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Nonmedical aspect of working time of resident doctors in Poland related to the creation of medical records

Poza leczniczy aspekt czasu pracy lekarzy rezydentów w Polsce związany z tworzeniem dokumentacji medycznej

Creating medical records is a part of the doctor's work. Each procedure involving the completion of medical records takes a certain period of time, drawing the doctor away from his main tasks helping patient. The goal of this research was analyze the time needed to be spent by resident doctors to supplement patients' medical records. An anonymous survey was conducted among resident doctors working in medical 3 centers located in Southern and Western Poland. 58 doctors took part in the study, who answered the questions how much time they spend to perform specific procedures related to the creation of medical records during their working day and per one patient. 100% of respondents declared that the time they spend on completing medical records is far too long. In the whole study group, the average time required to fill in the medical records was 5.39h (SD 2.1h) when using partially filled forms, while filling them from the beginning the time was extended to 7.89h (SD 2.6h). To solve the problem it seems justified to implement formal, legal and administrative activities reducing the time devoted to non-medical procedures. It also seems advisable to expand the questionnaire survey on a wider group of respondents, and ask about the real time necessary to complete medical records and in the same time with the use of control methods eliminating the subjective assessment of the examined issue.

Introduction

Quoting to Professor Józef Tischner polish philosopher „One of the most painful forms of betrayal is the condemnation of a working man to work without sense,” it seems necessary that „work ..., the real language of interpersonal communication” meet the canon of a normal, decent work of men [1,2]. Repeating the author of „Ethics of Solidarity „in the modern world of normal work, work is not an activity that does not raise or multiply capital, the criterion of work is the growth of capital” [1,3]. Therefore, it should be ensured that every work, and thus done by do-

Tworzenie dokumentacji medycznej jest częścią pracy lekarza. Każda procedura polegająca na wypełnianiu dokumentacji medycznej zajmuje pewien okres czasu odciągając lekarza od głównych zadań jakim jest leczenie chorych. Celem pracy była analiza czasu przeznaczanego przez lekarzy rezydentów na wypełnianie dokumentacji medycznej. Anonimowa ankieta została przeprowadzona wśród lekarzy rezydentów pracujących w 3 ośrodkach medycznych zlokalizowanych w południowej i zachodniej Polsce. W badaniu wzięło udział 58 lekarzy, którzy odpowiedzieli na pytania, ile czasu poświęcają na wykonanie konkretnych procedur związanych z tworzeniem dokumentacji medycznej w ciągu dnia pracy i na jednego pacjenta. 100% respondentów zadeklarowało, że czas poświęcony na uzupełnianie dokumentacji medycznej jest zdecydowanie za długi. W całej badanej grupie średni czas wymagany do wypełnienia dokumentacji medycznej wynosił 5,39 h (SD 2,1 h) przy stosowaniu częściowo wypełnionych formularzy, a przy wypełnianiu dokumentacji od samego początku bez wzorcowych formularzy 7,89 h (SD 2,6 h). Aby rozwiązać omawiany problem, wydaje się uzasadnione wprowadzenie działań formalno-prawnych i administracyjnych, redukujących czas przeznaczony na procedury pozamedyczne. Wydaje się również celowe rozszerzenie ankiety na szerszą grupę respondentów i zapytanie ich o czas niezbędny do uzupełnienia dokumentacji medycznej, a jednocześnie zastosowanie metod kontrolnych eliminujących subiektywną ocenę odpowiedzi na zadawane pytania.

ctors, increases, not reduces capital, and more precisely its most important part, i.e. human capital. This is in accordance with the recommendations of „*Laborem exercens*” („About human work”) encyclical which draws attention to the fact that it is the duty of every person to develop science, technology, culture and morals on their own, and work serves to this development [4]. The roots of these thoughts can be found in Genesis, written more than 3 thousand years ago, i.e. the Leviticus (lev 25; 43) [5]. This understanding of work, including the work ethos, is also located in the

canon of HR Business Partner, and in its most excellent version of Human Capital Advisor, is even his principle [6,7].

The part of the doctor's work is to create medical records. This is conditioned by applicable laws that are specific in the relevant country. In Poland, these are provisions resulting from general law, industry regulations, including those imposed by the insurer, i.e. National Health Fund (NHF) and internal arrangements. The most important provisions are: the basic legal act regarding the conduct of therapeutic activity that is the Act of 5th of April 2011 on medical activity (Journal of Laws. 2018.160), i.e. Art. 2(1)(1) of this Act, as well as professional pragmatics, i.e. the Act of 5th of December 1996 on the professions of a medical doctor and a dentist (Journal of Laws. 2018.617) and in particular Art. 41 of the Act, in the scope of keeping medical records, regulations included in the provisions of the Act of 6th of November 2008 on Patients' Rights and the Patient's Rights Ombudsman (Journal of Laws. 2017.1318). In the latter, in particular, it is worth paying attention to chapter 7 of this act, that are articles from 23 to 30a and executive acts issued on this basis: Regulation of the Minister of Health of 9th of November 2015 on the types, scope and patterns of medical documentation and the manner of its processing, and Regulation of the Minister of Interior and Administration of 25th of February 2016 on the types, scope and formulas and manner of processing medical records in medical entities established by the minister competent for internal affairs.

