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Negative Participation in the Research on Healthcare-Associated Infections outside a Hospital in Pachuca, Hidalgo, Mexico

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ABSTRACT

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Care of health care-associated infections represent a public health problem with social and economic impact due to its high morbidity and mortality; calculated in developed countries, between 5-10% of hospitalized patients develop an IAAS and globally affects 8.7%, and can be controlled and prevented by 40%. In Mexico it is estimated that the frequency of infections in hospital units varies from 2.1% to 15.8%. These occur 48 hours after admission to the hospital or the infection that started within 72 hours after hospital discharge. The main types of infection related to the health system are associated with invasive procedures and surgical, respiratory, urinary infection and bacteremia in vascular catheter. Given this scenario it is important to learn how to research, but also to have a positive attitude towards the opportunity to participate in this research process.

Introduction

Nosocomial infections (Nis) are defined by the Mexican Official Norm 045-SSA2-2005 for the epidemiologic surveillance, prevention and control of nosocomial infections (NOM-045) as “the localized or generalized condition resulting from the adverse reaction

to the presence of an infectious agent or its toxin, that was not present or that was in an incubation period at the moment of a patient entering a hospital and that can be manifested even after discharging said patient.”¹⁻⁴ Through its actions, Public Health has had an

impact on undeniable changes. It suffices to study data related to mortality levels, diversity of ailments, growth in population, the repertoire in medicine or the complexity of health institutions to make sure that health has been experiencing an extensive transition.⁵

NIs have clinical and epidemiological relevance since they condition high rates of morbidity and mortality. The epidemiological surveillance is a support tool that guarantees the correct operation of services and helps in the quality of the medical attention given to users of all types of services.⁶

NIs more frequently affect children and the elderly, patients with invasive procedures, immunodeficient and malnourished patients. NIs occur more commonly at intensive care units, surgery and orthopedics rooms since they are the areas where most patients undergo the largest number of procedures (surgeries, catheter placing, probe placing).⁷

Most nosocomial infections are caused by organisms from the regular flora of patients, and are generally transmitted by the staff. They differ from community infections for their resistance to antibiotics. Another important source of nosocomial infections comes from "Opportunistic" bacteria as is the case of *Pseudomonas Aeruginosa*, *Escherichia coli*, *Staphylococcus Aureus* and *Acinetobacter*, that colonize the water systems in hospitals. The same happens with fungi linked to the environment.^{2,8}

The biggest problem of these diseases is their high resistance to common antibiotics. Said resistance is mainly due to the excessive and, sometimes, inadequate use of antibiotics.⁹ Among the factors that have contributed to the increase of antibiotic resistance is the high population density in urban centers, the inappropriate control of infections at hospitals, the tendency to

hospitalize severely ill patients, the massive migration through regions and the inappropriate use of antibiotics, among other factors.

The vast majority of intra-hospital infections are caused by irrelevant endogenous germs found in the regular flora of sick people and which are not pathogenic in their regular environment and that are generally transmitted by the staff. Nosocomial bacteria differentiate from community bacteria because of their resistance to antibiotics.

The hospital environment is favorable for the dissemination of different kinds of resistances since a third of the patients receive antibiotic-therapy and this fact has, as a consequence, a selection of bacteria resistant to the antimicrobials used. Another important source of infections comes from the so-called opportunistic germs such *Pseudomonas* and *Acinetobacter* that colonize the water systems in hospitals, as well as fungi linked to the environment. Opportunistic viral infections (Cytomegalovirus, Respiratory Syncytial Virus, Herpesvirus) are also found especially in newborns and immunodeficient patients, as well as in patients with organ transplants; where said organs apparently come from a healthy donor.¹⁰

P. aeruginosa is a versatile bacterium which is widely distributed in the environment and that has already been isolated from the ground, water, animals, human beings, hospital devices and surfaces. This bacterium has been associated with nosocomial infection in immunodeficient patients.¹¹ The hands of sanitary professionals are the main means of micro-organisms transmission; WHO considers hand hygiene as an essential tool for the nosocomial prevention.⁷

Health management directly involves health professionals who manage health and

adequately use the resources available keeping the planning into consideration in order to optimize the processes to facilitate accessibility to health services by including their level of knowledge and the goals previously established.

It is important to point out that a good health manager will be assertive regarding his or her objectives development and will be attentive to the professional development of every member of the respective specialization area (including the served-user pairing in his or her working environment).¹²

A crucial component in the prevention and control programs of nosocomial infections is their routine surveillance. This allows to know the real scale in each health institution, do epidemiologic research to define its causes, as well as to identify and implement prevention and control measures. Prevalence studies are epidemiological tools that are useful in these programs, and, applied to nosocomial infections surveillance, they become a systematic study of defined populations; for instance, patients entering one or several hospitals with the aim to determine who shows infections at any given moment.¹³

Surveillance units at each hospital should work in a coordinated manner with every health team who will receive information from the system. The results of the surveillance should become management tools at all healthcare levels. The principal characteristics of the system are as follows:

Hospitals should perform surveillance using active data collection methods and considering: a) review of medical records of patients presenting risk factors or with previously selected conditions to be under observation; b) review of results of positive culture from patients.

There should be a multidisciplinary team responsible for the epidemiological surveillance consisting of an epidemiologist, a nurse or any other health professional with NI control functions, as well as a microbiologist with a schedule assigned to the task.

The NIs notification is responsibility of the head of the epidemiology office.

The surveillance unit should provide timely information about the event and the prevalence of infections, the relationship with invasive procedures, and information about more frequent etiologic agents and microorganisms' resistance patterns.

