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Nurse prescribing in Poland: legislative history, trends over time and physicians' attitudes

Dorota Cianiara,¹ Iwona Wrześniewska-Wal², Bartosz Kobuszewski,² Mariusz Ruiz,² Anna Augustynowicz²

¹ Zakład Epidemiologii i Promocji Zdrowia, Szkoła Zdrowia Publicznego, Centrum Medyczne Kształcenia Podyplomowego / Department of Epidemiology and Health Promotion, School of Public Health, Centre of Postgraduate Medical Education, Warsaw, Poland

² Zakład Prawa Medycznego i Orzecznictwa Lekarskiego, Szkoła Zdrowia Publicznego, Centrum Medyczne Kształcenia Podyplomowego / Department of Medical Law and Decisions, School of Public Health, Centre of Postgraduate Medical Education, Warsaw, Poland

Autor do korespondencji / Corresponding author: Iwona Wrześniewska-Wal, Centre of Postgraduate Medical Education, Department of Medical Law and Decisions, ul. Kleczewska 61/63, 01-826 Warsaw, Poland, T: 22 560 11 40, E: i.wrzesniewska@cmkp.edu.pl

ABSTRACT

Introduction: A 2016 a legislative amendment authorized nurses and midwives in Poland to independently prescribe medical drugs and issue prescriptions for the purposes of continuation of treatment previously ordered by a physician. The legislative process was far from perfect, with nurses and midwives voicing their doubts just as well as doctors. **Material and methods:** Content analysis of documents from the legislative process was conducted, as well as a questionnaire survey among physicians concerning the exercise of these new right in places where doctors work and doctors' attitudes on the matter. The survey was done in 2017 and 2019, with 547 and 471 physicians participating, respectively. Statistical analysis employed Pearson's chi-squared test with grouped variables. **Results:** The main stated reason behind the legalization of nurse and midwife prescribing was the desire to reduce the queues of people waiting for health-care services. Between 2017 and 2019 an insignificant increase in the exercise of these rights occurred, especially in respect of supplementary prescription, i.e. for the purposes of continuation of treatment. The percentage of physicians with a positive attitude to these rights was found to have increased in these years. No variables explicitly linked to a positive attitude were identified. **Conclusions:** the full, successful and safe use of this opportunity requires continued research into the subject and its conditions, both quantitative and qualitative, as well as appropriate management of the change process on the basis of such data.

Keywords: nurses, prescriptions, physician-nurse relationship, professional autonomy, attitudes of medical staff

STRESZCZENIE

Wstęp: W Polsce od 2016 r. zalegalizowano kompetencje pielęgniarek i położnych do samodzielnej ordynacji leków i preskrypcji w celu kontynuacji leczenia. Przebieg procesu legislacyjnego nie był doskonały, a pielęgniarki i położne wyrażały wątpliwości, podobnie jak lekarze. **Materiał i metody:** Przeprowadzono analizę treści dokumentów związanych z przebiegiem procesu legislacyjnego oraz badanie ankietowe wśród lekarzy na temat realizacji tych uprawnień w miejscu pracy lekarzy oraz ich postawy wobec uprawnień. Badanie ankietowe przeprowadzono w 2017 i 2019 r. i wzięło w nim udział 547 oraz 471 lekarzy. W analizie statystycznej

wykorzystano test chi-kwadrat Pearsona z grupowaniem zmiennych. **Wyniki:** Głównym powodem legalizacji uprawnień było dążenie do skrócenia kolejek do świadczeń zdrowotnych. Między 2017 a 2019 r. doszło do nieznacznego wzrostu realizacji uprawnień, zwłaszcza w odniesieniu do preskrypcji w celu kontynuacji leczenia. Stwierdzono, że w latach 2017-2019 zwiększył się odsetek lekarzy z pozytywną postawą wobec uprawnień. Nie zidentyfikowano zmiennych, które *explicite* są powiązane z pozytywną postawą. **Wnioski:** w celu pełnego, skutecznego i bezpiecznego korzystania z tej możliwości niezbędne jest ciągle prowadzenie badań nad zjawiskiem i jego uwarunkowaniami, zarówno ilościowych i jakościowych, oraz – na podstawie tych danych – odpowiednie zarządzanie procesem zmian.