Part of the time-consuming activities is the result of new recommendations arising every year as a result of new European Union legal conditions. In general, this problem exists and has been growing for several decades. Currently, according to estimates, Poland is one of the most bureaucratized countries in the European Union. What is important and what needs to be emphasized again is not a problem that arose in recent years [8]. Each procedure involving the completion of medical records takes a certain period of time, drawing the doctor away from his main tasks. For example, such an additional procedure in orthopedics is registration of the implant in the central database of endoprostheses. Keeping the central registry of endoprostheses is in itself a very good, proven idea, modeled on Scandinavia and the central registry of endoprostheses kept there [9,10]. The problem is, however, the time required to enter this data. [9,10]. One of the groups burdened, among others, in filling this medical documentation are resident doctors. This is largely contrary to the VRIO concept (Value, Rarity, Imitability and Organization) [7,11]. Accepting in this group as the main value of VRIO the physician's medical knowledge consistent with its strategic resource, can't be consid-

ered as justified delegate this group to completely different tasks. This is followed by the Parkinson's Law, saying that „the work expands to fill the time available for its completion” [12]

The aim of this study

The aim of this study was to assess the actual working time of resident doctors intended to fill in medical records based on the information provided by them in the questionnaire.

Materials and methods

The study involved 58 randomly selected residents working in surgical wards in hospitals. The data was collected in a manner ensuring full anonymity and they came from three large medical centers in southern and western Poland. In the 1st center, the survey was conducted on 21 people, in the 2nd center on 20 people and in the 3rd center 3 on 17 people. Each of the respondents was asked the same questions:

1) Do you think that the amount of medical records you fill in and the amount of time you spend on it is right? (Possible answers A. Yes, it's right, B. No, I'm filling in too many medical records C. I'm filling in definitely too many medical records.

2) Do you use modifiable partially filled in forms when filling out medical records? (Possible answers: A. Yes, always; B. Yes, in most cases; C. From time to time; D. Never.

3) Regardless of whether the examined person replied that he uses modifiable patterns she was asked about the amount of time (in minutes) he devotes to completing the documentation related to the patient's admission, surgery and discharge - both when using the modifiable patterns and in the absence thereof.

4) The next questions concerned the amount of time (in minutes) to prescribe medicines and tests.

5) Then, the respondent was asked how many patients he deals with (he is responsible for the procedures listed above and performs them) within one working day.

The results obtained from the three examined medical centers were compared and the group was analyzed as a whole. The aim of comparison was the average values. The results were treated using Microsoft Excel.

Next, the answers to the questions were analyzed in terms of their credibility, taking into account their repeatability, obtaining very high or very low values, repeatability of results and normal distribution.

When determining the questions of the survey, their scope was deliberately limited. It was considered a more reliable answer to a few basic questions than a dozen or more dozens of more detailed ones.

Results

All the respondents considered that they spend too much time on completing medical records (100% of responses “I'm filling in definitely too many medical records”). Permanent use of modifiable pattern forms was confirmed by 70.7% of respondents.

In the whole study group, the average time required to fill in the medical records was 5.39 h (SD 2.1h) for one day of work in the case of modifiable patterns usage, and 7.89 h (SD 2.6h) in the case of their abandonment.

These values differ between the individual centers. Obtained average values ranged from 3.4 h (SD 2.6h) during the day in one of the centers, using the patterns, to 9.83 h (SD 2.8h) in the second center when not using them. A detailed list of survey results is presented in Table I.

Working time devoted to the implementation of descriptions for specific procedures by individual residents is presented for all centers Fig.1.

The most time consuming in all cases was to fill in the papers necessary to discharge patient from the hospital, both when using or not modifiable patterns. The average time of filling in such documentation for one patient varied from 14 (SD 1.38) to 22 minutes (SD 4.50) when using patterns and from 23 (SD 2.19) to 48 minutes (SD 4.80) without using them. The least time was spent on prescribing medicines and ordering tests varies from 4.05 (SD 1.12) to 9.12 (SD 1.94) minutes, respectively.

When analyzing the obtained results, in none of the cases normal distribution was observed (Figs. 2, 3, 4, 5, 6). In sporadic cases, the median was not consistent with the dominant. The tendency for a normal distribution was found only for the results concerning the documentation describing the surgical procedure, using the modifiable patterns in the medical center nr I (Fig. 3) and the discharge papers without using patterns in the medical center nr I (Fig. 4). In the results showing answers to other questions, there was no such trend. In a few cases, the distribution was right or left-skewed. The right-skewed distribution was found when analyzing the survey results describing ordering of medical tests in the medical center nr I. When comparing three centers, different type of distribution was found for all the results obtained in the medical center nr I than in the center nr II and III, where the distribution was similar.

