

# The Factors Influencing Nosocomial Infections Related to the Respect of the Precautions of Safety and the El Idrissi Hospital of Kenitra-Morocco

Chaib Yassine<sup>1,\*</sup>, Elanssari Anas<sup>1</sup>, Aouane Mahjoub<sup>1</sup>, Hamama Samir<sup>2</sup>, Aujar Nabila<sup>2</sup>, Marieme Nehiri<sup>1</sup>, Chakhtoura Khalid<sup>1</sup>, Abdelkader Chibani<sup>1</sup>, Abdelmajid Soulaymani<sup>1</sup>

<sup>1</sup>Department of Biology, Faculty of Science, University Ibn Tofail, Kenitra, Morocco

<sup>2</sup>Nosocomial Infection Control Committee, Hospital Elidrissi, Kenitra, Morocco

## Email address

yassine.ch01@gmail.com (C. Yassine), anaselanssari@gmail.com (E. Anas), aouane\_mahjoub@yahoo.fr (A. Mahjoub), shamama15@hotmail.com (H. Samir), attarassi@hotmail.com (A. Nabila), mariemenehiri@yahoo.fr (M. Nehiri), chakhtourakhalid@gmail.com (C. Khalid), akder.chibani@gmail.com (A. Chibani), asoulaymani@yahoo.fr (A. Soulaymani)

\*Corresponding author

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## Abstract

The present work has not failed to highlight a set of factors influencing the disrespect of safety precautions of care and best hospital hygiene practices in the caregivers at the EL Idrissi Hospital of Kenitra, namely: a) personal factors, b) organizational factors and c) institutional factors. according to a sample of 165 participants. The main results showed an ignorance of the complete definition of the Nosocomial infections: 6% of participants to the survey declared that Nosocomial infections is an infection contracted on the hospital during the 12h after hospitalization, 43% the 24h after hospitalization, 49% after 48h, while only 2% asserted that it's contracted after 48h and it can last up to a year in case of a prosthesis or implant. 70% of the surveyed expressed their knowledge of the gravity of the transmission by hand, 55% consider that the application of aseptic measures alone is not sufficient to remedy the Nosocomial infections problem, 74% of caregivers mentioned that they ensure a good evacuation of hospital waste, 60% of the staff oversee the food presented to the hospitalized, 68% of the surveyed control the family visits to the hospitalized. This survey also showed that 65% of caregivers have received training on Nosocomial infections prevention. In line with this, 58% of personnel take part of learning activities intended for support agents and nursing students. As for architecture, 66% of participants claimed their dissatisfaction, 48% raised their unawareness of specific procedures for Nosocomial infections reporting and suffering patients caring. However, 80% of the surveyed chose for a research on the Nosocomial infections at their services, while 86% are in favor of a regulation regarding the Nosocomial infections. The nosocomial infection can affect the patient but also the personnel. Respecting the measures and precautions of care safety and the enforcement of hygiene best practices makes a difference in preventing infections risks and in improving the care quality and the medical service within a health establishment

## Keywords

Nosocomial Infections, Hospital Hygiene, Prevention, Care Quality and Safety

## 1. Introduction

Nosocomial infections are a global issue, causing enormous material and human damages, and whose overall

impact reaches significant numbers in health care and the fight against infectious diseases, not to mention their contribution in the increase of morbidity and mortality rates even in developed countries.

Despite technological advances and developments in the

health and hospital care sector, the risk of infection from hospitalization turns out to be inevitable for some patients, particularly those suffering from an impaired immunity, or undergo one or more invasive procedures, especially since health establishments are overcrowded places that increases the transmission and the spread of NI. Thus, the application of strict hygiene rules and necessary precautions in the fight against NI are the solution to ensure the patients safety and secure an acceptable level of care quality.

In France for instance, NI prevalence survey, conducted in 2006 at the national level involving 2337 health establishments and a population of 358353 patients, showed an overall rate of 4.97% [1].

In Morocco, the results of a national prevalence survey conducted in 1994 on an expanded sample of 24 hospitals revealed a prevalence of 5% in provincial hospitals, 10% in regional hospitals and 11% in national hospital structures [2].

