



*In-hospital infections in the specialty of gynec/obs*

**Comportamiento de las infecciones intrahospitalarias en la especialidad de Ginecología y Obstetricia**

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**ABSTRACT**

**Received:** 30/03/2024

**Accepted:** 01/08/2024

**Published:** 13/08/2024

**Keywords:** Gynecology and obstetrics; Hospital infections; Nosocomial infections

**Palabras clave:**

Ginecología y Obstetricia; Infecciones hospitalarias; Infecciones nosocomiales

**Quote as:** Paulino Uamusse J, Rafael Jambo B. Comportamiento de las infecciones intrahospitalarias en la especialidad de Ginecología y Obstetricia. UNIMED [Internet]. 2024. [cited Access date]; 6(2). Available from: <https://revunimed.sld.cu/index.php/revestud/article/view/369>

**Introduction:** nosocomial infections in the specialty of obstetrics and gynecology represent a serious threat to patients. Infections, hemorrhages and hypertensive disorders are the three most frequent causes of maternal death.

**Objectives:** describe the behavior of in-hospital infections in the Obstetrics and Gynecology specialty worldwide and its comparison with Cuba.

**Materials and methods:** a review of published articles was carried out that included a total of 15 bibliographies consulted.

**Development:** in-hospital infections in obstetrics-gynecology services represent a serious problem, both for patients and for the institutions that care for them. In the case of the former, morbidity and mortality increase, hospital stay is prolonged and they are subjected to procedures that definitely increase their suffering. As for the institutions, they mean a considerable increase in costs and, on the other hand, they are indicators of the quality of the care provided.

**Conclusions:** in-hospital infections in obstetrics and gynecology services have been a challenge for health institutions worldwide, despite the efforts that these institutions make every day to prevent them, their prevalence continues to have figures that deserve attention and strategies to continue improving. Cuba is no exception in this problem, and adding to the economic situation of the country, which leads to the lack of assurance of resources necessary for the total control of this public health problem.

**RESUMEN**

**Introducción:** las infecciones intrahospitalarias en la especialidad de ginecología y obstetricia representan una amenaza grave para las pacientes. Las infecciones, las hemorragias y los trastornos hipertensivos, son las tres causas más frecuentes de muerte materna.

**Objetivo:** describir el comportamiento de las infecciones intrahospitalarias en las

especialidades de Ginecología y Obstetricia a nivel mundial y su comparación con Cuba.

**Materiales y métodos:** se realizó una revisión de artículos publicados que contó con un total de 15 bibliografías consultadas.

**Desarrollo:** las infecciones intrahospitalarias en los servicios de ginecología y obstetricia representan un grave problema, tanto para las pacientes como para las instituciones que las atienden. En el caso de las primeras, aumentan la morbilidad y la mortalidad, se prolonga la estancia hospitalaria y están sometidas a procedimientos que definitivamente incrementan su sufrimiento. En cuanto a las instituciones, significan un incremento considerable de los costos y, por otra parte, son indicadores de la calidad de la atención que se brinda.

**Conclusiones:** las infecciones intrahospitalarias en los servicios de ginecología y obstetricia han sido un desafío para las instituciones sanitarias a nivel mundial, a pesar de los esfuerzos que estas instituciones hacen cada día para prevenirlas, su prevalencia sigue teniendo cifras que merecen atención y estrategias para seguir mejorando. Cuba no es excepción en esta problemática, y sumándose la situación económica del país, lo que conlleva a la falta de aseguramiento de recursos necesarios para el control total de este problema de salud pública.

## INTRODUCTION

Nosocomial comes from the Greek nosokomein, meaning hospital, or hospital, which in turn comes from the Greek words nosos, illness, and komein, to care for, meaning where the sick are cared for. Therefore, nosocomial infection is an infection associated with a hospital or a health institution. The origin of nosocomial or hospital infections, or more precisely intrahospital infections (IIH), dates back to the very beginning of hospitals in the year 325 AD, when they were created as an expression of Christian charity for the sick; therefore, it is not a new phenomenon, but rather one that has changed its face.<sup>1</sup>

From 1988, the INPer established collaboration between the Preventive Medicine and Infectology departments for the detection and control of NI. This study presents a preliminary report on this system, corresponding to the year 1989, which describes the frequency and type of NI in the gynecological-obstetrical area of the National Institute of Perinatology (INPer).<sup>2</sup>

Healthcare-Associated Infections (HAIs), formerly known as Nosocomial Infections, are defined by the WHO as: "Infections contracted by a patient during his or her treatment in a hospital or other health

center and that said patient did not have or was not incubating at the time of admission to any type of environment in which he or she receives health care."<sup>3</sup>

