

Knowledge, Attitudes and Practices of Health Providers in the Prevention of Nosocomial Infections in Health Services "Survey Conducted at the General Reference Hospital of N'djili in 2016"

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Abstract— *The aim of this study is to assess the knowledge, attitudes and practices of health care providers in the prevention of nosocomial infections in the health services of the General Reference Hospital of N'djili. It is a correlational study, connecting the variables emanating from a theory centered on preventive behaviors by taking into account a single group of 69 health professionals from the HGR/N'djili. Using the survey method, the interview technique, our field observations enabled us to observe that the average level of knowledge of respondents about nosocomial infections is 23.6% (Z= 6 .7; p=0.0001); good attitudes of respondents towards nosocomial infections is 39.6% (Z= 3.8; p= 0.0004) and finally 37.5% (Z= 4.2; p= 0.0001) only of providers surveyed practice good measures to fight against nosocomial infections at the HGR/N'djili.*

Keywords— *Attitudes, Knowledge, Nosocomial Infections, Practices, Health Providers, Prevention, Health Services.*

I. INTRODUCTION

In the hospital environment, healthy individuals rub shoulders with many patients with various pathologies: infectious or not. Everyone by moving in the premises, and by handling equipment, it causes the dispersion of germs which can be found in particular on: shoes, door handles, switches, surfaces and in the air... making the environment hospital a veritable potpourri of germs. Every year, the treatment and care of hundreds of millions of patients around the world is often complicated by hospital-acquired infections. Some patients are then in a more serious condition than they would have been in a normal situation (WHO, 2008).

These infections contracted in a hospital environment can lead to prolonged hospitalizations, long-term disabilities and even death. Health care systems bear a heavier financial burden. Infections contracted in a medical environment are among the major causes of morbidity and mortality in hospitalized patients (25%). They represent a significant burden for the patient as well as for public health (WHO 2012).

A prevalence survey carried out by the WHO (op.cit.), showed that on average, 8.7% of hospitalized patients were affected by a nosocomial infection.

The highest frequencies were reported in hospitals in the Eastern Mediterranean and Southeast Asian regions (11.8% and 10.0% respectively) and the prevalence reaching 7.7% in Europe and 9.0 % in the Eastern Pacific (Mayo-White RT et al., 1984).

In industrialized countries, the prevalence of nosocomial infections varies between 5 and 15%, while in developing countries, this rate reaches 25% (WENZEL et al., 2002).

Worldwide, this prevalence is estimated at 5% (LEVALLOIS MP, et al. 2003).

Thus in 2001, the prevalence estimated by the Committee for the fight against nosocomial infections in Paris was 6.7%. But USA, Didier. P. (2008), estimates that 10% of hospitalized patients are victims of prolonged stays and this represented 800,000 deaths with a cost ranging from 4.5 to 11 billion US dollars. While a third of nosocomial diseases would be avoidable if certain provisions were taken into consideration in most hospitals.

In African countries, the studies carried out have focused on determining prevalence and incidence rates, the germs involved, risk factors, and measures to prevent and fight against nosocomial infections.

These infections should be considered a public health problem, since several hospital studies have shown that nosocomial infection represents the third cause of maternal mortality, the second cause of early neonatal mortality and the first cause of postoperative morbidity. This situation poses real economic problems due to the increase in the duration of hospitalization and the expenses incurred by biological explorations and antibiotic treatments. The DRC is affected by this problem. these infections are due in particular to poor hygienic conditions surrounding the administration of care in hospitals According to Médard. A et al. (2013).

Nosocomial infections are difficult to avoid in the health structures of the City Province of Kinshasa where the work environment remains precarious. Improving the quality of care is a newly initiated approach to obtain the best care, because zero risk does not exist but it is necessary to guarantee that the risk is as low as possible. Preventive aspects in health structures remain an essential point to reduce the rate of morbidity and mortality due to nosocomial infections. Hence the need to know the level of knowledge of care providers, their attitudes and their practices on this preventive aspect.

The aim of this study is to assess the knowledge, attitudes and practices of health care providers in the prevention of nosocomial infections in the health services of the General Reference Hospital of N'djili.