Słowa kluczowe: pielęgniarki, wypisywanie leków, relacje pielęgniarka-lekarz, autonomia zawodowa, postawa personelu medycznego

INTRODUCTION

With 1 January 2016 the amendment of Polish Act on the Professions of Nurse and Midwife entered into force, expanding the professional competences of qualified practitioners.

First off, they were authorized to independently prescribe certain drugs. This right was given to graduates of second-cycle nurse or midwife studies, as well as nurses and midwives holding the title of nurse specialist, depending completion of a specialist course in this area. Nurses and midwives meeting these requirements may independently prescribe certain drugs upon having independently evaluated the patient's condition during preventive, diagnostic, therapeutic or rehabilitation activities. They are then authorized to issue prescriptions for drugs containing certain active substances, excluding those containing potent agents, narcotic drugs or mind-altering substances. They are moreover authorized to prescribe foods for particular nutritional uses and specific medical products.

Secondly, nurses and midwives gained the right to issue prescriptions for the purposes of continuation of treatment (supplementary prescription). Graduates of at least first-cycle nurse or midwife studies and holders of the title of specialist were authorized to prescribe certain drugs (excluding potent agents, narcotic drugs and mind-altering substances), as well as foods for particular nutritional uses for the purposes of the continuation of treatment, on condition of having completed a specialist course in this area [1].

Globally, the first law to enable nurse prescribing was passed in Idaho, USA, in 1969, to meet the growing demand for medical services in peripheral areas and decrease doctors' workloads. With time, several non-European countries followed suit, such as: Canada (1990), Australia (2001), New Zealand (2001), Israel (2009) and Iran (2012) [2, 3]. Similar amendments were eventually adopted also in Europe, and by 2019 nurse prescribing had been legalized in 13 countries, of which 12 in the whole territory (alphabetically: Cyprus, Denmark, Estonia, Finland, Ireland, Netherlands, Norway, Poland, Spain, Sweden, United Kingdom) and in one case just one region (the Swiss canton of Vaud). The majority of such laws were enacted during the last decade [4]. Europe's early adopter was the United Kingdom, where the appropriate legislation passed in 1992 as the combined result of lobbying, prior arrangements and gradual changes. The introduction of this right is the outcome of the interaction of external factors such as social pressure and internal factors such as aspirations of professional autonomy, competition among the professions, staffing shortages, cost efficiency, and training opportunities. The principal stakeholders in this process — nurses themselves — usually emphasize improved access to services, while physicians cite workloads and staffing problems [5].

Literature presents two main types or models of nurses' authorization to issue prescriptions — independent prescribing and supplementary prescribing. In the independent version qualified nurses are responsible for evaluating the patient's condition, making the diagnosis and prescribing the appropriate treatment, which includes issuing prescriptions. In this model nurses usually have a limited pool of drugs available to them, though in some cases they can prescribe from general lists. Supplementary prescribing, on the other hand, is based on the collaboration between a physician or dentist and a nurse authorized to issue prescriptions. The physician is the one responsible for the evaluation and diagnosis. On this basis the nurse is allowed to prescribe specific drugs from a specific limited list or from general lists, usually in continuation of the physician's therapy. Supplementary prescribing often involves somewhat informal division of responsibilities [6].

The scope of the authorization to prescribe and its limits differ significantly from one country to the next [4], and for the most part nurse prescribing is supplementary [6, 7]. In the global scale, the largest personal scope of the authorization to prescribe occurs in the United Kingdom [8]. In 2011 approximately 50 thousand persons were so authorized, whether independently or supplementarily and with a different spectrum of authorized drugs or products. At the time, the right to issue prescriptions was held by approximately 30 thousand community practitioners, such as nurses and home visitors, 19 thousand nurses, 2 thousand pharmacists, several hundred members of allied health professions (various sorts of therapists, physiotherapists, osteopaths and dietitians), as well as 70 optometrists [9].

According to Cochrane's systematic review, trained nurses are probably capable of providing better quality of care than primary-care physicians in certain problems and diseases [10]. Publications exploring the effectiveness of nurse prescribing suggest that it has a positive impact on therapy results and patient-centred care

and is beneficial to physicians; there are, however, no randomized controlled studies to confirm such observations [11, 12].

Polish law has introduced solutions consisting in independent prescription and supplementary prescription, the latter for the purposes of continued treatment. The legislative process was far from perfect and was met with doubts. Specialist magazines reported nurses and midwives as viewing their new rights with much reserve, similarly to doctors.

