SHORT THESIS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY (PHD)

METHODS AND INDICATORS FOR THE EVALUATION OF THE QUALITY IN PRIMARY CARE

by

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The Examination takes place at the Discussion Room, School of Public Health, Faculty of Public Health, University of Debrecen
11th of September, 2014, 11am

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11th of September, 2014, 2pm

INTRODUCTION

Primary care plays an important, but different role in each countries' health care system. Strong primary care can make health care more efficient, more accessible and higher quality of health care is also important for the patients. The role of Family Medicine/General Practice in the health care system might be characterized by the quality of care they provide. There is no universally accepted definition of the quality of patient care, there are many definitions, according to various criteria which can be assessed.

The quality of primary care can be interpreted in many different ways and can be evaluated with a number of different approaches.

Quality has different meaning in individual and social level, can be different for patients, health professionals, policy makers and politicians. Some aspects of quality can be measured and other essential elements cannot be are measured. The quality might be improved in terms of the patients (patient satisfaction), the primary care level (policies, continuous training) or through national level (legislation).

In my thesis, I review the conceptual definitions, measurement options of the quality of primary care, based on previously published and available literature and publications.

According to my research areas, I present some particular fields of the Hungarian family medicine where quality could be improved.

With the presentation of international research projects (in which the Department of Family Medicine, University of Debrecen also participated), I present opportunities of the definition, description and characterization of the quality of primary care activities.

Quality indicators are getting more commonly used objective measurement tools of quality. I describe dome elements of the Hungarian primary care's indicator-based performance evaluation system and some elements of its financing. We also tried to assess the extent and forms using these quality measurement instruments in European countries. Based on our international survey I describe some aspects of national indicator systems in Europe.

It is also an important question about financial incentives and pay for performance, whether do family physicians really need more payment for working better?
Family medicine is a holistic discipline, the quality of care could be improved in several areas. In my thesis also investigated the system of the Hungarian breast and cervical cancers screening programmes, the results and the possibilities of early detection in primary care. Primary care plays a prominent role in the early detection and screening of gynaecological cancers in many countries worldwide. However, the Hungarian primary care providers did not play an important role in these activities over the past decades.
Increasing antibiotic resistance is also a global problem. I investigated family doctors', paediatricians' antibiotics prescribing data and national antibiotics consumption data as well.
Obesity and overweight is a major public health problem, we analysed primary care physicians knowledge, therapeutic practices and attitudes on the subject.

BACKGROUND

Quality in health care and primary care

There is no universally accepted definition of quality in health care systems, the approach used by most authors is based on the classic Donabedian model, which is basically assesses the structure, process and outcome dimensions.
The quality of patient care can be analysed from several perspectives.
Quality of care is multi-dimensional and can have different meanings for the members of the society: for patients, healthcare workers, politicians; and also can be determined at population and individual level.
Several organizations defined areas that affect the quality in different ways. At national level, the WHO defines and proposes six key areas to evaluate and determine the quality of care. The health care systems should be assessed and improved according to the following dimensions:

1. **Access:** providing appropriate arrangement of skills and resources, what meets the medical needs and are timely, geographically reasonable
2. **Effectiveness:** evidence based and improving the health outcomes of the population and individuals, that based on needs
3. **Efficiency:** maximizing use of resources, avoiding waste
4. **Equity:** delivering same quality of care for all, irrespective of their age, gender, origin, ethnicity, geographic location or socio-economic status
5. **Patient centred,** also taking into account the **patient's experience**
6. **Safety:** minimizing the potential risks and harm to the service users

It is important for primary care research to find the balance between a wide variety of criteria, and also taking into account the area of patient satisfaction and cost-effectiveness.
Perhaps the most accepted, increasingly used quantitative measurement tools are the quality indicators (QI). The quality indicators were initially used for assessment of the quality of hospital care. However, a significant proportion of the doctor-patient consultations take place in primary care settings, so there was a need for the development, identification and application of primary care indicators.
It is an important issue how the basic structure and performance of primary care is related to the costs and what is it's the impact on the whole health care system. Our Department also took part in the QUALICOPC (Quality and Costs of Primary Care in Europe) project, which investigating the quality of primary care. I aimed to show with the description of the Hungarian branch of the study, the wide spectrum of issues, what international researchers found appropriate to investigate on this topic.

