

## CONSUMPTION OF DRUGS AFFECTING RESPIRATORY TRACT – KOSOVO CASE

**A. Jakupi<sup>1</sup> and I. Baholli<sup>2</sup>**

<sup>1</sup>*Kosovo Medicines Agency*

<sup>2</sup>*European University – Tirana*

**Summary.** Kosovo Medicines Agency in the last two years has worked intensively in analyzing and publishing official data about drug consumption. In deed it was publishing drug consumption data for a three year period 2011-2013 showing overall consumption during the period. Different classes of drugs show some discrepancy with other indicators published by other relevant institutions which are a subject for further studies. The National Institute for Public Health of Kosovo published morbidity analysis where it is shown that diseases of the respiratory tract are those that are reported as leading over other diseases (National Institute of Public Health of Kosovo 2013), while drugs affecting the cardiovascular system are those that are consumed most. This paper analyses drugs used for the respiratory tract according to ATC classification model of WHO (R – drugs) based on DID indicator. The drug consumption in 2013 is of 54.96 DID or 5.34% from all the 14 drug groups respectively; 54.95 DID or 6.12% from all the 14 drug groups in three year period (2011-2013) and it will be this ATC class that will further be analyzed in this paper. These numbers for drug consumption of respiratory drugs in Kosovo are based on 47 drugs according to their INN names or 195 different types of drugs according to their brand names that have a “Marketing Authorization” in Kosovo and which are manufactured by 68 manufacturers worldwide.

**Key words:** *drug consumption, WHO, ATC, DDD, DID*

## ПРИЕМ В РЕПУБЛИКА КОСОВО НА ЛЕКАРСТВА, ДЕЙСТВАЩИ ВЪРХУ РЕСПИРАТОРНИЯ ТРАКТ

**A. Джакупи<sup>1</sup> и И. Бахоли<sup>2</sup>**

<sup>1</sup>*Агенция по лекарствата на Косово*

<sup>2</sup>*Европейски университет – Тирана*

**Резюме.** През последните две години в Агенцията по лекарствата на Косово (Kosovo Medicines Agency) се работи интензивно върху анализането и впоследствие публикуването на данни относно приема на лекарства. Публикувани са доклади за периода 2011-2013 г. Различия в

приема се наблюдават при различните класове медикаменти, което води до следващи анализи. Националният институт за обществено здраве на Косово оповестява данни за заболяемостта, откъдето се вижда, че заболяванията на респираторния тракт са най-честите, но най-често приеманите лекарства са за сърдечно-съдовата система. В статията се прави анализ на приема на лекарства (по класификацията на СЗО), действащи върху респираторния тракт. Анализът е основан на индикатора DID. Консумацията на лекарства през 2013 е 54.96 DID, или 5.34% от всички 14 групи лекарства. За тригодишния период (2011-2013) е съответно 54.95 DID, или 6.12%, и тези данни са анализирани в статията. Данните са основани върху проследяване изписването на 47 медикамента (според INN) или 195 различни лекарства (според търговското им наименование), получили разрешение за продажба в Република Косово и произведени от 68 производители от цял свят.

*Ключови думи: предписване и продажби на лекарства, СЗО, АТС, DDD, DID*

## **Introduction**

Many countries now for many years from their respective agencies publish the drug consumption data which are used widely for the decision making processes of many stakeholders starting from policy makers, professional organizations, doctors, agencies and also industry for their business plans. Drug consumption in Kosovo for the years 2011-2013 (drugs used for cardiovascular system) is a part of the bulletin made by Kosovo Medicines Agency in 2014, which includes all the drug classes that have been imported in Kosovo or produced by local manufacturers in this period. Due to the fact that the cardiovascular group of drugs is the most used according to the results based on *DID* (*Defined daily dose per Inhabitant per Day*), that became a reason of further analysis of this group detailed with the analysis and results in this paper. The data analyzed derived from wholesalers and the necessity to collect these data was problematic since it had to everything be done manually due to the lack of electronic system for reporting from wholesalers.