MATERIALS AND METHODS

The goal of the first study was to determine the legislative intention underlying the amendment of the Act on the Professions of Nurse and Midwife authorizing nurses and midwives to prescribe drugs independently and to issue prescriptions supplementarily in the continuation of physician's treatment. The material for analysis were Sejm prints relating to the legislative process — draft bill, explanatory memorandum with impact assessment ('OSR'), expert opinions from the Sejm Analytical Bureau (BAS), voting results, and the ultimate text of the new act. The outcome of Batory Foundation's observation of the legislative process was analysed. Content analysis was the method used.

The goal of the second study was to determine physicians' attitudes on the exercise of nurses' and midwives' rights to conduct the diagnostic and therapeutic process and prescribe independently (hereinafter 'IP') and issue prescriptions supplementarily in continuation of physicians' orders (hereinafter 'SP'). The survey covered:

- the exercise of IP and SP rights at the physicians' workplaces; trend in said exercise in 2017–2019; comparison of the foregoing information with data from the National Health Fund (NFZ);
- physicians' attitude to IP and SP (i.e. acceptance or rejection) and attitude correlates.

Four research hypotheses were proposed:

1. Years 2017–2019 witnessed an increase in the exercise of nurses' and midwives' IP and SP rights.
2. Exercise of SP rights by nurses and midwives is more frequent than of IP rights.
3. Years 2017–2019 witnessed an increase in physician acceptance of nurses' and midwives' IP and SP rights.
4. Physicians' positive attitude to the exercise of nurses' and midwives' IP and SP rights correlates with younger age, employment in outpatient clinics, employment in non-public entities, and management responsibilities.

The survey was conducted twice among physicians participating in specialization courses held by the Centre of Postgraduate Medical Education. From January to June 2017 a total of 547 attendees of Public Health courses participated in survey (response rate 89%), and from June to September 2019 a total of 471 attendees of Medical Law courses (80%). Both came from all of the country's top-level administrative areas. Participation was voluntary and anonymous.

An original questionnaire was used, having undergone a pilot testing and modifications. Due to the conditions of the survey, the questionnaire contained 11 questions, including two open questions. Response variables were surveyed with 5 questions and explanatory with 6, concerning the respondents' characteristics. The open questions concerned the acceptance of nurses' and midwives' IP and SP rights. The results obtained were coded as follows: (i) acceptance for IP and SP (IP+, SP+); (ii) no acceptance for IP, acceptance for SP (IP-, SP+); (iii) acceptance for neither (IP-, SP-); (iv) acceptance conditional on meeting certain requirements, e.g. accountability, courses, etc. (IP+/-, SP+/-); and (v) undecided answers, e.g. no opinion, difficult to say, no idea. Analysis and coding was done by a team of three.

Statistical analysis used valid answers. The determination of relationships employed Pearson's chi-squared test with grouped variables for: (i) exercise of IP and SP rights at doctors' workplaces (yes/no); (ii) acceptance for the rights (IP+, SP+ vs IP-, SP-); (iii) specialization (operational vs conservative); (iv) principal employer (hospital vs outpatient clinic; public entity vs non-public); (v) location of the workplace (centres of up to 500 thousand inhabitants vs larger).

A majority of those surveyed were women, of young age, working in a clinical hospital and in the largest cities (Table 1). A majority had little professional experience due to being in the course of their specialization training. In 2017 participants were usually being trained in internal medicine, family medicine and paediatrics, and in 2019 in internal medicine, cardiology and paediatrics. In 2017 and 2019 doctors already specialized, i.e. training for another specialization, had usually specialized in internal medicine, paediatrics or general surgery. Few exercised management responsibilities.

RESULTS

Legislative history behind nurse and midwife prescribing

The government bill submitted to the Sejm on 18 June 2014 provided for independent prescription only by graduates of at least second-cycle nurse or midwife studies and supplementary prescription only by graduates of at least first-cycle nurse or midwife studies. In both cases the completion of an appropriate course was required. The descriptive explanatory memorandum stated the reason for the amendment as being a significant number of nurses and midwives with first- or second-cycle diplomas and the goal being to: 'utilize the skills, knowledge, experience and level of professional education of nurses and midwives.' The purpose of the

proposed changes was to: 'effectively utilize the work time of the members of the therapeutic team and increase the availability of medical services without need for the recipient to complete a doctor's visit.' The impact assessment predicted: 'The entry of this act into force will have a beneficial impact on the protection of society's health by improving the accessibility of medical services through expanding the competences and rights of nurses and midwives' [13].