Quality indicators and financial incentives

The introduction of the widest range of primary care quality indicators linked to financial incentives among the European countries was the *Quality and Outcomes* Framework (QOF) in the United Kingdom (UK)

in 2004. One of the main reasons of the QOF's implementation was, that they have realized the correlation between the quality and the underfunding of primary care services in the United Kingdom, comparing to other countries.

The family physicians' indicator-based performance evaluation system in Hungary

Hungarian Ministry of Health and World Bank suggested the introduction of indicator based performance evaluation system to improve quality of primary care. International examples of developing and applying indicators (e.g. OECD, HEDIS and QOF) were investigated and adapted for the Hungarian primary care indicators and evaluation system. The indicators subsequently influenced the financing. Initially the indicator related financing was approximately 1.7% of the total income of the practice. There is a nationally fixed amount for financing the indicator related payments, distributed among the providers (according to their achieved indictor points) by the National Health Insurance Fund Administration.
There were 15 indicators in adult and mixed practices until March 2014 in Hungary. The main areas assessed by the indicators (number of indicators) are: immunisation (1), screening (1), treatment and follow-up of chronic illnesses (7), definitive activity (1), and prescription of medications (5).
The areas assessed by the 8 indicators of the paediatric practices (number of indicators) are as follows: immunisation (1), prevention (2), screening (1), treatment and follow-up of chronic illnesses (1), definitive activities (2), and prescription of medications (1).

Breast and cervical cancer screening system, results and the role of the primary care in early detection in Hungary

The effectiveness and the outcome of cancer treatment can be strongly dependent upon early diagnosis. Early detection influences national morbidity and mortality figures at population lever; at the individual

level, this is might be a question of life and death. Healthcare systems can also cut their expenses with early diagnosis, and if the disease is detected early enough to widen the range of effective therapeutic options. Primary care should play a more important role in the prevention and early detection of cancers. Some gynaecological cancers are rarely encountered in primary care (e.g., vaginal cancer), but the breast and cervical cancer are relatively common diseases in Hungary.

Mammography is the most common method of breast cancer screening, due to technical development their reliability has increased substantially in recent decades. Although some authors warn that over diagnosis is a common problem (due to sizeable number of false-positives), mammography remains the standard and most widespread method of screening.

The mammography is included in adult mixed practices' indicators. The cervical screening, because mostly not performed in primary care, were not included in the list of indicators. Cervical screening is a task of primary health care providers in many countries. In Hungary, some of the health visitors can do cervical screening after completion of appropriate training since 2009.

As the majority of advanced cases of cervical cancer due to late diagnosis is mostly diagnosed among low-educated women in poor, rural areas, it is a very important initiative to achieve higher participation rate of the population on screening tests. This might be the responsibility of general practitioners and important aspect of quality improvement of primary care.

Antibiotic prescribing

The antibiotic resistance is an increasing problem worldwide. Unnecessary or excessive antibiotic prescribing may increase resistance to antibiotics and healthcare costs. Antibiotic treatment as an indicator in the family physicians indicator-based performance evaluation in Hungary too.

The APRES study

The APRES study (The Appropriateness of PREScribing antibiotics in primary care in Europe with respect to antibiotic resistance) investigated the relationship between primary care antibiotic prescribing habits of physicians and regional resistance patterns of the community. The study was financed by the European Union FP7 (Seventh Framework Programme).
The study took place in nine European countries (Austria, Belgium, United Kingdom, France, the Netherlands, Croatia, Hungary, Spain and Sweden) between 2009 and 2013. The Hungarian branch of the study was organised by the Department of Family Medicine, University of Debrecen.

Obese and overweight patients in primary care

Overweight and obesity is a major public health problem. The incidence of obesity-related diseases is increasing in Hungary, so prevention is very important at all levels, primary care providers should take more responsibilities in this field too. Services within the framework of the statutory health insurance screening is regulated by a decree. The Hungarian primary care indicator assess performing the obligatory screening test children under the age of six years, with one indicator. As required by the law, children's body weight, body length / height and nutritional status must be measured every year. There is no indicator to evaluate the nutritional status of the population above the age of six years. The majority of the examinations are not compulsory, but family physicians are obliged to draw the insured (patients) or legal representatives (parents) attention to the possibility and importance of examinations.
To reverse the negative trends measuring, recording and researching reliable and representative data would be necessary, but only a few studies assessed and investigated the nutritional status of the Hungarian population.

