



## Knowledge, attitude and behavior of nursing on biomedical waste management quills maternity hospital bonzola reference general/ kasai oriental / ground

Bukasa JC<sup>1</sup>, Lepelletier D<sup>2</sup>, G Kabongo<sup>3</sup>, Mbuyi A<sup>4</sup>, Mukendi JR<sup>5</sup>, J Tshibangu<sup>6</sup>, Mishika P<sup>7</sup>, V Kabambi<sup>8</sup>, Mutombo A<sup>9</sup>, S Wembonyama<sup>10</sup>

<sup>1, 3, 4, 5, 6, 8, 9</sup> Higher Institute of Medical Techniques Mbujimayi Congo

<sup>2</sup> Laboratory emerging Mihar, Faculty of Medicine - University of Nantes, Irs2 - Nantes Biotech, Congo

<sup>7, 10</sup> School of Public Health, University of Lubumashi, Congo

DOI: <https://doi.org/10.33545/26648733.2019.v1.i1.a.1>

### Abstract

**Introduction:** Worldwide, biomedical waste management is a major concern in our hospitals. This study aimed to determine nursing knowledge, their attitude and their behavior on the management of biomedical waste quills to the maternity Bonzola Reference General Hospital.

**Materials and methods:** For the realization of this study, we opted for the prospective survey method supported by the interview technique type face to face. The equipment used was the questionnaire

**Results:** 25 cases (respondents) 78.1% Know the biomedical waste management chain quills against 7 cases or 21.9% of those who do not know. 19 cases or 59.4% are informed about the existence of this good management and experienced through the Service Meeting. 27 cases or 84.4% give advice to nurses on the proper biomedical waste management against 5 cases or 15.6% of those who do not give.

### About what they actually do with a bin containing the waste we had the following results

- 31.3% to close at any time
- 56.3% leave it open to easily dispose of waste
- 6.3% say it should not move at any time
- 37.5% say it should touch only with gloved hands

### About what they are doing to the disposal of biomedical waste, we had the following results

- 15.6% say it takes to landfill;
- 15.6% say that it must throw garbage in a well
- 50% say he should burn them to throw in a ravine
- 71.9% say he should burn them in an incinerator

**Conclusion:** Seeing projected between 2000 and 2020, deaths due to diseases from infectious biomedical waste will decrease by approximately 50% in high-income countries but increase exponentially in low- and middle-income, if confirmed, it attend according to WHO by the year 2020 a 10% increase in the number of people infected. This burden falls more heavily on low-income countries and today we count 90% of deaths and addiction resulting from contamination due to improper handling of infectious biomedical waste or only 48%, the global hospital. If we do not take appropriate measures,

**Keywords:** biomedical waste, pungent object, knowledge, attitude, behavior

### 1. Introduction

Worldwide, Biomedical Waste management is a major concern in our hospitals. In our country, Many studies have been done, despite the existence and importance of this problem. These biomedical waste are due to lack or Inadequacy of containers resistant to puncture, with a growing number of contamination<sup>[1]</sup>. The cost of care for patients infected by improper handling of the infectious waste, with a frequency that moves up management made this a public health problem. In developing countries (PVD), contamination by bad biomedical waste management become a major cause of mortality and morbidity, nosocomial infections are taking a leading responsibility<sup>[2]</sup>. According to WHO statistics, every year more than 1.2 million people worldwide are killed following the contamination from

infectious waste mismanagement in hospital institutions more than 3,000 people die daily; in addition to these, there are 140,000 contaminated with 15,000 people remain dependent all their lives (HIV / AIDS). 85% of all deaths and 90% of adjusted life years of disability (DALYs) are saved in low- and middle-income<sup>[3]</sup>. This shows how contamination of diseases due to poor management of biomedical waste are now a major public health issue worldwide, the consequences they entail are deaths. Seeing projected between 2000 and 2020, deaths due to diseases from infectious biomedical waste will decrease by approximately 50% in high-income countries but increase exponentially in low- and middle-income, if confirmed, it attend according to WHO by the year 2020 a 10% increase in the number of people infected<sup>[4]</sup>.

