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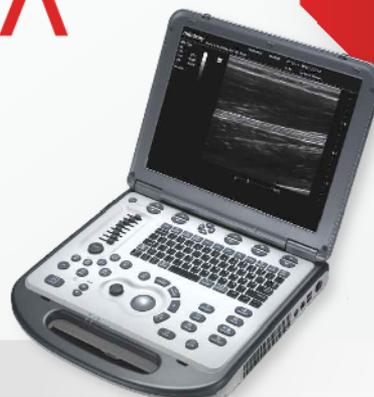
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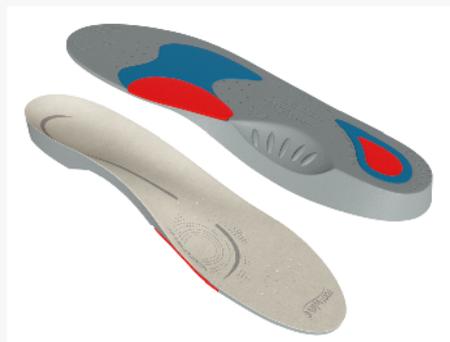
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Index assessment of outpatient physiotherapy financed from public funds at the disposal of the National Health Fund provided in 2017–2019 in Poland

Ocena wskaźnikowa fizjoterapii ambulatoryjnej finansowanej ze środków publicznych będących w dyspozycji NFZ w latach 2017–2019 w Polsce

Zbigniew Tytko^(A,B,C,D,E), Dominik Dziurda^(A,C,D,E), Dorota Mańkowska^(A,D,E), Agata Bąk^(B,D), Katarzyna Leoszkiewicz^(B,D), Katarzyna Kędzior^(E,F), Piotr Bednarski^(E), Roman Topór-Mądry^(A,G)

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Abstract

Introduction. Our study aims to present the state of Polish outpatient physiotherapy covered by the National Health Fund (NHF) based on a set of original indices to parametrise the structure of services and the physiotherapy process.
Materials and methods. The study used the NHF reporting data on outpatient physiotherapy collected between January 2017 and October 2019. The analysis used a set of originally developed indices.
Results. Of all outpatient physiotherapy cycles, generally provided on consecutive working days, 70% lasted 10 days and 84% were provided to patients without a formal confirmation of severe disability. From the patient's perspective, 41% of the time of services is provided in a one-on-one basis (index of the structure of services), while the kinesiotherapy accounted for 30% of total time of services. The dominant group of services, about 70% in quantitative terms, is physical therapy.
Conclusions. To satisfy the health needs of patients by publicly funded outpatient physiotherapy is still a challenge and creates a perspective to develop a new way of organising and financing outpatient physiotherapy. The proposed indices of service structure and process enable an accurate diagnosis of the current situation, development of optimal system solutions and monitoring their implementation.

Key words:

physiotherapy, index, population-based, real world data

Streszczenie

Wprowadzenie. Celem badania było przedstawienie stanu polskiej fizjoterapii ambulatoryjnej finansowanej ze środków będących w dyspozycji Narodowego Funduszu Zdrowia (NFZ), w oparciu o zestaw autorskich wskaźników parametryzujących strukturę świadczeń i proces fizjoterapii.
Materiały i metody. Do badania wykorzystano dane sprawozdawcze NFZ w zakresie fizjoterapii ambulatoryjnej za okres styczeń 2017 – październik 2019 r. Do analizy wykorzystano zestaw autorskich wskaźników.
Wyniki. Spośród wszystkich cykli fizjoterapii ambulatoryjnej, świadczonych na ogół w kolejnych dniach roboczych, 70% trwało 10 dni, a 84% cykli fizjoterapii ambulatoryjnej udzielanych było pacjentom bez orzeczenia o znacznym stopniu niepełnosprawności.
Z perspektywy pacjenta, 41% czasu uzyskiwanych świadczeń zostało udzielonych indywidualnie (wg wskaźnika struktury świadczeń) natomiast wskaźnik czasu świadczeń kinezyterapii mierzony w stosunku do całości czasu świadczeń to 30%.
Dominującą grupą świadczeń, ok. 70% w ujęciu ilościowym, jest fizykoterapia.
Wnioski. Zaspokajanie potrzeb zdrowotnych pacjentów w zakresie fizjoterapii ambulatoryjnej finansowanej ze środków publicznych jest nadal wyzwaniem i stwarza perspektywę wypracowania nowego sposobu organizacji i finansowania fizjoterapii ambulatoryjnej. Zaproponowane wskaźniki struktury świadczeń i procesu fizjoterapii umożliwiają dokładną diagnozę obecnej sytuacji, opracowanie optymalnych rozwiązań systemowych oraz monitorowanie ich implementacji.