Primary care should play an important role in preventing the complications of overweight and obesity, as the rate of weight gaining may predict and may allow detection of preventable complications, such as high blood pressure or diabetes.
The relationship between family physicians and patients and the success of the treatment can greatly influenced by the knowledge, practice and attitudes of the doctors.

PRACTICE AND FINANCING OF PRIMARY CARE INDICATORS IN HUNGARY ANTIBIOTICS PRESCRIBING

I aimed to study certain elements of the Hungarian primary care, evaluate and present their possible quality improvement perspective. I analysed the achievements and drawn conclusions which may improve the quality of family medicine in Hungary, and their further of additional assessment may be useful for policy makers and the everyday primary care practice.

The indicator-based performance evaluation of family physicians was introduced in 1st of January 2010. in Hungary, we haven't found any scientific publications, which evaluated the experiences.
The first objective of our study was to make a not comprehensive comparison of the available data about the introduction of the indicators linked financing. The second objective was to determine and analyse indicators of antibiotic prescribing of the 20 Hungarian practices took part in the APRES study. Annual national antibiotic consumption indicators were also formed. How was the antibiotic prescribing of the 20 family physicians and the national antibiotics consumption influenced by the introduction of primary care indicators?

METHODS

Practice and financing of primary care indicators in Hungary

Literature research and search on the homepages of the official governmental websites were performed. Data about the financing of

indicators were requested from the Hungarian National Health Insurance Fund. Financing data were obtained for the period immediately preceding the research (December 2012.).

Antibiotic prescribing

Antibiotics prescribing data (antibiotics prescriptions between the 1st of January 2006. and 31st March 2011.) were collected and analysed in 20 Hungarian primary care practice (5 paediatric-, 2 mixed- and 13 adult practices), that participated in the APRES study.

The data were collected from the computer software of the practices. The raw data was copied to storage media (USB stick), and where it was necessary the software developers also were contacted to retrieve the data. According to the study protocol the processed data was entered into and Excel spreadsheet.

a., Analysis of the APRES study's prescription data

All prescription data collected in the study was investigated based on the coded diagnosis, (WHO ICD-10), ATC codes patients' age and sex. The national antibiotics prescribing guidelines for the most common diseases and the prescription data was compared.

b., Changes in the number of prescriptions in the 20 practices participated in the APRES study after the introduction of primary care indicators

Indicators were calculated by the analogy of the Hungarian primary care perfomance-based evaluation indicators.

Indicator (%): antibiotic prescribing rate=
Number of prescriptions per month (monthly average) prescribed in the preceding 12 months (number of boxes) /
Number of the registered patients x 100

Overall annual indicator was calculated according to above calculation method of the 20 practices prescription data, each year from 2007 to 2010.

In each practice, we also calculated indicators from the prescription data and the number of the patients in 2009 and 2011. The changes were

investigated according to the type of the practice (paediatric, mixed, adult practices) each year.

c., Changes in the national antibiotic consumption after the introduction of primary care indicators

National data on antibiotic consumption before and after the introduction of the primary care performance based evaluation indicator (1st of January 2010.) was compared. We investigated the total amount of antibiotic consumption in Hungary (number of boxes), not only the antibiotics prescribed by primary care physicians.

The source of data were:

- the database of the National Health Insurance Fund, were public information on the population's medication consumption data are available online.
- data from the Central Statistical Office website.

The consumption data were filtered by J01 ATC codes in Excel spreadsheet and "indicators" were calculated.

The indicators were calculated by the analogy of the Hungarian primary care performance-based evaluation indicators.

Indicator (%): antibiotic prescribing rate=

National monthly antibiotic consumption (number of boxes)/
population of Hungary(persons) x 100

RESULTS

Practice and financing of primary care indicators in Hungary

The evaluation of the indicator system and the it's regulation has changed several times since its introduction.

The total financing was 250 million HUF every month, in proportion to achieved indicator points by the primary care physicians. Approximately 75% of the total funding was paid for adult and mixed practices, 25% was received by the paediatric practices in December 2012.The largest sum have been paid for the referral and antibiotic treatment indicators.

Antibiotic prescribing

a., Analysis of the APRES study's prescription data

There have been 130688 antibiotic prescribing made (number of prescriptions) in the 20 practices between 1st of January 2006 and 31st of March.

The family physicians prescribed 5-10% more antibiotics for young patients (infants, small children) and female patients.

