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«RELEVANT ISSUES OF SAFETY AND HYGIENE OF MEDICINES, MEDICAL PERSONNEL, AND PATIENTS»

TO THE 100TH ANNIVERSARY OF HYGIENE, OCCUPATIONAL SAFETY
AND HEALTH DEPARTMENT, BOGOMOLETS NATIONAL MEDICAL
UNIVERSITY, AND WORLD PATIENT SAFETY DAY 2023

September 15, 2023

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НАУКОВО-ПРАКТИЧНА КОНФЕРЕНЦІЯ З МІЖНАРОДНОЮ
УЧАСТЮ ДО 100-РІЧЧЯ КАФЕДРИ ГІГІЄНИ, БЕЗПЕКИ ПРАЦІ
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«АКТУАЛЬНІ ПРОБЛЕМИ БЕЗПЕКИ І ГІГІЄНИ ЛІКАРЕНЬ, ПЕРСОНАЛУ І ПАЦІЄНТІВ»

15. 09. 2023

Національний медичний університет імені О.О. Богомольця
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HYGIENIC ASSESSMENT OF DISINFECTANTS RANGE AT THE BEGINNING OF THE CORONAVIRUS DISEASE PANDEMY IN UKRAINE

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Introduction: The beginning of the coronavirus pandemic has acutely raised the urgency of having adequate and effective range of disinfectants and antiseptics. According to the procedure available in Ukraine, disinfectants approved for use are those that have passed the official steps per the Procedure for State Registration (Re-registration) of Disinfectants and are listed in the State Register of Disinfectants.

The aim of our study was the hygienic assessment of disinfectants range in the coronavirus disease pandemic onset conditions.

Research materials and methods: Methods of hygienic expertise, descriptive and content analysis methods were used in the study. The materials for the analysis were meta-data from the official websites of the Ministry of Health of Ukraine (MHU), the Center for Public Health of the MHU, the United States Environmental Protection Agency (US EPA) and The National Center for Biotechnology Information (PubMed).

The results: The official source of information on disinfectants available at the time of the coronavirus infection pandemic beginning was the State Register of Disinfectants 2020. Its hygienic analysis made it possible to establish the following. The total number of registered preparations was 1006. Their structure divided them into mono preparations (containing one active substance) and combined preparations (containing two or more active substances). The number of mono preparations was 359 (35.7%), and combined preparations, respectively, 647 (64.3%). According to the recommendations of the Public Health Center of MHU (April 30, 2020), chlorine-containing agents, hydrogen peroxide, and disinfectants with an alcohol content of at least 60% have been stated to be effective against the SARS-CoV-2 coronavirus. According to the structure of the distribution of mono- preparations, the preparations prevailing in terms of active substance were found. They were alcohol-containing disinfectants (ethyl, isopropyl, and 2-phenoxy ethyl alcohols), which accounted for 27.3% of the total number of monoagents (1st rank), chlorine-containing compounds – 18.6% (2nd rank), and hydrogen peroxide – 23% (ranked 5th after quaternary ammonium compounds and antimicrobials). At the same time, the list also includes substances with a different (except antiviral) mechanism of action. In turn, in the US EPA materials, a List N Tool: COVID-19 Disinfectants registry was separately created, where all its preparations, according to the statement of the EPA, expect to kill all strains and variants of the coronavirus SARS-CoV-2 (COVID-19) when used according to the label directions. Its list includes 662 products, of which 61 (9.2%) were alcohol-containing disinfectants, 101 (15.3%) were chlorine-containing compounds (21.9%), and 101 (15.3%) were hydrogen peroxide.

Following the State Register, such data as «Name of the product, the content of active substances» and «Objects of application» highlighted the hygienic component of the information content. The following information was available in List N Tool: COVID-19 Disinfectants: «Active ingredient», «Follow disinfection directions for the following pathogen(s)», «Contact Time (in minutes)», «Formulation Type», «Surface Type», «Use Site», «Why is this product on List N? Products qualify for List N if they: Demonstrate efficacy against the coronavirus SARS-CoV-2 (COVID-19); Demonstrate efficacy against a pathogen that is harder to kill than SARS-CoV-2 (COVID-19); or Demonstrate efficacy against a different human coronavirus similar to SARS-CoV-2 (COVID-19)».

Conclusions: In accordance with the conducted analysis, certain shortcomings of the compilation of the State Register of disinfectants were identified, namely: there was no unification of the active substances of disinfectants, no footnotes clarifying the synonymous names of active substances found, their assortment at the time of the pandemic beginning was significantly smaller and less diverse for the needs of healthcare workers

than according to List N Tool: COVID-19 Disinfectants in the United States. It was also established the need to supplement the State Register with a prospective approach to the future with the creation of an electronic database with the ability given to medical workers to sort, and select the necessary disinfectants depending on additional information (such as «Contact Time (in minutes)», «Formulation Type», «Surface Type», «Use Site»), which will facilitate the correct management of infection control processes not only of SARS-CoV-2 but also of other similar pathogens.

Key words: disinfecting agents, registries, SARS-CoV-2, hygienic analysis.

COMPARATIVE HYGIENIC ASSESSMENT OF SYSTEMS OF HOSPITAL'S WASTE MANAGEMENT AND TREATMENT IN INDIA AND UKRAINE

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Introduction: Hospitals generate waste of various types, including very specific and dangerous ones (biomaterials from infected patients, residues of narcotic drugs, radionuclides, sharp objects, etc.), which can seriously pollute the environment and pose a significant danger to the health of the population. In addition, improper handling, storage and disposal of hospital waste can pose a danger to staff and patients; have negative economic consequences for healthcare institutions. In order to minimize the identified risks, protect the environment, preserve the health of the population, and create safe conditions for employees, visitors and patients to stay in the hospital, it is important to have proper hospital waste management systems.

Aim: Comparative hygienic assessment of systems of hospital's waste management and treatment in India and Ukraine.

Materials and methods: For the analysis and comparative assessment of the hospital waste management systems in Ukraine and India, we used data from literary sources, official websites, regulatory documents of both countries by subject.

Review: Both in Ukraine and in India, medical waste is divided into categories. However, these categories themselves and the waste belonging to them differ. In India The Bio-Medical Waste (Management and Handling) Rules (BMW(MH)), 2016 categorize biomedical waste into different categories based on their characteristics: pathological, infectious, chemical, sharps and general waste. There are only 4 classes of medical wastes in Ukraine, but also based on characteristics of hazard: A (safe wastes), B (epidemiologically unsafe wastes), C (toxicologically unsafe), D (radioactive).

Unlike Ukrainian approaches, a color-coded system for the segregation of biomedical waste are mandate in India by the BMW(MH). Bags and containers of different colored are used to identify types of waste and aid in their proper segregation. It includes the following: red bags/containers for infectious waste, yellow for pathological waste, white for chemical waste, blue for sharps waste, black for general waste.

Another common approach between the waste management systems in both countries is the mandatory certification of personnel and organizations engaged in the collection, storage, transportation and disposal of medical waste. This approach ensures efficient sorting, proper storage, timely transportation of waste to the designated disposal site, which minimizes the risk of contamination and infection and ensures proper disposal of waste.

India's positive experience in promoting the proper treatment and disposal of biomedical waste, which Ukraine could benefit from, is the creation of Common Biomedical Waste Treatment Facilities (CBWTFs).

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