Słowa kluczowe

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Introduction

Demographic projections that indicate a progressive ageing of the population [1, 2] allow to predict an increase in demand for physiotherapy services in the coming decade. Therefore, many countries are developing solutions to improve the effectiveness of physiotherapy care – with increasing the proportion of outpatient physiotherapy services and strengthening the role of physiotherapists in the health care system being the key ideas [3, 4]. However, to develop and implement the most appropriate solutions the “current state” and its specific national circumstances need to be described.

This study aims to present the state of Polish outpatient physiotherapy covered by the National Health Fund (NHF) using a set of original indices prepared to parametrise the structure of services and the physiotherapy process as no analytical tools were readily available. They were used to conduct analyses from the perspective of patients, physiotherapists and the services value (expressed in points). The analyses can serve as the basis for the diagnosis of the current condition of Polish outpatient physiotherapy and development of systemic solutions in this area (i.e. organisation and functioning of care) that would answer both current and future challenges of outpatient physiotherapy, and rehabilitation in general. The study complements the Agency for Health Technology Assessment and Tariff System (AOTMiT) previous analyses on therapeutic rehabilitation [5].

Basic information on outpatient physiotherapy in Poland

In Poland, outpatient physiotherapy is currently provided based on referrals issued by physicians. It is provided to patients in the form of the so-called treatment days with a therapeutic session consisting of 1 to 5 services provided on a single day. Most commonly, the patient receives 10 treatment days within a single referral. These treatments are covered in a fee-for-service model based on their point score. Since 2019, physiotherapists have been given the power to decide on the services that should be provided (previously only physicians could do that) during the so-called “physiotherapy visit”. The services provided to patients in outpatient physiotherapy can be divided according to their type into: physiotherapy, kinesiotherapy, massage (and, additionally, the above-mentioned physiotherapy visit). Some services are provided to patients individually, on a one-on-one basis, whereas some treatments are provided to a group of patients. Since mid-2018, people with a formal confirmation of severe disability have been entitled to unlimited outpatient physiotherapy services, which means that the treatments given to these patients are financed by the NHF regardless of the value of the outpatient physiotherapy contract, and in their case, the restrictions arising from the annual budget allocated to the provider by the NHF do not apply.

Between January–June 2019 (the most up-to-date data for the six-month period), outpatient physiotherapy services were predominantly provided to patients without a formal confirmation of severe disability (97% vs 3%). However, taking into account the number of physiotherapy cycles, the

value and the number of services provided, patients with severe disability received more services than the percentage of patients would suggest.

In the above-mentioned period, the number of providers was 2342 and services were provided in 2838 treatment locations (TLs) – the difference between the numbers resulted from the fact that some providers provide the services in more than one location. The number of physiotherapists (people with a unique license number) was 16,623 (it is not equivalent to the number of full-time equivalents).

Materials and methods

For the purpose of this analysis, a set of 1,571,396 patients who begun outpatient physiotherapy between January–June 2019 and completed it within 120 calendar days were selected from the National Health Fund reporting database. These data concerned two types of services (contract products): outpatient physiotherapy (NHF product code: 05.1310.208.02) and outpatient physiotherapy for people with severe disability (NHF product code: 05.1310.508.02). The assumed maximum cycle length of 120 calendar days was based on the cycle for patients who started their outpatient physiotherapy cycle in January 2019 and continued their treatment in the following months. The data showed that 96% of the January patients completed their physiotherapy cycle by the end of February 2019 and 98.8% by the end of May 2019 (120 calendar days).

The methodology for selecting the patients included in the analyses is as follows:

- In order to obtain the output set, patients for whom outpatient physiotherapy services were prescribed between January and June 2019 were selected from the National Health Fund database (1,627,986 patients). Patients who started their physiotherapy cycle in 2018 and continued the treatment in 2019 were excluded, narrowing the pool to 1,592,415 patients.
- Then to include the entire record of patients who did not complete treatment by the end of June 2019 (157,778 patients), services held between July–October 2019 were added to the set.
- Finally, the dataset was narrowed down only to cycles of no more than 120 calendar days, limiting the number of patients included in subsequent analyses to 1,571,396.