The most commonly prescribed antibiotic was the *amoxicillin* during the five years. The most frequently used diagnosis when antibiotics were prescribed was the *tonsillitis* and the *pharyngitis*.

b., Changes in the number of prescriptions in the 20 practices participated in the APRES study after the introduction of primary care indicators

The overall annual indicator of the 20 practices was the highest in 2007 (5, 22%) and the lowest in 2007 (5, 57%). The overall indicator of the 20 practices decreased in 2010, after the introduction of the primary care indicators in Hungary. The indicator also decreased in most practices.

c, Changes in the national antibiotic consumption after the introduction of primary care indicators

The indicators calculated on the basis of national antibiotics consumptions has decreased after 1st of January 2010.

DISCUSSION

Practice and financing of primary care indicators in Hungary

The indicator-based performance assessment (primary care indicator) system was widely criticized by the professional and representative bodies. Some family physicians responded to the system's financing negatively: the more doctors are performing well, the less comes from funding for a practice, because the same amount is distributed among more practices.

The system design was done by a small group of experts, which was not in daily contact with primary care. Family doctors has no direct or indirect control over some measured elements (e.g. drug purchasing, the willingness to get vaccinations, appearance in mammography, and the so-called elements of patient compliance.). Some of the elements are not

complete measured, as the not only the primary care physician may refer the diabetic patient to eye test. The biggest problem might be that there the achievement of the therapeutic target does not include, perhaps this would be the most important of professional point of view.

Antibiotic prescribing

The indicators take the number of antibiotic prescriptions into account, but the right indication for antibiotic prescriptions and the correct choice of antibiotics is not evaluated.

As the majority of antibiotics are prescribed in primary care, the primary care could play key role in the reduction of unnecessary antibiotic prescriptions. The first year after the introduction of the primary care indicators the prescribed number of antibiotics showed a moderate decrease across the country.

The same trend was found in our study is 20 praxis. As we only investigated data for one year (2010) is, this could be the start of a trend or the result of a winter, when fewer patients presented with disease requiring antibiotic prescribing at their doctor.

Several factors may influence the evaluation of our results:

- the national data showed nationwide antibiotics consumption, these antibiotics were not only prescribed in primary care
- the overall data of the 20 APRES practice also were evaluated, even though this practices operate and may be characterized by different indicators in different counties and are based on prescription data
- the calculation of primary care indicators relates to a certain practice, taking into account the characteristics of that practice, we calculated with average prescribing and consumption values.

However, I believe that this calculation method can correlate well with the respective relevant indicators of practices, although it was not possible to examine that in full depth due to lack of sufficient data.

INTERNATIONAL OUTLOOK: QUALITY INDICATORS RELATED TO FINANCIAL INCENTIVES IN EUROPE

Another objective my thesis is to review the application of quality indicators and their associated financial incentives in Europe and Hungary.

METHODS

The data were obtained from two sources:

1. Literature research with relevant keywords: *quality, indicator, quality indicator, quality of care, healthcare quality indicator* AND *financial incentive, pay for performance, incentive, incentive reimbursements AND primary care, primary health care, general practice, family practice, family medicine general practitioner, family physician* AND *Europe, European, European Union.*
Independent search was performed in databases: Medline, PubMed, Embase, Cochrane Library, Web of science, Google Scholar.
Mainly English language publications were searched for between Januray 2000 and December 2012.
To identify "gray" literature we also used Google and Google Scholar search engines.
2. Primary care experts, members of the EGPRN (*European General Practice Research Network*).
A questionnaire was created in English and sent to the EGPRN members. They provided data by filling out the questionnaire and recommended national (local) official websites offered where relevant information might be available.
If English version was not available, we asked them to help with the translation.

RESULTS

Ten countries were found and listed where primary care quality indicators are used and related to financial incentives. The number of quality indicators varied from 1 to134, the highest in the UK, the lowest in Italy. In 8 countries quality indicators can influence the finances and/or salary of family physicians with a bonus of 1-25% of their total income. Besides the nation-wide indicator systems, there were local experiments and different regional systems mentioned in the Netherlands and in Italy, respectively.

DISCUSSION

The potential implementation and effectiveness of financial incentives is basically determined and influenced by the employment form of the primary care physicians'(employed or self-employed etc.) and the form of financing form (capitation or performance-based "fee for service"). Primary care providers have more responsibilities and tasks with more emphasized gatekeeper functions (UK, Spain and Netherlands) meanwhile in other countries this role is only symbolic (France, Hungary, Italy).

Is there a need for indicators for a better primary care?

