

HEALTH TECHNOLOGY ASSESSMENT IN THYREOIDOLOGY

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Abstract

Background: Health technology assessment is a new scientific method to evaluate the value of many technologies used in health care. The thyreoidology is medical discipline devotes to thyreoid diseases with using many laboratory exams with a growing number of them and with a growing costs.

Goals: This study investigates the relationship between choosed laboratory exams and ultrasonographic exams, their costs and requested quality of clinical outcomes.

Methods: The study analyses the number of cited exams made in thyreoidology during the period from 2008 till 2011 which were in evidence in General Insurance Company (stock company).

Results: The ultrasonographic exams were growing continuously, the laboratory exams were growing till 2010. The costs reached in 2011 completely 4 223 686 € for laboratory exams and 1 309 097 € for ultrasonographic exams.

Conclusions: In the case of decreasing the average number of laboratory exams from 3.4 to 3.00 per 1 patient e.g. about 11.76 % we can save approximately 496 705 €. In the case of decreasing the average number of ultrasonographic exams from 1.15 to 1.00 per 1 patient, e.g. about 13.04 % we can save approximately 170 576 €.

Keywords: health technology assessment, thyreoidology

1 Introduction

Health technology assessment (HTA) is multidisciplinary process. It offers the informations about benefits, risks and costs of new health technologies, interventions, tools and processes. The HTA fullfilment is based on research and scientific investigation and on standardised scientific methods.

From research view HTA investigates systematically both short-run and long-run implications of the certain health technologies, close related other technologies and all other tools, processes and relations, which have a connection to health status of population or one man. HTA investigates the effective use of financial sources.

From science view HTA is oriented to medical, organizational, economical and societal implications of HTA implementation or interventions in the framework of health system.

From the methodological view HTA contains multidisciplinary activities what gives HTA possibility to evaluate systematically the effect of certain technology on health, on access and allocation of financial sources. The others evaluated fields are equity for they all need the health care and the potential of system to have an adequate reactions on real patients requirements [1].

2 Selection of targets

Target selection for HTA can be made by the audit standard method. The general principles are:

- great extension of cases (methods for imagination, laboratory exams, densitometry, etc.);
- higs costs (dialysis, robotic surgery, rescue systems, etc.);
- importance (optimalization of health facilities network, etc.);
- potential of mistakes (health policy, national health programmes, e- health, etc.) [2].

3 Financing of health care system

HTA solves the cost-effectiveness based on the positive contribution of evaluated technology in the relationship to the real costs. The budget for health care system is divided mostly into the following basic fields: public health insurance - 3 616.1 mil. €, other public sources – 235.2 mil. €, direct costs of patients -1 152.9 mil. €. Completely it is 5 086.4 mil. €, e.g. 7.1 % from GDP [3].

4 HTA in thyreoidology

The analysis of laboratory exams in thyreoidology can be the example for the use of HTA in health care system. Thyreoidology, as one of professional field of endocrinology, is oriented on diagnosis and treatment of thyreoid diseases.

The main point for the analysis is the number of chosen laboratory exams, which have the basic importance for the right and correct diagnosis of thyreoid diseases.

The second one point is the number of thyreoid ultrasonographic exams.

We analyzed the period from 2008 to 2011. The number of all mentioned exams /laboratory and ultrasonographic/ was significantly and continuously increasing in this period. All these trends, in each parameter, are significantly confirmed, as shown on the next figures.

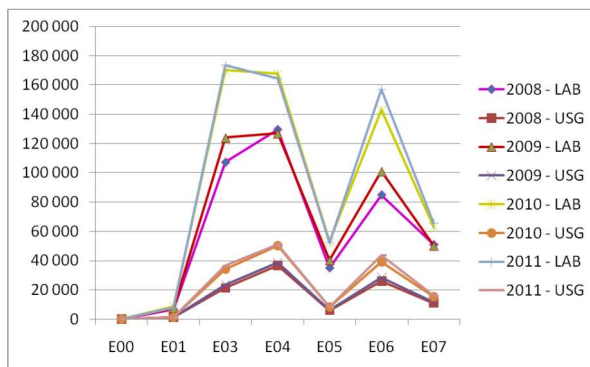


Fig. 1 The number of laboratory and ultrasonographic exams in thyreoidology in Slovakia in 2008, 2009, 2010 and 2011, from General Insurance Company evidence (75% of the whole Slovak population)