II. MATERIAL AND METHODS

2.1 Research Quote

This study uses a correlational research design, linking the variables emanating from a theory centered on preventive behaviors by taking into account a single group of health professionals from the HGR/N'djili.

2.2 Description of the study environment

The N'djili hospital is located in the commune of N'djili, it is located on the outskirts of the city of Kinshasa, located in its eastern part, in the district of Tshangu in the Democratic Republic of Congo.

2.3 Target Population and Sample

This study took into consideration the target population: health care providers in the N'djili health zone. On this, the sampled population is made up of health providers working within the HGR/N'djili drawn from the criteria below:

- Be a healthcare provider who voluntarily agrees to participate in the study.
- Be present on the day of the survey.
- To be a health service provider in maternity, surgery, internal medicine, paediatrics, emergency and resuscitation room, operating room, HGR/N'djili laboratory.
- Be a committed healthcare provider at the HGR/N'djili.

The departments chosen in which nosocomial infections are inevitable if preventive measures are not applied, in this case, the emergency room and resuscitation, surgery, the operating room, internal medicine, laboratory, pediatrics and maternity. We surveyed a total of 69 health professionals working in different departments.

2.4 Collection Method and Technique

For this study, we used the survey method to collect the information necessary for the study from respondents. The technique that we used as a means to achieve the objective is the semi-directed interview allowing interaction with the target population. This interaction focuses on closed and/or open questions.

The instrument we used is the questionnaire designed taking into account the objectives, study variables and research questions. In addition to the making of our tool, two qualities

taken into account to consolidate it are: validity and fidelity. The validity of the tool consisted in submitting it to experienced experts in the fields of epidemiology. On the other hand, the second quality will be focused on the analysis of the judgment between the data collected during the pilot survey and those of the survey itself.

2.5 Data Analysis and Processing Plan

Once collected, the data was subject to quality control, which consisted of the verification and validation of the survey forms each day by the supervisor to avoid certain writing errors and ensure the completeness of the data. The entry was made on a computer using Excel software which then allowed us to check the consistency and possible entry errors.

The data was also transferred to SPSS 20, which served as a tool for counter-checking the analyses. The following statistical measures were used:

- frequencies to summarize categorical variables. To make it easier for us to interpret the results at this level, our acceptability criterion was set at 60% for each element of observation, elements of knowledge, attitudes and practices of health professionals in the face of nosocomial infections. The same percentage helped us to analyze and interpret the summative results in order to allow us to formulate a conclusion.
- Measures of central tendency and dispersion to summarize quantitative variables. It was essentially the mean around its standard deviation as the data was normally distributed.

The Z test of the reduced difference allowed us to compare the observed and expected percentages of knowledge, attitudes and practices of providers on nosocomial infections at the HGR N'djili. The significance level of 5% was set. ($Z=1.96$).

Here is the formula for Z of the reduced gap:

$$z_o = \frac{P_o - P_{H_o}}{\sqrt{\frac{P_{H_o} Q_{H_o}}{n}}}$$

The R software was used to compare the expected percentages with the percentages obtained from the knowledge, attitudes and practices of providers on nosocomial infections at the HGR N'djili.

2.6 Ethical Considerations

We explained to the personnel that all the information which will be provided to us will make it possible to give new orientations and to reinforce the capacities of the personnel in the knowledge, the attitude and the practice vis-a-vis the nosocomial infections in hospital environment. In addition, confidentiality and dignity were ensured and respondents had the freedom to answer or refuse to give information on any other question.

III. RESULTS

This table shows us that concerning the level of studies, 63.8% of the respondents had the level of studies A1, 11.6% were of L2, 21.7% had the level of studies A2 and 2.9% were A3. Compared to the assigned department, 36.2% were assigned to other departments, 26.1% to emergency departments, 15.9% to surgery, 11.6% to pediatrics and 10.1%

to maternity. Concerning professional experience and seniority in service 5-10 years 30.4% and 60.9% at the end of 11 years and over 69.6% and 39.1% respectively have professional experience and seniority in service.