This is best seen in Figures 5 and 6. In the case of time necessary for ordering tests and prescribing drugs, all values of the documentation filling, in the centers nr II and III fall into 3 response values respectively. In the center nr I results were described with 7 (Fig. 5) or 10 (Fig. 6) numerical values respectively. It was probably caused by a slightly different way of completing the survey in individual centers. It seems that in the center nr I, the survey was completed

more individually than in the others, and the answers provided include more variables.

Discussion

The basis for creating medical records is the relevant legal regulations [13,14]. There are no formal opportunities to waive these activities [15,16]. At the same time, in the analyzed group, 100% of respondents stated overextension of the amount of the documentation necessary to be completed by a doctor. This is coincident with the results obtained by other authors [17]. Our results indicate that the average time spent by the respondents to complete the documentation exceeds in some cases 9 working hours which is more than a standard work day. Average values of time spent to complete the medical documentation, while optimizing the method of filling it (use of modifiable patterns), exceed 5 hours. Only in one center these values were clearly smaller and slightly exceeded 3 hours.

Regardless of the analyzed version (9, 5 or 3 hours), these values are huge. The question then remains, whether these are actual or inflated values resulting from the subjective feelings of the respondents. The nature of the study (questionnaire survey) made it impossible to verify the results on an ongoing basis. The subjective impression of the author of the presented work indicates 2 fold overestimation of the results. However, there are no formal grounds for undermining them. The feelings of the respondents themselves must be taken under consideration as an important factor affecting human capital. In any case, many hours of withdrawal from medical procedures by a doctor, in favor of bureaucratic procedures, even if the numerical values received in the surveys are considerably overestimated, must raise doubts as to the correctness of the currently applicable algorithms. Considering that doctors perform their work in a day / night shift system and that they usually work on 12-hour or longer shifts, their typical office work is not recommended, because they do not fully use their capabilities. In studies conducted among surgical nurses, it has been shown that high occupancy, work over 40 hours per week and 12h or longer changes is a source of constant stress causing various types of psycho-somatic disorders. Resident doctors working in a similar system are more vulnerable to this type of disorder, which in turn may cause a higher probability of making a mistake in the care of the patient. Difficulties with making quick decisions under conditions of stress, sleep disorders, memory disorders, problems with concentration or communication between staff and the patient are just some of the examples of emerging problems [18]. Inappropriate division of duties in the health care system probably results from a faulty system of

Parameter		Time	Medical center being tested			
			1st Center	2nd Center	3rd Center	Average from All 3 Centers
Admission	With pattern	Minuts	12,00 (SD 1,81)	8,05 (SD 1,56)	11,18 (SD 2,53)	10,40 (SD 2,28)
	Without pattern		22,00 (SD 2,38)	15,0 (SD 3,32)	19,41 (SD 2,15)	18,86 (SD 3,76)
Surgery	With pattern		8,10 (SD 1,36)	14,85 (SD 1,54)	12,06 (SD 2,42)	11,59 (SD 3,24)
	Without pattern		14,05 (SD 1,38)	19,00 (SD 2,40)	20,29 (SD 3,32)	17,59 (SD 3,54)
Discharge	With pattern		22,00 (SD 2,00)	22,00 (SD 4,50)	14,12 (SD 3,88)	19,69 (SD 4,43)
	Without pattern		23,10 (SD 2,09)	47,75 (SD 4,80)	28,24 (SD 4,98)	33,10 (SD 10,71)
Ordering tests			4,05 (SD 1,12)	8,25 (SD 2,93)	9,12 (SD 1,94)	6,98 (SD 3,05)
Prescribing medicines			11,00 (SD 2,29)	14,00 (SD 2,40)	8,24 (SD 3,04)	11,22 (SD 3,31)
Service time for one patient	With pattern		57,14 (SD 1,55)	67,15 (SD 1,55)	54,71 (SD 1,40)	59,88 (SD 6,72)
	Without pattern		74,19 (SD 1,76)	104,10 (SD 1,76)	85,29 (SD 1,59)	87,76 (SD 12,94)
Number of patients served by one doctor during one working day (average)			7,95 (SD 1,76)	3,00 (SD 1,10)	5,06 (SD 1,48)	5,40 (SD 2,25)
Total	With pattern		Minuts	454,42 (SD 2,02)	201,45 (SD 2,01)	276,75 (SD 1,81)
	Without pattern	689,99 (SD 2,30)		312,30 (SD 2,28)	431,49 (SD 2,07)	473,59 (SD 158,53)
Total	With pattern	Hours	7,57 (SD 2,58)	3,36 (SD 2,56)	4,61 (SD 2,33)	5,39 (SD 2,09)
	Without pattern		9,83 (SD 2,85)	5,21 (SD 2,84)	7,19 (SD 2,59)	7,89 (SD 2,64)

Table I.

