

**ABSTRACT**

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**Medical Waste and Its Negative Impact on the Epidemiological and Environmental Safety**Lecturer **Iarmak T. V.**<sup>1</sup><sup>1</sup> *Municipal Health Care Institution “Kharkiv Regional Medical College”, Ukraine***Background:**

The problem of medical waste collection, disinfection and disposal is an issue of great concern worldwide. It jeopardizes the health of medical staff, patients and poses serious threats to the world population and environment, polluting water, air and soil. In 1979, the World Health Organization considered medical waste as one of the most hazardous group of waste and emphasized the need to create specialized organizations to handle disposal and recycling. In 1992, the Basel Convention established a list of 45 hazardous wastes, where medical waste was ranked number one. Also, according to the Convention, states were encouraged to reduce the amount of waste; disinfect, treat and dispose it as close as possible to the point of its generation. However, the amount of healthcare waste, in particular infectious waste, has significantly increased as a result of the latest developments in medical technology, constantly emerging infectious disease outbreaks, epidemics, and pandemics.

Every year, 100-120 thousand tons of hazardous medical wastes are generated in Ukraine only. Medical waste significantly differs from other types of waste and requires special attention. Therefore, the medical waste issue remains high on the agenda for Ukraine. According to the Order of the MoH of Ukraine of June 8, 2015 No. 325 “On Approval of the State Epidemiological Rules and Standards for Medical Waste Management”, “medical waste is a by-product of healthcare activities and is classified into four categories: A – general waste, B – infectious waste, C – hazardous waste, D – radioactive waste”. Category B is the most hazardous. It includes medical tools (disposable syringes, IVs, needles, scalpels and others), materials (suture, dressing) contaminated with blood and other bodily fluids; organs, human tissue. Reusing of disposable medical tools and materials creates a potential risk of infecting medical staff and patients with hepatitis B, C, HIV/AIDS. Besides, a threat to medical personnel and population’s health is posed by unused or expired medications, X-ray films, thermometers, food waste from hospital cafeterias and more.

Medical waste is generated by health care facilities, such as hospitals, clinics, health centers; blood banks, orphanages, nursing homes; research centers, laboratories and others. Plans for the collection and disposal of healthcare waste should be drawn up individually for each medical facility, depending on the

facility type and specialization profile. Every medical institution should have a well-organized medical waste management system, considering the waste category. Medical staff should be well trained, have skills of healthcare waste management and be able to use new technologies. There are different methods of medical waste disposal: incineration, pyrolysis, microwave irradiation, thermo-chemical waste treatment and steam sterilization. The United Nations has prioritized a method of steam sterilization (autoclaving) over other methods for medical waste disposal and viewed it as one of the most advanced technology. It is a low-temperature process, which reduces the amount of waste up to 85% due to a simultaneous grinding and sterilization. The utilizer kills all types of pathogens, including spore-forming bacteria, making it impossible to reuse. Thus, it converts category B infectious waste into epidemiologically and environmentally friendly.

**Results:**

The order of the Cabinet of Ministers of Ukraine of November 8, 2017 “On approval of the National Strategy for waste management in Ukraine by 2030” determined the main directions of state regulation of waste. The normative legal acts regulating healthcare waste are directed at creating and ensuring safe conditions for segregation, collection, storage, transportation and disposal; effective system of training and advanced training of specialists who deal with healthcare waste. The resolution of the Cabinet of Ministers of Ukraine, dated of July 13, 2000 No. 1120 (amended on December 24, 2019) approved the “Regulation on control of transboundary movements of hazardous waste and their disposal”, where healthcare waste was ranked number one among the categories of waste to be regulated.

**Conclusions:**

Raising awareness about the hazards of medical waste among medical staff and population, creation of educational programs on healthcare waste management; providing medical staff with means of protection; the use of the newest technologies for disinfection and disposal of healthcare waste is key to preserving the health of medical staff, patients, population, as well as ensuring environmental and epidemiological safety worldwide.

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