TABLE 1. Identifier

Variables	n=(69)	%
level of studies		
Licensed	8	11.6
Graduated	44	63.8
A2 graduate	15	21.7
A3 graduate	2	2.9
Assignment Service		
Surgery	11	15.9
Pediatrics	8	11.6
Maternity	7	10.1
Emergency room and resuscitation	18	26.1
Other	25	36.2
Professional experience		
5-10 years	21	30.4
11 years and over	48	69.6
Seniority in service		
5-10 years	42	60.9
11 years and over	27	39.1
Total	69	100.0
Professional category		
Male nurse	53	76.8
Laboratory	16	23.2

TABLE 2: Knowledge of respondents about nosocomial infections

Variables	n=69	%
Knowledge of nosocomial infections		
Yes	69	100
Recognize the presence of nosocomial infections in the service		
Yes	52	75.4
No	17	24.6
Types of infections		
Tuberculosis		
Yes	12	23.1
No	40	76.9
Hepatitis		
Yes	7	13.5
No	45	86.5
HIV		
Yes	17	32.7
No	35	67.3
Staphylococci		
Yes	1	1.9
No	51	98.1
Other such as digestives etc.		
Yes	46	88.5
No	6	11.5

TABLE 3: Knowledge of respondents about means of fighting nosocomial infections

Variables	n=69	%
Means of struggle		
Yes	63	91.3
No	6	8.7
Vaccine	n=63	
Yes	4	6.3
No	59	93.7
Hygiene		
Yes	43	68.3
No	20	31.7
Asepsis		
Yes	28	44.4
No	35	55.6

This table shows that only 75.4% have already heard of nosocomial infection, including 23.1% of TBC, 13.5% of Hepatitis, 32.5% of HIV, 1.9% Staphylococci; Other 88.5%.

This table shows that for the main means of control 91.3% have knowledge including vaccination 6.3%, hygiene 68.3%, asepsis 44.4%.

TABLE 4: Knowledge of respondents about Complications of nosocomial infections

Variables	n=69	%
Complication of nosocomial infections		
Yes	50	72.5
No	19	27.5
Antibiotic resistance	n=50	
Yes	4	8.0
No	46	92.0
Dead		
Yes	18	36.0
No	32	64.0
Total	50	100.0
Extended sick stay		
Yes	13	26.0
No	37	74.0

In view of this table, 72.5% declare knowing the complications of nosocomial infections in the department, among others: resistance to antibiotics 8%, 36% death, 26% prolonged stay and at the end of 56%.

TABLE 5: Attitude of respondents to nosocomial infections

Variables	n=69	%
Unified draft policy for cleaning, collection, transportation and disposal of infectious waste		
Yes	26	37.7
No	43	62.3
Multidisciplinary team		
Yes	6	8.7
No	63	91.3
Declared nosocomial infection		
Yes	6	8.7
No	63	91.3
Patient isolation		
Yes	9	13.0
No	60	87.0
Equipment and room cleaning		
Yes	34	49.3
No	35	50.7
Disinfection of equipment and room		
Yes	21	30.4
No	48	69.6
Wearing gloves		
Yes	37	53.6
No	32	46.4
Hand washing before and after each treatment		
Yes	33	47.8
No	36	52.2

This table shows that 37.7% of respondents answered having unified a draft policy for the cleaning, collection, transport and disposal of infectious waste, 8.7% answered having a multidisciplinary infection control team nosocomial and declared nosocomial infection, 13% isolation of the patient, 49.3% said yes for cleaning equipment and rooms, 30.4% disinfection of equipment and rooms, 53.6% of respondents wear gloves before any activity and 47.8% wash their hands before and after each activity.