Therefore, awareness of the importance and seriousness of the NI is capital in the policy of fight against the nosocomial infection. In this context, the application of the rules of best practices in hospital hygiene and the adoption of precautions able to sensitizing the caregivers in a health establishment will help improving the personnel practices, and contribute to the prevention of health risks and reduction of practices that do not comply with the recommendation and the standards of use in this sector.

Quality of care and hospital hygiene is complementary. These are the same procedures that converge to both overall quality of hospital practices and patients safety. This is how hospital hygiene holds the necessary tools of quality. Among these tools, we can name the surveillance of nosocomial infections, which constitutes the hospital epidemiology that deals with basic notions of microbiology enabling the definition and the comprehension of nosocomial infections. It forms a knowledge base essential to the implementation of the hygiene measures to be applied in the different care units and of the prevention of nosocomial infections in the hospital [3].

In Morocco, despite the creation of the CCNI (committee for the control of nosocomial infections) within the health establishments (ministerial circular N°54/2008), the creation of a HOT and the designation of a hygiene correspondent, or a referent, at the care units level, the dissemination of information in the case of an NI remains marked by a heterogeneity in the declarations, lack of legislations compelling the declaration and the reporting of NI [4].

Findings from the El Idrissi Hospital in Kenitra showed that prevention against NI remains unknown and difficult to operationalize. Furthermore, it was found, throughout different care units registries and dashboard, the absence of indicators related to NI, and the majority of the care units staff did not report the NI.

With this aim in mind, and following the important role of infectious risk prevention in improving the care quality and in strengthening the patients safety, it would be interesting to examine the factors related to the hospital hygiene best practices and to the prevention of NI at the RHC (Regional Hospital Center) of Kenitra.

## 2. Methodology

The purpose of the current study is to explore and describe hospital hygiene factors and the nosocomial infections preventives measures taken by the nursing staff in the care units of El Idrissi Hospital in Kenitra.

### 2.1. Study Environment

This research was conducted at the El Idrissi Hospital, which is a regional hospital, established as a state service and managed autonomously (S.S.M.A) since 1994. It has a regional vocation and serves the population of the region Gharb Chrada Beni Hsen estimated to 1.901.301 habitants. Established in the city of Kenitra, 'chef-lieu of the region', on an area of 6.5 hectares of which 1.5 hectares built with a vertical structure of pavilion. It opened in 1933, renovated in 1980, and expanded in 1998. Its litter capacity is 416 beds, allocated in 25 services including 12 medical specialties, 11 surgical specialties and 04 medical and technical specialties [5].

The place of the current study is composed by all the care units providing accommodation for hospitalized patients, in total 10 units (cardiology, medicine, pneumo-ptisiology, pediatrics/prematurity, surgical, Ent/ophthalmology, resuscitation, traumatology, maternity and pediatric surgery) and whose Nis reporting is ensured by the staff.

The total staff of the El Idrissi Hospital is 488, of which 274 are nurses, 122 physicians (87 specialists) and 92 administrative and support staff [6].

This structure choice is justified by: a) its regional vocation, b) the large number of its staff, c) the presence of an operational CCNI. Furthermore, the feasibility of the study and the under-developed research culture in this hospital also justify the choice of this establishment..

### 2.2. Target Population

The target population of this study is the total number of personnel involved in the nosocomial infections prevention process at the El Idrissi Hospital in Kenitra.

Hence and in order to identify the factors related to the nosocomial infections prevention, all professional categories of caregivers were included in this study, with the exception of the administrative body and the support staff, since they are not implicated in the process. Thus, the target population will consist of hygiene referents who are a part of the nursing staff, and the medical staff of the care units providing the hospitalizations; head nurses of care units, and head physicians.

The implementation of our study cannot cover the entire target population which represents 285 members of the El Idrissi Hospital personnel. That's why the study is based on a well-defined and representative sample of this population by the sampling method set at n=165.

#### 2.2.1. Inclusion Criteria

The entire nursing staff of the inpatient care units is included as well as the head nurse and the head physician of the care units

### 2.2.2. Exclusion Criteria

The nursing staff of the care units that do not offer accommodation for inpatients; the personnel of the following units: pharmacy, sterilization, occupational medicine, reeducation service, imaging services, medical analysis laboratory and emergency service.

### 2.2.3. Data Gathering Method

With the aim to collect the necessary data from the sampled population, the authors recommend to use a questionnaire submitted to the nursing staff in order to collect the necessary information to produce a synthesis meeting the objectives previously determined.