Solutions included in the bill were criticized by experts from the Sejm's Analytical Bureau. In their opinion, the changes entailed a risk of reducing the quality of medical services and referring patients to nurses rather than doctors in order to reduce the costs of health-care [14]. Moreover, they found that the changes, although consistent with global trends, should be introduced gradually and with the acceptance of the entire medical community [15].

BAS experts' opinions on the three modifications submitted to the bill, including the grant of both authorizations to holders of the title of specialist, were not positive either: 'Modifications submitted during the bill's second reading (...) indicate that, despite the advanced stage of the legislative process, there is still not an established view of what the scope of nurses and midwives authorized to independently prescribe drugs and medical products should (...) or on the basis of what criteria that scope should be defined. (...) The modifications submitted only confirm the absence of a consensus for the amendments proposed and of any deeper substantive grounds for the use of the criterion of having higher education or the title of specialist' [16].

The third reading took place in a plenary. A total of 427 deputies voted, out of which 227 yeas, including all Civic Platform (PO) deputies, and 165 nays, including 124 Law and Justice (PiS) deputies, and 35 abstentions, including 4 PiS, and 33 deputies not voting at all. With the Senate submitting no modifications, the passed bill was forwarded to the President for signature, and he complied on 12 August. In the end, both authorizations were given also nurses and midwives holding the title of specialist. The amendments were part of the anti-queue package (implemented along with the oncological package), which included parallel amendments to the Act on Consultants in Health-Care and Act on Publicly Financed Medical Services.

According to Batory Foundation, the legislative process for the entire anti-queue package was defective because assumptions had not been developed for the three amendments, consultations took all of 30 days, the sponsor did not respond to incoming remarks, and no reconciliation conference was held [17].

Presence of independent prescribing (IP) and supplementary prescribing (SP) by nurses and midwives at the physicians' workplace

Both 2017 and 2019 had more than 90% of the doctors responding that in their principal workplaces nurses and midwives exercised neither IP, nor SP. Furthermore, from 2017 to 2019 the percentage of doctors stating that the rights were not exercised at their workplace increased insignificantly (Figure 1).

In 2017 answers on the existence of IP at the respondents' workplace showed no correlation with variables concerning the specialization being trained for, the principal employer, location of the principal workplace or management responsibilities. Neither was in 2019 any correlation found with the specialization, employer or workplace location, but the existence of IP was more frequently reported by physicians not in management positions ($\chi^2 = 15.63$, $df = 1$, $p < 0.001$).

In 2017 answers on SP showed a statistically significant correlation with being in specialization training in conservative medical fields, in an outpatient clinic, in non-public entity and in localities with fewer than 500 thousand inhabitants. In 2019, on the other hand, the existence of SP was reported more frequently by doctors employed in public entities and without management roles (Table 2).

The results were not such as to confirm hypotheses 1 or 2, i.e. increase in the exercise of both rights in 2017–2019 or more frequent exercise of SP than IP. Nevertheless, on the basis of data obtained directly from the NFZ one can conclude that there was an increase in the exercise of both rights in the surveyed period, even 5-fold in the case of supplementary prescription by midwives. NFZ data confirm that SP rights were exercised more often than IP rights (Table 3), but first of all they attest to a very insignificant share of nurses and midwives in IP and SP. For in 2019 nurses and midwives issued a total of 540 thousand prescriptions, which — given the estimated annual total of 400 to 500 million [18] — constitutes merely 0.1% of all prescriptions.

Physicians' attitudes on nurse and midwife independent prescribing (IP) and supplementary prescribing (SP)

From 2017 to 2019 physician acceptance of nurses' IP and SP rights increased from 15.7% to 23.2% (Figure 2). Simultaneously, acceptance of SP but not IP decreased (from 28.8% to 18.5%), and rejection of both decreased insignificantly, confirming hypothesis 3. Conditional acceptance increased, however, as did undecided answers. Changes over time concerning acceptance for nurse rights were statistically significant ($\chi^2 = 18.19$, $df = 4$, $p < 0.001$).