TABLE 6: Other attitudes of respondents on nosocomial infections

Variables	n(69)	%
Patient isolation		
Yes	15	21.7
No	54	78.3
Put all the means of hygiene		
Yes	38	55.1
No	31	44.9
Limit the risk of danger		
Yes	34	49.3
No	35	50.7
Initiate the implementation of prevention techniques		
Yes	69	100.0
Compliance with hygiene principles		
Yes	46	66.7
No	23	33.3
Disinfection of equipment and the room		
Yes	22	31.9
No	47	68.1
Hand disinfection		
Yes	33	47.8
No	36	52.2

This table shows us that 21.7% of respondents isolate the fragile patient, 55.1% use all means of hygiene to treat a patient, 49.3% limit the risk of danger, as for the initiation of the implementation of prevention techniques 100% said yes, of which 66.7% respect the principles of hygiene, 31.9% disinfect the materials and the room and finally 47.8% disinfect their hands before and after each activity.

TABLE 7a: Procedures to limit nosocomial infections (men)

Variables	n(69)	%
Hand hygiene		
Yes	29	42.0
No	40	58.0
Clothing hygiene		
Yes	20	29.0
No	49	71.0
Equipment hygiene		
Yes	44	63.8
No	25	36.2
Hygiene of premises		
Yes	37	53.6
No	32	46.4
Hygiene measures respected		
Yes	21	30.4
No	2	2.9
Not at all	18	26.1
Often	23	33.3
Every time	5	7.2

This table shows us that 42% of respondents practice hand hygiene, 29% clothing hygiene, 63.3% equipment hygiene, 53.6% practice room hygiene and 30.4% of respondents comply with hygiene measures.

TABLE 7b: Effective measures to limit nosocomial infections

Variables	n(69)	%
Arrange a hand wash		
Yes	41	59.4
No	28	40.6
Arrange the towels		
Yes	18	26.1
No	51	73.9
Disinfection of equipment and premises		

Yes	20	29.0
No	49	71.0
Hand disinfection		
Yes	18	26.1
No	51	73.9
Respect for asepsis		
Yes	43	62.3
No	26	37.7
Respect for hygiene		
Yes	25	36.2
No	44	63.8

This table tells us that 59.4% of respondents have a hand wash, 26.1% have single-use towels, 29% disinfect equipment and premises, 26.1% disinfect their hands, 62.3% respect the asepsis at each care practice and 36.2% respect the hygiene measure.

TABLE 8: Means for limiting exposure to nosocomial infections (Material)

Variables	n(69)	%
Room ventilation		
Yes	31	44.9
No	38	55.1
Change of gown		
Yes	13	18.8
No	56	81.2
Hand wash before and after		
Yes	33	47.8
No	36	52.2
Suspicious case isolation		
Yes	23	33.3
No	46	66.7
Sterilization of equipment and room		
Yes	21	30.4
No	48	69.6

This table shows that 44.9% of respondents say that the room is ventilated, 18.8% change their overalls every day, 47.8% wash their hands before and after each activity, 33.3% isolate the suspected case and 30.4% sterilize the materials and activity room.

TABLE 9: Actions taken to control pests (insects)

Variables	n(69)	%
We do nothing		
Yes	1	1.4
No	68	98.6
Use of impregnated mosquito net		
Yes	33	47.8
No	36	52.2
Environmental hygiene		
Yes	47	68.1
No	22	31.9
Isolation of dangerous cases		
In a room far from healthy cases	19	27.5
Suspicious cases in their rooms	50	72.5

To fight against pests, 1.4% of respondents say they do nothing, 47.8% use mosquito nets impregnated with insecticide, 68.1% practice environmental hygiene, as for the isolation of dangerous cases: 27.5% declare having put them in a room far from the healthy cases and 72.5% put all the suspected cases in their rooms separate from the others.

TABLE 10: Summary table of knowledge on nosocomial infections

Variables	n=69	%
nosocomial infections in the department	n=52	75.4
Tuberculosis	12	23.1
Hepatitis	7	13.5
HIV	17	32.7
Staphylococci	1	1.9
Dangers of nosocomial infections	n=35	50.7
Dead	20	57.1
Worsening of general condition	5	14.3
Contamination	10	28.6
Means of struggle	n=63	91.3
Vaccine	4	6.3
Hygiene	43	68.3
Asepsis	28	44.4
Complications of nosocomial infections	n=50	72.5
Antibiotic resistance	4	8.0
Dead	18	36.0
Extended stay	13	26.0
Average	12	23.6

The average level of knowledge of respondents about nosocomial infections is 23.6%.

