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Measuring the Quality Level of Medical Services

Abstract: The paper discusses a methodology of measuring the quality of medical services. Following a division of the characteristics of services identified in the third principle of ISQua, quality levels of three medical organizations were measured. Values obtained pointed to the need for a gradual improvement of health organizations towards the final goal - complete satisfaction of patients.
Keywords: quality level, service, ISO, ISQua, characteristics of service

1. INTRODUCTION

Medical service is defined as an activity in the process of health care that can be performed independently or as a part of a "bundle" of services, provided on a one-time basis or otherwise, and which is always carried out in the same way and which represents an entirety per se [2],

Medical service is realized through the infrastructure of the health departments as well as through certain processes that the health workers perform with the patients, and it leads to a certain outcome for the patients' health. In accordance with this, the Donabedian model of structure - process-outcome introduced a systematical approach to the analysis of the concept of managing processes in health services.

Quality of medical services includes trained personnel, standardized medical services, prevention, expeditious treatment, reduction of procedural risks, efficiency and effectiveness of diagnosis and of therapy administration, broad general education as well as communication skills. In short, it is a group of measures for resolving the health related problems of the patients.

Various segments that constitute quality require a high degree of professionalism and knowledge of the available technologies, efficient usage of resources, minimal patient related risks, satisfaction of patients and a final outcome of the provided health service. Crucially, quality is complex, multidimensional and not easily quantifiable; hence the adage "quality is difficult to define, impossible to gauge, but easy to recognize" [2].

2. STANDARDS USED IN THE HEALTH CARe

2.1 Application of ISO standards

Provisions of the ISO standard are very important for manufacturing and services companies. At a glance, these bear no relevance for the activities of medical institutions. This was especially true for the earlier versions of the ISO standards. The terminology employed in those standards was difficult to relate with health care, while various associations interpreted the standards differently.

Hence the smaller number of health care related certificates: **ISO 9000** standards (2000 version) have been adapted so that these are now easier to

apply to health care and easier to include in the assessment of outcome and patient satisfaction. The system established in accordance with ISO 9001: 2008 is gradually being supplemented by the guidelines from **ISO 9004:2008, IWA 1:2005** as well as by medical guidebooks for the accreditation of specific services that the medical institution provides.

2.2 ISQua – International standards for accreditation of external evaluation bodies in medical care

In 1985 a group of health care professionals gathered in a town of Udine, Italy, to discuss ways of ensuring quality in health care. Many of them were under the influence of Avedis Donabedian. Under the leadership of *P. Reizenstein* who became the president and editor of the journal in 1986. In 1995 the Secretariat of **ISQua (International Society for Quality in Health Care)** was established in Australia. The Society is a non-profit organization administered by a board of directors elected biannually.

In 1999 the International Society for Quality in Health Care (**ISQua**) started its International Accreditation Program (**IAP**) under the acronym **ALPHA**. This program first provided national accreditation bodies with recommendations on how to assess existing workflow and organizational control, and then expanded its program of accreditation to include other external evaluation bodies as well as the establishing of standards in medical care. Nowadays, its activities include:

- Accreditation of teams (institutions) for external evaluation
- Accreditation of medical care related standards that are in accordance with ISQua's international principles of standardization
- Accreditation of training programs, including evaluator/surveyor/ controller training programs

- Education, training and support in the preparations for accreditation

The Society grew and evolved through a program of international conferences as well as through the publication of a journal. On the basis of International **ISQua** principles for standards of health care (Second edition, March 2004), this organization carries out "the accreditation of accreditational standards", accreditation of evaluation bodies (agencies) as well as the accreditation of training programs for health care quality. There are eight **ISQua** standards [2], and **five principles** of health care standards:

1. Standards contribute to the improvement of the realization quality in medical organizations as well as in the health care systems
2. Standards are focused on the patient / client and include management and supporting structures of an organization or department
3. Standards are comprehensive and reflect the following nine dimensions of service quality: accessibility, suitability, readiness, continuity, effectiveness, efficiency, accommodation of client needs, safety, and sustainability.
4. Standards are planned, formulated and evaluated through a defined process
5. Standards allow consistent measurement.
   These five principles are:
- clear, based on logic
- measurable,
- specific,
- based on contemporary research of quality and
- include demands for further development of standards contained in the above mentioned **eight** specific **ISQua** International standards. [10]

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3. METHODOLOGY OF QUALITY LEVEL MEASURING

The object of interest in this paper is determining the level of quality of a medical service by means of the nine dimensions contained in the third principle of **ISQua**.

Through an analysis of the demands set forth by the standards and principles, the dimensions of a service can be divided into elements. It is important to stress that

the services must be:
- rigorous and yet flexible
- efficient and yet effective
- controlled and yet free
- stable and yet variable

Finding the right ratio in these processes is possible only by means of introducing quality standards. Graph 1 represents an example of a division of **accessibility**:
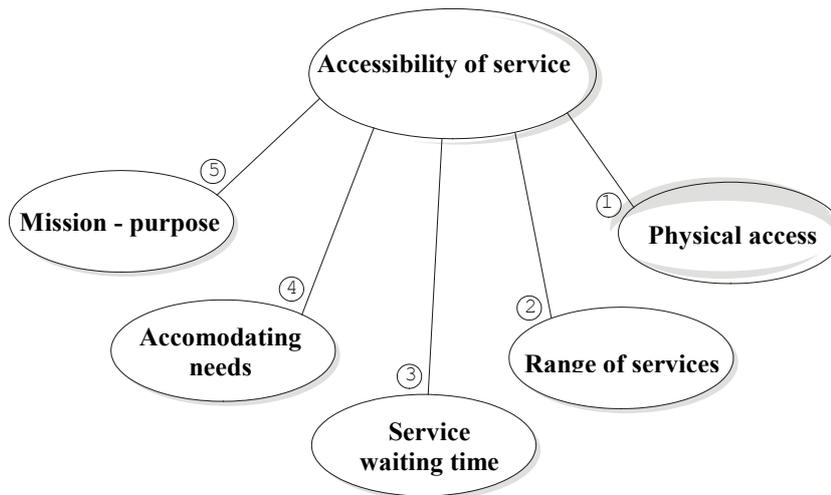
Graph 1 Division of accessibility into elements.

