. Checklists including 5 moments of hand hygiene were filled by the Infection Control team of Imam Reza hospital. Statistical analysis was done by software SPSS 16.

Results: Changes in personnel function during the operational monitoring was carried out. Data showed 5/2% rise in hand hygiene compliance rate compared to the beginning of the study; 36/9% in 1395 vs. 42/1% in 1396. There was a significant relationship between students and teaching staff performance.

Conclusion: It seems that education and improvement of equipment is very effective in increasing hand hygiene compliance.
Evaluation of Transient proteinuris in children with febrile illness

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A R T I C L E  I N F O

A B S T R A C T

Keywords:
Child
Fever
Proteinuria

Introduction: Transient proteinuris in the absence of underlying renal disease was detected in children with an acute febrile illness. Proteinuris resolves spontaneously after cessation of causal factor. This study was designed to identify the association of transient proteinuris with fever.

Materials and Methods: Two hundred- thirty children with fever who referred to hospital were studied. Proteinuris was noted only in children whose fever was higher than 38 0C. Patients with renal disease were excluded. The blood sample test and urine analysis was done for each patient. To determine whether the proteinuris was persistent in patients with proteinuris, a urine sample was obtained within one weeks after recovery of the febrile episode.

Results: Transient proteinuris was detected in 19 of 230 children (8.26%). 47.4% were male and 52.6% were female. Ages ranged from 3 months to 5.5 years and whose temperatures ranged from 38.2-40.5 0C. The most common clinical diagnosis for patients with proteinuris was gastroenteritis, viral infection and pneumonia.

Conclusion: Prevalence of transient proteinuris was 8.26% in febrile children. Gastroenteritis, viral infection and pneumonia were the most common causes.
Asymptomatic Visceral Leishmaniasis in endemic areas of
North and Central Khorasan province

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ARTICLE INFO

Introduction: Annually a large number of people are affected by Mediterranean visceral Leishmaniasis (VL) in different parts of Iran. This disease has various clinical presentations and diagnosis methods such as serological technique that is considered to be highly sensitive and non-invasive. This study aimed to obtain the frequency of asymptomatic VL in endemic areas of North and Central Khorasan province, during 2014-2015.

Materials and Methods: This cross-sectional study was performed on 442 children residing in rural areas of North and Central Khorasan province. The data was collected including demographic information and field observation. Direct Agglutination Test (DAT) and rK39 test were performed to identify antibodies against Leishmania. The obtained data was analyzed using SPSS version 16.

Results: DAT positive in 5.21% of the children. The result of rK39 test showed that none of the participants was infected with Leishmania spp. DAT test showed that there was a significant difference between the rate of Leishmania infection in two provinces (P<0.005). Moreover, mean age was not significantly different between the infected and non-infected children.

Conclusion: According to the results obtained by DAT, the prevalence rate of asymptomatic VL is estimated to be 5%. The rate of VL infection is higher at Northeast of Iran in comparison with other regions. The rate of asymptomatic VL is higher at North Khorasan than Central Khorasan province. Despite the high sensitivity of rK39 test in diagnosis of VL, it is not appropriate for identifying asymptomatic VL, therefore, using DAT is recommended for diagnosis of asymptomatic VL.
Two-year antimicrobial resistance patterns of bacteria isolated from peritoneal fluid, pleural fluid and synovial fluid at Imam Reza Hospital, Mashhad

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A R T I C L E   I N F O

Abstract

Keywords:
Sterile body fluid
Antimicrobial resistance patterns
Mashhad

Introduction: Infections of the sterile body sites typically have greater clinical urgency and these infections could be life-threatening. This study was done for identifying the bacterial pathogens and their antimicrobial susceptibility pattern in the patients admitted in Imam Reza Hospital, Mashhad.

Materials and Methods: This study was done on a retrospective analysis for a period of two years from January 2015 to December 2017. Demographic data and clinical information such as gender, admission date, specimen type, specimen collection date and antimicrobial susceptibility test result were obtained from the microbiology laboratory database and administrative record system. Antimicrobial susceptibility was performed on all isolated bacteria by Kirby Bauer's disc diffusion method. Interpretation was based on Clinical Laboratory Standard Institute (CLSI, 2015) criteria. Also, the minimum inhibitory concentration (MIC) was determined for vancomycin by MIC test strips.

