International Journal of INTI, Vol 24, Special Issue AnDIC2020 (2020) 57-62
DOI:

Cite this paper as: Abdullah, M. A. R., Shaharudin, H. & Ahmad, M. A. (2020). Configuration of Framework for Utilising Sharp Waste Bins in Highway R&R. International Journal of INTI. Vol 24. Special Issue AnDIC2020.57-62

Configuration of Framework for Utilising Sharp Waste Bins in Highway R&R

Mohamad Amir Razi Abdullah[1], Haszlin Shaharudin[1], Mohammad Azroll Ahmad[1]

[1]Faculty of Art & Design, Universiti Teknologi MARA, 40450 Shah Alam, Malaysia
*Corresponding Authors Email Address: mohd.amir.razi@gmail.com

Received: 1 October 2020 / Accepted: 15 November 2020 / Published online: 30 December 2020

Abstract

It is important to acknowledge a systemized chain of networking elements that associate with other elements that will need to make sense of a path on structural integrity about a concept that it can progress towards visualizing a compelling result. A corresponding remark that was made by Stichler and Hamilton (2008) that they describe in their statements was delivered to predict or explain the connection among concepts, variables as well as notions of interest, as these notions are sound. The intention is to connect and compost a concept behind a certain inexplicit idea of clearing confusion and how it will work when tested, whether in theory or practice. It is the theory that a "plausible or scientifically acceptable general principle or body of principles offered to explain phenomena" (Merriam-Webster Online, 2020). This paper looks into the matter of the ways the Sharp Waste Bins can be adopted and put into a systematically appropriate purpose for society. In this case, in some way of rational sense, having to analyse the use of Sharp Waste Bins in Highway Rest & Recreational can be explained on how functional and ethical for the product to be mounted in public places, by exercising some thoughts on the plan of this idea through the use of the framework model

Keywords **-** *Highway Rest & Recreational, Sharp Waste Bins*

1. Introduction

The researcher's contribution of finding relevant information from published studies will be influenced into this research, and what initiates it is through proper brainstorming. Most of the information reviewed was perspired by the contemporary study on the subject issues that were factored into, conforming to the waste handling and obstacles of clinical waste (Shaidatul Shida Razali and Mohd Bakri Ishak, 2010), but in some circumstances, certain information is still disregarded and needed to be enlightened from the information gap in published studies about the daily situation that is occurring inside the Malaysian demographic. However, as the use of Sharp Waste Bins in Highway R&R are not dominant and scarce from published studies, the researcher would have to resort to other means of data collection to further research about the topic issued. As for now, this framework would be the backbone of leading this research towards the result needed.

For this paper, a series of networks that connects the factors contributing the use of Sharp Waste Bins in Highway R&R have mostly been gathered from a number of published studies that was distinctive from each other but otherwise interchangeable in this research topic, as that very notion helps to structuralised every piece of the finishing framework model, with a harmonisation of the researcher's own objective that was embedded into this study as a supporting platform to impose a framework that is aligned with the study of Sharp Waste Bin in Highway R&R. The research objectives pertaining to this framework is cited below.

1.1 Objective 1

i) To learn about the anatomy and features of concurrent sharp waste bins that are available in Malaysian hospitals and revise if they are compatible yet applicable in the Highway R&R environment.

1.2 Objective 2

ii) To develop a plausible disposal sharp wastes routine for the working staff to manage before, during and after, starting from the working R&R janitors up towards the 3rd party waste management.

At first, the inception of framework arrangements will be devised by 2 main research objectives, a start to put those two objectives that will map out a theorized framework into effect. Nevertheless as mentioned before, these 2 objectives contradicts with each other, which is to link between the Sharp Waste Bin's product features with the objective to create a disposal routine for R&R janitors to comply. This can be quite a predicament to solve, but at some point, it is associated and originated from one source, which is the Sharp Waste Bin. Keep in mind, this medical product itself also tells about the usability in Highway Rest & Recreational and how these 2 objectives can be interlinked and configured into a persuasive knowledge reference.

