

PREVENTING NOSOCOMIAL INFECTIONS: KNOWLEDGE, ATTITUDES, PRACTICES OF MEDICAL PERSONNEL

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Abstract: Epidemiologic descriptive study, based on self administrated questionnaire with 16 questions and 96 items related to hospital acquired infection prevention, aiming to assess the attitudes, practices and knowledge of different professional categories was performed in Caritas hospital. Results reveal good scores mainly for physicians and nurses. The conclusions sustain the necessity of a continuous educations system for preventing hospital acquired infection.

Cuvinte cheie: infecții nosocomiale, cunoștințe, atitudini, practici

Rezumat: Studiu epidemiologic descriptiv în abordare transversală bazat pe administrarea unui chestionar cu 16 întrebări și 96 de itemi privind cunoștințele, atitudinile și practicile personalului medical din spitalul Caritas privind infecțiile nosocomiale. Rezultatele au evidențiat în general scoruri bune mai ales pentru medici și asistente. Concluziile susțin necesitatea unui sistem de educație continuă privind infecțiile nosocomiale, specific, extins la toate categoriile profesionale.

INTRODUCTION

Nosocomial infection (NI) even associated to performance, quality and medical services safety in hospitals, still represents an important source of morbidity, sufferance and additional costs for patient and health system meanwhile. In this respects the 2008 Report of European Centre for Disease Control(1), reveals for EU member stats a mean prevalence of NI of about 7,1% for acute hospital patients, reported by the national surveillance systems, ranging from 3,7% in Lithuania to more than 9% in developed, we established surveillance countries as: Greece, Sweden or UK. Worrying figures, especially if we translate them in annual cases or deaths, meaning about 4.5 million infections and approximately 37000 direct attributable deaths accompanied by three times more, about 110 000 indirect deaths, only for EU. The situation is similar also in USA (2), where the estimated number of deaths is about 90000 yearly. Additionally other approximately 3 million of cases occurs in development stage countries. The annual direct costs due to supplementary health services, estimated only for EU where of about 7 billion Euro (1), without counting personal and social costs.

The Romanian national data from CNOASIIDS(3), probably on the basis of the improved system for transmissible disease surveillance, required by the EU integration, reveals a continuous decrease for all type of nosocomial infection hospital reported, from 10827 in 2005 to 9677 in 2008.

AIM OF STUDY

The aim of the study was to evaluate the level of knowledge, attitude and practices (KAP) of various professionals involved in hospital medical services, respectively: physicians, nurses and aide nurse personnel in order to identify the topic of interest for further medical continuous education courses.

MATERIAL AND METHOD

Descriptive transversal approach based on a self

administrated questionnaire with 16 questions ad 96 items related to KAP of medical personnel within Caritas hospital, carried out o a sample of 100 respondents, applied during 23-27 November 2009. The questionnaire was structured in 4 sections: personal characteristics, knowledge, attitude and practices. The factual data included information on age, experience, courses and informational sources. The answers related to knowledge have being evaluated on a scale with 3 possible answers: agreement/ disagreement/ don't know. The answers related to attitudes and practices were recorded on a gradual scale with 5 grades from total agreement to total disagreement for attitudes and from very rare to very frequent for practices. Statistical analysis was performed with support of Excell ad STATA 5 programme. The Pearson chi² test was used for testing the differences among respondentsrelated to age, experince, and influence of recent courses, and variance analisys for recorded diferences within the same speciality.

RESULTS

A number of 74 questionnaires from the total of 100 distributed returned, representing a 74% response rate. The sample structure, similar to professional actual distribution in hospitals was dominated by nurses, 36, counting for almost half of all staff(49%), followed by support staff 17 (23%), residents 12 (16%) and finally the lowest figure of the responsible physicians 9, representing 12% o the total. The gender distribution evidentiates a sample dominated by feminine staff 68 respondents (93%). The age group distribution reveals a distribution with many young professionals. The summary of respondent's characteristics is according to table 2 data. The chi²test did not confirmed statistical significant differences among professional groups for age, experience or the existence of courses within the last three years.

In knowledge evaluation the group of questions focuses on 5 areas: NI legal definition, hand washing and disinfection, medical waste management, sterility and universal precaution. A scoring system of 1 point for every correct answer

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CLINICAL ASPECTS

was used. The mean general score for knowledge questions was of $30,45 \pm 1.9$.

