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Actualities of Hungarian pharmaceutical financing market

Newsletter

HEALTHWARE

News, current issues

- **Legislations** come into force between 01/07/2016 and 01/08/2016**:** Act XI of 1991 (01.07.2016); Act LXXXIII of 1997 (01.07.2016,23.07.2016); Act CLIV of 1997 (01.07.2016); Act XXV of 1998 (01.07.2016); Act XCV of 2005 (01.07.2016,17.07.2016); Act XCVII of 2006 (01.07.2016); Act XCVIII of 2006 (01.07.2016); NM Decree No.9/1993. (01.08.2016); Gov.Decree No.43/1999. (01.07.2016,01.08.2016); Gov.Decree No.337/2008. (01.07.2016); Gov.Decree No.235/2009. (01.07.2016); Gov.Decree No.323/2010. (01.07.2016,23.07.2016); ESzCsM Decree No.32/2004. (01.08.2016); EüM Decree No.31/2010. (01.08.2016); NEFMI Decree No.11/2011. (11.07.2016)
- **NEWS [HU]:** *"Recoverable debts of hospitals: no one is responsible for anything"* link
- **NEWS [EN]:** *"Spending on diabetes prescriptions doubles to £1 billion in ten years"* link
- **NEWS [HU]:** *"Zoltán Ónodi-Szűcs: Health care reform is a near-death experience"* link
- **NEWS [EN]:** *"Future of drug pricing: paying for benefits not per pill"* link
- **STUDY:** *"Are the generic drugs interchangable?"* link [HU] publication [EN]
- **NEWS [HU]:** *"Semmelweis University proposal for medial education development and Budapest's new healthcare system"* link

Survey of references, meta – analysis

We collect the available information, evidence in related articles, directives, studies, research.

As the first step of systematic research of the scientific literature we define the relevant keywords.

Then we present the evidence charts, it is followed by organization and comparative analysis.

Meta – analysis

We are able to make an exact summary of the results with statistical methods, which is based on the systematic research of scientific literature that led to compiling the parameters of evidence charts.

More details: link

Product offering

Macro approach to financing healthcare and medicinal products

Balance of the Health Insurance Fund

Billion HUF

Health Security Fund	2015. I-XII.	2016 original appropriation	2016		
			I-VI. months	% of appropriation	% of last year
Total of Budgetary Expenditures	**1 955,3**	**1 963,7**	**989,4**	**100,8%**	**103,1%**
Curative preventive provisions	960,6	982,4	479,3	97,6%	102,1%
Medicine subsidies	326,2	305,1	166,7	109,3%	105,2%
Medicine subsidies (pharmacy)	310,6	231,4	159,8	138,1%	104,9%
Total of Budgetary Revenues	**1 925,4**	**1 963,7**	**1 014,3**	**103,3%**	**105,2%**
Social Security Contributions	1 223,4	1 417,0	731,7	103,3%	120,3%
Contribution of Pharmaceutical Manufacturers and Wholesalers	65,3	58,0	37,3	128,8%	112,1%
Balance	**-29,9**	**0,0**	**25,0**		**561,4%**

In expenditures and revenues of 2016 budget, there is 2,77% increase compared to appropriation of 2015 and 0,43% increase compared to fulfilment of 2015. The central budget contribution is planned to be less with 26,5% than last year fulfilment, and this gap is filled with the 18,2% higher social security contribution (218 billion HUFs). The medicine subsidies plan is lower with 21,2 billion HUFs than last year expenses, but higher with 7 billion HUFs than the last year's original appropriation.
In the first six months of 2016 the Health Security Fund produced a 2,54% surplus due to the higher social security contributions (+23,2 billion HUFs; +3,3%) and the lower expenditures of curative preventive provisons (-11,93 billion HUFs; -2,4%). Medicine subsidies shows 9,3% surplus as a result of the medicines' higher turnover particularly that reimbursement based on special permission, and reimbursement of medicines without reference price group.