The surveillance and detection of nosocomial infections (NIs) in gynecological-obstetrical hospitals do not escape the problems and deficiencies that exist in other types of hospitals.<sup>4</sup> They occur in both developed and developing countries; where approximately 1.4 million patients acquire such an infection every day, and the overall incidence figures range from 4 to 9 cases per 100 hospital admissions. In Europe, the Eastern Mediterranean, South-East Asia and the Western Pacific, according to WHO, 8.7% of hospitalized patients have HAIs. The highest frequency of HAIs was reported by hospitals in the Eastern Mediterranean and South-East Asia Regions (11.8% and 10.0%, respectively), with a prevalence of 7.7% and 9.0%, respectively, in the European and Western Pacific Regions.<sup>5</sup>

In Cuba, epidemiological surveillance of healthcare-associated infections over the past 10 years has shown an overall rate of between 2.6 and 3.4 per 100 graduates, with an annual average of 25,000 infected. These diseases cost the country more than 3,000,000 pesos annually and their mortality represents between 1 and 3% of hospitalized patients. Among the services identified as most at risk are surgery, medicine, and intensive and intermediate care.<sup>6</sup>

IACS represent an indicator of the quality of medical care and cause 60% of the reported adverse events, increase morbidity and mortality,<sup>7</sup> therefore a deeper vision of the behavior of nosocomial infections in the area of gynecology and obstetrics is needed worldwide and especially in Cuba, which will be of great significance for all medical personnel when facing and adopting appropriate health behaviors in order to improve this problem. Hence, the objective of this research is to describe the behavior of nosocomial infections in the specialty of gynecology and obstetrics worldwide and its comparison with Cuba.

## **METHOD**

To achieve the main objective of this study, a bibliographic review of the contents related to the proposed topic was carried out. Google Scholar was the browser used to search for information with Infomed, Scielo and others as the consulted databases, where 15 bibliographic references were selected for the study taking into account the objective of the topic and their quality. All the

references used were cited during the work, thus respecting these used databases. For the introduction and development, the deduction-induction method was used, while for the conclusions, the deductive-inductive method was used.

## DEVELOPMENT

Healthcare-associated infections are those that appear during the patient's hospitalization. They may be present or absent in the incubation period at the time of admission, regardless of whether or not they manifest during the patient's stay in the hospital.<sup>8</sup>

Healthcare-Associated Infections (HAIs), formerly known as Nosocomial Infections, are defined by the WHO as: "Infections contracted by a patient during their treatment in a hospital or other health care facility and which the patient did not have or was not incubating at the time of admission to any type of environment in which they receive health care."<sup>1,3</sup> The concept has changed as their study has been deepened. In 1994, the Center for Disease Control (CDC) in Atlanta redefined the concept of HAIs, defining them as: "Any infection that is not present or incubating at the time of admission to the hospital, that is clinically manifested, or is discovered by direct observation during surgery, endoscopy and other procedures or diagnostic tests, or that is based on clinical criteria. Included are those that, due to their incubation period, manifest after the patient's discharge and are related to hospital procedures or activities, and those related to outpatient services."<sup>9</sup>

HAIs are a relevant public health problem of great economic and social significance, in addition to constituting a challenge for health institutions and the medical personnel responsible for their care in the units where they occur. They are of clinical and epidemiological importance because they cause high morbidity and mortality rates and impact the years of life potentially lost in the population they affect, in addition to the increase in hospitalization days and care costs, HAIs constitute a problem for health institutions around the world.<sup>4,10</sup>

HAIs occur in both developed and developing countries. In the United States, it is estimated that around 2 million patients acquire HAIs annually; in addition to causing or contributing to the death of around 88,000 people, they generate additional costs of 5 billion dollars, used primarily in hotels, human health resources, use of antimicrobials, and other direct and indirect costs.<sup>8</sup> In Latin America, although the burden of HAIs is unknown, some countries have made progress in characterizing this

problem and generating actions for its containment. In the Prevalence Study of adverse events in hospitals in Latin America -IBEAS - "Nosocomial infection" was the most frequent event with 37.14%. In accordance, the result for Colombia placed infection in first place, followed by events related to procedures and care.<sup>5,12</sup>

#### THE BEHAVIOR OF NOSOCOMIAL INFECTIONS IN THE WORLD

The distinctive characteristic of these nosocomial infections lies in their capacity to generate highly relevant complications in the health care system. More than 1.4 million patients who are admitted for hospitalization acquire a disease related to hospital care, which means that between 5% and 10% of deaths are directly linked to medical care. For this reason, it is vitally important that all health institutions have highly effective programs regarding epidemiological surveillance, which have the purpose of intervening in a timely manner and thus reduce these cases, not only in the incidence of these infections, but also their high rates in correspondence with morbidity and mortality, in addition to reducing the economic cost involved in their treatment, directly affecting the quality of service provision.<sup>7,15</sup>

Currently, nosocomial infections (NI) are considered one of the best indicators of hospital care quality, as well as the efficiency of a hospital, which is not only measured by mortality rates and bed resource utilization, but also by the rate of hospital infections.

According to WHO statistics, it is stated that: in fourteen countries there is an average of 8.7% of nosocomial infections, the world rate in the Eastern region is 11.8% and in Southeast Asia 10%, while in Europe they reach 7.7% and in the Pacific 9%.