Results: A total 1554 different body fluid were collected from suspected patients, which included pleural fluid, peritoneal fluid, synovial fluid and pericardial fluid. In this study, 649 fluids samples showed growth of organisms with an isolation rate of 41.8%. Most frequent bacteria in peritoneal fluid was E. Coli (19.8%) and Enterococcus (14.9%). In pleural fluid most frequent bacteria was Acinetobacter (24.7%) and Enterococcus (11.5%). Also, most frequent bacteria in pericardial fluid was Staphylococcus aureus (41.5%). Among different isolates, 88.1% were resistance to Ceftriaxone. This followed by Cefotaxime (83.6%), Ceftazidime (66.5%) and Cefepime (66.2%).

Conclusion: The present findings can serve as an index of actual antibiotic resistance specifically in sterile body fluids. Knowledge of bacteriological and antimicrobial profile of sterile body fluids is important so that such life threatening infections can be treated effectively on an urgent basis.
Compliance of Healthcare Workers with Hand Hygiene Practices in the northeast of Iran: An Overt Observation

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**ARTICLE INFO**

**Keywords:** Hand Hygiene, Compliance, Healthcare worker, Iran

**ABSTRACT**

**Introduction:** The purpose of this study was to analyze the compliance of hand hygiene and affecting factors among healthcare workers (HCWs) of hospitals in northeast Iran.

**Materials and Methods:** This study was conducted based on observation method for the compliance of hand hygiene according to the World Health Organization (WHO) guidelines. HCWs were observed during routine patient care in different shifts, also the technique of hand hygiene was assessed through assessment protocol.

**Results:** By direct observation, we evaluated a total of 92518 hand hygiene opportunities from 29 hospitals in the northeast of Iran. Our analysis show overall compliance rates of 43%. Compliance rates differed by role and in different wards.

**Conclusion:** in this observational study, we identified that adherence to hand hygiene practice and use of alcohol-based disinfectant was still low, so effective intervention programs to promote adherence to hand hygiene could be effective to increase compliance.
Febrile convulsion as the presentation of urinary tract infection in children: An epidemiological evaluation

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| Keywords: UTI, FC, Febrile UTI, age, gender | **Introduction:** Febrile convulsion affecting 2-5% of children. This study was conducted to define prevalence and incidence rates of FC among children presented by UTI.  
**Materials and Methods:** A cross-sectional retrospective study was performed from June 2002 to 2016. During this period 1242 cases with first episodes of UTIs referred, including 178, 784 and 243 cases aged <6 months, 6-60 months and >5 years respectively. Patients in age 6 -60 months, the ages that FC can present, enrolled the study  
**Results:** Prevalence of FC was 25 in 1242 patients (3.18%). Totally 784 patients (63.1%) aged 6-60 (24.85±16.69) months, including 20 girls (80%) and 5 boys (20 %) presented by FC and 684 girls (90.11%) and 75 boys (9.89%) in non-FC group (p=0.1). Ages of patients in FC and non-FC groups were 15.52±8.4 and 25.16± 16 months respectively indicating a significantly younger age for FC cases (P=0.004). A significantly higher number of FC compared with non-FC cases aged 6-24 months rather than 3-5 years (P=0.028). Totally 503 cases had febrile UTIs which indicated an incidence rate of 0.05(5%) for FC.  
**Conclusion:** FC is an uncommon presentation of UTI. The incidence rate of FC following febrile UTI is among the highest reported incidence rate (5%). Patients in FC ages present by febrile UTI and seizure are significantly younger compared with those not associate with seizure. Febrile convulsion in cases with UTI almost always occurred in age ≤3 years.
Bacterial isolates from cerebrospinal fluid and their antimicrobial susceptibility pattern in Imam Reza Hospital, Mashhad: a two-year surveillance study (2015–2017)

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<tr>
<td>Keywords:</td>
<td>CNS infections are life-threatening and significant causes of morbidity and mortality, especially in developing countries. Bacterial infections have been known as the most common cause of the CNS infections. This study was done for identifying the bacterial pathogens and their antimicrobial susceptibility pattern in the patients admitted in Imam Reza Hospital, Mashhad.</td>
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<td>cerebrospinal fluid</td>
<td>Materials and Methods: This study was done on a retrospective analysis for a period of two years from January 2015 to December 2017. Demographic data and clinical information such as gender, admission date, specimen collection date and antimicrobial susceptibility test result were obtained from the microbiology laboratory database and administrative record system. Antimicrobial susceptibility was performed on all isolated bacteria by Kirby Bauer’s disc diffusion method. Interpretation was based on Clinical Laboratory Standard Institute (CLSI, 2015) criteria. Also, the minimum inhibitory concentration (MIC) was determined for vancomycin by MIC test strips.</td>
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<td>Antimicrobial resistance patterns</td>
<td>Results: In this study, 50% cerebrospinal fluid (CSF) were collected from suspected patients. 110 samples showed growth of organisms with an isolation rate of 21.6%. The most common pathogens isolated were Acinetobacter baumanii 14 (13.6%), followed by Enterococcus (12.7%), Staphylococcus haemolyticus (9.1%), Escherichia coli (7.2%), and Staphylococcus aureus (5.5%). Among different isolates, 81.2% were resistance to Cefotaxime. This followed by Ceftriaxone (80.8%), Ceftazidime (72.2%) and Erythromycin (65.9%).</td>
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<td>Mashhad</td>
<td>Conclusion: The present findings can serve as an index of actual antibiotic resistance specifically in cerebrospinal fluid. Knowledge of bacteriological and antimicrobial profile of cerebrospinal fluid is important so that such life threatening infections can be treated effectively on an urgent basis.</td>
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Bacteriological profile and antimicrobial resistance patterns of blood culture isolates among patients in Imam Reza Hospital, Mashhad