The questionnaire survey is an observation tool that quantifies and compares information. This information is collected from a representative sample of the target population.

Our questionnaire consists of a set of questions, constructed to obtain information corresponding to the question of evaluation, defining the basic problematic on elementary questions to which the respondent will be able to answer perfectly.

It combines two types of questions: closed-ended questions, used to obtain factual information, judging whether or not an argument is reached, knowing the respondent's position on a range of judgments, and open questions, for the improvement of the existing, leaving the surveyed answer free in its form and length.

### 2.2.4. Ethical Considerations

To ensure the success of our study, a set of ethical considerations were met, namely:

- a. Obtaining prior authorization from the establishment direction
- b. Build trust with the participants of the study with regard to the confidentiality and the anonymity of the questionnaire and the self-determination interest.

In this context, respect to self-determination is achieved through the free and informed consent of all participants, and this, after explaining a) the content and the purpose of the study, b) its advantages, c) the possibility of withdrawing from the study at any time

## 3. Presentation and Discussion of Study Results

The discussion of the results is based on the confrontation with some writings that have addressed the NI prevention and the hospital hygiene. For this purpose, it should be recalled that, in the descriptive of factors favoring the NIs, the present study targeted 165 caregivers belonging to different care units in the El Idrissi Hospital in Kenitra.

### 3.1. Participants Characteristics

The study targeted a sample of 165 nurses and physicians, with a 75% participation rate that remains acceptable

comparing to the nature of the sampling recommended. In addition, the surveyed characteristics are as follow: a) the age group in over 40 years represents 50% of the participants, b) the majority of the participants to the study are female, c) more than half have more than ten years seniority in the public service, d) in terms of seniority in the job, 56% of the participants to the study have a seniority exceeding 10 years, a seniority expressing a wealth of experience.

As previously stated, the survey was carried out in a random way in order to offer the same chance of participation to the whole mother population, we can deduce by a quick reading of the participants different characteristics; they are over 40 years of age, wisdom and experience that can reassure us of the reliability of the gathered data, the female participation rate is 62%, which is probably due the emotional effect because of their positive attitude towards their environment, since they tend to provide help and support for all those in need (patients), and also for the positive attitude they manifest for social and voluntary work. 56% of the participants have a seniority exceeding 10 years, such quality is marked by double faces; one dark and the other one bright; the first one presents the retro negative effect on the individual's skills, while the second represents the experience that fully participate in the refinement of the individual, to clarify this position, it has been essential to reconsider its situation in the organism (motivation) in an effort to make the negligent committed and to stem the demotivation of the stakeholders.

### 3.2. State of Knowledge

Any infection contracted in the hospital during a hospital stay and which was not the cause of the hospitalization is considered as a nosocomial infection, provided that the deadlines are met in order to place the NI according to the hospitalization. As a result, 6% of the surveyed declared that the nosocomial infection is an infection contracted in the hospital within the 12h after the hospitalization, 43% asserted that it's within the 24h after the hospitalization, 49% reported that it's within 48h, when only 2% said that it was after 48h and up to a year in case of prosthesis or implants, however none of the surveyed mentioned that it's after 30 days for the surgical intervention.

The nosocomial infection is the infection that is not present either in incubation period when entering the hospital, either in the 48 hours succeeding the admission.

In case of an operative wound (even punctum after puncture), an infection will be recognized as nosocomial if it occurs within the 30 days succeeding the intervention. This period can be extended up to a year if a prosthesis or implant is inserted.

An infection detected at the admission to a hospital, and which can even be the reason of the hospitalization is not nosocomial by this establishment. But this does not exclude that it is for the care center where the patient comes from [7].

Mastering the NI begins first and foremost by mastering and controlling the spread of the micro-organisms and germs responsible for infection from one patient to another or from

the caregiver to the patient. This spread occurs mainly by the hands that are supposed to bring comfort to a patient in a vulnerable state. This is why hands hygiene is an important means of limiting the spread of the infection in the hospital environment.

