

# CLINICAL PHARMACY IN CROATIA

AVTOR / AUTHOR:

prof. dr. Vesna Bačić Vrca

*Faculty of Pharmacy and Biochemistry, University of Zagreb and University Hospital Dubrava Zagreb*

NASLOV ZA DOPISOVANJE / CORRESPONDENCE:

E-mail: vesnav@kbd.hr

Continuous practice of clinical pharmacy was started at the University Hospital Dubrava Zagreb in 1996, in the Department of Cardiac and Transplantation Surgery of the Clinic of Surgery. The pilot-project »Unit Dose Drug Distribution System« was then started in collaboration with the Texas Heart Institute of Houston, USA. Following an elaborated protocol, pharmacists had to supervise the prescribed therapy with regard to the adequacy of chosen medications, suitability of the dosage form, dose, dosing intervals as well as prediction and avoidance of clinically significant drug interactions. Pharmacists became visible and active members of the health team. The pilot-project resulted in reduced drug consumption and establishment of good quality pharmaceutical care for hospitalized patients (1). Later, the pilot project had been spread at almost all departments of the Surgery Clinic. Written forms of pharmaceutical interventions have been introduced in practice, which are largely accepted by physicians (2). In 1997, a seminar in clinical (hospital) pharmacy with international participation was held at the Clinical Hospital Dubrava. In the following year, Clinical Pharmacy was introduced at the Faculty of Pharmacy and Biochemistry, University of Zagreb, first as an elective, and several years later as a mandatory course. It was the first time that the students were shown and taught on real cases from clinical practice. In 2006, a graduate course in Pharmacotherapy was added to the Faculty curriculum, as part of the Tempus project, in collaboration with the faculties of pharmacy of the Universities of London, Brighton and Navarra.

The postgraduate specialist study course »Clinical Pharmacy« was introduced in the academic year 2010/2011. It lasts two semesters and has 300 hours of mandatory and elective subjects, in which students have to achieve a total of 60 ECTS points (40 for mandatory and 20 ECTS points for elective courses). The course is intended for pharmacists from hospital and community pharmacies and is aimed at promotion and provision of a rational, correct and safe application of drugs. The postgraduate specialist study course in Clinical Pharmacy is also the theoretical part of the clinical pharmacy specialization programme – hospital and community pharmacy, which the Ministry of Health Croatia approved in 2008. In 2012, the Clinical Pharmacy Section was founded within the Croatian Pharmaceutical Society. In 2014, First Croatian Congress of Clinical Pharmacy with international participation was held in Zagreb.

In our healthcare system there are currently six clinical pharmacy specialists (three of them completed the specialization in Ljubljana, Slovenia) and about 20 residents. Postgraduate specialist studies in clinical pharmacy were finished by about 80 pharmacists at the Faculty of Pharmacy and Biochemistry in Zagreb, while three colleagues completed the postgraduate course in clinical pharmacy in London.

Clinical pharmacy practice in Croatia is still modest. Beside clinical pharmacy practice and research activities at the University Hospital Dubrava Zagreb, only few hospitals carry out the activities of clinical pharmacy. It should be noted that at the Magdalena Clinic for Cardiovascular Diseases in Krapinske Toplice, with only 100 beds, the clinical pharmacist provides medication order review and therapy interventions in everyday clinical practice. The activities of clinical pharmacists at community pharmacies are slowly being introduced in practice.

As members of the multidisciplinary healthcare team, clinical pharmacists can ensure healthcare integrity from the hospital to the community and *vice versa*, taking heed of the benefits and risks of each particular pharmacotherapy.

## References:

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2. Bačić Vrca V. Medication errors prevention and therapy optimisation: experience from Dubrava University Hospital. *First Croatian Congress of Clinical Pharmacy with interanational participation, Zagreb 2014., Book of Abstracts pp 23-24*