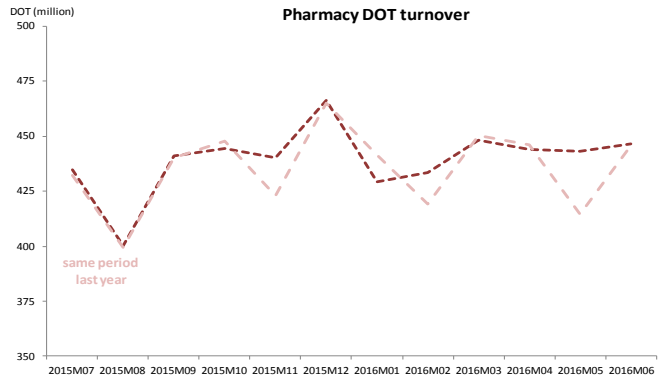
Changes to subsidised medicinal product categories

Changes in the public drug list	2016 Mar.	2016 Apr.	2016 May	2016 June	2016 July	2016 Aug.	2016
Number of new products	19	12	7	17	9	15	116
Number of new AI	1	0	0	0	2	0	8
Number of delisted products	9	36	19	1	11	31	152
Prices							
Decrease	5	59	1	0	43	2	144
Increase	0	3	0	0	5	0	8

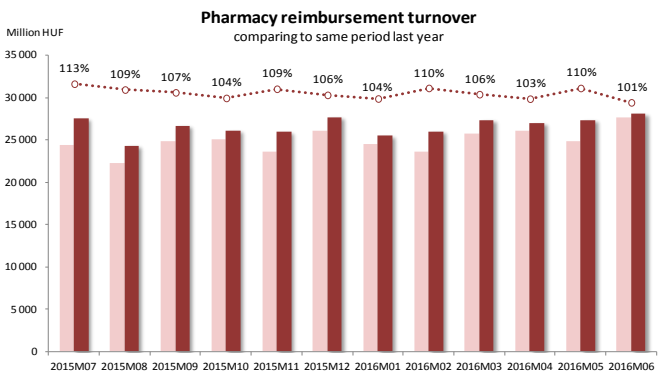
Changes in the public drug list	2016 Mar.	2016 Apr.	2016 May	2016 June	2016 July	2016 Aug.	2016
Reimbursement							
Decrease	6	155	1	0	53	0	256
Increase	0	138	0	0	6	36	206
Co-payment							
Decrease	6	200	2	0	52	2	333
Increase	1	123	0	0	23	36	199

Source: Healthware analysis based on OEP-PUPHA data

Dynamics of the sales/circulation of prescription-only-medicine



Source: Healthware analysis based on OEP's data



Source: Healthware analysis based on OEP's data

Prescription drugs' DOT turnover in 2015 was 1,04% higher than in 2014, so the trend of drug consumption is still increasing, but in slower rate than in 2014 (2,74%) or 2013 (2,23%); while the reimbursement turnover was higher with 7,44%. The average reimbursement per DOT was higher with 6,34% than the 2014's average. New innovative reimbursement decisions were made in 2014 and 2015 generated 3,1% and 0,65% of annual reimbursement turnover, while only 0,4% of annual DOT turnover.
Drug sales in the first six months of 2016 was 1,06% higher than the same period last year, while the average reimbursement per DOT increased with 4,46%. The reimbursement turnover was higher with 5,57% for this period compared to last year.

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Market data

Marketing authorisation information

2015	EMA	OGYI
New brands	91	190
New SKUs	1 081	2 226

2016 - Q2	EMA	OGYI
New brands	20	57
New SKUs	161	542

June 2016	EMA	OGYI
New brands	4	16
New SKUs	56	180

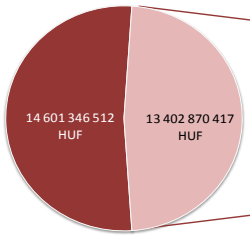
Source: Healthware analysis based on OGYI's and EMA's data

Average number of medical sales reps; 06/2016

All	1 759
Medicinal products	1 497
Medical aids	244
Both	18

Source: Healthware analysis based on OGYI's

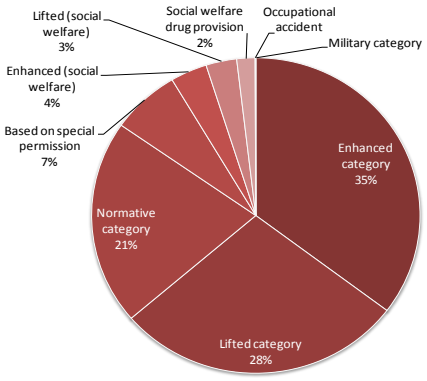
TOP10 DISTRIBUTOR by all reimbursement paid in June 2016