This burden falls more heavily on low-income countries and today we count 90% of deaths and addiction resulting from contamination due to improper handling of infectious biomedical waste or only 48%, the global hospital. If we do not take appropriate measures, diseases from biomedical waste should represent 2020 the third leading global cause of disease and community infections [5].

**In Africa, some studies have been conducted, we cite as an example**

In Mali, the presence of patients suffering from infections acquired in the handling of biomedical sharp waste (needles, scalpels and other in the general medical services is very important, which mainly due to the high frequency of contamination biomedical waste quills and infectious, and occupies a prominent place with 3 to 5% of all infections in the human body [6].

A study in Dakar Mbouna, N. [14] on infecte originating from the improper handling of biomedical waste quills, revealed a frequency of 8.18% and the dominant sex was female with 76.28% against 23.7% that of men.

In DRC the country, according to a study in Bukavu [8] in epidemiological profile quills medical waste management in several health institutions in Bukavu, had noted that among the factors that cause more contamination that causes infections and even death, we can mention: the mishandling of biomedical sharp waste by nurses in 15% of cases in Ghana and south Africa, 5%. Kasai-Oriental, waste management situation is deplorable biomedical quills with an estimated contamination to 2.9% which ranks the province among the most affected areas of the Democratic Republic of Congo and in Mbuji-Mayi, mismanagement biomedical sharp waste is 3.5% [15].

Faced with all this, everyone knows that every human person has rights and duties for his welfare [3]. Thus there health professionals, as providers, are required to master the different options and applications of biomedical waste management in general and biomedical sharp waste in particular.

Based on all the above, on our part, we wanted to address one aspect regarding "Knowledge, attitude and behavior of nurses on the management of biomedical waste quills to the maternity Bonzola Reference General Hospital" In the interest of making the data available related to the biomedical waste management.

Thus, we are entitled to ask a series of questions below:

- Nursing of Obstetrics and Gynecology department of the Bonzola Reference General Hospital they know the proper management of biomedical waste quills?
- The attitude of nurses is it positive face to the management of biomedical waste quills?
- The behavior of nurses in relation to the proper management of biomedical waste quills is it effective?

**2. Materials and methods**

For the realization of this study, we opted for the prospective survey method supported by the interview technique type face to face. The equipment used was the questionnaire. The study is the cross descriptive type and had recourru In this work we use the comprehensive sample technique where we took. health professionals Bonzola of Reference of the General Hospital in Obstetrics and Gynecology Service

- Selection criteria
- Inclusion criteria
- Was included in our study, anyone working at the General Hospital Bonzola reference specifically to the Obstetrics and Gynecology Service;
- Having a length of at least 1 year;
- Who agreed to answer our questionnaire.

**Exclusion criteria**

Any cases not responding inclusion criteria mentioned above is excluded from this work.

**3. Results**

**Table 1:** Characteristics of respondents Socio-professional

Variable	Category	Squad = 32	Percentage
Sex	Male	0	0.0
	Female	32	100
Age	20 years	2	6.3
	21 to 29 years	8	25
	30 to 39	3	9.4
	40 to 49	7	21.8
	50 and over	12	37.5
Qualification	nurse L2	4	12.5
	nurse A1	15	46.9
	nurse A2	8	25.0
	nurse A3	5	15.6
Civil status	Single	6	18.8
	Married (e)	20	62.5
	Divorcee)	1	3.1
Seniority	Widowed	5	15.6
	5 years	10	31.2
	5-11 years	5	15.6
	12-17	3	9.4
	18-23 years	1	3.1
Seniority	24-29 years	2	6.3
	30 years	11	34.4

