Education in the fields of public health, epidemiology and infectious diseases in Poland in the perspective of the COVID-19 pandemic

Kształcenie lekarzy w dziedzinach zdrowia publicznego, epidemiologii oraz chorób zakaźnych w Polsce w kontekście pandemii COVID-19

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KEYWORDS:

- COVID-19
- public health
- epidemiology
- infectious diseases
- postgraduate medical education
- doctors
- Poland

ABSTRACT

The article presents an analysis of the education of doctors in the fields of public health, epidemiology and infectious diseases in 2010-2020 and concerns doctors attending the above-mentioned specializations in the Centre of Postgraduate Medical Education of Warsaw. The publication shows the growth in infectious disease and epidemiology specialists due to an increase in publicly funded training places and a decline in public health professionals. The authors emphasize how necessary it is to implement effective changes leading to an increase in the level of education of specialists. They also emphasize the need to increase the attractiveness of work in health care as a priority task of the state's public policy.

SŁOWA KLUCZE:

- COVID-19
- zdrowie publiczne
- epidemiologia
- choroby zakaźne
- medyczne kształcenie podyplomowe
- lekarze
- Polska

STRESZCZENIE

Artykuł przedstawia analizę kształcenia modelu lekarzy w dziedzinach zdrowia publicznego, epidemiologii oraz chorób zakaźnych w latach 2010-2020 i dotyczy lekarzy odbywających ww. specjalizacje w Centrum Medycznym Kształcenia Podyplomowego. Publikacja wskazuje na wzrost liczby specjalistów w dziedzinie chorób zakaźnych i epidemiologii, co wynika ze zwiększania liczby miejsc szkoleniowych w oparciu o finansowanie ze środków publicznych, oraz spadek specjalistów z dziedziny zdrowia publicznego. Autorzy podkreślają jak niezbędne jest wdrożenie skutecznych zmian prowadzących do wzrostu poziomu kształcenia specjalistów. Podkreślają również potrzebę zwiększenia atrakcyjności pracy w ochronie zdrowia jako priorytetowego zadania polityki publicznej państwa.

Introduction

Postgraduate education of doctors in Poland covers the stage of specialization education after graduating from the medical faculty at the faculty of one of the medical universities or other universities. After successfully passing the state examination, medical graduates can develop skills and broaden their knowledge following their interests in the selected field. As part of specialization training, a doctor performs the profession under the care and supervision, providing medical services in the field of counseling, outpatient treatment, or therapeutic procedures. The area of competence development depends on the nature of the selected specialization, and the training cycle is from three to six years. Therefore, obtaining the title of a specialist takes place after several years of education, confirmed by passing the final exams. Doctors with these qualifications successfully enter the public health sector.

Opportunities for professional development, financial attractiveness of employment, working conditions, and the social prestige of the profession are strong arguments when choosing an area of specialization. For these reasons, in some fields of medicine, the shortage of specialists is exacerbated. Desirable due to the health situation of the society and not enjoying the interest of doctors, areas of medicine are placed on the list of priority specialties. Obtaining the status of a priority discipline in a given field guarantees a person undertaking training in this field an initial rate of remuneration higher than in the disciplines more popular among doctors.

The system of undergraduate and postgraduate education in Poland has changed in recent years in response to the growing crisis of medical staff management and its dramatic consequences. The reforms introduced: increasing admission limits for medical faculties, shortening

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Published and financed by Centre of Postgraduate Medical Education; https://doi.org/10.36553/wm.118.

the cycle of specialization training, increasing the number of residency places, and creating a list of priority medical specializations. According to the decision-makers, this will increase the number of practicing medical specialists in Poland in the short period of time, including in niche areas with high social needs and expectations. However, it requires constant monitoring to lead to the development of a strategy of changes in the education of medical personnel and monitoring of the health situation of the society.

According to the theory of the epidemiological shift and the aging of the population, we observe an increasing burden on the Polish population with chronic non-communicable diseases. Trends in health changes in the population are dichotomous.

Progressive industrialization resulting in the excessive use of natural resources and environmental pollution, as well as intensive population mobility, contribute to the transmission of factors responsible for infectious diseases. In the twentieth century, the popularization of preventive vaccinations has resulted in the marginalization or even eradication of many infectious diseases, which removed the specter of a threat to the health of the society. Meanwhile, the COVID-19 pandemic announced in 2020 by the World Health Organization is evidence of a constantly existing threat with dynamic development, covering all continents almost at the same time. This creates a huge challenge for health systems.