The working time of resident doctors intended to create individual elements of medical records.

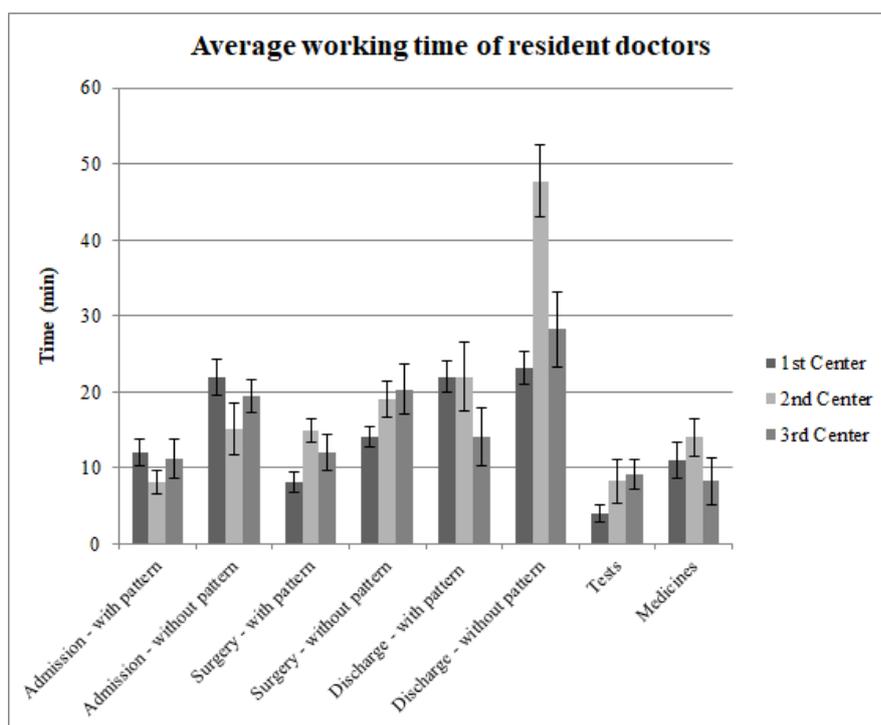


Fig. 1.

Average working time of resident doctor in three examined centers, devoted to the preparation of medical records for individual procedures with pattern or without pattern use (minutes).

work control. Control activities should allow for modification of work and also reorganization of tasks in order to make the best use of human potential [19]. In the case of medical documentation, this element failed because it has not been noticed that the current standard of medical documentation in Poland covers a dozen or so, up to several dozen pages, and does not fit the standard of the 1960s where it was located on four rarely written pages. Activities that can improve medical documentation preparation should include:

- avoid duplicating and even repeating the same information in different places (e.g. patient data: name, surname, address, date of birth, "pesel" number (polish ID number));
- consideration by the legislator of the need to enter information on standard activities, description of the unchanged state of morphology or human physiology etc. in the medical documentation;
- introduction of pictographic schemas in the medical computer systems, enabling very fast completion of documentation;

- introduction of the computer systems that change the spoken text into written text;
- consideration by the legislator of the introduction of sound or film (graphic) recordings as a full and sufficient (from the formal and legal point of view) part of the medical documentation, which can replace, in some cases printed documentation or in accordance with planned written - electronic version.
- introduction of an electronic system of ordering medicines and necessary to perform tests for a given patient, which would be entered e.g. from a tablet (or other remote device) connected to the central patient database.

The proposed changes may seem revolutionary, but the introduction of at least some of them seems to be the only adequate response to the growing, at least for last several decades, bureaucratization of not only Polish but also the whole world medicine.

The analysis carried out is a contribution to finish with the bureaucracy in medical activities, drawing the actual VRIO of medical activities.

These surveys are a contribution to solving the problem of undeclared work time in the medical industry, dedicated to bureaucratic activities. The carried out analysis do not exhaust it and require development. Surveys that would be necessary to complete this work should relate to:

- Analysis of working time intended for completing medical records by resident doctors working in the medical treatment wards.
- Analysis of working time intended for filling in medical records by specialist doctors.
- Analysis of working time intended for filling in medical records by nurses.
- Analysis of the number of computers used by physicians working in Windows XP or older, i.e. those who do not have „support” of Microsoft IT specialists in order to secure the system’s „tightness”.
- Comparison of several programs commonly used in Polish hospitals to keep medical records as well as programs used in other countries for the same matter.

• If possible, select a model, uniform program (database) applicable throughout Poland in both national and private medical system.