For the same purpose, 70% of the surveyed expressed their awareness of the seriousness of the hand-held transmission, when only 30% do not know anything about the seriousness of this means of spread of the infection in the hospital environment. For the NI rate resulting of hand-held transmission, 23% of the nursing staff reported that this mode of transmission is responsible for 30% of NI, 39% considers that it's responsible for 50%, while 35% raise the rate to 70%, and finally, 3% asserted it was responsible for 80% of NI.

The hands directly transmit the micro-organisms from one patient to another. This is known as direct transmission. The hand-held contamination represents 70% of the nosocomial infections [8].

The hospital stay, serious illnesses, immunodeficiency, and above all antibiotics alter this balance completely; they change the types of bacteria carried out by the patient and increase the risk of nosocomial infection. All these bacteria, communal or hospitable, can be transmitted from one patient to another (sometimes via the environment), mostly by hands. We often hear that nosocomial infection (some even add 70% of them!) is "hand-held". It's the micro-organism transmission that is hand-held, eventually leading to colonization (if the host welcomes this newcomer) [9].

### 3.3. Factors

#### 3.3.1. Factors Related to the Nursing Staff

Health professionals consider that the correct application of aseptic measures is an important means to reducing the infection risk, according to 45% of participants, it's the only way to face the NI, and 55% see that the application of aseptic measures is not sufficient to remedy this problem. 29% asserted that there is a problem other than aseptic, the one related to the availability of necessary material in the hospital, 28% pointed that there is a problem in the air treatment, while 43% claimed that the lack of staff and overload work are the real issue.

Technical gestures represent the situations particularly at risk of contamination or even infection, because they are realized on potential entry doors: urinary, vascular, dermal, mucous, and bronchopulmonary. Injections, urinary catheterization, venous catheter (central or peripheral), perfusions, aspiration of intubated patients, pre-surgical preparation, etc. Those techniques requires rigorous hygiene rules among others hand washing. The prevention of infections related to these gestures requires on one hand, compliance with aseptic rules, and on the other hand, for some of them, setting more specific measures [3].

While performing technical gestures demanding a high level of aseptic (e.g. bandage of implantable venous access, interventional radiology, endoscopy ...) a medical or surgical mask will be worn by the caregiver. A caregiver with a

respiratory infection should abstain from any form of care to an immunodeficient patient, failing to do so; he must perform these cares wearing a surgical mask [10].

The main goal of complying with aseptic the rules is to guarantee avoiding the penetration of germs and micro-organisms into the body, while using measures able to ensure the reliability of gestures and performances of the nursing staff within the host establishment. The best practices of daily hygiene in the care units may ensure an acceptable level of asepsis but are not the only way to eliminate the risk of infection. In fact, material treatment, the level of asepsis of the environment, sterilization processes, the involvement of the CCNI (who establish a regular collaboration with all the services in the establishment) and of the EOH, the inspection of the state of food, the inspection of family visits and a good evacuation of hospital waste are essential elements in the fight against the risk of infection during a hospital stay.

The results of the current study confirm that 74% of caregivers pointed that they ensure a good evacuation of hospital waste while 26% do not.

The large amount of health care waste from medical and medico-technical services (nuclear medicine, radiotherapy, etc.) and its direct relation to nosocomial infections make of the good elimination of hospital waste during all the stages since the waste was produces to its final treatment (sorting, packaging, collection, storage, transport, treatment, etc.) under conditions respectful of health and environment, a cornerstone in preventing NI. Good management of hospital waste involves several stages (sorting, packaging, collection, storage, transport, treatment), including sorting at the source which is a crucial step in a successful waste management approach; it consists of putting back each disposed product in its proper container to ensure identification according to the waste's type.

Treatment of hospital waste is first and foremost a management issue – more than a technical issue- which depends on the total commitment of the entire staff of health establishments. To aspire to an efficient waste management, forming a multidisciplinary team may prove to be an important tool. The members of this team must come from the following sectors of the hospital: occupational health and safety, environment, hygiene and sanitation, waste generating services, as well as infections prevention. This team should make it possible to be aware of the establishment situation in terms of waste production and preferred practices for their management.

Functional units staff is generally the first to handle the hospital waste; they play a major role in their management. The units staff is in fact responsible for the most important step: sorting at the source. Proper sorting contributes significantly in reducing the costs of waste treatments and the risk of infection of workers handling them. Furthermore, the units staff is also often responsible for the management of pharmaceutical and/or chemical waste. The personnel must also any hazardous situation related to waste management, as well as symptoms or infection that may be associated to the handling of the waste or exposure to it [11].