In the current epidemic crisis, forecasting epidemiological phenomena, analyzing threats to the entire population and optimal management of the health situation constitute the foundation for maintaining the safety of the inhabitants of Poland. In this respect, special requirements apply to healthcare professionals, especially doctors qualified in the areas of infectious diseases, epidemiology, and public health. Activities in the field of securing the health of the population focus on: monitoring the current health situation, identifying and eliminating potential risk factors, and creating conditions promoting and strengthening health. Knowledge in the field of health promotion and disease prevention is a common denominator of professional competences among public health specialists, epidemiologists and infectious disease specialists (1, 2, 3). Nowadays, achievements in the field of effective disease prevention and improvement of the living conditions and health of the population have increased the importance of public health. This points to the need to educate medical staff equipped with the knowledge and practical skills to recognize and manage public health problems (4). Currently, in Poland, the problem of the threat to the health of the population as a result of the epidemic has still not been fully analyzed and assessed. Expenditure on activities related to minimizing health effects and their various instruments should be constantly intensified. It is necessary to optimize the development of medical staff, which in the pandemic era is the first line of defence against an infectious pathogen.

Objective of the article

The study aimed to determine the quantitative changes in the system of specialist education of doctors in the fields of public health, epidemiology, and infectious diseases in 2010-2020 in Poland. The results of the study will be the basis for assessing the direction of changes in postgraduate education of doctors in these areas in the last decade in relation to the current health situation of the Polish population caused by the COVID-19 pandemic.

Material and methods

The material for the analysis was data from the register of doctors undergoing specialization training. This registry is kept by the Centre of Postgraduate Medical Education of Warsaw (CMKP), which is the sole entity responsible for the organization and coordination of postgraduate education for physicians. The data collected in the register, covering the period from 2010 to 2020 and relating to three specialization areas: public health, epidemiology and infectious diseases, were analyzed. Data on the number of physicians specializing in specific fields were examined, including the number of women and men; the age of specialized physicians as well as the number of physicians who undergoing specialization in the form of the residency (full-time employment) regime. Moreover, the number of training places and the number of entities conducting specialization were analyzed. Statistical analysis was performed with the use of the Statistica 12.0 PL software.

Results

According to the data presented in Table 1, in 2020, 66 doctors were undergoing postgraduate training in the field of public health. Compared to 2010, it was 18.5% less. In 2020, 63.64% of doctors took their training in form of residency (full-time employment), which means an increase of 53.76 percentage points compared to 2010. Doctors undergoing a public health specialization in 2020 are mostly women (77.27%). The percentage of doctors specializing in this field in 2010-2020 showed an upward trend (+34.06 pp from 2010). The average age of a specialist in 2020 was 35.4 years. Compared to 2010, the average age has significantly decreased and over the decade remained in the range of 35.4-44.8 years. In 2020, the number of training places in the field of public health was 125, and the number of training entities was 16. During the analyzed period, the number of training places decreased by 21.38%. The number of training entities during this period remained almost constant.

Data on specialization in the field of epidemiology are presented in Table 2. In 2020. 32 doctors specialized in this field. Compared to 2010, it was 60% more. In 2020. 28.13% of doctors, specialization training took place in the form of residency, which means an increase of 18.3 pp compared to 2010. Doctors who will specialize in epidemiology in 2020 are mostly women (53.13%). The percentage of female doctors showed an upward trend from 2010-2020 (+13.3 pp from 2010). The average age of a doctor undergoing specialization in 2020 was 43.1 years. Compared to 2010, the average age has decreased and has remained in the range of 42.6-47.1 years over the decade. In 2020, the number of training places in the field of epidemiology was 83, and the number of entities conducting the specialization was 11. In the period 2010-2020 the number of entities conducting the specialization increased, but the number of training places decreased.

Table 3 contains data on physicians specializing in infectious diseases. In 2020, 129 doctors specialized in infectious diseases. Compared to 2010, it was 7.5% more. In 2020, 51.94% of doctors completed specialization training in the form of residency, which means an increase of 6.11 percentage points compared to 2010. Doctors undertaking specialization in this field in 2020 are mostly women (72.87%). The percentage of female doctors showed a downward trend from

2010-2020 (-4.63 pp from 2010). The average age of a doctor undertaking specialization training in infectious diseases in 2020 was 34.4 years. Compared to 2010, the average age slightly decreased and over the decade remained in the range of 33.7-35.4 years. In 2020, the number of training places in this field was 407, and the number of entities conducting specializations was 76. In the period 2010-2020, the number of places and the number of entities enabling the implementation of specialization training in the field of infectious diseases increased. Compared to 2010, in 2020 there were more training places (31.7%) and 13.4% more training entities.