Pharmaceutical sector in Kosovo has two main parts. One of them is the private sector where the dispensing is made for outpatients in 519 retail pharmacies all over Kosovo (KMA 2015). The public sector has to do with the hospitals which are supplied with drugs from

the *Essential List of Medicines* procured through a central procurement of the Ministry of Health. Those drugs are only for inpatients use having in mind that there is still not established a Health Insurance Fund. Patients pay for their drugs from the pocket money, there is no reimbursement (except for inpatients) and the unemployment rate is 30.2% according to the Statistical Agency of Kosovo.

## **Methodology**

A total of 47 drugs of the group R of ATC were analyzed according to their INN names which represents 195 different types of drugs according to their brand names that had *Marketing Authorization* obtained from *Kosovo Medicines Agency* and manufactured by 68 manufacturers worldwide. Data were collected from wholesalers in the time period 2011-2013. As this was the first official publication by Kosovo Medicines Agency (KMA) it became a reason for a three year period analysis in order to get the perception of the trend.

Methodology used is based on ATC classification of drugs. According to WHO Anatomical Therapeutic Chemical (ATC) classification system the active substances are divided into different groups – the organ or system on which they act, their therapeutic, pharmacological and chemical properties, furthermore explaining that drugs are divided into fourteen main groups (1<sup>st</sup> level), with pharmacological/therapeutic subgroups (2<sup>nd</sup> level), the 3<sup>rd</sup> and 4<sup>th</sup> levels are chemical/pharmacological/therapeutic subgroups and the 5<sup>th</sup> level is the chemical substance. Introduced is *DDD* (*Defined Daily Dose* – as the average maintenance daily dose of a product) and *DID* (*Defined daily dose of a product per Inhabitant per Day*) which are used for drug utilization studies and also that are used in the analysis for this paper. The detailed analysis of data included also different indicators needed for final results. These including the total quantity in *mg* of substance, defined daily dose of the product, time period of the consumption that has been made and population in total.

Data were collected in Excel format due to the lack of other forms of system which would made it easier for analysis. Initially entering it from hardcopy to excel and then validating it and further analyzing according to the desired indicators.

## Results

The drugs of the group R consumed in time period 2011-2013 are used in Kosovo with a total consumption from all 14 drug classes of ATC classification with only 6.12%. According to ATC level 2, as presented in table 1 the subgroup R03 makes 33.02 DID overall 60% of the consumption among all R level 2 subclass. C09 represents drugs for obstructive airway diseases

Table 1. DID for drug consumption of group R according to ATC level 2

Row Labels	2011	2012	2013	Grand Total
	DID			
R	23.21	14.43	17.32	54.96
R03	14.70	8.09	10.24	33.02
R06	3.61	2.42	3.10	9.12
R05	2.50	2.15	2.07	6.72
R01	2.41	1.77	1.85	6.03
R02		0.01	0.06	0.07
Grand Total	23.21	14.43	17.32	54.96

Comparing these results with the consumption of the same drug class in Norway it is seen similarly that group R03 is the most consumed also in Norway in 2013 but with 1044.5 DID which is significantly higher use of drugs for obstructive airway diseases than in 2013 in Kosovo which is 10.24 DID. Or in terms of group R comparing it for year 2013 in Kosovo with 17.32 DID vs. 1861.3 DID in 2013 in Norway. The proportion of used classes in Norway and Kosovo are similar while group R03 is 60% of the total from the group R compared with group R03 with 56.12% in Norway from R group for 2013. Another interesting fact is that R01 (nasal preparations) in Kosovo is only the fourth of the ATC level 2 of the R Group with consumption of 1.85 DID in 2013 or 6.83 DID in three year period while in Norway is the second after R03 with 430.7 DID in 2013 or 1255.5 DID in three year period.