Properly selected and appropriate financial incentives related to indicators may strengthen primary care and improve its quality. There is a debate among experts whether the indicators can determine the quality at all. This discussion has not been decided yet.

What indicators?

The selection and definition of indicators is not easy, both should be based on reliable data and should be independent from medical providers, who may manipulate the results in order to increase their income.

How many indicators?

If there are a few indicators, those can only represent certain aspects of the primary care providers' work. If too many indicators are implemented, it can lead to increased bureaucracy and box ticking, instead of spending time with patients.

How much financial incentive should be given?

Primary care physicians can be financed in many forms. Financial incentives are influenced by the employment form of primary care providers: there are self-employed/entrepreneur and employed physicians. The two basic form of financing are the capitation and fee for service. Pay for performance schemes are more popular in primary care, but their quality-improving effect is not proven and they are not associated with indicators in many countries. There is no sufficient evidence that contradicts or supports the quality improvement effect of financial incentives or pay for performance. There are differences between the incomes of the primary care physicians in the European countries. There are relatively underpaid physicians (Belgium, Sweden, France, Finland) or higher income may be given in other countries (Netherlands, UK, Germany), but also lots of other dimensions might affect the funding of primary care. Too low incentives do not motivate sufficiently, if the incentives are too high, that may lead to unintended consequences (e.g, data manipulation, cheating). Our results identified a bonus between 1-25% of the total income of the practice in European countries. There are different opinions, no exact and universal percentage can be established in different countries, but an increase of at least 5-10% could be appropriate

Who should decide what to measure?

The implementation of P4P/QI system can be a governmental initiative (e.g. Hungary), in other nations it was a result of negotiation between the employers, policy makers, health providers and medical associations (e.g. UK), or it could be a more 'bottom-up' procedure, involving the target users (e.g. The Netherlands). Although the vast majority of primary care physicians treat the work as a profession, it is widely believed that the proper financial motivation is also important.

There are more and more experience and results with the existing primary care indicators and pay for performance systems, there are still many open questions and further research and analysis is required to answer them.

BREAST AND CERVICAL CANCER SCREENING SYSTEM, RESULTS AND THE ROLE OF THE PRIMARY CARE IN EARLY DETECTION IN HUNGARY

The objective was to investigate the participation rate in breast and cervical cancer screening in Hungary. I introduce the national participation rate for screening mammography examinations between 2002-2010, and also the participation rates in the Hungarian counties in the years before (2009) and after (2009) the introduction of the indicator-based primary care evaluation system. After the presentation of the initial results of health visitors' cervical screening programme, I investigate the incidence and mortality data of the breast and cervical cancer in Hungary. I also wish to look for the possibilities how the involvement of the primary care providers could make these activities more effective.

METHODS

The participation rates at the Hungarian breast and cervical screening found in the published works and on the official websites (National Public Health and Medical Officer Service). In addition data were also requested from the National Screening Coordinator of the Chief Medical Officer at the end of November 2011.

The participation data of the breast screening were received as county and national aggregate per year between 2002-2010.

The indicator-based primary care performance evaluation, including indicators of mammography was introduced on the 1st January 2010.

I investigated the data on mammography screening participation per county in 2009 and 2010. We did not get national data of the nationwide cervical screening programme, data of the Health Visitors Cervical Screening Program was provided by the National Screening Coordinator in December 2012.

Mortality data were obtained from the WHO HFA (Health for All) in December 2012.

The annual national data on the breast and cervical incidence according to ICD groups was received in an Excel spreadsheet from the unpublished data of the National Cancer Registry, National Cancer Institute. During our study the online search site of the National Cancer Registry was not yet available, the database is already in service.

RESULTS

Breast screening

The participation rate in national breast screening program decreased in the second phase (2004-2005) comparing to the first phase (2002-2003), the lowest participation rate (36.7%) was in 2004.

The participation rates in breast screening before and after the introduction of the family physicians' indicator-based performance evaluation showed big differences in the Hungarian counties: it varied between 23,6% (Pest county)- 65,59% (Jász-Nagykun-Szolnok county) in 2009; and 20,3% (Pest county) - 65,8% (Tolna county) in 2010, respectively.

Cervical screening
The participation rate of the invited women in the Health Visitors Cervical Screening Program was 15.8% in 2009, 11.1% in 2010 and 14.9% in 2011.

