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## COMPARISON OF HEALTH INDICATORS APPLYING THE EU HEIDI-ECHI PROGRAMME WITH REGARDS TO TONSILLECTOMIES

### *Abstract*

*The article consists of an international comparative analysis about the amount of performed tonsillectomies in the member countries of the European Union. As a primary question it is investigating what ratio the number of performed tonsillectomies in Hungary shows internationally. As a result an enormous difference in tonsillectomies is perceptible among the member countries of the EU. Hungary is fourth on the list of the most performed tonsillectomies.*

*Cikkünkben nemzetközi összehasonlításban elemezzük az Európai Unióban elvégzett mandula műtétek számát. Elsődleges célunk volt megvizsgálni és a nemzetközi adatokkal összehasonlítani a Magyarországon elvégzett mandula műtétek számát és arányát. Vizsgálatunk során megállapítottuk, hogy az Európai Unió tagállami között jelentős eltérés mutatkozik az évente elvégzett mandulaműtétek arányában. Magyarország a legtöbb elvégzett tonsillectomia rangsorában a negyedik helyen szerepel.*

**Keywords:** *health indicator, diagnostic and therapy protocol, tonsillectomy, statistic data ~ egészségügyi indikátor, diagnosztika, kezelés, mandulaműtét, statisztikai adatok*

## INTRODUCTION

The article consists of an international comparative analysis about the amount of performed tonsillectomies in the member countries of the European Union. With the help of the EU HEIDI-European Community Health Indicators (HEIDI-ECHI) program the numbers of tonsillectomies became comparable within the European Union. The analysed statistic data showed that there is a magnitude of difference in the performed tonsillectomies among the countries. Since 2006 the number of performed tonsillectomies in the EU has shown a decreasing tendency.

## DISCUSSION

As the Force Medical Officer of the United Nations Peacekeeping Forces in Cyprus (UNFICYP) I conducted several examinations and surveys among the soldiers in mission. Ear-nose-throat examinations targeted the upper-respiratory tract infections. After the evaluation of the results I found out that the number of performed tonsillectomies is the highest among Hungarian soldiers considering all data from all nations. For further analysis I used the EU HEIDI-European Community Health Indicators (EU HEIDI-ECHI) application, in which I was searching comparative data of the rates of previously performed tonsillectomies in Hungary and the rates of other similar surgeries among other nations. Through the analysis of the statistic database of EU HEIDI-ECHI the results show that there is a magnitude of difference between nations. Through the numerical data, analysing mainly the rates and the dynamics of changes, I would like to draw the attention to the importance of the application of diagnostic and therapy protocols in the event of tonsillectomies. Also my aim is to emphasize the importance of protocol based decision-making mechanism, which materialization could affect the numbers of tonsillectomies.

The EUROSTAT is one of the Directorate-General of the European Commission. Its function primarily is to harmonize and standardize the statistic data among member countries and to ensure statistic information to institutions of the European Union, member countries and candidates. [1]

The most important target of the EU in the 2008-2013 health-program period was to continuously generate comparative data about the European citizens' state of health to the member countries within the period. Data collection and data processing are based on the systematization of the health indicators in accordance with protocol, mutually accepted definitions and methods. Part of this program a list of European Community Health Indicators, (ECHI) was made. In the database there are information about lifestyle and other health determinants, the chronic, the serious and rare diseases, the availability and quality of care and the analyses of the financial viability of the health care system [2].

The availability of the published data is free on the internet through the EUROSTAT website [3].

In favour of the easier access the statistics are placed in a hierarchical navigational file. On the statistics related portal the search can be done thematically and alphabetically. The EUROSTAT website is available in English, German and French. [1] The topic related section analyses are available in Hungarian through the website of the European Commission Health and Consumers Directorate-General [4].

Most of the data are provided by the EUROSTAT but several indicators are relied on databases of big organizations (e.g. WHO, OECD) or results of special databases.