From 2017 to 2019 acceptance of both rights for midwives increased by approximately 6 pp. Recorded changes in the acceptance of the new rights for midwives showed a similar trend as for nurses and were also statistically significant ($\chi^2 = 21.942$, $df = 4$, $p < 0.001$).

Correlates for physicians' attitudes on nurse and midwife independent prescribing (IP) and supplementary prescribing (SP)

Analysis used answers indicating total acceptance (positive attitude) or total rejection (negative attitude) of both rights simultaneously for nurses and midwives. The finding was that in 2017 a positive attitude to nurse rights (Table 4) and midwife rights (Table 5) was more frequently reported by women. In 2019, on the other hand, a positive attitude to both professions' rights was more characteristic of male physicians and physicians employed in hospitals. No statistically significant correlation was found between a positive attitude and the doctor's age, employment in an outpatient clinic or in a non-public entity, defeating hypothesis 4.

DISCUSSION

The draft bill amending the Act on the Professions of Nurse and Midwife was consistent with global trends and preceded by the legalization of expanded nurse rights in 9 European [4] and 6 non-European countries [3]. There were several underpinning goals, from declarative empowerment of nurses and midwives to improved access to health-care services. According to the impact assessment, reduction in queues to doctors concerned services provided in primary care (PC) and specialized outpatient care (SOC). One can surmise that the focus of legislative interest was on SOC. For CBOS surveys in the 2012–2018 period show only 8 to 13% of respondents regarding those services as available [19]. CBOS's long-term surveys also showed the percentage of people generally dissatisfied with the functioning of health-care was at each time significantly greater than that of those who were satisfied. In 2012, being the last survey the results of which could be considered in the *travaux*, the percentage of those dissatisfied reached the height of 78%.

The explanatory memorandum did not at all address the low number of physicians in Poland (2.31/1000 in 2014) or the need for the inclusion of some overlap in the skill mix [20,21]. The authors relied on the concept of staff mix, stating: 'the proposed changes will contribute to the effective utilization of the work time of the members of the therapeutic team,' and: 'contribute to individual members' performance levels.' Factors actually affecting the work of the teams were, however, ignored; these include the different structures and hierarchies in teams, insufficient communication, attitudes of physicians and nurses and their sense of professional identity, different perception of the criteria of successful co-operation between nurses and physicians, as well as situational, personality and cultural factors [22,23,24,25]. Apparently, the assumption was that a legislative amendment could *per se* and automatically improve access to services.

Whether we look at nurses' and midwife's new rights from a staff-mix or a skill-mix perspective, the outcome of this innovation will largely be dependent on the physician-nurse-patient relationship and mutual opinions and attitudes of one's own and the other group. Nurses are usually more favourably predisposed to inter-profession co-operation than physicians [26]. Generally speaking, physicians in Poland view nurses less favourably than nurses themselves do [27], and patients believe that nurses' authorization should be to prescribe products and drugs according to a physician's previous orders [28].

The results of the survey showed no increase from 2017 to 2019 in nurse and midwife independent and supplementary prescribing, though NFZ data do show a certain increase. This discrepancy can possibly stem from the fact that one in three respondents was undergoing specialization training in a clinical hospital, as a result of the legal and organizational rules for such training. It is thus possible for such a physician not to have encountered any nurse prescription, whether IP or SP, due to the different specificity of hospital care than in outpatient care (PC and SOC), where the demand is greater. During the first years of the new rights in Poland the majority of IP occurred in the context of therapy of pain and infections in elderly patients, and the majority of SP in the context of therapy of chronic diseases in elderly patients [29].

From the beginning of the authorization to October 2020 nurses issued 25,837 prescriptions independently and 1,972,620 in continuation of treatment, and midwives 621 and 50,012 respectively [30]. Despite the increased exercise of these rights there is no basis on which to claim that this has shortened the queues to medical visit. It must be emphasized, however, that the number of nurses and midwives having completed the requisite training and obtained their unique prescribing numbers is growing [30]. Additionally, in 2019 and 2020 two regulations came out making nurse advice and midwife advice a guaranteed service in SOC and PC. This should lead to increased interest in independent or supplementary prescription by nurses and midwives, though a lot will depend on the price to pay for the services. We can also surmise that the prestige of nurses and midwives is going to increase.