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ARTICLE INFO

Keywords:
- Blood stream infection
- Antimicrobial susceptibility pattern
- Mashhad

ABSTRACT

Introduction: Bloodstream infection (BSI) remains one of the most important causes of morbidity and mortality globally. The aim of the present study was to determine the bacterial profile of bloodstream infections and their antibiotic susceptibility pattern.

Materials and Methods: A total of 10356 samples from clinically suspected cases of bacteremia were studied at Imam Reza Hospital for a period of two years from December 2015 to January 2017. Antimicrobial resistance testing was performed and analyzed by Kirby Bauer technique on Mueller-Hinton agar plates using ten antibiotics according to their respective break points. CLSI (2015) guidelines were followed to determine the zone diameters consistent with the Zone Size Interpretative Chart. Also, the minimum inhibitory concentration (MIC) was determined for vancomycin by MIC test strips.

Results: In this study 4061 (39.2%) culture positive were isolated. Staphylococcus aureus 408 (10%), Escherichia coli 377 (9.3%), Acinetobacter spp. 344 (8.5%), Staphylococcus haemolyticus 301 (7.1%), Enterobacter 288 (7.1%) and Enterococcus spp. 276 (6.8%) were the most dominant isolates. High resistance was seen to cefazolin (90.4), Cefotaxime (75.4%), erythromycin (74.4%) and ceftriaxone (70%). Resistance was lowest for linezolid (1.6%), colistin (5.3%) and minocycline (7.1%).

Conclusion: Prevalence of bacterial isolates in blood was high. It also reveals isolated bacteria species developed multi drug resistance to most of the antibiotics tested, which highlights for periodic surveillance of etiologic agent, antibiotic susceptibility to prevent further emergence and spread of resistant bacterial pathogens.
Investigation of brucellosis as a zoonotic disease in recent ten years in Iran

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<td><strong>Keywords:</strong></td>
<td><strong>Introduction:</strong> Brucellosis is considered to be the most important bacterial zoonosis in the world. The disease causes huge economic losses in many developing countries such as Iran, where the control programs have not succeeded and the annual incidence rates of the human and animal brucellosis are still high. This study presents the annual prevalence rates of brucellosis in humans and animals and their relationship with the annual vaccination rates in recent ten years in Iran.</td>
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<td>Brucellosis</td>
<td><strong>Materials and Methods:</strong> This study was conducted on 15 national and international publications and 200 subjects on brucellosis from 2008 to 2018 and the annual rates of brucellosis and vaccination were collected and analyzed with SPSS software v19.</td>
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<td>Zoonotic disease</td>
<td><strong>Results:</strong> In overall, 166 468 cases of brucellosis in humans were reported with an annual average of 16 647 cases (3.32% of global cases) for the past ten years in Iran (P&lt;0.05). The maximum and minimum incidence rates of the disease were reported in 2008 (21 109 cases) and in 2011 (12 248 cases), respectively. The incidence rate of the disease did not follow a linear trend (P&lt;0.001) and there was no significant relationship between the annual rates of brucellosis and vaccination. More information has been mentioned in full version of this study.</td>
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<td>Iran</td>
<td><strong>Conclusion:</strong> Control of brucellosis in Iran through the comprehensive vaccination, without studying and knowing the effect of vaccines in target populations, may not be associated with good results and lead to failure of control programs.</td>
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### Article Info

**Keywords:** Risk factors, Human brucellosis, Iran

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**Abstract**

**Introduction:** Brucellosis is an infectious zoonotic disease and is still a major healthcare problem in Iran. The disease is transmitted from animals to humans and causes various clinical signs such as fever, asthenia, myalgia, arthralgia, sweats, lymphadenopathy, hepatomegaly and splenomegaly. The aim of this study was to investigate of risk factors in human brucellosis and expressing strategies for the prevention and control of disease in Iran.