During data processing users can set the relevant indicators individually. 88 kinds of indicators or so have been elaborated in order to the statistic data processing could give a correct picture. The application of HEIDI enables us to request data of member countries, annual data,

highest-lowest data as well as data of EU average. Results can be visualized equally in the form of diagrams, charts, maps.

The interactive application of HEIDI-ECHI determines data in standardized prevalence per 100,000 residents [5].

The program makes data available organized according to the following groups:

- demographical, social-economical data
- state of health data
- major health determiners
- data of medical treatments and services.

The subgroup ‘surgical interventions’ of the latter group consists of the data related to tonsillectomies.

Currently there is a live database of performed tonsillectomies in the period of 2005-2011 considering member countries and overall EU destinations. The figure No.1 [5] shows the annual average surgery number:

Year	EU average / 100.000 people	
2005	158,5	surgery
2006	161,6	surgery
2007	139,5	surgery
2008	130,4	surgery
2009	120,0	surgery
2010	113,5	surgery
2011	120,5	surgery

**Figure No.1.** Number of the annually performed tonsillectomies in the European Union (edited by Zs.Fejes)

As you can see in figure No.1, the numbers of performed tonsillectomies show a decline in relation to the years of 2005 and 2006. Average rate shown in the table (further as EU average) is 120 surgeries per 100.000 people.

The year of 2009 was chosen for further analysis in view of the fact that it has the biggest amount of available and comparable data related to performed tonsillectomies.

## RESULTS

I analysed which country reported the minimum and maximum number of surgeries in the given period in fact I inspected how these numbers relate to the EU average and to the rate of surgeries in Hungary. (Figure No.2) [5]

Country	Performed tonsillectomies in 2009/100.000 people	
Cyprus	31,0	surgery
<i>EU average</i>	<i>120,0</i>	<i>surgery</i>
Hungary	154,0	surgery
Estonia	467,7	surgery

**Figure No.2.** Minimum and maximum number of performed tonsillectomies in the EU in 2009 (edited by Zs.Fejes)

There were 31 performed surgeries per 100.000 people in Cyprus in 2009, which is considered as an explicitly low number, it is 74% less than the EU average (120). At the same year there were 28% more surgeries (154) than the EU average (120) in Hungary. As for Hungary, analysing data from the previous 3 years (2006, 2007, 2008) a decline can be detected in the absolute surgical numbers, the number of surgeries dropped from 197 to 154. Besides these, the fact that there is a significant increase in the rate of tonsillectomies in the given period

raises awareness because the number of surgeries in Hungary exceeds the EU average in 2006 with 22% but in 2009 it exceeds with 45%. It happened even though there were no changes or alterations in the system of protocols or in the reporting system in the given period. The highest number of surgeries was reported in Estonia in 2009, where the rate was 467,7 per 100.000 people. This number exceeds the EU average with 290%, which is a unique rate in Europe.

I analysed the reported data from member countries located in the same region of Hungary in order to check if there is any relation between the environmental, weather factors and the number, rate of the indicated tonsillectomies. As we can see in the following table, none of the countries in the region of Hungary reaches the EU average apart from Hungary. The rate of performed tonsillectomies was almost the same in Austria (117,7) and in Romania (110,6), which are 3% and 10% under the EU average. In comparison with these two countries, the data from Slovenia falls behind significantly with its number of 54,7. Figure No.3. [5]

Country	Performed tonsillectomies in 2009/100.000 people	
Slovenia	54,7	surgery
Romania	110,6	surgery
Austria	117,7	surgery
<i>EU average</i>	<i>120,0</i>	<i>surgery</i>
Hungary	154,0	surgery

**Figure No.3.** Numbers of tonsillectomies in Central-Europe (edited by Zs.Fejes)

In view of the results of the analysed database, there are only 3 other member countries in the European Union namely, Germany, Luxemburg and Estonia, where the numbers of performed tonsillectomies were higher than in Hungary in 2009. The difference between the Hungarian and German data is insignificant only 1,8 surgery per 100.000 people.