A stable trend for IP and SP in the 2017–2019 period in specific health-care entity (e.g. public or non-public) has not been recorded, which may be the result of convenience sampling or lack of an established structure for task allocation in health-care establishments, or both. Moreover, independent prescription and supplementary prescription depend on a multitude of other factors such as insufficient awareness of the rules for the exercise of these rights among nurses, their motivation and remuneration, sufficient office accommodation for such activities, fear of responsibility, availability and quality of training, workplace culture and support from the establishment, as well as patients' expectations.

The survey showed increased acceptance of IP and SP, but no common denominator was found for doctor's positive attitude. From surveys conducted in the initial period after the introduction of the new rights in Poland, by contrast, it follows that the percentage of doctors ill-disposed to the various aspects of this solution had been greater, reaching approximately 50–70% of the groups surveyed [31,32]. The survey did not provide

any clear indication as to the drivers of the shift toward a more positive attitude. The reason could be that in 2017 and 2019 different groups of physicians were surveyed or doctors' attitudes and their correlates may have evolved along with the popularization of nurses' and midwives' new prescribing rights. At the same time, another Polish survey showed physicians employed in primary care and hospitals to differ significantly only in one of 21 attitude aspects surveyed [33]. This can be the indication that the evolution of attitudes to nurse and midwife independent and supplementary prescribing has more complex underpinnings. That could be evaluated by qualitative surveys.

CONCLUSIONS

The boilerplate argument in favour of authorizing independent and supplementary prescription by nurses and midwives was reduction in queues to health-care services, especially in primary care and specialized outpatient care. Matters of prestige and professional identity of the groups involved were of marginal significance.

The 2017–2019 period saw an increase in the number of prescriptions issued by nurses and midwives, especially for supplementary prescription (continuation of treatment previously prescribed by a physician), showing that the new rights were in fact being exercised. Nonetheless, this increase was insignificant and insufficient to warrant the conclusion that their exercise is commonplace.

Physicians' attitudes toward nurses' and midwives' new rights took a shift toward a more accepting stance between 2017 and 2019. It was not possible to unequivocally identify any factors having a significant correlation with a favourable attitude.

Because independent and supplementary prescribing by nurses and midwives is an important element of the functioning of health-care in developed countries, its implementation in Poland was a step in the right direction. Nevertheless, the full, successful and safe use of this opportunity requires continued research into the subject and its conditions, both quantitative and qualitative, as well as appropriate management of the change process on the basis of such data.

LITERATURE

1. Act of 22 July 2014 amending the Act on the Professions of Nurse and Midwife and Certain Other Acts. Polish Journal of Laws — Dz.U.2014.1136.
2. Fong J., Buckley T., Cashin A.: Nurse practitioner prescribing: an international perspective. *Nursing: Research and Reviews*. 2015;5:99-108. <https://doi.org/10.2147/NRR.S56188>
3. Ling DL., Lyu CM., Liu H., Xiao X., Yu HJ.: The necessity and possibility of implementation of nurse prescribing in China: An international perspective. *Int J Nurs Sci* 2017;5(1):72-80. <https://doi.org/10.1016/j.ijnss.2017.12.011>
4. Maier CB.: Nurse prescribing of medicines in 13 European countries. *Hum Resour Health* 2017;17(1):95. <https://doi.org/10.1186/s12960-019-0429-6>
5. Kroezen M., Francke AL., Groenewegen PP., van Dijk L.: Nurse prescribing of medicines in Western European and Anglo-Saxon countries: a survey on forces, conditions and jurisdictional control. *Int J Nurs Stud* 2012;49(8):1002-1012. <https://doi.org/10.1016/j.ijnurstu.2012.02.002>
6. Ladd E., Schober M.: Nurse Prescribing From the Global Vantage Point: The Intersection Between Role and Policy. *Policy Polit Nurs Pract* 2018;19(1-2):40-49. <https://doi.org/10.1177%2F1527154418797726>
7. Kroezen M., van Dijk L., Groenewegen PP., Francke AL.: Nurse prescribing of medicines in Western European and Anglo-Saxon countries: a systematic review of the literature. *BMC Health Serv Res*. 2011;11:127. <https://doi.org/10.1186/1472-6963-11-127>
8. Courtenay M. An overview of developments in nurse prescribing in the UK. *Nurs Stand* 2018;33(1):40-44. <https://doi.org/10.7748/ns.2018.e11078>
9. Courtenay M., Carey N., Stenner K.: Non medical prescribing leads views on their role and the implementation of non medical prescribing from a multi-organisational perspective. *BMC Health Serv Res* 2011;11:142. <https://doi.org/10.1186/1472-6963-11-142>
10. Laurant M., van der Biezen M., Wijers N., Watananirun K., Kontopantelis E., JAH van Vught A.: Nurses as substitutes for doctors in primary care. *Cochrane Database Syst Rev*. 2018;7(7):CD00127. <https://doi.org/10.1002/14651858.CD001271.pub3>
11. Gielen SC., Dekker J., Francke AL., Mistiaen P., Kroezen M.: The effects of nurse prescribing: a systematic review. *Int J Nurs Stud*. 2014;51(7):1048-1061. <https://doi.org/10.1016/j.ijnurstu.2013.12.003>
12. Nuttall D.: Nurse prescribing in primary care: a metasynthesis of the literature. *Prim Health Care Res Dev*. 2018;19(1):7-22. <https://doi.org/10.1017/s1463423617000500>
13. Sejm (House of Deputies) of the Republic of Poland [Internet]. Government bill to amend the Act on the Professions of Nurse and Midwife and Certain Other Acts (Sejm print no. 2504), 2014 [quoted 22 February 2021]. URL: <http://www.sejm.gov.pl/Sejm7.nsf/PrzebiegProc.xsp?nr=2504>