2. Train of Thought from the Objectives

2.1 Review Of Parent Study On Waste Disposal Process

At some issues of Sharp Waste Bins, the perception in Malaysian society about a medical product has mainly restricted within healthcare areas like hospitals and clinics, as it tends to cause unnecessary impediments like percutaneous injuries and harboured contagious infection. Nonetheless, as medical paraphernalia improved over the past few decades, medical technology has reached its advanced frontier in the 21st century, with proper product specifications like rigid and durability to contain the appropriate volume of syringes and withstand potential damages that could cost the product's quality performance. Plus, Sharp Waste Bins has also been designed with a particular set of dimensions to fit certain spaces of healthcare areas, for instance in large dimensions or smaller ones, particularly designed to be portable to carry elsewhere. Even though about 170,000 medical sharp users have been reported in Malaysia, (The Global State of Harm Reduction, 2016), has some way of trying to dispose of medical sharps, proposing the idea of implementing a framework for Sharp Waste Bin in Highway R&R is the start to solve undocumented sharps waste that could have been irresponsibly discarded in a general public solid waste bin. And so, the framework model acts as an indication of integrating this medical receptacle's specifications with the process of disposal that is regulated in Highway Rest & Recreational, which is summarised from the research objectives that fit into the waste discarding phases, as well as to understand that Sharp Waste Bins has been appropriately mandated to fit the requirements of use in society, benefiting the syringe users to discard it in a proper bin.

From the Highway Rest & Recreational staff's standpoint, there is a lot that comes through their mind on how to manage it. Malaysia itself has already regulated these products to be appropriately utilized for medical purposes in healthcare areas, but ignoring few ideas about Sharp Waste Bins can also be introduced in a public environment. Having the knowledge and experience of waste collecting, janitors have a sparse idea on handling these receptacles, with only following the procedure that was approved by the authorized management in charge. As Tsanoka et al. (2007) has mentioned, stating that even though there has been a minor setback, every healthcare institutional follow the segregation of waste, collection, packaging, storage, transport, treatment and disposal. Another imposing waste disposal procedure that was recognized by the Korean Ministry of Environment (MOE) has legislated a similar practice for biohazard waste, from the definition, segregation, packaging, tracking and disposal (Jang et al. 2006). Even more parent studies including Dasimah Omar et al. (2012) has also implied a process of clinical waste management in Malaysian district hospitals that focuses on separation, collection, transportation, storage, treatment and final disposal. Malaysia happens to have an equivalent indication yet similar disposal process with other published studies to some extent a solution for a

URL:https://jadinti.uitm.edu.my

hazardous problem, which in this case, a draft of navigational elements that can be interlinked with the framework model in plan.

From the overall information that was collected to be regarded into the framework, some sort of a procedure that is used to organize a paradigm that connects the bridge between the 2 research objectives, having the Sharp Waste Bin as the focus point, will open a course that can directly relate information into a conclusive result. In some social perception, particularly for the R&R janitors, even the idea of having a Sharp Waste Bin in open area is inadvisable. However, the researcher's train of thought of having to analyse and knowing how the Sharp Waste Bin's specification and function can appeal to the society, by configuring the framework model that will create an acceptable guideline of handling Sharp Waste Bins, especially for Highway R&R. Even so, the way this works can cause makeover shift and ripple effect to slow the ever-increasing issues of sharp hazards because the disposal of sharp waste and general waste is managed and handled differently (Ghasemi and Yusuff, 2016). For instance, the introduction of Sharp Waste Bins disposing procedure can impose an efficient progression to reduce waste volume, thus averting serious environmental matters and recognizing and protecting occupational safety (Ghasemi and Yusuff, 2016).

Despite that, it is a custom for authorised personnel in duty to be responsible and systematic when responding to bio hazardous waste. Every discarded Sharp Waste Bins will go through some sort of waste documentation. The issue of having to throw away hazardous waste is one thing, but documenting and segregating different hazardous waste is one imperative thing to identify the diverse types of waste that will be recorded out from the designated location. Even so, these archives can still be used for other purposes like, intersecting issues for sharp injuries and linking it to the recorded number of discarded sharp wastes, applying in that particular location. Despite the disposal stages, adapting safe sharp disposal will not only increase awareness of this issue but with ongoing education of the matter will also facilitate medical sharp users in adopting proper sharp disposal behaviour (Norzaihan Hassan *et al.*, 2019). But in some cases, not many of these clinical waste were thrown into sharp containers. Some of these waste can still be found in general waste bin instead of the proper designated Sharp Waste Bins that was installed for the purpose of safe sharp discard (Blenkharn, 2009). In return, documentation is one professional way to keep a closer watch on the amount of used sharp waste that staff can analysed the number of medical equipment used that will be disposed in a harmless and environmental-friendly routine.