- Introducing the possibility of access to all medical data (including other centers) of the patient by any doctor treating him, as long as this information is not reserved; the whole must be currently in line with the EU RODO regulations

Focusing on the issues discussed above regarding working time necessary for the creation of medical records, attention should also be paid to issues related to the difference in the cost of work of a resident doctor and medical secretary. According to the literature,

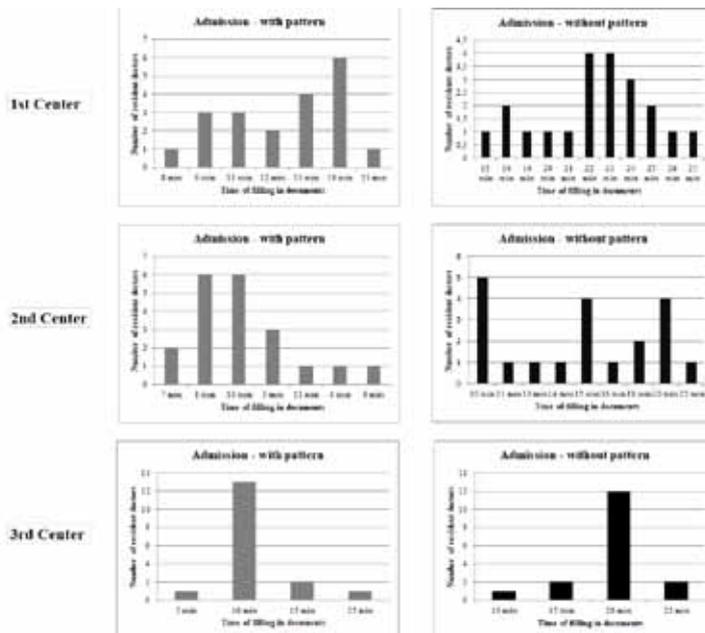


Fig. 2. The time required to complete the documentation related to the admission of a patient to a ward given by resident doctors, separately for each medical center with the usage of modifiable patterns or not.

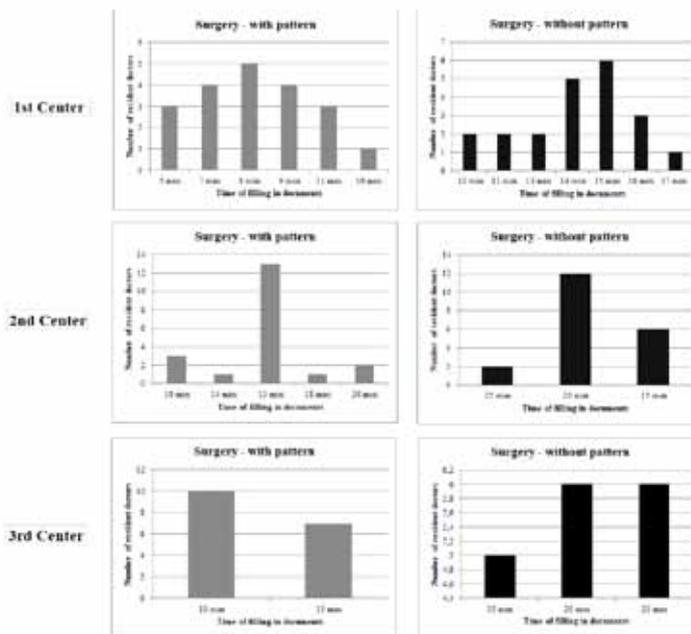


Fig. 3. The time required to complete the documentation related to the surgery given by resident doctors, separately for each medical center with the usage of modifiable patterns or not.

the cost of 1 hour of work per 1 resident doctor was approximately 38.58 PLN (10.40 USD rate date September 6th 2018), and nurse’s working time cost 31.51 PLN (8.49 USD) [20]. It can be estimated that the cost of a fully professional medical secretary with appropriate experience, and thus able to complete part of the medical documentation the expected cost of 1 hour of work should be less of about 5 PLN (1.35 USD). Considering the global costs of replacing, in part, activities related to filling in medical records by secretaries, we can talk about huge savings in the country and no need to take physicians

away from their basic tasks, such as treating people, to complete extensive documentation.

Another element allowing reducing costs in healthcare facilities may be the transfer of some activities, including secretarial, outside the medical facility. However, it would be necessary to change the legislation. At the moment, many companies with a global reach conduct part of their activities, e.g. accounting, based on special centers organized in other countries (Outsourcing) [21,22]. Because of the historical connections and, consequently, the spread of language knowledge, the simplest to

implement was the connection between Great Britain and India. Completely different labor costs and high intellectual and IT potential enable delegating some of the tasks from companies in the UK to their branch in India.

