

## US19.7. FARMACEUTSKI OTPAD U JAVNIM APOTEKAMA U SRBIJI: PRAKSA, IZAZOVI I POTREBA ZA ODRŽIVIM I STANDARDIZOVANIM SISTEMOM UPRAVLJANJA

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Nepropisno odlaganje lekova je značajan ekološki i zdravstveni problem jer vodi zagađenju životne sredine i predstavlja rizik po javno zdravlje. Ključni izazov je farmaceutski otpad, a apoteke su važna tačka za njegovo prikupljanje od građana. Ipak, praksa pokazuje različito postupanje javnih apoteka, što ukazuje na potrebu unapređenja sistema.

Cilj ovog rada je da se ispita trenutna praksa prikupljanja farmaceutskog otpada i problemi sa kojima se farmaceuti susreću u njegovom upravljanju u javnim apotekama u Srbiji.

Sprovedena je studija preseka među farmaceutima zaposlenim u javnim apotekama u Srbiji korišćenjem anonimnog online upitnika. Za statističku analizu su korišćeni deskriptivni pokazatelji i hi-kvadrat test, uz nivo značajnosti  $p < 0,05$ .

U istraživanju je učestvovalo 334 farmaceuta, od kojih je 34,6% navelo da apoteka u kojoj rade prikuplja farmaceutski otpad od građana. Uprkos tome, gotovo svi ispitanici (94,4%) podržali su uspostavljanje nacionalnog sistema za sakupljanje i uništavanje farmaceutskog otpada. Utvrđene su statistički značajne razlike između ogranaka Farmaceutske komore Srbije u vezi sa praksom prikupljanja otpada ( $p = 0,001$ ), pri čemu je najmanji procenat u Beogradu (20,0%), a najveći u Kragujevcu (47,2%). Farmaceuti u apotekama koje prikupljaju farmaceutski otpad češće su prijavljivali umeren ili visok finansijski teret u odnosu na one koje ne prikupljaju (40,2% vs. 18,4%;  $p = 0,003$ ). Najčešće prepreke za prikupljanje farmaceutskog otpada bile su nedostatak infrastrukture i kontejnera (65,7%), nedostatak znanja i interesovanja pacijenata (62,0%) i visoki troškovi (51,2%).

Neophodno je postojeću podršku farmaceuta nacionalnom sistemu integrisati u standardizovanu praksu upravljanja farmaceutskim otpadom, uz obezbeđivanje infrastrukture, finansijske podrške apotekama i kontinuirane edukacije farmaceuta i pacijenata.

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## US19.7. PHARMACEUTICAL WASTE IN PUBLIC PHARMACIES IN SERBIA: PRACTICES, CHALLENGES AND NEEDS FOR A SUSTAINABLE AND STANDARDIZED MANAGEMENT SYSTEM

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Environmental pollution and public health risks make improper medicine disposal a significant environmental and health problem. Pharmaceutical waste is a key challenge, and pharmacies are an important point for its collection from citizens. However, practice shows different behavior of public pharmacies, which indicates the need to improve the system.

The aim of this work is to examine the current practices of pharmaceutical waste collection and problems pharmacists encounter in its management in public pharmacies in Serbia.

A cross-sectional study was conducted among pharmacists employed in public pharmacies in Serbia using an anonymous online questionnaire. Descriptive indicators and chi-square test were used, with a significance level of  $p < 0.05$ .

The survey included 334 pharmacists, of whom 34.6% reported that their pharmacy collects pharmaceutical waste from citizens. Almost all respondents (94.4%) supported a national system for the collection and destruction of pharmaceutical waste. Significant differences were found between branches of the Pharmaceutical Chamber of Serbia regarding collection practices ( $p = 0.001$ ), with the lowest percentage in Belgrade (20.0%) and the highest in Kragujevac (47.2%). Pharmacists in pharmacies that collect waste more often reported a moderate or high financial burden compared with those in pharmacies that do not (40.2% vs 18.4%;  $p = 0.003$ ). The main barriers were lack of infrastructure and containers (65.7%), lack of patient knowledge and interest (62.0%), and high costs (51.2%).

It is necessary to integrate pharmacists' support for a national system into standardized pharmaceutical waste management practices, along with infrastructure provision, financial support for pharmacies, and continuous education of pharmacists and patients.

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