Incidence and mortality of breast and cervical cancer in Hungary between 2001 and 2010
The incidence of breast cancer in Hungary increased from 6,198 to 6,610 cases (6.6% increase) between 2001 and 2010. The incidence of cervical cancer decreased: there were 1,356 new cases diagnosed in 2001 and 932 cases in 2010 (21% decrease). After 2001 the annual number of newly diagnosed cervical cancer cases was the highest in 2003, and showed a decrease in the subsequent years.
The annual mortality rate decreased for both breast and cervical cancer. Breast cancer mortality decreased from 2,304 cases (2001) to 2,010 cases (2010), this represents 12.76% decrease.

The mortality data of cervical cancer decreased from 539 in 2001 to 379 in 2010 (29.68% reduction).
During the whole decade, the average annual number of deaths due to cervical cancer was relatively high: it was approximately 400 deaths per year.

DISCUSSION

What could be the reason for the low effectiveness of screening programs? The answer is complex: it involves financial, administrative, social, educational, medical, and epidemiological factors. Economically, the problem could be described as a consequence of diminishing financial resources put aside for national public health programs. In a political point of view, the health policy makers may not give enough priority to this area. There are also substantial regional differences in how effective the local administrative and health care structures are in ~~ensuring~~ providing a reliable flow of information and effective communication between screening coordinators and primary care providers.

An additional bias can be caused by the tendency for wealthier and more health-conscious Hungarian women to attend private gynaecology clinics, which are not associated with the nationwide screening program. Considering the fact that deficiencies in reporting screening activities have been identified in private clinics or private providers, data regarding the number of women actually screened is not always reliable.
It is reasonable to assume that the actual number of women screened for both breast and cervical cancers could be substantially higher than actually reported.
As results and outcomes of the screening tests, Pap smear results performed by private gynaecologists are not always reported to the National Health Insurance Fund, it is not always clear whether the examination was associated with a referral from the nationwide screening program or an acute compliant. Follow-up is not restricted to a standard time frame, there might be cases where follow-up involved more frequent testing than the standard practice.

The health visitor's network plays an important role in the Hungarian primary care. The health visitors are community health nurses in Hungary. These nurses work in cooperation with primary care paediatricians and family doctors. Their main role ~~are~~ is to provide care for women before, during, and after pregnancy and the follow-up of children through childhood until adolescence. in rural areas The health visitors assume~~s~~ an extended role involving midwife services under certain circumstances. Participation rates for cervical screening may be further improved if cervical screening were included among the primary tasks of these primary care providers, especially if they would also receive financial incentives for this activity, to prove this theory there is a need for further research.
Many advanced cases of cervical cancer due to late diagnosis is a particular problem among low-educated women in poor, rural areas. Many of these women never take part in any organized or non-organized cervical screening. The health visitor network may be particularly helpful in reaching this rural, high-risk population of women, who usually cannot afford to see a private gynaecologist. It would be also advisable to

maintain a closer, long-term cooperation between the family physicians and health visitors.
Screening programs were not sufficiently presented in the media. Organized screening events may not have been sufficiently promoted by family physicians, perhaps because of lack of financial incentives.
The participation rate in mammography screening were included in the list of primary care indicators, this might improve participation rates of women in the screening.
There is a difference in the proportion of participants on the basis of mammographic screening by counties and according to the indicator target values, but (in addition to the data provided at the results of my thesis) further epidemiologic analysis could not be carried out due to the lack of sufficient data so far.
Published international data indicate that both incidence and mortality tend to decrease several years after the implementation of cancer screening programs. Clinical experience suggests that incidence for a disease may initially increase after a screening programs implementation, due to improved detection of early-stage disease. Mortality however, tends to gradually decline, because of the more appropriate therapeutic methods. Morbidity and mortality data may not run parallel generally because unlike morbidity, mortality is reported later, usually not in the year the diagnosis was actually made.
Nationwide organized cancer screening programs could benefit more from a more pronounced involvement of primary care providers. Structural changes may be warranted within the Hungarian healthcare system to facilitate involvement of primary care providers in breast and cervical cancer screening. With professional consensus indicators could be implemented, that also would record the results of the non-organized screening activities. This may require more focused efforts by relevant policy makers.

PRIMARY CARE OBESITY MANAGEMENT IN HUNGARY: EVALUATION OF THE KNOWLEDGE, PRACTICE AND ATTITUDES OF FAMILY PHYSICIANS

The objective of the study was to assess the knowledge, attitudes and practices and their interactions of the Hungarian primary care physicians in overweight and obesity. In addition, its aim is to identify the factors and constraints that affect the willingness and ability of doctors to treat obesity and overweight.