The analysis was conducted based on the following indices parametrising the structure of services and the physiotherapy process:

- outpatient physiotherapy repeatability index (RI) – measuring the repeatability of the use of outpatient physiotherapy services over a specified period of time;
- outpatient physiotherapy cycle intensity index (CII) – measuring the time interval between the treatment days;
- outpatient physiotherapy service structure indices (SSI) – measuring, from different perspectives, the structure of services. They are calculated separately with reference to the volume of services, amount of time for their provision and the point score of provided services based on the data for the patient group defined above.

Tab. 1. Basic information on the data included in the analysis

Categories	Patients without a formal confirmation of severe disability (n,%)	Patients with a formal confirmation of severe disability (n,%)	Total
Number of patients (unique identification numbers)	1,534,919 (97.0)	48,039 (3.0)	1,571,396
Number of physiotherapy cycles	1,884,005 (96.1)	76,042 (3.9)	1,960,047
Number of service providers		2,342	2,342
Number of treatment locations (TLs)		2,838	2,838
Number of physiotherapists		16,623	16,623
Value (PLN)	469,587,931 (90.4)	50,041,772 (9.6)	519,629,703
Number of services provided (multiples)	64,600,581 (95.1)	3,309,759 (4.9)	67,910,340

Source: AOTMiT own elaboration based on the NHF data

Results

The structure of said indices made it possible to analyse the phenomena occurring in the outpatient physiotherapy from the perspective of the patient and the physiotherapist. The results of the analyses are presented in relation to the individual measures.

Outpatient physiotherapy repeatability index (RI)

To calculate this index an analysis of the use of outpatient physiotherapy services over a period of 2.5 calendar years

(01/2017–06/2019) was performed. It allowed to identify patients who used outpatient physiotherapy services in the first half of 2019, and then check whether the same patients used them in 2017 and 2018. The study was divided into two groups based on whether patients had formal confirmation of severe disability. For the sake of these calculations, it was assumed that patients who had it in 2019 were also disabled in previous years, so they were assigned to this group in these years as well.

Tab. 2. Outpatient physiotherapy repeatability indices for the time period 01/2017–06/2019

Years in which patients received outpatient physiotherapy	Percentage of patients receiving services in each group (RI)					
	with a formal confirmation of severe disability (n ₁ = 48,039)			without a formal confirmation of severe disability (n ₂ = 1,534,919)		
	2017	2018	2019 I–VI	2017	2018	2019 I–VI
only in 2019	0%	0%	26%	0%	0%	37%
2019_2018_2017	44%	44%	44%	34%	34%	34%
2019_2018	0%	23%	23%	0%	18%	18%
2019_2017	7%	0%	7%	11%	0%	11%
Total	51%	67%	100%	45%	52%	100%

Source: Own elaboration based on data from the National Health Fund

A significant share of patients using outpatient physiotherapy in the period 01/2019–06/2019 also used these services in 2017 and/or 2018.

63% (100% – 37%) of the analysed patients without a formal confirmation of severe disability used outpatient physiotherapy at least once between 2017 and 2018, while 34% of them used the services in both 2017 and 2018 (in the group of patients with confirmed severe disability, the numbers were respectively 74% and 44%).

Outpatient physiotherapy cycle intensity index (CII)

A single outpatient physiotherapy cycle, i.e. outpatient physiotherapy services provided on the basis of a single referral, counts up to 10 treatment days (for patients under 18, the li-