TOP 10 - DISTRIBUTOR	Reimbursement
Novartis Hungária Kft.	2 691 472 341 HUF
SANOFI-AVENTIS Zrt.	1 872 613 105 HUF
EGIS Gyógyszergyár Zrt.	1 420 306 511 HUF
Richter Gedeon Vegyészeti Gyár NyRt.	1 332 149 448 HUF
TEVA Gyógyszergyár Zrt.	1 182 733 657 HUF
Pfizer Kft.	1 145 804 748 HUF
Novo Nordisk Hungária Kft.	1 067 309 402 HUF
Sandoz Hungária Kereskedelmi Kft.	944 755 859 HUF
Lilly Hungaria Kft.	878 063 835 HUF
Janssen-Cilag Gyógyszerkereskedelmi Marketing Szolgáltató K	867 661 513 HUF

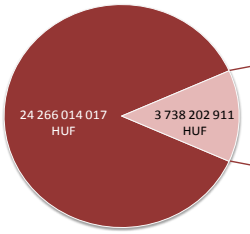
Source: Healthware analysis based on the sales turnover that pharmacies produced from POM

Drug reimbursement by legal title; 06/2016



Source: Healthware analysis based on the sales

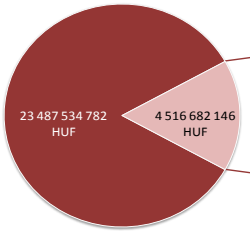
TOP10 BRAND by all reimbursement paid in June 2016



TOP 10 - BRAND	Distributor	Reimbursement
CLEXANE	SANOFI-AVENTIS Zrt.	633 942 533 HUF
GLIVEC	Novartis Hungária Kft.	558 875 565 HUF
XEPLION	Janssen-Cilag Gyógyszerkereskedelmi Market	469 275 289 HUF
SPIRIVA	Boehringer Ingelheim Pharma Gesellschaft m.	329 000 804 HUF
TECFIDERA	Biogen Idec Hungary Kft.	310 036 961 HUF
LANTUS	SANOFI-AVENTIS Zrt.	307 939 118 HUF
TASIGNA	Novartis Hungária Kft.	307 425 256 HUF
HUMULIN	Lilly Hungaria Kft.	294 450 085 HUF
IMBRUVICA	JANSSEN-CILAG INTERNATIONAL NV	274 701 552 HUF
LEVEMIR	Novo Nordisk Hungária Kft.	252 555 748 HUF

Source: Healthware analysis based on the sales turnover that pharmacies produced from POM

TOP10 ATC by all reimbursement paid in June 2016



TOP 10 - ATC	International non-proprietary name (INN)	Reimbursement
B01AB05	enoxaparin	633 942 533 HUF
V06D	other nutrients	598 148 762 HUF
L01XE01	imatinib	558 875 565 HUF
N05AX13	paliperidone	540 836 335 HUF
C10AA07	rosuvastatin	446 050 725 HUF
A10AE04	insulin glargine	419 469 332 HUF
A10AB01	insulin (human)	350 559 704 HUF
C09BA04	perindopril and diuretics	329 761 424 HUF
R03BB04	tiotropium bromide	329 000 804 HUF
N07XX09	dimethyl fumarate	310 036 961 HUF

Source: Healthware analysis based on the sales turnover that pharmacies produced from POM

TOP10 ATC by number of patients in June 2016

TOP 10 - ATC	International non-proprietary name (INN)	Patients
B01AC06	acetylsalicylic acid	355 711
C09BA04	perindopril and diuretics	299 911
C08CA01	amlodipine	262 065
C07AB12	nebivolol	255 833
C10AA07	rosuvastatin	229 141
C10AA05	atorvastatin	223 850
A02BC02	pantoprazole	216 593
M04AA01	allopurinol	214 137
C09AA04	perindopril	182 830
C07AB07	bisoprolol	176 434

Source: Healthware analysis based on the sales turnover that pharmacies produced from POM

Data Visualization with Sankey Diagram — Case study

Introduction

In the course of biostatistical and health-economic analyses it is often necessary to analyze patient pathways, a type of time series data. During the analysis of such data, the focus of the analysis is often the order of the events and the elapsed time between them. Given that a single patient's pathway can contain numerous events, the analysis of a dataset of hundreds or thousands of patients can be cumbersome. In these cases, the representation of data in a graph can be useful not only to see the connections between individual events, but for the clear and easy-to-understand visualization of other important attributes. One of these graphing methods which specifically focuses on the order of events is the Sankey diagram.