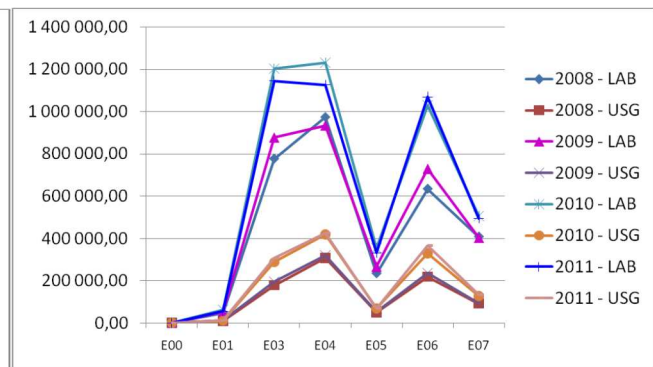


Fig. 2 The expenditures for laboratory and ultrasonographic exams in thyreoidology in Slovakia in 2008, 2009, 2010 and 2011, from General Insurance Company evidence (75% of the whole Slovak population)

The second step, after discovering the number of exams, was to discover the expenditures on them. We take into account only the expenditures reimbursed from public insurance fund. In this case, the expenditures for laboratory exams were increasing till 2010 and slightly decreased in 2011. The expenditures for ultrasonographic exams increased continuously from 2008 to 2011. This is implemented in table 1 and figure 2.

In the third step we recalculated the number of laboratory and ultrasonographic exams, made in 2011, the average number for the 1 patient and the average expenditures for 1 patient, too.

In this year 3.40 laboratory exams and 1.15 ultrasonographic exams per 1 patient were made in average.

The average expenditures of laboratory exams were 23.15 € and 9.61 € of ultrasonographic examinations per 1 patient.

Table 1 *The expenditures for laboratory and ultrasonographic exams in thyreoidology in Slovakia in 2008, 2009, 2010 and 2011, from General Insurance Company evidence (75% of the whole Slovak population)*

	2008		2009		2010		2011	
	LAB	USG	LAB	USG	LAB	USG	LAB	USG
E00	1 142	124	984	123	932	41	832	82
E01	47 441	10 594	55 112	11 698	64 142	10 865	55 176	12 035
E03	775 843	178 149	876 382	195 220	1 202 273	286 413	1 144 653	306 109
E04	972 446	307 194	933 413	320 698	1 229 819	417 715	1 127 442	424 555
E05	233 419	50 053	266 141	53 229	354 957	69 299	331 723	67 639
E06	633 251	218 451	728 693	237 900	1 029 873	327 437	1 069 038	364 441
E07	407 284	91 523	402 702	94 859	506 181	126 430	494 820	133 232
Together	3 070 827	856 092	3 263 429	913 730	4 388 179	1 238 202	4 223 686	1 308 097

5 The quantitative approach

In the fourth step we tried to predict the potential savings. The analysis was made by quantitative and qualitative principle. The quantitative approach was based on determination the maximal number of exams per 1 patients the highest allowed limit, as the limit was supposed the average number of exams made by all endocrinologists in Slovakia per 1 patient. We supposed the number of exams is sufficient for right and correct diagnosis and treatment. Should this approach be realized, the savings would be approximately 337 895 € in the case of laboratory exams and approximately 104 640 € in the case of ultrasonographic exams, e.g. together approximately 442 535 €.

6 The qualitative approach

The qualitative approach was based on the elimination of exams which can be fully or partially mentioned as invalid or arguable. The first exam from this category is fT3 (free trijothyronine) e.g. one of hormones of thyroid. This hormone is mentioned by the Slovak Endocrinology Society as not contributable for the diagnosis and treatment, only in very rare cases. If these exams were excluded, the savings will be /calculated from data of 2011/ about 191 650 €.

The reduction approximately 10 000 aTG exams (antibody of thyreoglobuline) from the total 58 139 exams would bring the savings approximately 113 400 €. The reduction approximately 10 000 aTPO exams (antibody of thyreoid peroxidase) from the total 64 910 exams would bring the savings approximately 113 400 €, too. The reduction approximately 2 000 TRAK exams (antibody thyrotropin receptor antibody) from the total 11 136 exams can bring the savings approximately 22 680 €. The reduction of all these laboratory exams would bring the total 441 130 € savings.

The reduction approximately 10 000 ultrasonographic exams from the total 156 775 exams would bring the 84 000 € savings.

7 Conclusions

HTA is one of valid tools to evaluate the cost-effectiveness aspects of the investments in health care system. HTA evaluation is based on the scientific approach. This approach reduces the risk of possible mistakes in proposals of problems solutions in health care. The optimal solutions have the ability to find the requested balance between clinical and economic effectivity. They can strengthen the economic stability of health care system, what has a great influence on quality of health care.

References

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