**Materials and Methods:** PubMed, MEDLINE, Web of Science and Cochrane databases were searched in order to investigate of risk factors in human brucellosis and suggested strategies for prevention and control of disease using a predefined protocol based on Cochrane and PRISMA guidelines. The significance level was set at $P<0.05$.

**Results:** In Iran, brucellosis is increasing every year with the onset of the spring and the increase in the birth rate of livestock. *Brucella* can enter the human body through the scratches, mucous membranes, conjunctiva, respiratory tract and gastrointestinal tract; sexual transmission has not yet been conclusively proven. The most important risk factors for humans include ingestion through infected food products, especially eating contaminated meat products and unpasteurized milk, direct contact with an infected animal and inhalation of aerosols.

**Conclusion:** According to the results of this study, public education of the people, especially livestock breeders, timely payment of compensation to owners of the reactor's livestock, timely delivery of brucellosis vaccine and planning for raising the health level of livestock and slaughterhouses can reduce the risk factors for human infection.
The comparison of the Role of Education in Increasing the Knowledge of Health Topics in Health Volunteers’ Families and Friends Compare to Neighborhood Households

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<td>Keywords:</td>
<td>Introduction: The participation of individuals in the community is necessary to solve health problems. Health care volunteers provide background on the active participation of women in health. A comparison of the effect of education about breast cancer on the level of Knowledge of relatives and friends (intimate family) compared with covered households (neighborhood households) in Markaz Behdasht no 1</td>
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<td>Education</td>
<td>Materials and Methods: A number of health volunteers and their covered households (Markaz Behdasht no 1) were selected by random sampling. Each city volunteer educated breast cancer booklet to 5 neighborhood households and 5 intimate families. Each rural volunteer educated breast cancer booklet to 3 neighborhood households and 3 intimate families. The women of these households were pre-tested. All study volunteers were trained by their health coaches. They transferred their training to their neighborhood households and intimate families. This process took 5 months. Both groups were re-tested. The results of pre-test and post-test compared and effectiveness of training were determined.</td>
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<td>health care volunteer</td>
<td>Results: In this study 548 women including 267 women in neighborhood households and 281 women in intimate families entered. There was significant difference in scores of two groups before and after training (p-value = 0.000). Mean score of neighborhood households and intimate families were 13.6626 and 19.3956 respectively. The results showed that scores of intimate families were significantly higher than neighborhood households after training course.</td>
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<td>Iran</td>
<td>Conclusion: Health education is better transmitted by intimate families including friends and close relatives.</td>
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Use of Personal Protective Equipment among Health Care Workers in A Teaching Hospital in Urmia, Iran

Shirin Mojalali, Mahnaz Mohammadpouri, Zähaleh Zeinali, Hooriyeh Rahimi Gholenji, Mahnaz Shad Del, Sheyda Kiyumarsi, Zahra Ahmadnezhad

ARTICLE INFO

Keywords:
Personal protective equipment health care workers Midwifes and Nurses

ABSTRACT

Introduction
The transmission of hospital infections to healthcare workers (HCW’s) is an important health challenge. With regard to increasing prevalence of blood borne and body fluids infections, emerging diseases and the risk of transmission of infectious diseases in HCW’s, Centers for Disease Control and Prevention (CDC) and the Center for Disease Management, recommended the use of Personal protective equipment, attention to standard precautions and necessary precautions due to the type of infectious disease.

Method
In this descriptive cross-sectional study a researcher-made questionnaire was developed to assessing the use of protective equipment, attention to standard precautions and the reasons for non-use of protective equipment. After checking validity and reliability of questionnaire, researchers completed about 319 cases in Pediatric ICU, labor, emergency and pediatric operating room were in one month. Data analyzed by SPSS VER 16 and descriptive statistical tests.

Result
The results showed that standard precautions (77%), droplet precautions (42%), aerial precautions (38%) and contact precautions (40%). The use of gloves in standard precautions was the highest rate (88%) and the use of N95 mask in air precautions was the lowest (38%). Midwifery staff had the highest and nurses the lowest use of protective equipment (76% and 40% respectively). Some of them (32%) stated high workload is the main reason for not use of protective equipment.

Conclusion
Considering the importance of using protective equipment in prevention of blood-borne diseases and body fluids infections and other contagious diseases also the results of study, authorities more attention is necessary.