TABLE 11: Summary table on the attitudes of respondents to nosocomial infections

Variables	n=69	%
Unified a draft policy	26	37.7
Multidisciplinary team	6	8.7
Declared nosocomial infection	6	8.7
Patient isolation	9	13.0
Equipment and room cleaning	34	49.3
Disinfection of equipment and the room	21	30.4
Wearing gloves	37	53.6
Hand washing before and after	33	47.8
Patient isolation	15	21.7
Put all the means of hygiene	38	55.1
Limit the risk of danger	34	49.3
Initiate implementation	69	100.0
Disinfection of equipment and the room	22	31.9
Hand disinfection	33	47.8
Average (\bar{x})	27	39.6

The average level of good attitudes of respondents to nosocomial infections is 39.6%.

TABLE 12: Summary table on the practices of measures to combat nosocomial infections at the HGR/N'djili

Variables	n=69	%
Hand hygiene	29	42.0
Clothing hygiene	20	29.0
Equipment hygiene	44	63.8
Hygiene of premises	37	53.6
Hygiene measures respected	21	30.4
Hand wash available	41	59.4
Disposable single-use towels	18	26.1
Disinfection of equipment and premises	20	29.0
Hand disinfection	18	26.1
Respect for asepsis	43	62.3
Respect for hygiene	25	36.2
Room ventilation	31	44.9
Change of coat	13	18.8
Hand washing before and after	33	47.8
Suspicious case isolation	23	33.3
Sterilization of materials and room	21	30.4
We do nothing	1	1.4
Use of impregnated mosquito net	33	47.8
Environmental hygiene	47	68.1
Isolation of dangerous cases	69	100.0
Average (\bar{x})	28.1	37.5

On average, only 37.5% of the surveyed providers practice good measures to fight against nosocomial infections at the HGR/N'djili.

TABLE 13: Comparison between the average level of knowledge observed and expected

Average level of knowledge	Expected level	Observed level			
Variable	PA, 95% CI	po	Z	P	s
Knowledge	60[49,7 – 69,5]	23.6	6.7	0.0001	***

There is a statistically significant difference between the observed and expected level of knowledge ($Z= 6.7$; $p=0.0001$). Moreover, the level of knowledge of HGR/N'djili providers on nosocomial infections is very low compared to the acceptability threshold.

TABLE 14: Comparison between the average level of attitudes observed and expected

Average level of attitudes	Expected level	Observed level			
Variable	PA, 95% CI	po	Z	P	s
attitudes	60[49,7 – 69,5]	39.6	3.8	0.0004	***

There is a statistically significant difference (at the threshold of 1 in 10,000) between the expected and observed attitudes of service providers with regard to nosocomial infections ($Z= 3.8$; $p= 0.0004$) a small proportion of service providers adopt good attitudes with regard to Nosocomial infections.

TABLE 15: Comparison between the average level of practices observed and expected

Average CAP level	Expected level	Observed level			
Variable	PA, 95% CI	po	Z	p	s
Practice	60[49,7 – 69,5]	37.5	4.2	0.0001	***

The observed level of involvement of service providers in the fight against nosocomial infections differs significantly from the expected level ($Z= 4.2$; $p= 0.0001$). However, there is a low participation rate of HGR/N'djili service providers in the fight against nosocomial infections.

IV. DISCUSSION

4.1 Knowledge of investigations into nosocomial infections at the hgr/n'djili

Compared to Knowledge, only 75.4% have already talked about nosocomial infection, including 23.1% of TBC, 13.5% of Hepatitis, 32.5% of HIV, 1.9% Staphylococci; other 88.5%. 50.7% said yes to the dangers of nosocomial infections including 57.1% death; 14.3% disease worsening; 28.6% of contamination and 88.5% of other 42.9%. Regarding the main means of control 91.3% have knowledge of which vaccination 6.3%, hygiene 68.3%, asepsis 44.4% and 33.3% of other means. As for the complications: 72.5% declare known complications of nosocomial infections in the service among other resistance to antibiotics 8%, 36% of death, 26% of prolonged stay and in

the end 56% of other complications. Finally, the average level of knowledge of respondents on nosocomial infections is 23.6%.