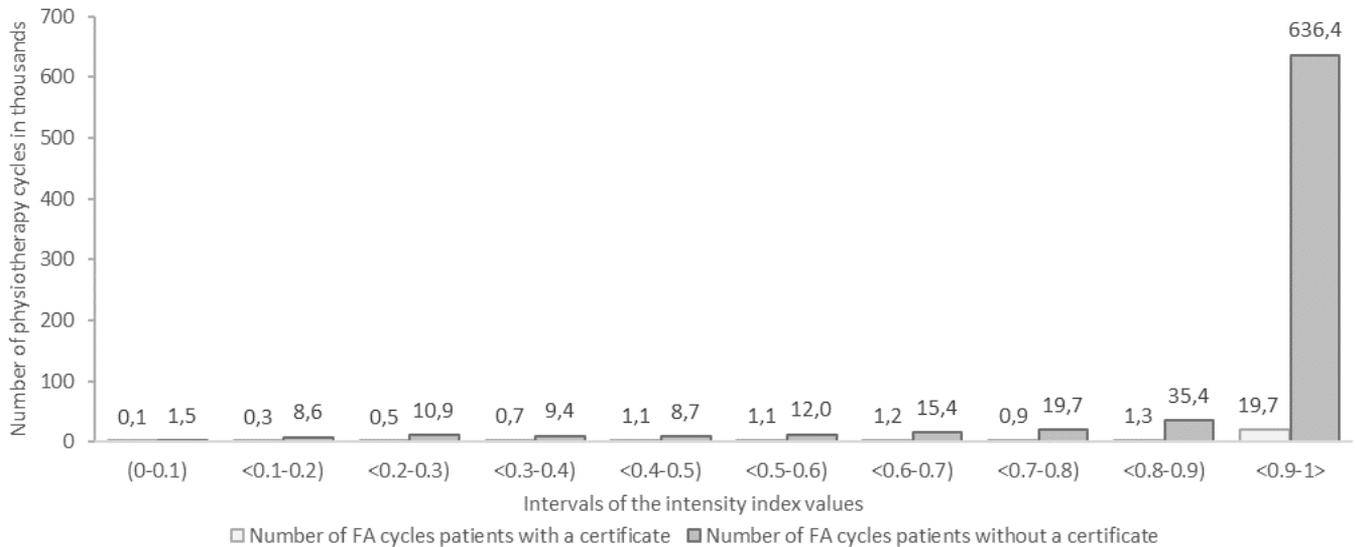
mit per referral is 50 treatment days and 120 treatment days per calendar year) during which from 1 to 5 services are provided to a patient. The treatment days can be provided day by day or with breaks of different lengths.

The CII measuring the intensity of the outpatient physiotherapy cycle is the number of treatment days divided by the number of working days between the first and last day of the physiotherapy cycle. In this analysis only working days were considered (public holidays were excluded from the analyses). The value of the index can count up to 1 when treatment days follow each other without a break.

The analysis included 758,000 cycles of physiotherapy given to patients without formally confirmed severe disability and almost 26,800 cycles given to patients with a confirmed severe

disability from six Regional Branches (Dolnośląski, Kujawsko-Pomorski, Lubelski, Lubuski, Łódzki and Małopolski Regional Branch) of the NHF in January–June 2019. 84% of outpatient physiotherapy cycles provided to patients without a severe disability certificate, i.e. 636,400 cycles, had

a CII index in the range of $< 0.9; 1 >$ (treatment days were completed nearly day after day). The same CII values were found in almost 74% of cycles in case of patients with confirmed severe disability, i.e. 19,700 cycles (Figure 1).