**From Table I we show that:**

- All respondents were female with 100%.
- the age group of 50 and over, comes in first with 37.5%, followed by 21-29 years with 25%, that of 40-49 years with 21.8%, that of 30 to 39% with 9, 4% and less than or equal to 20 years was 6.3%.
- Respondents agents, A1 nursing occupy first place with case 15 46.9% tracking A2 nurses with 8 cases or 25%, A3 nursing the 5 cases with 15.6% and L2 nursing case with 4 or 12, 5%.
- Three quarters of the surveyed workers 62.5% are married followed by 18.8% single, 15.6% widowed and 3.1% divorced.
- The portion of upper year of seniority or equal to 30 years between coming in first place with 11 cases or 34.4% followed by the group between 0-5 years with 10 cases or 31.2%, that of 5-11ans with 5 cases or 15.6%, that of 12 to 17 with 3 cases or 9.4%, that of 24-29 with two cases is 6.3%, the range 18-23 years with 1 or case 3, 1%.

**Table 2 :** Nursing knowledge on biomedical sharp waste

Questions	Replie	N = 32	%
Have you ever heard of the management of biomedical waste quills?	Yes	31	96.9
	No	1	3.1
Do you know the definition of biomedical waste quills?	These are the waste from objects	2	6.3
	These are the residues which can not be reused because it lost value;	4	12.5
	These are the materials used and not reusable	10	31.2
	These are wastes from medical care	16	50
Do you know the biomedical waste management chain prickles?	Yes	25	78.1
	No	7	21.9
If so, what channel are you informed about the existence of this good management ?	To the television	2	6.3
	In service meeting	19	59.4
	During a training	10	31.2
	From friends	1	3.1
Could you outline the various steps of this biomedical waste management			
	Waste collection	16/32	50
	Storage of waste	15/32	46.9
	Waste transport	18/32	56.2
	The elimination or destruction	17/32	53.1
Do you have a bin to store biomedical waste quills?	I forgot	0/32	0.0
	Yes	30	93.7
	No	2	6.3

**In this table, we note the following**

- 31 cases or 96.9% have already heard about the management of biomedical waste quills against 1 case or 3.1% of those who have never heard of.
  - 16 cases or 50% are those given as follows: These are wastes from medical care,
  - 10 cases or 31.2%, they said These are the materials used and not reusable
  - 4 cases or 12.5% were defined as These are the residues which can not be reused because it lost value,
  - 2 cases or 6.3%, had defined that it is waste from objects
- 25 cases (respondents) 78.1% Know the biomedical waste management chain quills against 7 cases or 21.9% of those who do not know.

- 19 cases or 59.4% are informed about the existence of this good management and experienced through the Service Meeting.

Regarding the different stages of the biomedical waste management responses are as follows:

- 16 cases 50% say it is waste collection
- 15 cases or 46.9% confirm that this is the storage of waste
- 18 cases or 56.2% confirm that it is the transport of waste
- 17 cases or 53.1% confirm that this is the removal or destruction
- 0 0% either case I forgot these steps.
- 30 cases or 93.7% confirm that they have a bin to store biomedical waste quills 2 cases against 6.3% who say no.

**Table 3 :** Attitude of nurses on biomedical waste management quills

Questions	Replie	N = 32	%
Do you need to use a bin to store the waste?	Yes	20	62.5
	No	12	37.5
Will you use it?	Yes	20	62.5
	No	12	37.5
Do you think that a common garbage can help you properly store biomedical waste quills?	Yes	22	68.7
	No	10	31.3
Do you think you can mix the biomedical waste quills with others in a trash can?	Yes	22	68.7
	No	10	31.3
Do you agree that a common trash is exposed outside?	Yes	15	46.9
	No	17	53.1

Given this picture, we see that:

- 20 cases or 62.5% find it necessary to use a bin to store waste, against 12 cases or 37.5% of those that are not necessary.
- 20 cases or 62.5% agreed to use against 12 cases or 37.5% of those who do not really find the need.
- 22 cases or 68.7% think that common trash can help in many store waste biomedical quills, against 10 cases or 31.3% of those who say no.