METHODS

The study was designed as a cross-sectional survey based on the Hungarian version of an internationally published questionnaire. Experts from each of the four Hungarian medical universities participated in the preparation and validation of the Hungarian version of the questionnaire, the pilot study was carried out by the work group of the Semmelweis University.
The questionnaire contains 81 mostly multiple choice questions, it was filled out by the participating doctors without any financial reward anonymously in three main areas (knowledge, attitudes, therapeutic exercise).
The questions about general practitioners knowledge of obesity are mainly focused on the causes and consequences.
There were statements on which In addition, the participants were also requested to answer statements if agree with or not. Exclusion criteria were refusal in participation or incomplete filling of the questionnaires.

RESULTS

Altogether 448 primary care doctors participated: 308 works in adult practice, 84 in mixed practice, and 56 in paediatric primary care practice. Based on the geographical location, 119 colleagues practiced in the capital, 99 in major cities, 126 in towns and 99 in villages.

This represented 278 women and 170 men, mean age was 54.5 ± 9.8 years, there were 73 resident physicians out of them (55 women, 18 men, mean age 29.9 ± 5.4 years) who completed the questionnaire.
The average number of patients in the practices was 1675 ± 483 people.
The doctors estimated the proportion of overweight patients 34.3%, and 23.4% of obese patients in their own practices, there was no significant difference in the estimated value of any age or type of settlement.
The further analysis of the results was according to three areas (knowledge, attitudes and practices).

Knowledge

The majority of respondents considered obesity as a disease, think weight loss is important to prevent illnesses and would treat patients to achieve this goal. Most doctors considered physical inactivity, excessive fat consumption, psychological problems, hormonal and genetic factors as main causes of obesity. According to 45,7% of the physicians a poor socio-economic status plays a role in the development of obesity.
Most of the responders think that the consequences of obesity may be medical (95.1%), psychological (94.5%) or social problems (84.2%).
Only 51.3% of the participating physicians defined precisely the BMI threshold of overweight and obesity, doctors working in the capital (37%) and villages (47%) were less prepared than their colleagues working in cities (≈ 60%) .
Obesity had previously been considered a disease rather than a symptom by younger doctors (53.9±0,5y vs. 57.8 ± 1,5y p = 0.01).
70% of the physicians disagreed with weight reduction should be considered for obese patients only, the rate was 55.1% among paediatricians.
The opinion of the doctors was influenced by their own BMI. Although many of the participants agreed that it is not only necessary to reduce weight of overweight patients, only 46,7% of those doctors who have the BMI value above 30 kg/m2 had the same opinion (p = 0.007).
The average age of those who agreed with the above statement, was significantly higher (56,2 ± 0,9y vs. 53,7 ± 0,6y, p = 0,019).

Attitudes

Family physicians' attitudes were influenced besides their age by their own body weight as well.

94 % of the physicians with a normal BMI thought that the family doctor should be normal weight role model in the eyes of the patients, however only 80,8% of obese physicians agreed with ~~with~~ this statement (p=0,004).

Practices

A balanced, healthy diet and exercise are the most important factors in weight reduction according to the family physicians, they disagreed the most with the very low-calorie diets and the following of commercial/advertised diets.

DISCUSSION

One of the most important results of this study, that the family physicians' own body weight and lifestyle affect their attitudes and practice of treatment towards overweight and obese patients.

The geographic and age distribution of the responders was representative and represented approximately 10% of the physicians practicing in the Hungarian primary care. Previous studies on this topic were conducted only smaller areas, even in bigger countries.

Limitation of the study include that the survey does not always represent accurately the daily therapeutic practice and attitudes, in addition the current work load and the current mood of the doctors can affect their answers. In countries, where the role of primary care is stronger, the primary care physicians' may be more involved in the prevention, diagnosis and care of obesity.

The current guidelines are multidisciplinary in Hungary, there is no specially designed recommendations for primary care, which would be necessary because of the different knowledge, practice and personal attitudes of the primary care physicians'.

Appropriate education is important for health care providers, with the continuous professional education and training on the management of obesity and overweight.
The current legislation, apart from the indicator of the primary care paediatricians does not really motivate primary care physicians for obesity prevention, diagnosis or treatment.