Table 1. Data from the CMKP register from 2010-2020 regarding doctors specializing in public health.

Public health	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of people holding special in total	81	106	111	97	97	79	82	77	73	64	66
Including the number of residents	8	17	22	31	36	38	41	40	40	39	42
% of residents	9.88	16.04	19.82	31.96	37.11	48.10	50.0	51.95	54.79	60.94	63.64
Including the number of women	35	52	50	52	54	51	57	54	55	51	51
% of women	43.21	49.06	45.05	53.61	55.67	64.56	69.51	70.13	75.34	79.69	77.27
The average age of the person undergoing the specialization	44.8	42.3	42.6	41.8	41.7	39.0	38.7	39.1	38.4	36.4	35.4
Number of training places	159	165	165	165	164	131	131	138	137	137	125
Number of entities conducting specializations	16	17	17	17	17	16	16	17	17	17	16

Table 2. Data from the CMKP register from 2010-2020 on doctors specializing in epidemiology.

Epidemiology	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of people holding special in total	20	31	31	38	47	39	35	35	29	31	32
Including the number of residents	2	2	2	7	8	7	8	8	7	8	9
% of residents	10	6.45	6.45	18.42	17.02	17.95	22.86	22.86	24.14	25.81	28.13
Including the number of women	8	13	16	22	29	25	21	23	19	17	17
% of women	40	41.94	51.61	57.89	61.70	64.10	60	65.71	65.52	54.84	53.13
The average age of the person undergoing the specialization	47.1	46.3	47.1	44.3	44.2	43.9	42.6	42.9	43.5	43.8	43.1
Number of training places	91	91	94	92	92	97	77	92	92	80	83
Number of entities conducting specializations	8	8	10	10	10	11	10	11	12	10	11

Table 3. Data from the CMKP register from 2010-2020 on doctors specializing in infectious diseases.

Infectious diseases	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Number of people holding special in total	120	142	166	169	169	137	145	139	143	126	129
Including the number of residents	55	78	99	105	104	86	88	81	81	63	67
% of residents	45.83	54.93	59.64	62.13	61.54	62.77	60.69	58.27	56.64	50.00	51.94
Including the number of women	93	112	126	130	129	103	106	99	100	92	94
% of women	77.50	78.87	75.90	76.92	76.33	75.18	73.10	71.22	69.93	73.02	72.87
The average age of the person undergoing the specialization	34.8	34.7	34.1	33.7	34.1	34.4	34	34.7	34.6	35.4	34.4
Number of training places	309	316	316	324	369	369	402	387	401	396	407
Number of entities conducting specializations	67	69	69	70	71	72	77	75	76	73	76

Discussion

The analysis of the data showed that in the last decade in Poland there have been changes in the system of specialist education of doctors in the areas of public health, epidemiology, and infectious diseases. In terms of the number of people entering education, there has been an increase in the number of people specializing in infectious diseases and epidemiology. This happened along with the increase in the number of training places based on public funds, based on a residence contract.

The situation of those undertaking public health training was different. The status of specialization in the form of residency was not enough to convince more doctors to train in this field.

Finally, a comparative analysis of data from the last decade showed that for each of these areas, expenditure from the state budget for financing the employment of doctors in the form of an employment contract for a period determined by the length of specialization training was increased. In 2020, the specialization in infectious diseases was undertaken by only 129 doctors, which over the years slightly, i.e., by only 7.5%, increased the interest in this field of medicine. The shortage of specialists in this area has been increasing for years, and the inflow of new candidates was so low that there is no real possibility of filling the professional generation gap, because most of the currently practicing infectious diseases doctors are of retirement age.

The current COVID-19 pandemic has exacerbated this problem (5) and, consequently, infectious diseases have been recognized as a deficit specialization. As a result, in June 2020, it was placed on the list of priority areas, along with the other 22 areas of medicine. This is to be a financial incentive to start education in this field.

However, the incentive to undertake training in a priority area has a short-term perspective. Compared to other areas of medicine, infectious diseases do not provide a satisfactory level of professional development for a doctor. Working in conditions of the constant threat to health and life, a low level of basic salary reduces the attractiveness of this development path. In addition, the low point evaluation of guaranteed services in this non-surgical area means low profitability from the perspective of medical entities, which limits the possibility of earning money in public health sector facilities with no possibility of earning extra money in the private sector. Only systemic, long-term change programs can encourage doctors to educate in this important specialization.