- 22 cases or 68.7% think that they can be mixed pungent biomedical waste with others in a trash against 10 cases or 31.3% of those who say no.
- 17 cases or 53.1% do not accept a common garbage is exposed outside, against 15 cases 46.9% of those who accept.

**Table 4:** Behavior of nurses facing management biomedical sharp waste.

Questions	Replie	N = 32	%
Apply yourself properly biomedical waste management prickles?	Yes	15	46.9
	No	17	53.1
If so, mention the steps you follow, for this management you apply.	Waste collection	6/15	40
	store them in a bin	10/15	66.6
	The transport to destroy	10/15	66.6
	The actual destruction	4/15	26.7
Abstain from mixed all biomedical waste?	Yes	13	40.6
	No	19	59.4
Give you advice to nurses on the proper biomedical waste management?	Yes	27	84.4
	No	5	15.6
What do you concretely with garbage containing waste?	The close at any time	10/32	31.3
	Leave it open to easily dispose of waste	18/32	56.3
	Do not move it at any time	2/32	6.3
	The touch only with gloved hands	12/32	37.5
What do you do for disposal of biomedical waste?	Make landfill	5/32	15.6
	Throw garbage in a well	5/32	15.6
	the burn	16/32	50
	throw them into a ravine	0/32	0.0
	The burn in an incinerator	23/32	71.9

- 17 cases or 53.1% not correctly apply the management of biomedical waste quills, against 15 cases or 46.9% of those who apply correctly.
- 40% say waste collection
  - 66.6% say it must be stored in a bin
  - 66.6% say they carry to destroy
  - 26.7% say the actual destruction
- 19 cases or 59.4% will abstain mix all biomedical waste against 13 cases or 40.6% of those who abstain.
- 27 cases or 84.4% give advice to nurses on the proper biomedical waste management against 5 cases or 15.6% of those who do not give.
- About what they actually do with a bin containing the waste we had the following results:
  - 31.3% to close at any time
  - 56.3% leave it open to easily dispose of waste
  - 6.3% say it should not move at any time
  - 37.5% say it should touch only with gloved hands
- About what they are doing to the disposal of biomedical waste, we had the following results:
  - 15.6% say it takes to landfill;
  - 15.6% say that it must throw garbage in a well
  - 50% say he should burn the
  - 0.0% throw them into a ravine
  - 71.9% say he should burn them in an incinerator

25 cases (respondents) 78.1% Know the biomedical waste management chain quills against 7 cases or 21.9% of those who do not know. 19 cases or 59.4% are informed about the existence of this good management and experienced through the Service Meeting. 27 cases or 84.4% give advice to nurses on the proper

biomedical waste management against 5 cases or 15.6% of those who do not give. About what they actually do with a bin containing the waste we had the following results:

- 31.3% to close at any time
- 56.3% leave it open to easily dispose of waste
- 6.3% say it should not move at any time
- 37.5% say it should touch only with gloved hands

About what they are doing to the disposal of biomedical waste, we had the following results:

- 15.6% say it takes to landfill;
- 15.6% say that it must throw garbage in a well
- 50% say he should burn them to throw in a ravine
- 71.9% say he should burn them in an incinerator

#### 4. Discussion

##### 4.1. Socio-demographic characteristics of respondents

All respondents were female with 100%, the age group of 50 and over, comes in first with 37.5%, followed by 21-29 years with 25% of those 40-49 years with 21.8% that of 30 to 39% with 9.4% and less than or equal to 20 years was 6.3%. The qualification of surveyed agents shows that A1 nursing occupy first place with case 15 46.9% tracking A2 nurses with 8 cases or 25%, A3 nursing the 5 cases with 15.6% and L2 with nursing 4 cases or 12.5%. Three quarters of the surveyed workers 62.5% are married followed by 18.8% single, 15.6% widowed and 3.1% divorced. The portion of upper year of seniority or equal to 30 years between coming in first place with 11 cases or 34.4% followed by the group between 0-5 years with 10 cases or 31.2%, that of 5-11ans 5 cases with 15.6% that of 12 to 17 cases with 3 or 9.4%, that of 24-29 with 2 cases or 6.3%, wafer 18-23 with 1 case or 3.1%. All these results are a close part of those found Ntirengonya, J.,<sup>[9]</sup> and other hand they are moving away from those found by Djibril, D.<sup>[10]</sup>