Our results corroborate those of Sacko Youssouf (2006), on nosocomial infections which occur in most of the health structures concerned by the study. There is a low knowledge of nosocomial infections by the staff surveyed. Only 22.4% (88/392) acknowledge having contracted them in their health facilities. And they contradict those of ZangaKoné (2003), in his study which led to the following main results: Nosocomial infections occur in the health facilities visited, The agents surveyed have a strong knowledge of nosocomial infections 98.7%.

For Didier P. et al. (2008.), in Nigeria more than 16% of patients prolong their hospital stay in a surgical setting following an infection contracted during their hospitalizations and more than 4% die as a result.

For Jacques K. (2011), the reality experienced during our internship carried out in a few structures in the city-province of Kinshasa, in particular King Baudouin Hospital Center in Masina, Kikimi Hospital Center, Saint Joseph Reference Hospital Center, shows that 12 to 25% of patients have prolonged stays and high costs due to nosocomial infections that come from (1) the unhealthy environment, and (2) the actions of providers.

For ZangaKoné (2003), the low proportion of nursing staff are vaccinated against Hepatitis B; Only 7.1% of the staff surveyed are trained in the prevention of hospital infections.

4.2 Attitude of respondents to nosocomial infections at the HGR/N'djili

As for attitudes, it appears that 37.7% of respondents answered having unified a draft policy for the cleaning, collection, transport and disposal of infectious waste, 8.7% answered having a multidisciplinary infection control team. nosocomial and declared nosocomial infection, 13% isolation of the patient, 49.3% said yes for cleaning equipment and rooms, 30.4% disinfection of equipment and rooms, 53.6% of respondents wear gloves before any activity and 47.8% wash their hands before and after each activity. % limit the risk of danger, as for the initiation of the implementation of prevention techniques 100% said yes, of which 66.7% respect the principles of hygiene, 31.9% disinfect the materials and the room and in the end 47.8% disinfect their hands before and after each activity. The average level of good attitudes of respondents to nosocomial infections is 39.6%.

Our results differ from those found by Sacko Youssouf (2006). Regarding these hygiene measures, the proportion of respondents on knowledge varies between 98% and 8.2%; thus almost all of the staff surveyed (98.7%) have a strong knowledge of hand washing.

However, the decisive moments for application are adequate only in an average proportion of 68.7% for all the structures visited, while the technique used is only adequate in only 17.8%, 90% of the agents surveyed in the training sanitary facilities visited say they wear gloves.

Hygiene measures relating to the treatment of material and equipment before use such as: decontamination, sterilization,

disinfection and asepsis in care are of known application respectively: 86.7% for the overall processing of work material with adequate moments of 71.2%; 81% for decontamination with adequate times of 73%, 27.3% do not use a bin to collect the waste produced; 22.7% circulate in the yard and enter the hospital wards; 15.5% use the yard as a garbage dump; the use of showers and toilets as garbage cans, defecation in the yard, the sale of food and the recovery of hospital waste are also practices applied especially by the attendants.

4.3 Practice of respondents on nosocomial infections at the HGR/N'djili

With regard to practices: 32% of respondents practice hand hygiene, 29% clothing hygiene, 63.3% equipment hygiene and 53.6% practice premises hygiene. 30.4% of respondents respect hygiene measures, 26.1% have single-use towels, 29% disinfect equipment and premises, 26.1% disinfect hands before and after each technique, 62.3% respect asepsis in each care practice and 36.2% respect the hygiene measure. 44.9% of respondents say that the room is ventilated, 18.8% change coats every day, 47.8% wash their hands before and after all activities, 33.3% isolate the suspected case and 30, 4% sterilize materials and activity room. To fight against pests, 1.4% of respondents say they do nothing, 47.8% use mosquito nets impregnated with insecticide, 68.1% practice environmental hygiene. As for the isolation of dangerous cases: 27.5% declare having put them in a room far from the healthy cases and 72.5% put all the suspected cases in their rooms separate from the others.