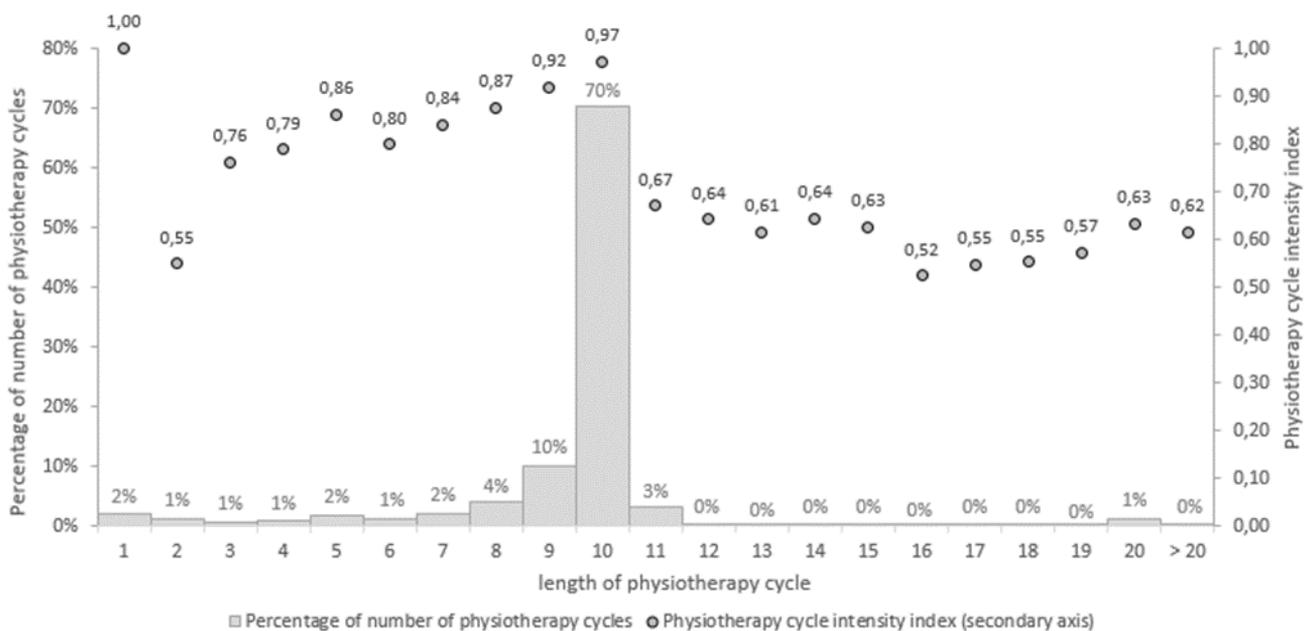


Source: AOTMiT own elaboration based on data from the National Health Fund. Data from six Regional

Figure 1. Number of outpatient physiotherapy cycles in physiotherapy cycle intensity index (CII) intervals in the period

Branches of the NHF. Data from six Regional Branches of the NHF, the ‘ < ’ sign indicates a left-closed and the ‘ > ’ sign a right-closed interval, while the ‘ (’ sign indicates a left-open and the ‘) ’ sign a right-open interval. Based on data from all Regional Branches of the National

Health Fund in January–June 2019, the most common physiotherapy cycles are 10-day cycles, which represent 70% of all cycles with a CII of 0.97 which means that the patient is provided services for 10 working days with virtually no break. The next most frequent cycle is a 9-day cycle representing 10% of all cycles (Figure 2).



Source: AOTMiT own elaboration based on data from the National Health Fund.

Figure 2. Physiotherapy cycle intensity index (CII) according to the number of treatment days in the cycle (cycles started between 01/2019–06/2019)

As part of the analyses, the regularities regarding the days of the week for starting and ending outpatient physiotherapy cycles were assessed (the data included six Regional Branches of the National Health Fund (Dolnośląski, Kujawsko-Pomorski, Lubelski, Lubuski, Łódzki, and Małopolski Regional Branch) for patients without a formally confirmed severe disability). The results of the analysis indicated that physiotherapy most frequently starts on Mondays (57%) or Wednesdays (21%) and ends on Fridays (48%) or Tuesdays (20%). These results are consistent with the information presented above regarding the cycle intensity index, as they demonstrate that the most popular physiotherapy cycles are those which last for a multiplication of 5 working days (most often double that number). In these cycles, the value of the intensity index increases.

Outpatient physiotherapy service structure indices (SSI)

The structure of services provided was described using indices that measure the share of particular service groups defined in terms of:

- the type of service (therapeutic stimulus) – distinguishing the following types: kinesiotherapy services, physiotherapy services, massage and physiotherapy visits are included separately,
- the number of patients per physiotherapist during the provision of services – this division includes: individual and group services (individual services are provided to 1 patient for the whole duration of the service by 1 physiotherapist, whereas

group services are provided to a larger group of several patients by 1 physiotherapist or the physiotherapist is not needed for the whole duration of the service).

These indices were calculated separately for: (1) the volume of services, (2) the time of their provision, from a patient's perspective or from a physiotherapist's perspective (the assumptions concerning: (a) the amount of time needed of to providing 1 service by a physiotherapist per 1 patient („Time in minutes of physiotherapist involvement per patient”), (b) the time of providing the service from the perspective of the patient who received it („Time in minutes of one treatment from the patient's perspective”), as well as (c) the assumptions concerning the number of patients who participated in the treatment; were based on the NHF guidelines or the Agency's own assumptions (where no such guidelines existed) [Supplementary Material: Appendix 1]; (3) the point score of services provided based on the data for the patient group defined above (The SSI in relation to the points' value was created based on the scoring set by the National Health Fund in the Order No. 13/2019/DSOZ of the President of the National Health Fund of 6 February 2019 on determining the conditions for conclusion and implementation of agreements in the types of therapeutic rehabilitation and health programs in the scope of services – treatment of children and adults with coma [6].