2.2 Review Of Parent Study On The Product

By inducing on the idea of having the concurrent knowledge about Sharp Waste Bins in Highway R&R, the researcher is able to classify the very crucial specification that uniquely differs its quality and performance with other Sharps Waste Bins. The distinctive features like its volume capacity could determine its design compatibility within the confined toilets of Highway Rest & Recreational. On that account, the very idea of compact size Sharp Waste Bin is widely recommended, not to mention, it is safer to be transported out from the toilet. It is a safe bet that if every toilet stall in Highway Rest & Recreational provide these sharps disposal, the possibility of contracting percutaneous diseases would be improbable. As Quinn *et al.* (2009) stated about the difficult conditions that healthcare staff were to reach their equipment have cause up to 14% of them contracting sharp injuries, thus giving the awareness of a compact size Sharp Waste Bin to be probable in toilet stalls. Talking about hygiene, it is no laughing matter that exposing a possible infectious medical product in public toilets can be perilous at times. Because of that, hand hygiene is a vital factor at this moment. As it been mentioned by Moore *et al.* (2012) about the researcher's design of a sharp medical waste to be immediately discarded into a sharp container, can safely transported and fulfils with the requirement of hand hygiene.

One thing in literature review that keeps recapping issues of Sharp Waste Bins is the occurrences of percutaneous skin injuries by healthcare workers. As it turns out, these studies has come out with a result that interlinked with other petty issues like the lack of knowledge on sharps container, at the same time, Hepatitis C being disseminate from Needle Stick Injuries that built up the result towards the major issue (Bindra *et al.*, 2014). Therefore, from that idea itself, brainstorming the framework model of Sharp Waste Bin in focusing only on the specification and features of the product can be perplexing and incomplete, which is why the researcher's

URL:https://jadinti.uitm.edu.my

approach to couple 2 research objectives into this framework model will clear off any complication and hope to guide an informative and understanding research progress. To resolve the problem, it is to prepare a multifaceted approach, and this would be one criteria of the overall aim (Moore, 2012).

The appearance of product that is uniquely presented for specific user practice is one fundamental hint to the function of the product. As such, Sharp Waste Bins has the appearance of a function for one thing, to dispose used sharp waste safely and instantly that is distinguishable from generic household waste bin. It is basically a clear-cut aesthetics that healthcare staff, even R&R janitors are able to identify when these receptacles are available in toilet stalls. Sharp Waste Bins must and always be clearly seen by people to notice its presence, by its colour and labels, or whether to point out if the container is ready to be discarded out from the installation place (Kasting *et al.*, 1997). With the standard aesthetics and current enacted laws regarding Sharp Waste Bins, the red and yellow colours that was designed and manufactured to signal awareness to surrounding people and making sure that it is not used by unwanted people. It is the colours that should indicate risk to warn them of any potential safety issues that are concealed inside the sharps container (Kasting, *et al.*, 1997). The colours itself has that simple gesture on people sudden product perception, reaction and experience, in which they are able to recognize simple changes of the place while slowly adapting to it. Aside from that, the waste bag is also another contender to identifying its waste content. In medical practice, hazardous waste will need to be disposed in a yellow clinical waste bag. Similar reason as the colours to Sharp Waste Bins, these waste bags can also assist healthcare staff to easily segregate between a general waste with a hazardous waste, in condition that these particular waste bags are made to withstand from defects by sharp waste.

Even though colours are the primary key to product's appearance, sometimes labelling is another contributing factor to identify the contents of its usage. Sharp Waste Bins are legally required to be labelled for medical practitioners to identify crucial information of waste containment. However, in some cases, certain healthcare staffs are easily susceptible of taking responsibility in their own hands without complying with proper guidelines. As for now, labels are requisite to be displayed onto the product itself and should be obvious in any condition and direction, before the proper installation can be proceeded (Kasting, *et al*., 1997). To some extent, Sharp Waste Bins has their needs to inform any of its user, by the labels to tell any vital details about its life-cycle. Some precautions these staff need to do during documentation is obtaining enough information to oversee any mistakes and clarifying the product to pass through the end stage of disposal like incineration or autoclave.

3. Development of Framework Model

In this following paragraph, an effort was made to structuralize a framework model, based on the description that stated about the use of research objective as its platform. This framework model was referred from the range of published studies collected as a preparation for this phase. As shown in Figure 1, the focus point of this matter begins from the product in mind, which is the Sharp Waste Bins, analysing its feature and appearance while simultaneously matching it with the criteria of the standard disposal procedure. The notions from that are factored and summarized into a graphical format, as to explain the information that link each other, in addition to understand the issue that reflects back to the product of this study.