CONCLUSIONS

There are many arguments for and against the qualitative indicators.
The most common arguments against are the loss of holistic approach and extracting some parts from the whole of the medicine.
The arguments for the indicators that they could be objective measurement tools and the performance of health care providers can become comparable.
The most important questions for the future: which indicators should be used, in what areas and which are unnecessary?
The indicators uses in the appropriate place, time and method may to help improve the quality of medicine.
The development of indicators and financial incentives should be based on clear political goals and professional consensus.

As there are many questions and various answers, more research is needed to find the most effective quality improvement tools and methods.
Indicators also may be necessary in the Hungarian primary care, considering the international experience.
However, these indicators should be developed involving experts with primary care experience and also taking into account health policy, public health and financial aspects as well.
It would be also important to develop primary care, synchronized with the financing protocol.
A nationally co-ordinated information technology development, which would allow the access for physicians to laboratory and imaging test results in different levels of care events.

Although this option might be available for the family doctors, the conditions of application are complicated, time consuming and not user friendly. This would include the development of a nationwide unified medical software, which would provide real health care and morbidity data, rather than the currently used sometimes pointless and unnecessary reports (data sets).

It would be necessary to develop previously unused area of improving the quality: the patient-centred care, systematic investigation of patient satisfaction and patient expectations also should paid greater attention.

This thesis presented some activities (without the full scope) of the Hungarian primary care, which could be characterized by indicators.

I aimed to present the relevant international experiences, result and analyse the results of the data we received, showing that in our country, unfortunately, still barely exploited opportunities can be derived from the family doctor practices' data analysis.

SUMMARY

Definition and improvement of quality of health care have been playing an important role in health care systems for decades. The quality of primary care can be defined and improved without measuring it, as many important elements are not measurable, nevertheless qualitative measurement tools like quality indicators are increasingly implemented.
The aim of my thesis is to present the possibilities of quality measurement and improvement in primary care within my research areas. Our department took part in two important international studies. Based on the results of the Hungarian branch I make suggestions about possible areas of the quality improvement of the Hungarian primary care. I summarize the main results of previous studies and the description of the relevant literature on this topic.
The results of our studies related to the Hungarian and international quality indicators show that quality indicators can be useful tools in quality improvement.
In women's cancers screening, higher screening coverage and more effective public health screening programs might be achieved by the increased engagement of primary care.
Regarding the prescription of antibiotics, in addition to the amount the quality of prescribing should be assessed by the antibiotic prescribing indicators. This might lead to decreased resistance to antibacterial agents and in addition to the reduction of expenses.
Accurate recording and processing of the patients' anthropometric data by the primary care providers might greatly facilitate the diagnosis of overweight and obesity, their treatment and prevention as well.
On the basis of the studies described in this thesis, directly or indirectly, we could create a more detailed picture of the quality of work in primary care. With the daily practical application of the results we could ultimately improve the health of the population and the cost-effectiveness of the health care system.

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Candidate: László Róbert Kolozsvári
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List of publications related to the dissertation

1. **Kolozsvári, L.R.**, Orozco-Beltran, D., Rurik, I.: Do family physicians need more payment for working better?: Financial incentives in primary care.
   Aten. Prim. 46 (5), 261-266, 2014.
   DOI: http://dx.doi.org/10.1016/j.aprim.2013.12.014
   IF:0.957 (2012)

2. **Kolozsvári, L.R.**, Langmár, Z., Rurik, I.: Nationwide screening program for breast and cervical cancers in Hungary: special challenges, outcomes and the role of the primary care provider.
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List of other publications

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   Orv. Hetil. 153 (35), 1396-1400, 2012.
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7. Langmár Z., Németh M., **Kolozsvári L.R.**, Joó J.G., Mátrai Z.: A hüvely rosszindulatú daganatai.
   Orv. Hetil. 152 (49), 1974-1976, 2011.

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List of further publications – study team membership, conference presentations

den Heijer CD, van Bijnen EM, Paget JW, Pringle M, Goossens H, Bruggeman CA, Schellevis FG, Stobberingh EE, The Apres study team (Hoffmann K, Apfalter P, Bartholomeeusen S, Ieven G, Katic M, Budimir A, Hebbrecht G, **Kolozsvári LR**, Konya J, Korevaar J, Bolibar B, Grenzner E, Mölstad S, Matussek A, Flemming D, Lovering A). Prevalence and resistance of commensal Staphylococcus aureus, including meticillin-resistant S. aureus, in nine European countries: a cross-sectional study. The Lancet Infectious Diseases. 2013;13(5):403-419.

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