The average age of a physician entering a specialization in epidemiology and public health was much higher than in other areas of medicine. The low interest of young doctors in professional development in these areas exacerbates the unfavorable age structure of specialists in Poland. For the analyzed domains, the share of specialist doctors of retirement age is growing alarmingly. The conclusions from the data analysis and the research of other authors (6) indicate that the training of medical staff in the field of public health, epidemiology, and infectious diseases in Poland is still marginal and insufficient. The results of the study conducted by (7) show that in 2015, out of 100,000 there were 0.94 public health specialists. Moreover, a diversified, uneven distribution of these specialists in the territory of Poland was demonstrated, which in the case of many voivodeships may mean a shortage of staff.

According to data from the Medical Examinations Center (CEM) (4) from 2003-2015, the average age of a public health specialist was 47.2 years. This indicates that doctors who already have the title of specialist in another field start

their specialization and, as the analysis (7) shows, most often in internal medicine and general surgery. Occasionally, specialists in related fields, such as hygiene and epidemiology, organization of health care and social medicine, were educated in public health (7). For general surgeons, interest in educating in a non-surgical field may indicate a desire to retrain. This may be due to health problems of doctors or professional burnout that make it impossible to practice (8).

There is still little interest in undergoing a public health specialization. According to the data of the Supreme Medical Chamber (NIL) (7), public health specialists constitute 0.8% of the physician population, and the CEM data indicate that only 0.2%. The reasons for such a significant discrepancy are unknown.

With the changing profile of health risks, and in particular with the current COVID-19 pandemic, there is a need to educate more doctors in these areas.

Limitations of the study

This study is based on statistical data regarding the number of physicians specializing in the field of public health, epidemiology, and infectious diseases, and the admission limits and the available specialization regimes. It does not reflect the attitude or motivation of physicians undergoing postgraduate training in the aforementioned fields. Thus this study provides limited insight into the prospects of efforts to increase the interest in those specializations.

Conclusions

The Polish system of postgraduate education for doctors needs long-term remedial programs. The current crisis has only exacerbated the existing problems and made it possible to identify those areas that require priority intervention. The experience of the COVID-19 pandemic shows that implementation is essential.

References

(1) Specialization program in the field of communicable diseases. CMKP. Warsaw 2020. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwitlu3skI_5AhXOmosKHZBkA6QQFnoECAUQAQ&url=https%3A%2F%2Fwww.cmkp.edu.pl%2Fwp-content%2Fuploads%2F2021%2F01%2F-Choroby-zakazne-0706-program-1.pdf&usg=AOvVaw3ug4GAI8dhRD2JZlv4mMGz [access date: 23.07.2022].

(2) Specialization program in the field of public health. CMKP. Warsaw 2018. https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwi-9hP_Rko_5AhUGx4sKHeeUALgQFnoECAIQAQ&url=https%3A%2F%2Fwww.cmkp.edu.pl%2Fwp -content%2Fuploads%-2Fakredytacja2018%2F0730D-program-1.pdf&usg=AOvVaw-2zDpa5XV6GNikLYlu3ky42 [access date: 23.07.2022].

(3) Specialization program in the field of epidemiology. CMKP. Warsaw 2018. https://www.google.com/url?sa=t&rct=-j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwiorM3wko_5AhUBjosKHeJIC74QFnoECAMQAQ&url=https%3A%2F%2Fwww.cmkp.edu.pl%2Fwp-content%2Fuploads%2Fpdf%2F0710-program-2-2018-D.pdf&usg=AOvVaw0FxK7EYJ96FqeXp58WPLHv [access date: 23.07.2022].

(4) Wdowiak L, Woźnica I. Zdrowie publiczne jako dyscyplina naukowa. Zdrowie publiczne. [red.] Kulik TB, Pacian A. PZWL. Warszawa 2014; 58-67.

(5) Buchelt B, Kowalska-Bobko I. Zarządzanie zasobami ludzkimi w systemie ochrony zdrowia w czasach pandemii. Centrum Polityk Publicznych. Kraków 2020.

(6) Cianciara D, Piotrowicz M, Gajewska M. Human resources for public health and health promotion in Poland. Th. III. Professional plans of students in the field of "public health". Problemy Higieny i Epidemiologii 2010; 91(3):482-488.

(7) Cianciara D, Lewtak K, Piotrowicz M, et al. Public health physicians and dentists in Poland: results from public health workforce pilot study. Rocz Panstw Zakl Hig 2016; 67(4):435-443.

(8) Jarzynkowski P, Piotrkowska R, Książek J, et al. Occupational burnout among staff of operating theaters, Med Rodz 2019; 22(3):123-130. DOI: 10.25121/MR.2019.22.3.123.