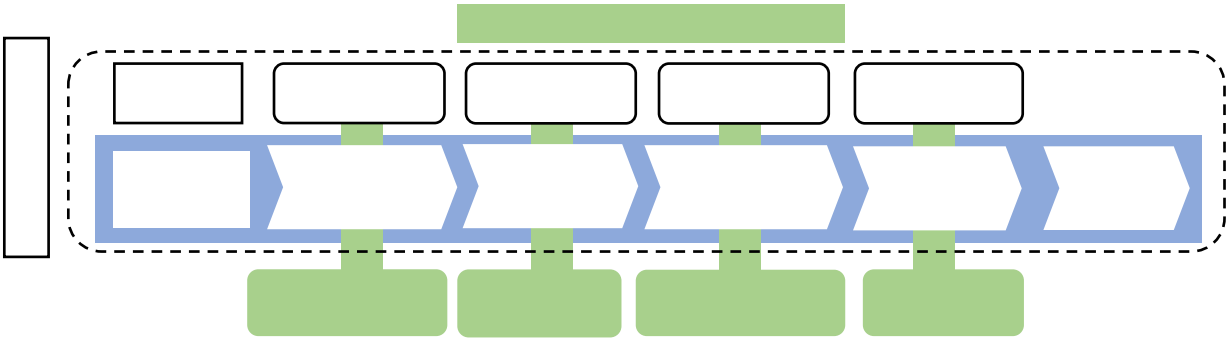

Figure 1. Framework Model of Sharp Waste Bin's integrity between its 'Product Features' and the 'Disposal Procedure'

This framework was obtained from the key details that were discussed during the literature review about the Sharp Waste Bin. This was brainstormed by different criteria that were focused on the product's features and appearances and the procedure of the product's disposal. One thing comes to the researcher's mind when constructing this is to find the similarities and facts that is synonym to help bridge between the 2 contrasting objective and it is obvious to see those criteria of the Sharp Waste Bin's features can be illustrated into a model that is an indication from the published studies about the standard disposal procedure.

As mentioned in Figure 1, the Sharp Waste Bin's features like its Aesthetic Hue, Light-Weight, Container Labels and being Rigid, is the product criteria of conveniences and simplicity during the disposal stage. For instance, if the R&R staff in charge of Sharp Waste Bin is to dispose it, by seeing the product's colour can help the process of Definition and Segregation, even in a scenario where the staff will have to differentiate between a Sharp Waste Bin with a generic waste bin. As for the Light-Weight criteria, this can assist the R&R staff to transport it from the designated location towards the waste collection point, instead of using a bin type that is obnoxiously massive, which can be very complicated as well as an injury-risk to handle. Transporting to a storage area is another crucial factor that is important to the procedure of waste disposal. Used sharp waste will need to be securely transported without causing any complications onto other passers-by. Every waste that will be issued in the waste management archives are to be documented it for future references. Hence, the Container Labels that are displayed on the paraphernalia will display necessary data that will be inserted into the staff's waste management database. Sharp Waste Bins are Rigid in terms of properly regulated and legal for purchase, in the case of Highway Rest & Recreational where it is safe to be displayed in toilet stall as well as in the waste containment storage, for up to days before the waste collector stops by the place.

From the two objectives that were carefully implanted for the purpose of functionality and practicability has majorly help to connect those criteria about the waste disposal that can fit with the concurrent procedure that was already attained in Highway Rest & Recreational. This framework was produced to clear off any confusion about the objective of this research and elaborate on the differences and concise it in illustration format for the information to be clearly comprehended.

4. Conclusion

To sum it up, the framework that was constructed has given a bigger picture on how to generalize a Sharp Waste Bin into the social area of Highway Rest & Recreational. The experimentation of incorporating the 2 research objectives into a working framework model has bridge the gap on its necessity and essential demands to support the idea of placing Sharp Waste Bins in Highway R&R, hoping the product to affect society. The idea behind this framework is interpreted as a basic guideline, when properly dealt with and managed with, it can be implemented and sustained in Highway Rest & Recreational as a safe and reliable method..