Certainly the improvement of hygiene preventive measures must be a major preoccupation of the health establishment in order to guarantee a better convalescence to hospitalized patients while avoiding the consequences often caused by the lack of inspection of transmission routes, personnel hygiene, material hygiene, environment, and hotel hygiene (food, linen, visits control). Likewise, the survey showed that 60% of the personnel oversee the food for inpatients while 40% do not, 68% of the surveyed monitored the family visits to inpatients when 32% did not.

Good nutrition is one of the most important performances of health care; the quality and quantity are decisive factors for the patient's convalescence. Additional infectious risks may be encountered by the patient by consuming meals cooked outside of the establishment. This practice may be authorized under strict conditions and defined according to each situation. It's essential to request information from the nursing staff [12].

Visitors are required to follow instructions for the proper care. Relatives are always associated with the care processes more or less closely according to the pathology (patient's age, state of dependence, heavy or complex pathologies). Visiting hours are defined in some care services to facilitate the care schedule. It's recommended not to visit a patient when carrying an illness that can be contagious [12].

Micro-organisms and bacteria are transmitted from one person to another through different means (direct contact, air, environment, food and material). Committing to hygiene best practices help reduce the risk of transmission of infections in the care environment. To do so, strict measures must be applied to avoid any risk to the patient. Hence the control of family visits and the overseeing of the meals and the food served to inpatients, which are one means among others to help prevent the infectious risk during a hospitalization.

### 3.3.2. Organizational Factors

Infections transmission in the hospital environment remains a concern for health care providers, because it calls into question the quality of the care provided by the establishment, and presents a risk that can endanger the vital prognosis of vulnerable patients. To deal with this situation, information and health professionals training on hygiene best practices and the severity and extent of the nosocomial infection, are more than needed.

For this purpose, the survey showed that 65% of the nursing staff benefited from a training on the NI prevention, 45% received it on their basic training, 25% from continuous training and 30% in vocational training and practice within services and care units. Similarly, 58% of staff participated in the learning activities of support staff and nursing students.

An initial training in hospital hygiene is a prerequisite for all health personnel working in a hospital. As required by the national program for the control of nosocomial infection, medical and paramedical hospital staff must benefit from training in the prevention of infection risks and in compliance of the best practices in hygiene. This theoretical

and practical training takes into account for each category of personnel, the risks encountered in their function and professional practices.

An in-service training plan, in hospital hygiene, is drawn up each year for the entire staff (medical, paramedical, medical-technical, etc.) by the service responsible for the continuous training by agreement with the different partners involved, particularly the CCNI, the CME, the nursing service, occupational medicine and the service or operational team of hospital hygiene. This plan takes under consideration the priorities defined by the CLIN in order to reinforce the coherence between the training and the actions carried out in the establishment. The suggested training levels take into account of the specificity of the tasks of the various occupational categories, their responsibilities of managing or coordinating medical activities [13].

Preventing infectious risks for users and caregivers is everyone's business, so it's important to ensure a proper training for the staff on infection control and care safety, as well as a permanent training of health agents on hygiene best practices and the adequate use of instruments and material, including the sharp and cutting ones. The objective of this training is to improve the theoretical and practical knowledge in terms of hospital hygiene as well as management and surveillance of infectious risks, which is an essential element of the prevention and fight against the NI policy.

For the architecture of the services and care units, 66% of the participants expressed dissatisfaction, against only 34% who thinks that their services architecture is good.

The architecture of the services must be adapted to welcome, especially the children one, in neonatology, oncology, hematology, resuscitation, allowing isolation to avoid the transmission of micro-organisms, with an informative table of hygiene measures [7].

The architecture and coating must favor the maintenance of the surfaces; furniture and fittings must be kept to a minimum, ergonomic and easy to maintain. The premises must be uncrowded and kept in order to facilitate maintenance [14].

### 3.3.3. Institutional Factors

The quality approach adopted by the healthcare establishments is based primarily on hospital hygiene which is an essential component of any attempt to reduce the NI and the care safety. For this purpose, the procedures for reporting the NI must be in the priorities of every health system, to improve the quality of the and reinforce the care safety, health institutions must move towards a clear policy in hospital hygiene and prevention and fight against undesirable events, in order to establish a risk management action plan and specific procedures for the NI reporting, and the proper care of affected patients by involving all relevant stakeholders.