In Poland, at present, there are large differences in labor costs between urban agglomerations and provinces of the so-called “eastern wall” [23, 24]. In addition, as part of pro-social activities, it is possible to introduce the employment of persons with disabilities to perform activities of a secretarial character, after appropriate training. Currently, this is carried out in some workplaces, including hospitals, mainly within large agglomerations [25, 26]. However, the physical presence of disabled persons in the workplace is required, while much of this work could be done on-line and on-call. It is necessary to modify the law so that it allows the transmission of audio files in electronic form. The disabled could perform secretarial services by creating medical records and archiving data while working at home, also at regions being subject to structural unemployment. This would help to solve or partially solve two problems: lighten doctors’ load in creating medical records and the problem of employing people with disabilities.

There seems to be another interesting solution here. At the moment, there are many talks about the promotion of Poland in the world. The role of promotion in many countries is played by relevant institutions such as the British Council (United Kingdom), Goethe Institut (Germany), Osterreich Institut (Austria), Institut Francais (France), the Cervantes Institute (Spain), the Confucius Institute (China), etc. It is possible to take advantage of good examples presented by these institutions. At the moment, with the existence of the Polonia (polish citizens living abroad) outside Poland, covering both 2 million of modern emigration and many millions of older emigrants living in countries of the former Eastern bloc (e.g. Kazakhstan, Belarus), the online job offered by Polish companies may be attractive at least for some of them. Both in the terms of finances and in part within the maintaining contact with Poland at least in the professional sphere. Thanks to this, it would be possible to make an attractive knowledge of the Polish language, necessary for secretarial work, in the countries from which the inflow of emigration to Poland takes place at the same time without having to change the place of residence. There would then be a combination of positive economic and social effects. This is confirmed by unpublished experience of authors, including in contacts with Kazakhstan. Of course, all these activities require appropriate legal conditions.

Another problem related to the creation of medical documentation and requiring additional research is the problem of rooms intended for its col-

lection [27,28]. When changing legal regulations it would be possible to scan and store it only in electronic form. This would make access to documentation simple, and at the same time would save a huge number of rooms. This is the documentation aspect never before analyzed in the literature.

The factor determining time of medical documentation creation in the era of computerization is the computing power of computers and the efficiency of systems and computer networks. Preliminary observations, requiring careful analysis, indicate that most of the health care facilities use old-generation computers. They extend the time devoted to the creation of medical records. With the existing limited financial resources, the solution to this problem is, for example, the acquisition of post-leasing computers from IT companies by medical facilities, could somehow minimize this problem.

How does this relate to reality in the medical world? Often we have doubts whether we are talking about a world of phenomena made or about the world of subjective feelings? Are we dealing here with metonyms or phantasms? Is this in accordance with Charles Taylor’s theory more a social imaginary described in the medical world or a phenomenon that falls within the theory of real social behavior. In my opinion, there is still more or less noticeable in the medical world described by this eminent Canadian philosopher, the so-called “hierarchical complementarity” instead of “modern individualism” and “direct access society” [29].

This usually results in trouble-free activities that do not match (in accordance

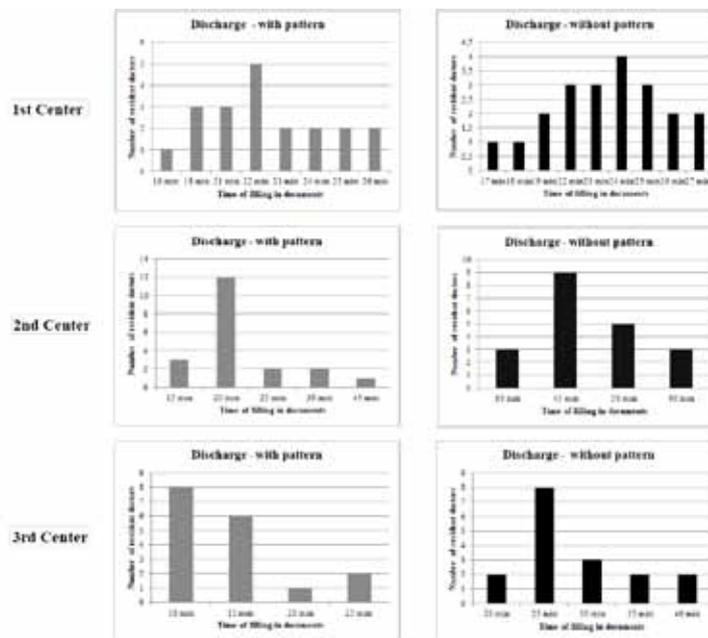


Fig. 4. The time required to complete the documentation related to the discharge of a patient from the hospital given by resident doctors, separately for each medical center with the usage of modifiable patterns or not.