In comparison with data from all the member countries, the number of 209,3 surgeries from Luxemburg and the number of 467,7 surgeries from Estonia considered high, even extremely high. It was typical of both Luxemburg and Estonia that they continuously produced high numbers during the whole reporting period.

Figure No. 4 shows the results of European countries further away from Hungary: [5]

Country	Performed tonsillectomies in 2009/100.000 people	
Estonia	467,7	surgery
Luxemburg	209,3	surgery
Germany	155,8	surgery
Hungary	154,0	surgery
<i>EU average</i>	<i>120,0</i>	<i>surgery</i>
Finland	116,8	surgery
France	82,2	surgery
The Netherlands	77,4	surgery
United Kingdom	70,0	surgery
Poland	59,1	surgery
Spain	45,1	surgery
Cyprus	31,0	surgery

**Figure No.4** Numbers of tonsillectomies in other countries in the European Union (edited by Zs.Fejes)

Typical of Germany that the number of surgeries in the analyzed period (2005-2011) continuously showed the same rate with minimal fluctuation (moving between 168,5-155,8). Like the German rate there are minimal fluctuations in the data of Finland, Sveden, Poland. Cyprus, Spain and Poland steadily produce number of surgeries close to the European minimum. The results of the latter two countries are interesting especially because with low numbers of surgeries, the fluctuation of the numbers of surgeries among the years is also

minimal although, it shows mild increase in the Spanish data. All of these results indicates that the system is well-defined, based on strictly followed, professional protocols.

## SUMMARY

With the help of the HEIDI-ECHI program the numbers of performed tonsillectomies became comparable in the European Union. The analysed statistic data showed that there is a magnitude of difference in the performed tonsillectomies among the member countries of the EU. Since 2006 the number of performed tonsillectomies in the EU has shown a decreasing tendency. In view of Hungary, it was detected that the number of performed tonsillectomies continuously exceeds the EU average. It was also detected that though the absolute number of surgeries shows decreasing tendency, the rate of it in comparison with the EU average increases after all.

Considering the extreme values (31,0/467,7) it can be stated that for the time being a unified technical protocol to indicate tonsillectomies in the EU has not elaborated and applied yet. It can also be stated that according to the available data it is highly unlikely that the environmental, mainly weather, factors could alter the numbers of tonsillectomies significantly (e.g. Estonia – Finland vs. Luxemburg – France).

In view of Hungary, it was detected that the number of performed tonsillectomies continuously exceeds the EU average with which Hungary is fourth in the EU. It was also detected that though the absolute number of surgeries shows decreasing tendency, the rate of it in comparison with the EU average increases after all.

### *Questions to be answered:*

In connection with the major differences in data during the analysis of the HEIDI-ECHI reporting and statistic system that is based on unified rules the following questions are to be answered:

1. Is there any difference among the given countries considering incidence, prevalence, morbidity correlating with the statistic data?
2. Do the diagnostic algorithms of member countries differ from each other?
3. Are there any diagnostic technical protocols related to the indication of tonsillectomies applied in the member countries?
4. To what extent do procedures of these technical protocols demand the application of objective diagnostic systems (rapid tests, laboratory tests)?
5. To what extent can other, subjective factors (length of waiting list, lack of the system of tips and gratuities or even the presence of them, local traditions) affect the indication of surgeries in a given member country?
6. In which stages/points do the decision making procedures of surgeries differ in different countries?

During data analysis we have to consider that there might be a correlating alteration in statistic data among the given countries considering incidence, prevalence, morbidity. It is presumable that the decision-making procedures of tonsillectomies differ in countries.

Nevertheless, effects of other, subjective factors upon the numbers of performed tonsillectomies cannot be excluded (e.g. length of waiting list, lack of the system of tips and gratitude or even the presence of them, local traditions).

## References

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