14. Sejm (House of Deputies) of the Republic of Poland [Internet]. Sobolewski P.: Opinion on government bill to amend the Act on the Professions of Nurse and Midwife and Certain Other Acts (Sejm print no. 2504), 2014 [quoted 22 February 2021]. URL: [http://orka.sejm.gov.pl/RexDomk7.nsf/0/7E7F5235BBB3684EC1257D01004185A7/\\$file/i1487%20-%2014.rtf](http://orka.sejm.gov.pl/RexDomk7.nsf/0/7E7F5235BBB3684EC1257D01004185A7/$file/i1487%20-%2014.rtf)
15. Sejm (House of Deputies) of the Republic of Poland [Internet]. Ciura G.: Subject-matter opinion on government bill to amend the Act on the Professions of Nurse and Midwife and Certain Other Acts (Sejm print no. 2504), 2014 [quoted 22 February 2021]. URL: [http://orka.sejm.gov.pl/RexDomk7.nsf/0/1C286F1A6528CDE6C1257D0E0049D107/\\$file/i1487_14.rtf](http://orka.sejm.gov.pl/RexDomk7.nsf/0/1C286F1A6528CDE6C1257D0E0049D107/$file/i1487_14.rtf)
16. Sejm (House of Deputies) of the Republic of Poland [Internet]. Ciura G.: Subject-matter opinion on changes submitted in the second reading of the government bill to amend the Act on the Professions of Nurse and Midwife and Certain Other Acts (Sejm prints nos. 2504 and 2588), 2014 [quoted 22 February 2021]. URL: [http://orka.sejm.gov.pl/RexDomk7.nsf/0/EAF6DD916548622AC1257D16004764F8/\\$file/i1703_14.rtf](http://orka.sejm.gov.pl/RexDomk7.nsf/0/EAF6DD916548622AC1257D16004764F8/$file/i1703_14.rtf)
17. Batory Foundation [Internet]. Ziemniak G.: Observation of the legislative process for so-called Anti-queue Legislative Package, Warsaw 2014 [quoted 22 February 2021]. URL: https://www.batory.org.pl/upload/files/Programy%20operacyjne/Odpowiedzialne%20Panstwo/GZiemniak_Obserwacja_PAKIET%20USTAW%20ANTYKOLEJKOWYCH.pdf
18. Polish Ministry of Health [Internet]. Pół roku elektronicznej recepty w Polsce [Half a year of e-prescribing in Poland], 2020 [quoted 22 February 2021]. URL: <https://www.gov.pl/web/zdrowie/pol-roku-elektronicznej-recepty-w-polsce>
19. Public Opinion Research Centre (CBOS) [Internet]. Opinions on the functioning of health-care. Survey report no. 89/2018. [quoted 22 February 2021]. URL: https://www.cbos.pl/SPISKOM.POL/2018/K_089_18.PDF
20. Dubois CA., Singh D.: From staff-mix to skill-mix and beyond: towards a systemic approach to health workforce management. *Hum Resour Health*. 2009;7:87. <https://doi.org/10.1186/1478-4491-7-87>
21. Kowalska-Bobko I., Gałązka-Sobotka M., Frączkiewicz-Wronka A., Badora-Musiał K., Buchelt B.: Krzyżujące się kompetencje (skill mix) w zawodach medycznych i okołomedycznych. [Overlapping skill mix in medical and allied professions]. *Med. Pr.* 2020;71(3):337–352. <https://doi.org/10.13075/mp.5893.00817>
22. Saint-Pierre C., Herskovic V., Sepúlveda M.: Multidisciplinary collaboration in primary care: a systematic review. *Fam. Pract.* 2018;35(2):132–141. <https://doi.org/10.1093/fampra/cmz085>