Table no. 1. Respondent's profile

	Physician	Resident	Nurses	Support staff
No respondents	9	12	36	17
% of total	10	12	55	23
Mean age (year)	44,5 ±9,6	28,2 ± 3,4	39,6 ± 10,7	42,0 ±6,5
Professional experience (year)	16,8 ±10,6	2,1 ± 1,21	15,7 ±12,2	9,8 ± 5,8
No of respondents trained during last 3 years	2 (20%)	0	25 (62%)	5 (24%)

A variability of distribution was observed. The best scores were register for physicians, followed by nurses, residents and support staff. Registered differences for knowledge's were significant for hand washing and universal precaution questions, according to the data from table 2, below:

Table no. 2. Mean score distribution for IN related knowledge's by profession.

Knowledge Mean score and SD	Physician	Resident	Nurse	Support staff	Variance analysis(df=3)	χ^2
NI elements (max 5p)	2.7±1.3	3.9 ± 1.2	3.9 ± 1.6	3 ± 2.2	F=1.93 p=0.13	$\chi^2=1.72$ p=0.18
Responsibilities (max-14)	7 ± 2.2	5.3. ± 3.4	6.5 ± 2.6	4.5 ±2.8	F=2.55 p=0.06	$\chi^2=2.14$ p=0.54
Hand washing (max-12)	9.6±1.2	9.1 ± 1.1	9.2 ± 1.4	7.1 ±4.2	F=3.6 p=0.01	$\chi^2=38$ p=0.001
Medicale waste (max-4)	3.3±1.1	2.4 ± 1.4	3.1 ± 1.0	2.4 ± .5	F=2.37 p=0.07	$\chi^2=1.72$ p=0.18
Sterilization (max-1)	0.4±0.5	0.5 ± 0.5	0.6 ± 0.4	0.5 ±0.5	F=0.35 p=0.79	$\chi^2=0.12$ p=0.98
Universal precaution (max-5)	4.4±0.7	2.3 ± 1.5	3.5 ± 1.6	2.1 ± 2	F=5.47 p=0.02	$\chi^2=8.12$ p=0.04
Biological accidents (max-9)	7.3±1.2	5.6 ± 2.8	6.5 ± 2.4	5.1 ± .1	F=2.17 p=0.09	$\chi^2=9.3$ p=0.02
General Score (max-50)	34.7	29.1	33.3	24.7		

The attitudes questions investigated respondents opinion on usefulness of courses, accessibility of guidelines and regulation and specific questions of factor of influence for NI diagnostic and prevention of NI, two of the main interest areas of NI management. The answers have being recorded in a type Likert scale where 1=disagreement and 4= fully agreement.

Recorded scores hierarchy, according to table 3 results, situates on the first places again the physicians and nurses, followed by support staff and residents with less honorable scores. Statistic significant differences were recorded for appreciation of the importance of components for diagnostic and prevention of NI, from the existence of SPCIN, quality of labs, surveillance mechanisms, according to the results

illustrated below.

Table no. 3. Mean score distribution for IN related attitudes by professional categories

Attitudes Mean score and SD	Physician	Resident	Nurse	Support staff	Variance analysis(df=3)	χ^2
General attitudes (information, personal knowledge, courses accessibility)	15 ±3.3	12.5 ± 6	14,7 ± 4	12,3 ± 7	F=1.26 p=0.29	$\chi^2=8,7$ p=0.03
Attitudes diagnostic elements	18 ±1.9	11.5 ± 8	16 ± 4	10 ± 9	F=4.98 p=0.03	$\chi^2=23$ p=0.01

From the perspective of practical application of NI knowledge's we evaluate most important practices as: vaccination, protocol application in case of accidental exposure, hand washing and disinfection use, sterility and medical waste practices, protective equipment use.

Table no. 4. Mean score distribution for IN related practices by professional categories

Practices Mean score and SD	Physician	Resident	Nurse	Support staff	Variance analysis(df=3)	χ^2
	41 ±4.3	30 ± 6	38 ± 4	30 ± 7	F=2.32 p=0.08	$\chi^2=20,9$ p=0.01

CONCLUSIONS

The study confirmed a general good level of nosocomial related knowledge for all professional categories, best scores being obtained by physicians followed by nurses which beneficiate in a larger proportion (62%) of training courses, which is reflected by sometimes even better knowledge than physicians. Residents and health care personnel results were always situated on a medium to satisfactory position.

From the knowledge categories one of the most unclear topic was that one related on responsibilities, who is doing and for what I and responsible for, which should be further clarified also from the legal point of view.

About attitudes and practices, higher scores were registered for physicians and nurses, categories frequently involved in NI surveillance and management. According to those findings the future target groups for the internal courses on NI prevention are mainly the residents and the support staff.

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