The detailed structure of services is described for the period January–June 2019, while changes in the structure of services are described for the period 01/2018–06/2019.

Tab. 3. Outpatient physiotherapy data for the period 01/2019–06/2019*

Dimension of analysis	Category of service	Type of service			total	
		physical therapy	kinesiotherapy	massage		
Time	physiotherapist	individual	29%	24%	15%	68%
		group	17%	14%	1%	32%
		total	46%	38%	16%	100%
	patient	individual	17%	16%	7%	41%
		group	44%	14%	2%	59%
		total	61%	30%	9%	100%
Number of services	individual	30%	8%	7%	45%	
	group	41%	13%	1%	55%	
	total	71%	21%	8%	100%	
Value in NHF points	individual	27%	27%	9%	63%	
	group	25%	11%	1%	37%	
	total	52%	38%	10%	100%	

Source: AOTMiT own elaboration based on data from the National Health Fund and Central Statistical Office.

* Services provided to patients without a formal confirmation of severe disability; the term 'group' used with reference to physical therapy means that at the same time there are several patients under the care of 1 physiotherapist.

Physiotherapy visits were not included in the table and subsequent conclusions, due to the different nature and purpose of their provision compared to the other physiotherapy services included in the compilation.

In addition to services listed in Table 3, patients were provided with physiotherapy visits which between January and Ju-

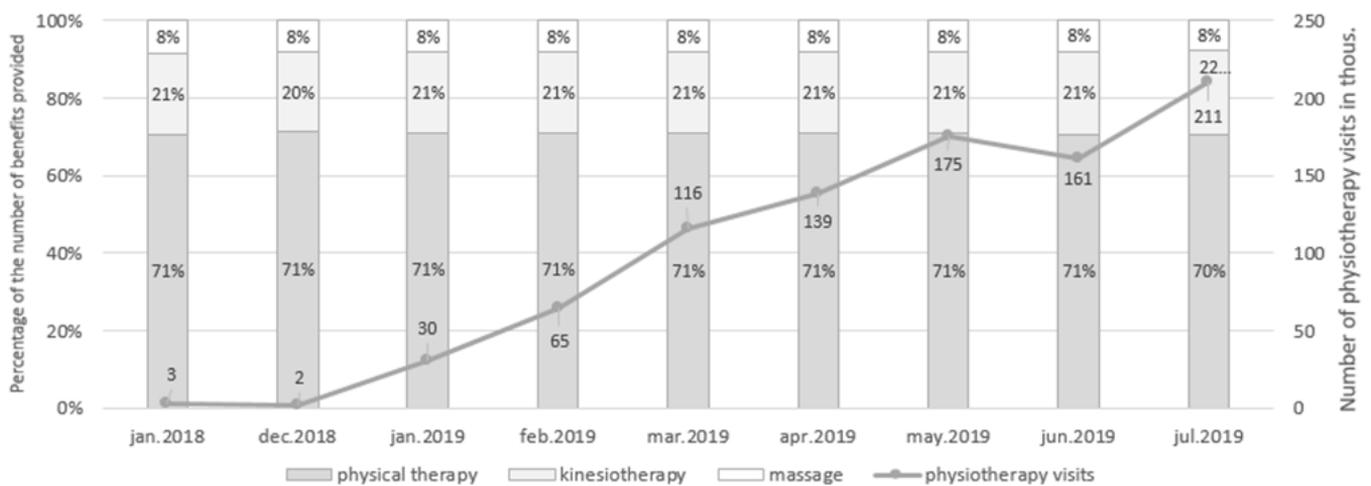
ne 2019 accounted for 1% of the number of outpatient physiotherapy services and 2% in terms of NHF point value, as well as 3% and 2% of the time from the physiotherapist and patient perspective, respectively.

From the patient's perspective, 41% of physiotherapy time is allocated to individual services, with a similar proportion of

physical therapy (17%) and kinesiotherapy (16%). 59% of treatment time is taken by group services, with a dominant share of group physical therapy (44%), which takes up more of the patient's treatment time than all individual services (44% vs. 41%). From the physiotherapist's perspective, 68% of working time is consumed by individual services (with 29% of working time being spent on individual physical therapy and 24% on individual kinesiotherapy). 898,684 (56.8%) of patients among those starting physiotherapy in the first half of 2019 did not receive any kinesiotherapy services (of those patients, 883,228 did not have a formally confirmed severe disability certificate and 15,456 had); in terms of the number of treatment cycles this amounted to 1,041,448 (53.1%) of all cycles (including 1,022,424 (54.3%) for patients without confirmed severe disability and 19,024 (25%) for the severely disabled).