Development progress that was made for the framework model above is an attempt to present and illustrate a clear understanding and compatibility on the general knowledge about the medical disposing method and Sharp Waste Bin. Nevertheless, the following framework model was meant to be the foundation of guidelines between 2 contradictory research objectives in fulfilling the idea about the many functional practices of this medical product. And so, further developments, as well as guideline tests, will need to be initiated, in order to seek supporting evidence about its key points of structural validity and how the points can be explained to be related to one and the other. This will secure its rationality to build a purpose on what could be experimented with as a future study. As Stichler et al. (2008) phrased is when an unlimited number of tests are conducted every day by simulation, mock-ups or any other methods, it helps to translate abstract notions into a strong visualization of what could or should be considered.

Acknowledgements

We would like to acknowledge the generous participation in the completion of this research. This study was conducted in the Faculty of Art & Design, Universiti Teknologi MARA. Fully appreciate for providing the facilities, equipment, and expertise to completing this research. Special thanks to the FSSR research initiative group for the assistance given for the research can be carried out successfully.

References

Blenkharn., J.I. (2009). *Sharps Management and the Disposal of Clinical Waste*. British Journal of Nursing. Mark Allen Publishing. Vol. 18 (14): 860, 862-4

Bindra, S., Ramanareddy, K. V., Chakrabarty, A., Chaudhary, K.. (2014). *Awareness about Needle Stick Injuries and Sharps Disposal: A Study Conducted at Army College of Dental Sciences*. Journal of Maxillofacial and Oral Surgery. Vol. 13 (4): 419-429. http://doi.org/10/1007/s12663-013-0526-3.

Dasimah Omar, Siti Nurshahida Nazli, Subramaniam A/L Karuppannan. (2012). *Clinical Waste Management in District Hospitals of Tumpat, Batu Pahat and Taiping*. Elsevier Procedia Social and Behavioral Sciences. DOI: 10.1016/j.sbspro.2012.12.213.

Ghasemi, M. K. and Rosnah Bt. Mohd. Yusuff. (2016). *Advantages and Disadvantages of Healthcare Waste Treatment and Disposal Alternatives: Malaysian Scenario*. Polish Journal Environment Studies Vol. 25 (1): 17-25.

Harm Reduction International. (2016). *The Global State of Harm Reduction*. Retrieved from: https://www.hri.global/files/2016/11/14/GSHR2016_14nov.pdf. [Accessed in February 2020].

Jang, Y.C., Lee, C., Yoon, SO. & Kim, H. (2006). *Medical Waste Management in Korea*. Journal of Environment Management 80: 107-115

Kasting, C.H., Martin, L.S., and Mullan, R. J., (1997). *Sharps Disposal Containers: Selection, Evaluation, and Use*. Journal of the American Biology Safety Association. 2(4):47-57

Merriam-Webster. (n.d.). Citation. In *Merriam-Webster.com Dictionary.* Retrieved in 2020, from https://www.merriam-webster.com/theory?utm_campaign=sd&utm_medium=serp&utm_source=jsonld [Accessed in February 2020]

Moore, C. (2012). *Development of Point of Use Sharps Disposal Unit – A Simple Solution to a Difficult Problem*. American Journal of Infection Control. Vol.40 (5)

Norzaihan Hassan, Mohd Faiz Ariffn and Lau Yi Vun. (2019). *Factors Contributing to Sharp Waste Disposal at Health Care Facility Among Diabetic Patients in North-East Peninsular Malaysia.* International Journal of Environmental Research and Public Health.

Quinn M.M., Pia Markkanen P.K., Galligan C.J., *et al.* (2009). *Sharps Injuries and Other Blood and Body Fluid Exposures Among Home Health Care Nurses and Aides*. American Journal of Public Health; 99 (Suppl 3): S710-7. http://doi.org/10.2105/ajph.2008.150169

Shaidatul Shida Razali and Mohd Bakri Ishak. (2010). *Clinical Waste Handling and Obstacles in Malaysia*. Journal of Urban and Environmental Engineering. DOI: 10.4090/juee.2010.v4n2.047054.

Stichler, J. F. and Hamilton, D. K. (2008). *Evidence-Design Based: What Is It?* Health Environments Research & Design Journal (HERD). SAGE Publication

Tsanoka, M., Anagnostopoulou, E. & Gidarakos, E. (2007). *Hospital Waste Management and Toxicity Evaluation: A Case Study*. Waste Management 27: 912-920.

Ummu Atiyyah Hasan, Suhaily Mohd Hairon, Najib Majdi Yaacob, Aziah Daud, Anees Abdul Hamid,