Interpretation of the Sankey Diagram

A Sankey diagram, like any graph, constitutes of nodes and links. Nodes represent the relevant events of the study, while the links represent the predefined connection between these events. The Sankey diagram is a type of the so-called flow charts. In these diagrams the thickness of the links is determined by the amount of flow in the link. For example, the Sankey diagram can be used for the analysis of therapy switches, as can be seen in the attached plot. In this case, the nodes represent therapies and the links between them provide information about the connections and patient number between the therapies. The thickness of the links can represent various quantities such as patient number, percentage or any other available data. Sankey diagrams can help with the segmentation of patient pathways and thus with the definition of therapy lines.

Sankey diagrams are based on aggregated datasets. A part of the dataset used to create the example diagram can be seen in the attachment.

It is possible that we are interested in the simultaneous visualization of multiple attributes. Say, we would like to plot the number of patients switching from one therapy to another and the average elapsed time between the two therapies at the same time. This can be accomplished by defining the link thickness by the number of patients and adjusting the colour of the links according to the change in the elapsed time. Nodes can be colored in a similar way.

Table: Data of Patients with "A" Therapy

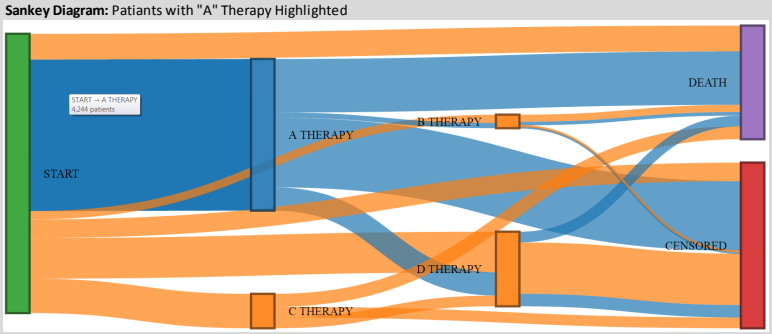
Source	Target	Patient Number
START	A THERAPY	4 244
A THERAPY	DEATH	1 498
A THERAPY	CENSORED	1 950
A THERAPY	D THERAPY	650
A THERAPY	B THERAPY	146
B THERAPY	DEATH	100
B THERAPY	CENSORED	46
D THERAPY	CENSORED	350
D THERAPY	DEATH	300
...	...	...

It is possible to save the diagram in HTML format. In this format the order of events within a column can freely be interchanged. This format also allows the user to see the exact number of units – in this case the patient number – that determines the link thickness. Since only a static picture can be attached to this page, we demonstrate this function in the link connecting the start and the therapy A.

Interpretation of the Example Diagram

The attached Sankey diagram visualizes therapy switches where the thicknesses of the links are determined by patient numbers. The diagram also contains a start state and two so-called absorbing states: death and censoring. Absorbing states are states where the patient pathway ends without any possible continuation. The displays of the starting and absorbing states are both optional. Leaving these out of the plot can lead to unfinished flows. Say, we display the death event, but we leave out the censoring. In this case one will be able to see that not all patient pathways end in an absorbing state, thus not all patients die.

Sankey Diagram: Patients with "A" Therapy Highlighted



The advantages of the Sankey diagrams are quite apparent: therapies with the highest patient numbers, connections, and ratios of switching patient numbers can easily be seen. It can be easily determined that the therapy with most patients was therapy A, while the one with the lowest patient number is therapy B. It can also be seen that most patient pathways end with censoring. The distance between a therapy and the absorbing states is determined by the number of additional therapies the patients go through following the therapy in question before reaching the end of the flow. For example the diagram shows that there are patients who switch therapies from therapies A and C.

We demonstrate the usefulness of link coloring by setting blue all links of patients whose patient pathway goes through therapy A. This way one can see, say, the number of patients who started with therapy A, continued with therapy D and then died.

In conclusion, the Sankey diagram is an easy-to-interpret tool in both the preparatory phase of a study and during the display of the results.

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