#### 4.2. Regarding knowledge and attitude

25 cases (respondents) 78.1% Know the biomedical waste management chain quills against 7 cases or 21.9% of those who do not know. 19 cases or 59.4% are informed about the existence of this good management and experienced through the Service Meeting. 27 cases or 84.4% give advice to nurses on the proper biomedical waste management against 5 cases or 15.6% of those who do not give. These results approach those found by Mbaye Mbengue F. <sup>[11]</sup>, which concluded in his study that the level of awareness of this procedure is quite good by health professionals and is only 71.3%.

#### 4.3. About the behavior

About what they actually do with a bin containing the waste we had the following results:

- 31.3% to close at any time
- 56.3% leave it open to easily dispose of waste
- 6.3% say it should not move at any time
- 37.5% say it should touch only with gloved hands

About what they are doing to the disposal of biomedical waste, we had the following results:

- 15.6% say it takes to landfill;
- 15.6% say that it must throw garbage in a well
- 50% say he should burn them to throw in a ravine
- 71.9% say he should burn them in an incinerator. These results are consistent with those Mohammed, A <sup>[12]</sup> and those of Hakim, B., <sup>[13]</sup>.

#### 5. Conclusion

Seeing projected between 2000 and 2020, deaths due to diseases from infectious biomedical waste will decrease by approximately 50% in high-income countries but increase exponentially in low- and middle-income, if confirmed, it attend according to WHO by the year 2020 a 10% increase in the number of people infected. This burden falls more heavily on low-income countries and today we count 90% of deaths and addiction resulting from contamination due to improper handling of infectious biomedical waste or only 48%, the global hospital. If we do not take appropriate measures,

#### 6. References

1. Twinch E. Medical waste management, ICRC edition, Paris, 2011, 255-261.
2. WHO, strong health care waste management in primary health centers: Help Guide to the decision, Genève, 2005, 132-139.
3. WHO Wastes from health care. Fact sheet N ° 253, Genève, 2005, 18-27.
4. WHO-SCB & UNEP Preparation of national health-care waste management plans in sub-Saharan Africa: decision support manual. Secretariat of the Basel Convention and WHO Genève. 2005, 45-56.
5. WHO, waste without risk management products with care, Geneva, 2016, 87-91.
6. WHO. Wastes from health care. Fact sheet N ° 253, Genève, 2011, 32-38.
7. Harouna Fomba, medical waste management: a headache for African hospitals, 2012.

8. Saizonou J, *et al.* Evaluation of the quality of the management of solid biomedical waste in the health zone Klouékanmè-Toviklin-Lalo Benin. International Journal of Occupational Health. 2014; 1:1-11.
9. Ntiringonya J. Knowledge, attitudes and practices of health professionals on Biomedical waste, unpublished, Kinshasa, DRC, 2010.
10. Djibril D. Management of biomedical waste in Mali national management, Mali, World Bank, 2004.
11. Mbengue Mbaye F. Waste Management Plan biomedical Chad. Final report. Ministry of Health / Ministry of Planning, Economy and International Cooperation. Tchad Republic.
12. Mohammed, A., Evaluation of the management of medical solid waste and pharmaceuticals to the hospital Hassan II AGADIR. Memory; National Institute of Health Administration, Rabat, 2008.
13. Hakim B. medical waste management system assessment and pharmaceutical "If the flap child to hospital." Administration memory Sanitary and Public Health. National School of Public Health - Rabat, 2014.
14. Mbouna, N., waste management system Study Biomedical in the health district of Matam (Senegal), 2007.
15. DPS / Kasai Oriental., Annual Report, 2014.