The results of the current study showed that 52% of the participants confirmed the existence of specific procedures for NI reporting and proper care of affected patients, while 48% claimed they were unaware such procedures existed.

Reporting nosocomial infections must enable, in the national level, knowing the frequency of some nosocomial infections: the most serious of consequences for patients, and the nosocomial infections, considered to be preventable, for which the government already published recommendations.

Define the reporting procedure: The person responsible for the initial report can be any caregiver regardless of his profession or function. At the establishment, it is "the hospital hygienist practitioner (HHP)" who is responsible for the investigation of each case and for the reports of validated cases at the CCNI and the supervision. The establishment management must be kept informed of the alerts. The patient must be informed of the report and a duplicate of the report must be included in his file. A standard document was suggested for this reporting [15].

In the same spirit, many authors point to the lack of protection of the reporter in its legal aspect because health professionals seek above all to guard against legal proceedings that may be triggered by the victim's complaints (patients) but also against possible sanctions inflicted by their own hierarchy [16].

Regarding patient's information on the occurrence of NI, almost all participants in the study asserted its obligation. These results are consistent with the writings retained by this study, specifically the survey conducted by the south-west CCNI (2006) on the perception of the NI reporting, as well as the 2008 on evaluation of the mechanism and the perception of the NI reporting in the inter-region west health facilities that states that the reasons for the non-reporting are more related to the reluctance to inform the patient. This last curb, is more obvious in the French context result of a law that obliges professionals to inform the patient about frequent and serious risks, normally foreseeable and, about their declaration and the compliance with the deontology code [17].

In this regard, 80% of the participants chose a research on the NI in their services and 86% are in favor of a regulation regarding the NI.

At the national level, within sight to operationalize the prevention and the fight against the NI, and despite the creation of the CCNI within hospital establishments according to the ministerial circular N°54/2008, related to the constitution of a hygiene operational team and the designation of a hygiene referent at care units, the dissemination of information and the reporting in case of NI remains marked by a heterogeneity and vagueness in the declaration, lack of regulations that oblige the declaration and the reporting of undesirable events associated with care.

But if the fight against these infections is organized in developed countries, it is much less organized in countries with low socio-economic level, most of which suffer from a lack of regulation and representative surveillance data [18].

### **3.3.4. Description of the Strength and Limits of the Study**

#### **(i). The Strength of the Study**

The notable strengths of this study lie among others in: a)

the exclusivity in the subject matter, in this case the NI aspects, b) the diversification of profiles of the persons concerned by this survey, c) the capacity to bring together several NI stakeholders.

#### **(ii). The Limits of the Study**

Obviously, the reported conclusions must be qualified, because the analysis of the NI situation by the professionals has been confronted with some limits, a) limit of the instrument: despite the efforts to compensate its shortcomings through confrontation and discussion with the concerned ones, it remains nevertheless a potential bias, because in addition to its subjective nature which makes possible the intrusion of bias interpretation, a questionnaire cannot identify accurately frankly and in great details the causes of the differences and similarities between the factors affecting hygiene and NI best practices, b) the study does not reflect the extent of the hygiene best practices and does not allow a thorough investigation of the interactions of the factors influencing the NI, finally c) the non-implication of ministerial structures that lay down the guidelines of the infectious risk managements policies.

### **3.3.5. Suggestion of the Participants in the Questionnaire**

The participants put forward a number of suggestions to improve the hygiene best practices and the NI prevention, namely:

- a. Sensitize professionals and the hygiene correspondents on their responsibility in the fight against infectious risks, and in the application of hygiene best practices.
- b. Providing continuous training according to the needs, profiles, services and care units.
- c. Display procedures and protocols of hygiene best practices, prevention and fight against the NI in the different units.
- d. Guarantee a work environment suitable to health professionals in order to motivate them to respect procedures and protocols available to them.

## **4. Conclusion**

Nosocomial infection is considered as an indicator of the quality of care and services of the health establishments on which hospital accreditation depends. For this reason, the responsible of these establishments are obliged to adopt a preventive policy and fight against the NI. This indicator is as significant for establishment's managers and decision-makers as for users who considers it inadmissible to leave the hospital, a place of healing, with another disease, which can be sometimes more severe than the one they were hospitalized for.