On average, only 37.5% of the surveyed providers practice good measures to fight against nosocomial infections at the HGR/N'djili.

Our results differ from those found by Sacko Youssouf (op.cit.), on a study conducted in Mali about the attitude and knowledge of health providers in Mali in the face of nosocomial infections. As for the protective measures applied to avoid the risk of contamination, almost all of the staff surveyed (i.e. 95.7%) in the health establishments have a strong knowledge of it. 98% of staff say they wear gowns as a protective measure against the risk of nosocomial infections. 58.2% for sterilization, of which only 30.4% and 56%; 56.1% for disinfection with adequate times of 61.4%; and 84.4% for asepsis with knowledge of medical acts requiring its application 87.6%. Regular upkeep of the premises is known by 89.8% of those surveyed who, however, say 58.8% that it is not done adequately to avoid any risk of nosocomial infections.

As for ZangaKoné (2003), sterilization and asepsis, which occupy a place of choice among the cardinal aspects of the prevention of hospital infections, are known to apply only by a very small proportion (i.e. respectively 52.1% and 53.1%).

Some steps in the application of the treatment of material and equipment are little known to healthcare providers, such as: Decontamination in national hospitals (66.7%) and sterilization in health facilities (30.4%) where the flambé still remains the method of sterilization.

There is a statistically significant difference between the observed and expected level of knowledge ($Z= 6.7$; $p=0.0001$). Moreover, the level of knowledge of HGR/N'djili providers on

nosocomial infections is very low compared to the acceptability threshold.

Our results corroborate those of Sacko Youssouf (2006), on nosocomial infections. We note a low rate of knowledge of nosocomial infections by the service provider surveyed, i.e. 22.4% know.

Our results contradict those of ZangaKoné (2003), who came up with the following results: the agents surveyed have a strong knowledge of nosocomial infections (98.7%).

There is a statistically significant difference (at the threshold of 1 in 10,000) between the expected and observed attitudes of service providers with regard to nosocomial infections ($Z= 3.8$; $p= 0.0004$) a small proportion of service providers adopt good attitudes with regard to Nosocomial infections.

Our results are similar to those found by Sacko Youssouf (2006), who states that the decisive moments for application are adequate only in an average proportion of 68.7% for all the structures visited while the technique used is not. that in only 17.8%.

The observed level of involvement of service providers in the fight against nosocomial infections differs significantly from the expected level ($Z= 4.2$; $p= 0.0001$). However, there is a low participation rate of HGR/N'djili service providers in the fight against nosocomial infections.

Our results differ from those found by Sacko Youssouf (op.cit.), on a study conducted in Mali about the attitude and knowledge of health providers in Mali in the face of nosocomial infections. As for the protective measures applied to avoid the risk of contamination, almost all of the service providers surveyed (i.e. 95.7%) in health establishments have a strong knowledge of it.

V. CONCLUSION

No doubt, it is legitimate to consider the world of caregivers as a universe in itself, governed by professional standards imposed on the individuals who compose it. These norms most often apply to actors who are not only active, but also capable of developing strategies that can lead to practical norms.

Thus, in a context where nosocomial infections are threatening in the world of caregivers, our purpose was to assess the knowledge, attitudes and practices of health providers in the prevention of nosocomial infections in the health services of the N'djili Reference General Hospital.

Our observations in the field enabled us to observe that the average level of knowledge of those surveyed about nosocomial infections is 23.6% ($Z= 6.7$; $p=0.0001$); of the good attitudes of respondents to nosocomial infections is 39.6% ($Z= 3.8$; $p= 0.0004$) and finally 37.5% ($Z= 4.2$; $p= 0.0001$) only of providers surveyed practice good measures to fight against nosocomial infections at the HGR/N'djili.

No health system is spared. This challenge is gigantic, as it affects many aspects of care and health systems at different levels; it tackles problems that have been recognized for years, if not decades; it requires commitment at all levels from health providers.

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