Accessibility can be represented by the following equation:

$$P = p1 \cdot Pe1 + p2 \cdot Pe2 + p3 \cdot Pe3 + p4 \cdot Pe4 + p5 \cdot Pe5 \quad (1)$$

where:
- **p1, p2, p3, p4, p5** – are ponders of significance
- **Pe1, Pe2, Pe3, Pe4, Pe5** – elements of accessibility (characteristics of quality)

Let us suppose that an analysis was undertaken in three medical institutions, with a view to determining an approximate value of accessibility of service as well as to identifying the disproportions between the existing and desired conditions, the which identifying would lead to an

improvement in quality of medical service through the dimension of accessibility. It is important to stress that the tested medical institutions have not begun the implementation of quality standards.

The value of the ponders is determined on the basis of previous work experience, while the characteristics of various elements are evaluated on a 1-10 scale on the basis of the aforementioned analysis of the existing accessibility of services. By putting these values into the equation (1) a numerical value of accessibility of medical service is obtained.

Table 1. Values of elements of "Accessibility" for analyzed medical institutions (MI)

Accessibility of service	Ponder	MI A	Value	MI B	Value	MI C	Value
Physical access	0.3	5	1.5	6	1.8	6	1.8
Range of services according to needs	0.2	4	0.8	4	0.8	5	1.0
Service waiting time	0.3	6	1.8	8	2,4	8	2,4
Accommodating cultural and spiritual needs	0.1	8	0.8	7	0.7	6	0.6
Mission / purpose of the medical institution	0.1	6	0.6	6	0.6	6	0.6
TOTAL	1,0		5.5		6.3		6.4

By employing the same methodology, numerical values of elements of the remaining characteristics of medical service were obtained. Values are presented in Table 2

Table 2. Values of the characteristics of medical service in the analyzed institutions:

VALUES OF THE CHARACTERISTICS OF MEDICAL SERVICE	MI A	MI B	MI C
Accessibility	5,5	6,0	6,1
Suitability	5,1	7,4	7,6
Readiness	7	7,4	7,6
Continuity	5,1	5,7	6,1
Effectiveness	4,5	5,0	5,5
Efficiency	5,3	6,0	6,3
Accommodating the needs of clients	5,8	6,2	6,2
Safety	6,3	6,4	6,7
Sustainability	5,9	6,2	6,2

Since the characteristics of services defined by the third principle of ISQua have been quantified by means of the above described methodology, it is now possible to calculate the quality level of medical service in the analyzed medical institutions.

Ponders of significance have been determined on the basis of the number of indicators contained in the relevant characteristic of service. According to this criterion, the most important characteristic is accessibility, which was therefore assigned a ponder value of 0.2, while the ponder value for the rest of the characteristics is 0.1.

Quality level can be determined by means of the following equations:

$$QLMI1 = p1.Acc + p2.Sui + p3.Rea + p4.Con + p5.Effe + p6.Eff + p7.Acc + p8.Saf + p9Sus \quad\quad\quad (2)$$

$$QLMI1 = 1,1 + 0,51 + 0,70 + 0.51 + 0,45 + 0.53 + 0,58 + +0,63 + 0,59 = 5,6$$

where QLMI1 stands for quality level of medical institution 1

$$QLMI2 = p1.Acc + p2.Sui + p3.Rea + p4.Con + p5.Effe + p6.Eff + p7.Acc + p8.Saf + p9Sus \quad\quad\quad (2)$$

$$QLMI2 = 1,2 + 0,74 + 0,74 + 0,57 + 0,5 + 0,6 + 0,62 + 0,64 + 0,62 = 6,23$$

where QLMI2 stands for quality level of medical institution 2

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QLMI3=p1.Acc+p2.Sui+p3.Rea+p4.Con+
p5.Effe+p6.Eff
+p7.Acc+p8.Saf+p9Sus.......................(2)
QLMI3=1,22+0,76+0,76+0,61+0,55+0,63
+0,62+ 0,67+0,62= 6.44
where QLMI3 stands for quality level of
medical institution 3.

*Table 3. Quality level of the existing
conditions in analyzed institutions*

MEDICAL INSTITUTIONS	QUALITY LEVEL
MEDICAL INSTITUTION A	5,650
MEDICAL INSTITUTION B	6,234
MEDICAL INSTITUTION C	6,443

Results thus obtained show that
quality levels are below those needed.

Values of ponders of significance will
change with the improvements in the
characteristics of services. This is a
necessary, but not a sufficient provision. A
sufficient provision would include taking
steps in management, training, motivation
etc., which would result in the creation of
suitable conditions for the successful
implementation of the quality standards,
and, thus, lead to satisfying values of
quality levels.

4.CONCLUSIONS

The paper shows that the
characteristics of services can be
measured. Every characteristic of service
is divided into elements which have been
assigned ponders of significance as well as
values of service characteristics
determined by an evaluation in three
medical institutions..

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