In the health sector, zero risk does not exist; similarly, health professionals don't have the luxury to error that can sometimes have harmful consequences on the vital prognosis of patients. To this end, means and procedures, that can ensure the reliability and safety of the care, must be adopted

at every moment of the care offer, and every stage of the hospitalization, in addition to the application of rigorous hygiene best practices.

Our study showed the following results: 6% of the surveyed declared that the nosocomial infection is an infection contracted in the hospital within the 12h after hospitalization, 43% 24h after hospitalization, 49% 48h after hospitalization and only 2% declared that it's after 48h and it can take up to a year in case of prosthesis or implant. Moreover, 70% of the surveyed asserted that they were aware of the seriousness of the hand-held transmission, however, 55% think that the application of the asepsis measures alone are not sufficient to remedy to the NI problem. 74% of caregivers pointed that they ensure a good evacuation of hospital waste, 60% of personnel oversee the food presented to patients, 68% of the surveyed control family visits to inpatients. Further, our survey showed that 65% of the nursing staff benefited from a training on NI prevention. In the same context, 58% of the personnel participate on learning activities of support staff and nursing students. For the architecture, 66% of the participants claimed their dissatisfaction, while 48% pointed their lack of knowledge on the existence of specific procedures for NI reporting and the care of the suffering patients. Undoubtedly, 80% of the surveyed chose for a research on the NI in their services, and 86% are in favor for a NI regulation.

The prevention of infectious risks in the health establishments begins with awareness-raising among health personnel about the risk factors for NI and the seriousness of its damage on health, economy and society, as well as the implementation of a whole arsenal of means and procedures to ensure a successful fight against NI.

## References

- [1] Working group ENP. (2006). the prevalence survey of NI in France. France.
- [2] Ottmani, S., Amrani J. F., Gouaima, F., Elkhiel, F. and Echkale, A. (1994). Results of the prevalence survey of nosocomial infections at 24 hospitals. Morocco. p 9-23.
- [3] Ministry of public health; regional direction of health Bizerte; regional service of hygiene of the middle (2008). Collective work for the use of health workers and hygienists. Volume 1. Page 16-8.
- [4] Fatmi, F. Z. (2006). Organization of the fight against nosocomial infection. Case of the Ibn Sina Hospital of Rabat, research paper for graduation of second cycles of EPM. P 3-75-88.
- [5] Plan of hospital establishment (2014) of the EL Idrissi Hospital in Kenitra.
- [6] Human resources (2014) of the EL Idrissi Hospital in Kenitra.
- [7] Jean. L. (30 June 2000). Adopted report of the session of the National Council of physicians. Nosocomial infections and infections out-of-hospital care. France. P 2.
- [8] Christine. B, Elisabeth. H, Frédérique. J. (2006) Practical manual of the pediatric and neonatal childcare assistant; ensure the hospital hygiene to fight against the nosocomial infections. France. P 101.
- [9] Annie. C, Jean. C. (2002). Infection related to medical care. France. P 24.
- [10] World health organization. (2008). Practical guide 2nd edition. Nosocomial infections prevention. P 36.
- [11] Marc. B. (2011). Directory of property planning guides. Management of hospital waste. Work document. Quebec. P 8-12.
- [12] Work group of the technical committee of nosocomial infections and care related infections. Question answer for users. France. P 14.
- [13] Organization of the work of the committee for the control of nosocomial infections. 100 recommendations for surveillance and prevention of nosocomial infections. France.
- [14] Dominique. B, Pauline. S. (2011). Extracts of recommendations 2010 of the SFHH. The fight against infections associated to care. France. P 21.
- [15] CCNI South-west. (2004). Technical guide technique of hospital hygiene. Recordn 206. France. P 1-4.
- [16] Veret, C. (2005). Cindynic Project Report: Risk Management and Health Facilities. P 11-29.
- [17] Hospital Federation of France. Practical guide. Patient rights in the law of March 4 2002. P 8.
- [18] Hamid. Z. (2013). Research paper of completion of the master's degree in health administration and public health. Evaluation of the implementation of the committee of fight against nosocomial infections at the regional hospital center El Idrissi in Kenitra. P1.