



# Metformin 15-Year Consumption Analysis in Selected European Countries



Stevic I, Odalovic M, Lakic D, Tadic I, Milosevic Georgiev A

Department of Social Pharmacy and Pharmaceutical Legislation, Faculty of Pharmacy, University of Belgrade, Vojvode stepe 450, Belgrade, Serbia

## CONCLUSIONS

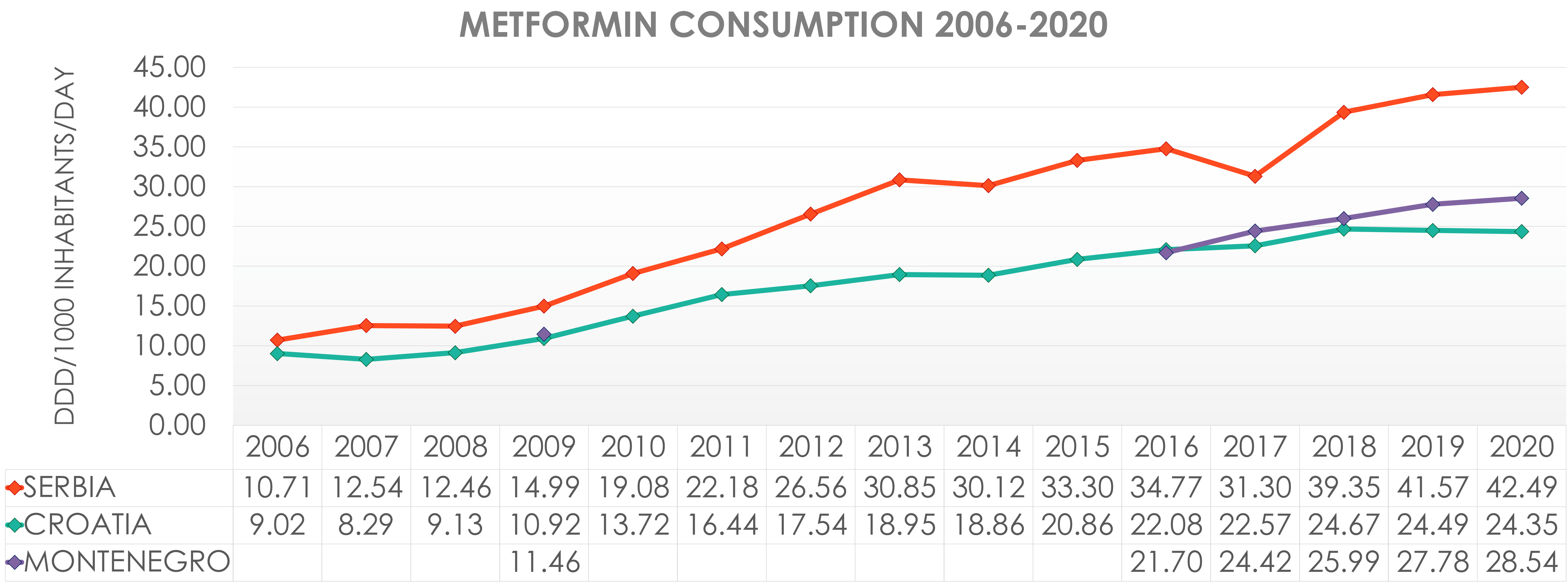
Metformin consumption in three selected countries showed continuous growth, with the highest consumption in Serbia in all 15 years. Further research is needed to show the causes of this increase in metformin consumption in these European countries.

## METHODS

Data on metformin consumption have been retrieved from publicly available sources of respective Health Authorities, in Serbia and Croatia agencies for medicines and medical devices (ALIMS, HALMED), and Institute for medicines and medical devices in Montenegro (CInMED), with cut-off date June 15th, 2022. Based on available data and using the World Health Organization defined daily dose (DDD) per 1000 inhabitants per day methodology, database was created and analyzed.

## OBJECTIVES

Metformin is widely used medicine for several indications. The aim of this research was to analyze metformin consumption in Republic of Serbia and Croatia 2006 - 2020, and additionally in Montenegro 2016 - 2020 (data available for this period), since recent publications showed its presence in wastewater world-wide.



\* Empty cells – no data available

Figure 1 Metformin consumption in selected European countries (2006 – 2020)

## RESULTS

Annual metformin consumption during 15-year period of time is presented in Figure 1. Consumption of metformin in Serbia has increased 3.97 times from 2006 until 2020, with DDD per 1000 inhabitants per day value 10.71 vs 42.45. In Croatia, for the same period, consumption increased 2.7 times (9.02 vs 24.35). In Montenegro, an increase in consumption in 5 year period is also noticed, from 21.70 in 2016, to 28.54 in 2020 (1.32 times growth). Comparison between countries showed that in 2006, consumption in Serbia and Croatia was comparable. In 2010 in Serbia consumption was 1.39 times higher (19.08 vs 13.72), and this trend continued in 2015 with 1.6 times higher consumption (33.30 vs 20.86), and also in 2020 where consumption in Serbia was 1.75 times higher compared to Croatia. In 2016, consumption in Croatia and Montenegro was comparable (22.08 vs 21.70) while in Serbia it was higher (34.77). In all three countries, metformin has been among top 15 consumed medicines (INN) since 2016.

Balakrishnan, Akash et al. Metformin as an emerging concern in wastewater: Occurrence, analysis and treatment methods. Environmental research vol. 213 (2022): 113613

Medicine consumption in Serbia. Available at: <https://www.alims.gov.rs/o-agenciji/publikacije/>.<sup>†</sup>

Medine consumption in Croatia. Available at: <https://www.halmed.hr/Promet-proizvodnja-i-inspekcija/Promet/Potrosnja-lijekova/Izvjescia-o-prometu-lijekova/>.<sup>†</sup>

Medicine consumption in Montenegro. Available at: <https://www.calims.me/Reports on medicines consumption/>.<sup>†</sup>

<sup>†</sup> Accessed on: 15.06.2022.