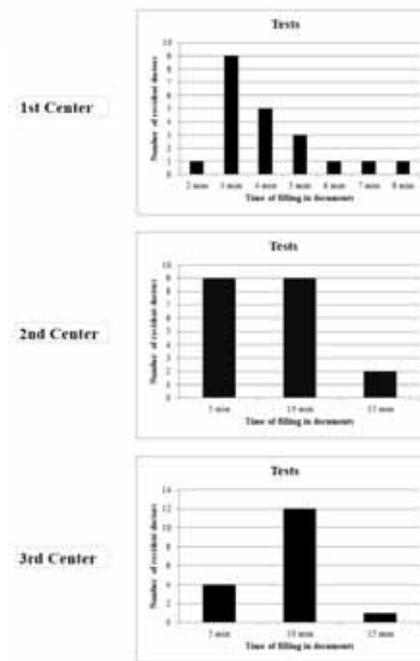


Fig. 5. The time required to complete the documentation related to the ordering of tests for a patient given by resident doctors, separately for each medical center.

with HR principles) in the main objective of the profession, which is the treatment of people, and not the creation of new elements of medical records. We find here a complete disagreement of the situation with the models developed by the Universities of Michigan and Harvard in the field of human capital management. According to the Michigan model, after the evaluation of the effects of activities should be the moment of rewarding people performing them or indicating the need for development and further education. [7,30,31]. We are not dealing with anything like this

in this case. Each execution of bureaucratic and documentary activities causes the looping and the need to repeat similar activities on the next day. In this way, the image of the new Tischnerian „homo sovieticus” is created, not the Taylorian man of “good life” [29,31]. The assessment of the above phenomenon in the Harvard model can only point to the existing pressure of external stakeholders: power and patients. However, this requires separate research. In any similar situation to this, when assessing similar but not complementary phenomena and trying to bring about their changes, one should try to conduct research based on the methodology of work norms and estimating the value of working time [7,30]. However, there are objective difficulties here. The use of the Flamholtz discounted revenues method [7,30,33,34,36] is by definition impossible to implement. The condition for the effectiveness of using this method is a small, stable company. In the case of residents employed for money transferred for this purpose from the Ministry of Health, it is difficult to talk about such a situation. Equally doubtful are the answers to the other basic questions posed in this method.

- How long will the employee work (in this case resident doctor)?

- What occupation will he perform (in the future)?

- Thanks to which you can assign a discounted stream of cash (which positions will be occupied by the employee in the future, for what period of time, with what probability and what will be the current net value generated by a given employee)?

Similar difficulties arise when trying to apply the historical expenditure method.

We include the following for analysis:

- Recruitment expenses;
- Annual salaries;
- Expenses for training;
- Average period of employment (depreciation);
- Discount rate [7,30].

Analyzing this method, recruitment expenditures can be considered as almost zero or their values are possible to significantly reduce:

- Head hunter - de facto completely unnecessary when there is constantly a surplus of candidates for attractive residences;

- Costs of HR specialists, currently possible to be limited to the basic „HR” functions;

- Managerial costs at the recruitment stage, amounting to the costs of a short conversation (working time).

All these activities generate low costs. Analyzing the annual salary, we face the problem of what salary we are talking about:

- In one place of work, at work in the field of hours compliant with full-time work;

- In one place of work, with a working

time completely disproportionate to a full-time job and many times exceeding it;

- Work in many places, with a multiplicity of time when it comes to the number of hours of work time, often including work in private practices, participation in drug research programs, etc.

The amount of the resident’s salary can be easily obtained [20], unfortunately the remaining much higher numerical values require complex tests and analyzes and obtaining correct values seems very difficult, requires complex research on large groups and exceeds the framework of this work.

In the method of historical expenditure, it is very important to include expenses on training [7,30]. Calculating them in the case of surgical specialties is very difficult. What are we talking about? On costs of compulsory training to specialization or on trips to non-compulsory foreign trainings. The costs of both are incomparable. The problem of training is multidimensional and very complex. In the opinion of the authors of the paper, the „litmus test” is a curious situation of the need to pay income tax by the doctor from the cost of training, partly or totally paid by an external company [37]. There is completely incomprehensible situation in other professional group than doctors, when the lecturer at the training has to pay de facto for the opportunity to teach others.

The most important elements to be included in the case of training in medicine are, however, the answer to the question whether we are talking only about direct costs or indirect costs [20,39]. An operation performed by an untrained surgeon may be associated with longer healing time and more frequent complications, regardless of the existence of supervision. We’re talking about a learning curve here. How to count it? Certainly, assuming that a resident can be employed in a given facility for several years, such costs should be broken down over several decades and the person should be employed in various positions throughout his working life. How to evaluate a complex oncology procedure with an increased risk? The authors do not answer this question.

In connection with the problems described above, the historical expenditure method does not seem to be appropriate for assessing the resident’s human capital. Certainly it varies depending on the medical specialty. It would probably be interesting to use a methodology similar to that used, for example, among military pilots participating in war operations.