There should be regulations and procedures to study and handle epidemics outbreaks and to specify how and who would assume leadership in the research and handling of such outbreaks as well as the duties the appointed person will have.

The hospital will share the surveillance information with any health-team member that needs to know it.

The surveillance system should be periodically evaluated with prevalence studies.

The hospital should have especially trained staff assigned to carry out epidemiological surveillance tasks.¹⁴

The team should work daily and should be entirely devoted to the prevention and control of hospital infections.

They should be competent in clinical epidemiology, including the clinical, epidemiological, microbiological and prevention aspects of the nosocomial infection. The team should be composed at least of:

A physician with epidemiological training and who devotes at least 10 hours per week to the duties involved

Full time infection control nursing staff.¹⁵

In general, infection control measures that have proved to be efficient can be grouped in 4 great areas: (1) standard prevention; (2) specific prevention for transmission; (3) environment cleaning and disinfection measures; and (4) surveillance activities and specific interventions.¹⁶

For all the above mentioned, the research question is:

Are there any measures for preventing healthcare-associated diseases as well as for their control in the facilities of a hospital located in Pachuca, Hidalgo, Mexico?

General objective

To determine if there are any measures for preventing and avoiding healthcare-associated infections in a hospital located in Pachuca, Hidalgo, Mexico.

Materials and Methods

An exploratory study was carried out outside a hospital of Pachuca, Hidalgo, Mexico. The study consisted of a survey applied to the health staff that was walking by outside a hospital of Pachuca, Hidalgo, Mexico

Results and Discussion

Out of 7 people that were asked to answer the survey, 6 refused to answer it arguing “I don’t have time”, “I am not interested” and “I barely have time to get something to eat”, so it was only applied to one person working for such institution who said there are no prevention measures in relation to the

question “Is there an education program containing information related to infection control for nurses and the rest of the staff that provides healthcare at the hospital?” and the answer was negative. Another negative answer was obtained regarding the question “Was any routine surveillance related to healthcare-associated infections carried out at the hospital during last year?” (Table 1).

Although the Mexican Official Norm 045-SSA2-2005 emphasizes that “the localized or generalized condition resulting from the adverse reaction to the presence of an infectious agent or its toxin, that was not present or in an incubation period at the moment of a patient entering a hospital and that can be manifested even after discharging the patient”, a negative attitude was shown by the health staff to provide information in this regard. And while it is true that this work starts from projects done by medicine students who are not research experts and who are in training process, after having this experience while trying to get information outside of the hospital, it would seem that the chosen field of work is inadequate. It would have been easier to deal with hospital authorities; however, these few cases show a negative attitude towards participation.

Several studies express the importance of academic and technical formation in the field of Healthcare-Associated Infections^{2-5,11,12,16} (abbreviated IAAS in Spanish); nevertheless, it seems that health staff does not participate in the supply of information for several causes. When they listened to the question, they continued walking. Some even categorically said that they did not have time to answer. The “no participation” attitude from the staff is definitely not good at all nor is it educational for students since health staff should always be ready to serve, but apparently this is not the case. This is a factor that would be important to address from the

qualitative research perspective, which will enable to explore the meaning of the SERVE category or even the INFORM one. Perhaps the interpretation detected in these cases that were addressed is not correct, but the individual attitude when they were asked the survey questions was quite negative.

One of the biggest challenges for the health staff implies to know how to conduct research and, for this, it is essential that the learning process in this area not start when a student in college or in post-graduate studies has to build a research protocol to merely meet the

requirements to write his or her thesis and later to be able to defend his or her position therein to obtain his or her degree. This implies that students, not only at college level but from the very beginning of the education process, should be encouraged to develop creativity and to question their environment. Therefore, it is in this project that medicine students engage in the scientific research where they find the motivation to continue with their professional development and it is there where those who have finished their formation do not give information and show a negative attitude.

Table.1 Questions applied to health staff

QUESTION	YES	NO	Other answers
What is your position at the hospital?			Nurse
Are there government regulations that determine the practices for infections control at the hospital?	X		
Are there certification regulations related to infections control applied at the hospital?			Yes, the certification is mandatory
Are you familiar with the regulations from the Ministry of Health that govern infections control?	X		
Has the hospital adopted the regulations from the Ministry of Health that govern infections control?	X		
Is there an individual or a team responsible to perform activities related to the infections control at the hospital?	X		
Is there a formal organizing committee for the epidemiological surveillance of Nosocomial Infections at the hospital?	X		
Is there an education program containing information related to infection control for nurses and the rest of the staff that provides healthcare at the hospital?		X	
Has the infections control program investigated any outbreak in the past 12 months?		X	
Was any routine surveillance related to healthcare-associated infections carried out at the hospital during last year?		X	

Due to the importance of the IAAS, it is crucial to consider guidelines for pharmacotherapy based on the rational use of antibiotics.¹⁷

It is required to implement health education workshop that include IAAS for Health Professionals. The aim is to raise awareness as to how to carry out IAAS control, prevention and surveillance. Furthermore, the hospital should perform routine surveillance on IAAS in order to have better control on them and to

prevent them from manifesting. There is a correlation between prevention and surveillance of such diseases to control them.

The fact that students start their work by projects, casts doubt on the health staff participation. The fact that they did not give information about the topic is quite negative and discourages students from getting involved in the education process to become researchers. It also expresses the need of educational

workshops for health staff and the authorities at health institutions since they are not willing to give information. Far from shedding light as to the health status and the IAAS, it is not a positive feedback regarding the reality of the hospital; on the contrary, it is negative and the results on health could not be favorable at all.

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