From January 2018 to July 2019, the change of the service structure over time in terms of the service type (i.e. therapeutic stimulus) was analysed based on the number of services provided with the following types being distinguished: kinesiotherapy, physical therapy and massage services. Physiotherapy visits necessary to assess patient's condition and determine individualised physiotherapy goals and treatment plan are counted separately. The analysis included services provided to patients without a formal confirmation of severe disability.

In the analysed period, the service structure divided by the therapeutic stimulus and in relation to the number of services was very stable, with changes not exceeding 2 p.p. The highest percentage of provided services could be observed in physical therapy – 70–71% (Figure 3).



Source: AOTMiT's own elaboration based on data from the National Health Fund, data does not include home physiotherapy

Figure 3. Structure of outpatient physiotherapy services in the period 01/2018–07/2019

However, in the period 01–06/2019, the number of physiotherapy visits provided as part of outpatient physiotherapy increased dynamically, from about 3,000 in 01/2018 to about 211,000 in 07/2019. This increase is related to the provision introduced from January 2019 abolishing the obligation to order treatments by the referring physician, thus therapy plan is determined during physiotherapy visits.

Discussion

As mentioned in the introduction, no indices adequately describing the condition of outpatient physiotherapy in Poland have been identified in the literature search, especially taking into account current formal and legal regulations. In the Polish literature on medical rehabilitation, especially outpatient physiotherapy, there are no studies which would analyse this area of services in a comprehensive and individualised way. The development of the auctorial indices is therefore a contribution to scientific achievements and pro-

vides an opportunity to evaluate the state of outpatient physiotherapy in future years.

The results indicating regular use of outpatient physiotherapy by patients with severe disability (74%) do not raise major concerns; however, the repeated use of services by the remaining patients (63%) may indicate limited effectiveness of outpatient physiotherapy and/or physiotherapy for chronic conditions (Tab. 2).

In properly delivered outpatient physiotherapy, the intensity of the physiotherapy cycle should reflect the needs of the patient (from day-by-day treatments to a high degree of individualised breaks between treatment days). The results of the analysis indicate that outpatient physiotherapy services are generally provided on consecutive working days, which raises questions about achieving optimal treatment outcomes and responding to actual patient needs. The implementation of 10-day cycles without a break for two consecutive weeks is undoubtedly the easiest way to organise the provision of

services by outpatient physiotherapy centres. It reduces the administrative work involved in maintaining and changing the service delivery schedules (Figures 1, 2).

The results of the assessment also showed that physical therapy treatments are the dominant group treatment used in outpatient physiotherapy – about 70% in the group of patients without a confirmed severe disability, although their effectiveness is questioned in some clinical conditions. The analysis allows us to conclude that the extension of physiotherapists' competences in the Polish health care system has not changed the structure of provided outpatient physiotherapy services. However, there was a marked increase in the number of physiotherapy visits during the same period (Figure 3).

Conclusions

To satisfy the health needs of patients by publicly funded outpatient physiotherapy is still a challenge. This applies to both the structure and frequency of the services provided.

1. High percentage of patients using outpatient physiotherapy services on a regular basis may indicate a lack of effectiveness in case of patients with chronic conditions. Treatment days in physiotherapy cycles are generally provided on consecutive working days, which may be indicative of incomplete consideration of the optimum intensity of outpatient physiotherapy.

2. The structure of the services may indicate an inappropriate relation between kinesiotherapy and physiotherapy because physical therapy treatments are currently the dominant treatment type used in Polish outpatient physiotherapy, although their effectiveness is questioned in some clinical conditions [7, 8].

3. Granting physiotherapists the rights to prescribe the treatment has not changed the structure described above, which may indicate a need to introduce a new methods of organising and financing outpatient physiotherapy that would promote its effectiveness [9].

4. Understanding of some specific areas of health care such as outpatient physiotherapy requires the dedicated analytical tools to be developed. The proposed indices of service structure and process of care enable an accurate diagnosis of the current state of outpatient physiotherapy, development of optimal system solutions and monitoring their implementation.

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