Due to the simplified nature of the method, it seems easier to apply in this case the valuation of human capital by the replacement method. In addition to the recruitment expenses, where the situation is similar to the historical cost method, there is an item: other expenditure. All indirect and direct costs can be placed here. However, there is still a problem with exact calculation,

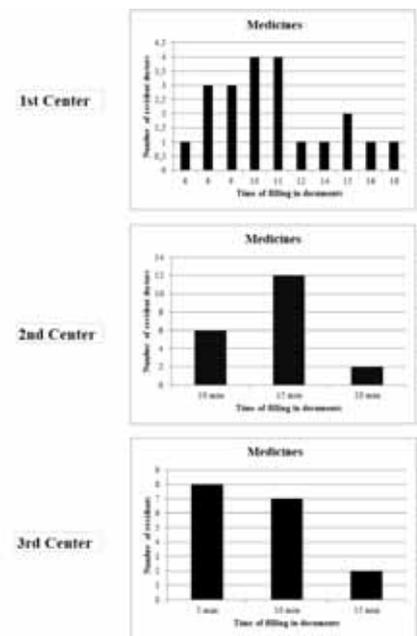


Fig. 6. The time required to complete the documentation related to ordering medicines for a patient given by resident doctors, separately for each medical center.

because an error exceeding 100% seems unacceptable.

Attempting to indicate the alternative cost of „wasted” time is also very difficult for residents and other doctors. Physician’s numerical values in USD are calculated or rather estimated in the US, UK or other countries with mature administration [40,41]. Under this concept we mean countries which at least theoretically converted the teachings of Max Weber and his successors [42]. They are also estimated in other countries, including Poland [43]. Each time, however, the question arises what we mean by the term „wasted time”. A simple conversion of an optimal doctor’s work time in the EU and in the US is completely different. The doctor’s work time in the USA is a multiple of working time in Europe. This results, for example, in completely different learning curves, generating completely different indirect costs. Studies on indirect costs and direct treatment of patients after injuries indicate that indirect costs are 10 times higher [44,45,46]. Probably a similar situation can be noticed in the case of indirect costs resulting from the learning curve, in the case of an attempt to indicate the alternative cost of „wasted” time. This requires separate research.

The literature clearly speaks of the high cost of training doctors in the world, but first of all about the high value of their income. The earnings of doctors during one year in the United States amount to from over 200,000 to 450,000 USD depending on the specialization [40,46, 47,48]. In connection with the above, the basic question arises whether in accordance with the rules

applicable in the HR canon, HR Business Partner, or even in Human Capital Advisor the most important is to accurately recount these costs before making the appropriate decisions? In our opinion no, if it is obvious, even from the initial calculation and review of the literature, that the revenues obtained in typical VRIO for doctors, many times exceed the costs incurred in replacing them with typical secretarial activities, the right decision seems obvious. In every country operating in accordance with economic calculations, medical secretaries are employed, allowing physicians, even the youngest, to not be delegated to such tasks.

Working time is another problem. Precisely because of costs, the USA - a country with the most developed level of health care in terms of the degree of professionalism, having the majority of Universities with medical faculties from the world leaders, does not accept the work time currently promoted in Europe. Residents who start working in the wards are the most overworked professional group. It is stated that the resident's working time in the ward lasts from 45 to 76 hours per week with a maximum of 2 days off per week and 3.5 days off in the form of holidays a year. In Europe it is unimaginable. What's more, this time includes first of all performing typical medical activities, including participation in operations if it's a surgical ward. This is due to the learning curve and the risk of losing potential income and possible poor use of the most expensive, most-skilled employees [49].

Polish medicine did not have a period of its revolution or a „dreamed revolution” [50]. The system with minor modifications has existed for several decades and certainly is not a problem of recent years. It seems logical to introduce evolutionary, non-revolutionary activities with gradually relieving doctors, including resident doctors from secretarial activities and enabling them to perform tasks in accordance with VRIO for their actual skills and education. The proposed activities which might help to improve administration work in hospitals include:

- Education and hiring medical secretaries
- Change of the law, which allows on-line work (especially addressed to people with disabilities or people from less developed regions of Poland) as well as work from abroad (addressed to the Polish community living in the east of Europe).

All of this should be accompanied by broadly understood computerization using next generation computers, computer networks and the modern technologies.

Summarizing the analysis, one should pay attention to a slightly different type of results obtained for centers 1, 2 and 3. For the center 1 they indicated an attempt to provide very accurate

te data. In the case of centers 2 and 3, the survey results obtained seem to be estimates, as indicated by the statistical analysis presented above. However, this does not undermine the significance of the results obtained.

Conclusions

1) It seems justified to implement formal, legal and administrative procedures reducing the time devoted to non-medical procedures.

2) It seems appropriate to broaden the research using control methods and a larger number of respondents.

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