In the United States, a study carried out by researchers evaluated a prevalence of 3.5 and 12% considering a number of 12 million nosocomial infections annually.<sup>3,7</sup>

Statistically, the rate of nosocomial infections tends to vary in different countries, but is more frequent in developing countries in the third world. It is estimated that in Europe the rate of nosocomial infection is 5%, in Peru it can be between 3.7 and 7.5%, depending on the medical institution being evaluated. It is also important to note that the rates of this type of infection are more prevalent in areas such as intensive care (ICU) and neonatal care.<sup>14</sup>

Risk factors refer to the relationship between the agent causing the infection, its form of transmission

and the person who carries it. Once the infection has been contracted, the time needed for recovery depends on the characteristics of the individual, such as their gender, age and nutritional status, as well as the contagiousness of the causal agent. Predetermining factors include the invasive nature of surgical procedures, the use of immunosuppressants or the mechanisms used in hospital areas.

#### HOSPITAL INFECTIONS IN OBSTETRIC AND GYNECOLOGY SERVICES IN CUBA

In Cuba, since the 1970s, the first research and control activities of hospital infections began. In 1973, Ministerial Resolution No. 51 defined the functions of the committee for the prevention and control of NI in hospital units. Later in 1983, these activities, due to their importance in the Health System, were integrated into the IIH National Prevention and Control Program.<sup>10</sup>

In the largest study that has been carried out in the country on this subject, it was determined that the incidence rate of IAAS was 1.3 per 100 discharged patients. When this same rate was evaluated in relation to the type of service, it was found that the gynecological-obstetric care units presented 8.2 IAAS per 100 discharges. More than double what the pediatric and adult intensive care units had, with 3.5 and 3.7 per 100 discharges, respectively, and 6.3 times more than the general rate.<sup>6</sup>

For the authors, the discussion of reducing the risk of IAAS to acceptable levels, in this type of units the hygiene measures must be impeccable. Otherwise, the results at the hospital level can be catastrophic, worsening not only the situation for patients but also the quality of services provided in hospitals.

#### CUBA'S ECONOMIC SITUATION AND ITS IMPACT ON THE SECURITY OF HOSPITAL RESOURCES

An important element when dealing with HAIs is the one related to "the problems with the security of resources." Even though proper hand washing continues to be the cornerstone of prevention and control of HAIs, it cannot be assumed that this measure alone will solve all the problems. Many supplies are needed to prevent HAIs, some of which are very expensive. For example, a box of surgical gloves, with 70 units, costs 73.23 euros and health regulations require that they be thrown away after each use.<sup>6,13</sup>

On the other hand, excellent medical care, which is what all human beings deserve, especially children, requires having different types of hospital disinfectants for different types of patients, surfaces and equipment. Five liters of high-level disinfectants for instruments cost 98.01 euros. This

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is probably not enough for even a week of work in a small provincial hospital.<sup>13</sup>

The authors of this work believe that Cuba is not in a financial position to provide all the resources necessary to prevent HAIs. Even though neonatal care is one of the most protected areas, if the lack of resources is added to unjustifiable violations of hygiene standards, it is relatively easy for disasters such as those in Gynecology and Obstetrics to occur in a group of patients as vulnerable as newborns, with low weight and premature birth, who are vulnerable groups for this problem.

Newborns have an immature defense system. They lack immunological memory; That is, their defense system is not capable of recognizing and attacking germs as an adult would, because they have not yet been exposed to them. The only antibodies a newborn has are those administered by the mother through breastfeeding. That is why it is imperative to take extreme care in neonatal units, because the risk of infection and death in this type of patient is the highest; this is shown by the data.

#### PREMIUM NON NOCERE

The first principle of medical ethics is primum non nocere: “first do no harm.” If a newborn is infected as a result of poor handling or a hospital outbreak, they are being harmed. Of course, it does not occur to me that anyone would want these unfortunate deaths to happen, on the contrary. Nor has it been reported that in this case there was negligence on the part of those involved, which would have criminal consequences.

On the other hand, HAIs are not only an important cause of hospital mortality throughout the world, but an inevitable phenomenon that derives from institutionalized medical care. Eliminating them is impossible even in high-income countries with all the necessary resources at their disposal.<sup>14</sup>

#### CONCLUSIONS

The most important risk factors for the acquisition of IAA in the study refer to procedures that occur during hospitalization. Intra-hospital infections continue to be a public health problem worldwide, including Cuba, despite the fact that there are currently surveillance and control systems for this problem. Efforts to counteract this indicator, which is also a quality indicator for health institutions, are still insufficient.

#### DECLARATION OF CONFLICT OF INTEREST

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The authors declare that there are no conflicts of interest.

#### **DECLARATION OF FINANCING**

The authors declare that there are no sources of funding.

#### **DECLARATION OF AUTHORSHIP**

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