

## **PHARMACOECONOMICS OF INDIVIDUALIZED THERAPY**

**Slobodan Janković\***

University of Kragujevac – Faculty of Medical Sciences, Department of Pharmacology and Toxicology, Kragujevac, Serbia

\*sjankovic@medf.kg.ac.rs

Individualization of therapy implies adjusting the choice of drug, method of administration and dosage regimen to the needs of the patient, i.e., to its genetic characteristics, comorbidities, and concomitant therapy. Optimally, it increases the cure rate, length and quality of life, while reduces the frequency and severity of adverse drug reactions. The aim is to evaluate the relationship between the costs of antibiotic therapy individualization and financial gain it achieves. The assessment of the cost-benefit ratio can be made by applying a pharmacoeconomic model with direct costs of individualization of therapy, costs of therapy and diagnostics itself, and costs of health services as inputs, and as outcomes savings achieved by shortening hospitalization, faster healing, and avoiding drug side effects and undesirable interactions. The model uses the perspective of Republic Health Insurance Fund, and the time horizon equal to life expectancy reduced by the average age of patients with nosocomial pneumonia. The comparator of individualized therapy will be standard treatment. The cost-benefit ratio of individualized therapy is significantly more favourable than the cost-benefit ratio of standard antibiotic therapy of hospital-acquired pneumonia. Main savings are due to the reduction of mortality, shortening of hospitalization and reduction of antibiotic consumption per patient. If the hospital has clinical pharmacologists or clinical pharmacists employed, the costs of the individualization procedure are minimal, and the savings are much greater. Systematic application of individualized antibiotics use has great potential for reducing the total cost of healthcare in hospitals and creating opportunities for investment in innovative health technologies.

### **References**

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## FARMAKOEKONOMSKA OPRAVDANOST INDIVIDUALIZACIJE TERAPIJE

**Slobodan Janković\***

Univerzitet u Kragujevcu – Fakultet medicinskih nauka, Katedra za farmakologiju i toksikologiju, Kragujevac, Srbija

\*sjankovic@medf.kg.ac.rs

Individualizacija terapije podrazumeva prilagođavanje izbora leka, načina primene i doznog režima potrebama pacijenta, tj. njegovim genetskim karakteristikama, komorbiditetima i konkomitantnoj terapiji. Optimalno individualizovana terapija povećava procenat izlečenja, dužinu i kvalitet života sa jedne strane, a sa druge smanjuje učestalost i težinu neželjenih dejstava lekova. Cilj ovog rada je da proceni odnos troškova individualizacije antibiotske terapije i finansijske dobiti koja se njome ostvaruje (cost/benefit analiza). Procena odnosa troškova i dobiti se može napraviti primenom farmakoeconomskog modela koji će kao inpute imati direktne troškove individualizacije terapije, troškove same terapije i primene neophodnih dijagnostičkih metoda, i troškove zdravstvenih usluga, a kao ishode uštede ostvarene skraćanjem hospitalizacije, smanjenjem potrošnje lekova i zdravstvenih usluga zbog bržeg izlečenja, i izbegavanjem neželjenih dejstava lekova i nepoželjnih interakcija. Model će koristiti perspektivu Republičkog fonda za zdravstveno osiguranje, a vremenski horizont će biti jednak očekivanom trajanju života umanjenom za prosečnu starost pacijenata sa bolničkom pneumonijom. Komparator individualizovanoj terapiji će biti standardna antibiotska terapija. Odnos troškova i dobiti individualizovane antibiotske terapije je znatno povoljniji od odnosa troškova i dobiti standardne antibiotske terapije bolničke pneumonije. Glavne uštede individualizovana terapija stvara usled smanjenja mortaliteta, skraćanja hospitalizacije i smanjenja potrošnje antibiotika po pacijentu. Ukoliko bolnica raspolaže kliničkim farmakolozima ili kliničkim farmaceutima, troškovi postupka individualizacije su minimalni, a efekat značajno veći. Sistematska primena individualizovane primene antibiotika ima veliki potencijal za smanjenje ukupnih troškova zdravstvene zaštite u bolnicama i stvaranje mogućnosti za ulaganje u inovativne zdravstvene tehnologije.

### **Literatura**

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