According to the level 3 of ATC there are shown only selected agents which have higher numbers of consumption for the three years' time period with the three most used subclasses of group R which make 80% of total group R consumption:

1. R03A – Alpha- and beta-adrenoreceptor agonists – 28.99 DID
2. R06A – Antihistamines for systemic use – 9.12 DID
3. R01A – Decongestants and other nasal preparations for topical use – 6.09 DID

Table 2. DID for selected drug consumption of group R according to ATC level 3

Row Labels	2011	2012	2013	Grand Total
	DID			
<b>R</b>	23.21	14.43	17.32	54.96
<b>R03</b>	14.70	8.09	10.24	33.02
R03A	12.83	6.62	9.55	28.99
R03B	0.40	0.26	0.23	0.89
R03C	0.03	0.06	0.01	0.10
R03D	1.44	1.16	0.45	3.04
<b>R06</b>	3.61	2.42	3.10	9.12
R06A	3.61	2.42	3.10	9.12
<b>R05</b>	2.50	2.15	2.07	6.72
R05C	1.91	1.56	1.61	5.08
R05D	0.59	0.59	0.45	1.63
<b>R01</b>	2.41	1.77	1.85	6.03
R01A	2.41	1.77	1.85	6.03
<b>R02</b>		0.01	0.06	0.07
R02A		0.01	0.06	0.07
<b>Grand Total</b>	23.21	14.43	17.32	54.96

Continuing to analyze each agent or each individual drug it is seen that salbutamol as nasal decongestant dominates together with loratadine and cetirizine as antihistamine drugs, for the three year period in Kosovo as shown in table 3.

Table 3. Most consumed drugs of group R for three years according to ATC level 5

Row Labels	2011	2012	2013	Grand Total
	DID			
R	23.21	14.43	17.32	54.96
Salbutamol	12.51	6.39	8.41	27.31
Loratadine	2.42	1.62	1.52	5.55
Cetirizine	1.11	0.74	0.82	2.67
Oxymethazoline	1.44	0.44	0.66	2.55
Aminophylline	1.30	0.63	0.14	2.07
Carbocysteine	1.01	0.48	0.44	1.94
Formoterol	0.30	0.19	1.11	1.60
Naphasoline	0.80	0.37	0.23	1.40
Acetylcysteine	0.23	0.58	0.44	1.25
Pholcodin	0.38	0.35	0.39	1.12
Xylomethazoline		0.67	0.40	1.07

It should be mentioned the fact that high unemployment rate and the lack of health insurance fund hence drug reimbursement makes it harder for patients to afford the continuous use of medicinal products preventive one or chronic therapy which might be one of the reasons of this significant difference with consumption data.

#### References

1. Eurostat, (2015) Statistics on life expectancy at birth -available from: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=tps00025>. Accessed on 05.04.2015.
2. Jakupi, A. (2014) Drug Consumption in Kosovo 2011-2013, Kosovo Medicines Agency. Prishtina Kosovo.
3. Jakupi, A. et al (2014) Drug register 3. Kosovo Medicines Agency. Prishtina Kosovo.
4. Retail Pharmacies in Ksoovo (2015) Kosovo medicines Agency. Available from <https://cloud.akppm.com/public.php?service=files&t=c7dea1dac27efc3778f50c5e99efbeb0>, accessed on 5.4.2015.

5. National Institute of Public Health of Kosovo (2013) Analiza e morbiditetit të popullatës së Kosovës për vitin 2011. Accessed online on May 22. Available from: <http://www.niph-kosova.org/index.php?option=comjdownloads&Itemid=6&view=view.download&catid=3&cid=58>
6. S a g s a h u g , S. et al. (2013) Drug Consumption in Norway 2008-2012. National Institute of Public Health. Norway.
7. W H O, (2014) Structure and Principles of ATC classification. Available from [http://www.whocc.no/atc/structure\\_and\\_principles/](http://www.whocc.no/atc/structure_and_principles/), accessed online on 5.4.2015.

✉ *Адрес за кореспонденција:*

Arianit Jakupi  
Kosovo Medicines Agency  
e-mail: arianiti@gmail.com