23. Sakowski P.: Współpraca w zespole lekarz–pielęgniarka w służbie medycyny pracy w Polsce – wiedza o zadaniach wykonywanych przez partnera z zespołu. [Physician-nurse teamwork in the service of occupational medicine in Poland — knowledge about the partner’s tasks.] *Med. Pr.* 2015;66(5):625–633. <https://doi.org/10.13075/mp.5893.00141>
24. House S., Havens D.: Nurses’ and Physicians’ Perceptions of Nurse-Physician Collaboration: A Systematic Review. *J. Nurs.* 2017;47(3):165–171. <https://doi.org/10.1097/nna.0000000000000460>
25. Keller S., Yule S., Zagarese V., Henrikson Parker S.: Predictors and triggers of incivility within healthcare teams: a systematic review of the literature. *BMJ Open*. 2020;10(6):e035471. <https://doi.org/10.1136/bmjopen-2019-035471>
26. Hansson A., Arvemo T., Marklund B., Gedda B., Mattsson B.: Working together — primary care doctors’ and nurses’ attitudes to collaboration. *Scand. J. Public Health* 2010;38(1):78–85. doi: 10.1177-1403494809347405 <https://doi.org/10.1177/1403494809347405>
27. Włodarczyk D., Tobolska B.: Wizerunek zawodu pielęgniarki z perspektywy lekarzy, pacjentów i pielęgniarek. [The image of the nurse profession in the perspective of physicians, patients and nurses.] *Med. Pr.* 2011;62(3):269–279.
28. Binkowska-Bury M., Bartosiewicz A., Maré M., Januszewicz P.: Opinia pacjentów Podstawowej Opieki Zdrowotnej na temat ordynowania wybranych leków i wystawiania recept przez pielęgniarki. [Primary-healthcare patients’ opinion about nurse prescription.] *Hygeia Public Health* 2016;51(2):161–170.
29. Zimmermann A., Cieplikiewicz E., Wąż P., Gaworska-Krzemińska A., Olczyk P.: The Implementation Process of Nurse Prescribing in Poland — A Descriptive Study. *Int. J. Environ. Res. Public Health*. 2020;17(7):2417. <https://doi.org/10.3390/ijerph17072417>
30. Polish Ministry of Health [Internet]. Nowe kompetencje pielęgniarek i położnych [Nurses’ and midwives’ new rights], Warsaw 2020 [quoted 22 February 2021]. URL: http://www.akademiapp.mz.gov.pl/fileadmin/user_upload/analizy_i_raporty/12.2020_raport-nowe_kompetencje_pielęgniarek_i_polożnych.pdf

31. Binkowska-Bury M., Więch P., Bazaliński D., Marć M., Bartosiewicz A., Januszewicz P.: Nurse prescribing in Poland. Opinions expressed by primary care doctors, nurses, and patients. *Medicine (Baltimore)* 2016;95(33):e4506.
<https://doi.org/10.1097/md.0000000000004506>
32. Mazur N., Zarzeka A., Dąbrowski F., Panczyk M., Gałązkowski R., Gotlib J.: Ocena postaw lekarzy wobec rozszerzenia uprawnień zawodowych pielęgniarek i położnych w zakresie ordynowania leków, wystawiania recept i kierowania pacjenta na badania diagnostyczne [Evaluation of physicians' attitudes to the expansion of nurses' and midwives' prescription and referral rights]. *Wiad. Lek.* 2017;70(2 pt 2):270-274
33. Zarzeka A., Panczyk M., Belowska J., Mazur N., Paz Lourido B., Gotlib J.: Nurse prescribing: Attitudes of medical doctors towards expanding professional competencies of nurses and midwives. *J. Pak. Med. Assoc.* 2019;69(8):1199-1204.