



Disposal of Cobalt-60 (Co-60) Teletherapy System in Malaysia’s Medical Institution: Involvement of Stakeholders in Ensuring the Safety and Security of Radioactive Sources

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Introduction

The Cobalt-60 (Co-60) teletherapy machine was invented by University of Saskatchewan medical physicist; Harald E. Johns in 1951 in Saskatoon, Canada. Commonly applied for external beam radiotherapy procedure, this machine uses Co-60 with high specific activity that emits high-energy gamma rays to kill cancer cells. Based on the IAEA Code of Conduct on the Safety and Security of Radioactive Source, Co-60 assigned to Category 1, corresponding to security Level A and IAEA Nuclear Security Series. Once Cobalt-60 decays and the teletherapy are no longer functional, the unwanted teletherapy units and sources need to be properly disposed to prevent any radiological theft or accidents. In Malaysia, Queen Elizabeth Hospital II are the first medical institution that implementing the disposal process of Co-60 teletherapy system with full collaboration with all national stakeholders.

Objectives

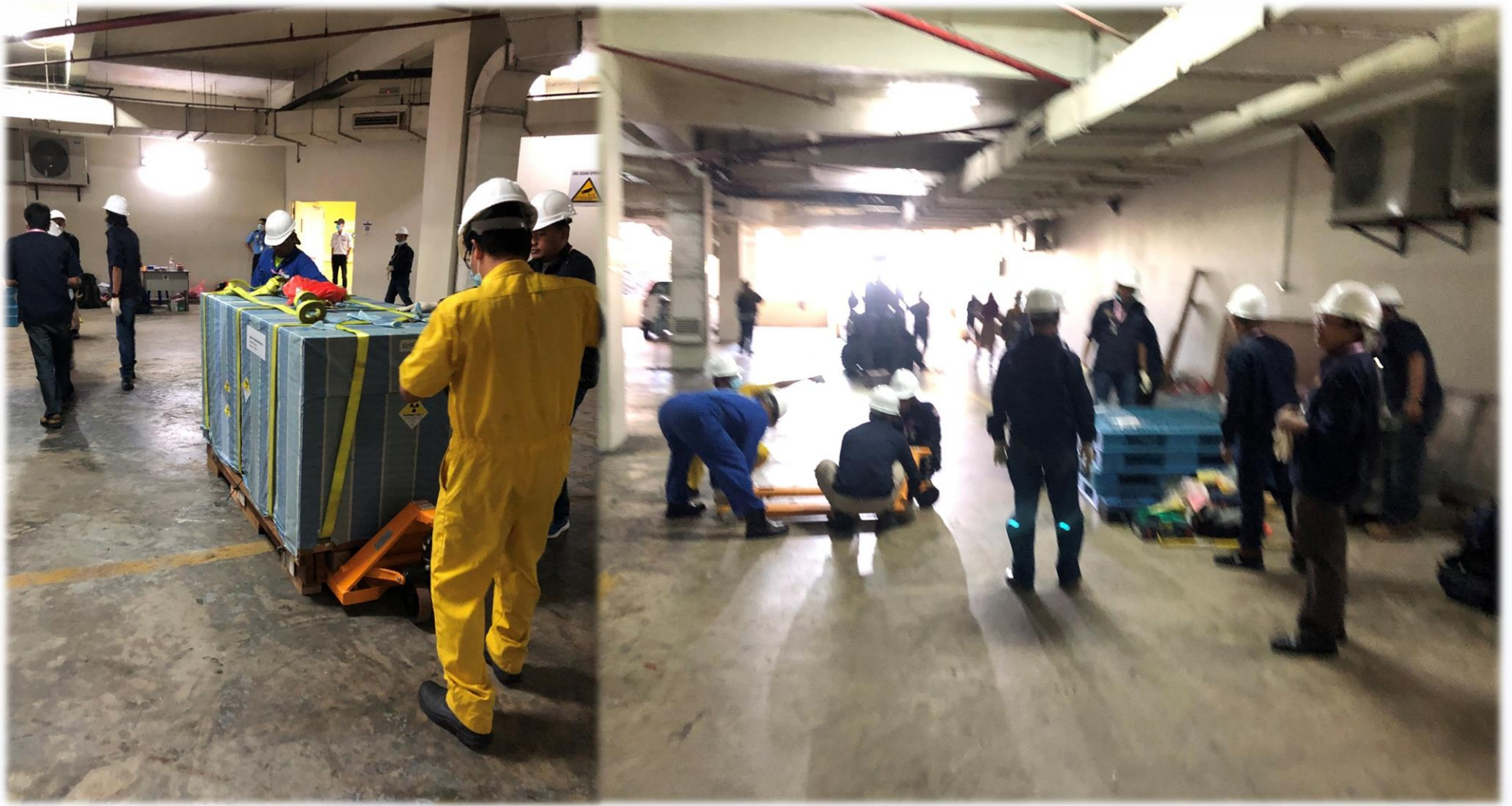
1. Strengthen collaboration among national stakeholders by leveraging existing capabilities to facilitate disposal process
2. Enhancing safety and security of radioactive sources throughout the disposal process.

Results

No.	Process Category	Details
1.	Before disposal	<div><input type="checkbox"/> A special task force committee are established to coordinate and identify the role of each government agency involved during this disposal activities to ensure the process are executed more efficiently, cost effectively, and align with current government policies as well as international practices.</div> <div><input type="checkbox"/> Advance approval are required to ensure the disposal process are complied with all requirements under Atomic Energy Licensing Act 1984 (Act 304) and others legislation in force.</div>



No.	Process Category	Details
2.	During disposal	<div><input type="checkbox"/> Disposal process consist of decommissioning of teletherapy unit and source, packaging and transportation.</div> <div><input type="checkbox"/> During the disposal works all process involved must adhere with established Radiation Safety Measures.</div> <div><input type="checkbox"/> This inclusive time, distance and shielding to ensure the safety of all workers involved in the disposal process.</div>



No.	Process Category	Details
3.	After disposal	<div><input type="checkbox"/> Submit device disposal documents to Ministry of Health Malaysia (MOH) in order to in line with existing disposal procedures.</div> <div><input type="checkbox"/> All disposal process information are requires to be updated inside government asset disposal records and MOH RADIA (Licensing and Monitoring) system.</div>



Discussion

1. The establishment of a **special task force committee** is very critical to develop SOPs for Co-60 waste disposal.
2. Identify **the functions and roles** of each department and government agency involved to enhance the end to end process efficiency and to prevent overlapping work scope
3. The disposal process must complies with all safety and security requirements as well as on the enforced legal policy which including to ensure the costs involved are **in line with the national austerity policy**.

Conclusion

In conclusion, the disposal process of Co-60 teletherapy machine at Queen Elizabeth Hospital II has successfully executed with the cooperation of all stakeholders and Co-60 radioactive waste was well disposed at National Radioactive Waste Management Center, Malaysia.

References

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