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# Factors Influencing the Involvement of Nurses in Preventive Care and Health Literacy in the Czech Republic

**ABSTRACT**: *The aims of this article were to discuss the position of Czech nurses in the country's health care system, to assess their role in the preventive care and health literacy (HL) promotion and to define main factors, which may negatively impact their involvement in preventive care. We checked by the questionnaire, what is the position of nurses working in the primary care in the Czech health system, how nurses perceive their role in the preventive care and which factors influence their involvement. The expert opinion method was used to discover main barriers limiting the role of primary care nurses in prevention and HL promotion. A total of 204 nurses participated between May and June 2022 in an online survey. The survey was completed by interviews with five experts. Our main finding is that nurses are willing to be proactive in prevention and HL; however, their autonomy and responsibilities in these areas remain rather low. The main factors influencing the involvement of nurses in preventive care are the type of practice, age of nurses, and the administrative burden. The expert interviews propose that nurses are overloaded and that, in many cases, they do not really know their responsibilities in the field of preventive care. The core policy lesson derived from our research is that appropriate definition of roles and responsibilities of nurses and their related empowerment might represent critical measures towards increasing health system resilience and sustainability.*

**KEYWORDS**: primary care, preventive care, health literacy, nurses, Czech Republic

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## INTRODUCTION

The health policy literature sees primary care (hereinafter referred to as 'PC') as the backbone of modern health system (Shi, 2012; Starfield et al., 2005). The role of the PC is not only to serve as the 'solver' of less complicated cases and the 'gatekeeper' for more complicated cases, but also to promote prevention and health literacy (hereinafter referred to as 'HL') (Phillips et al., 2009).

The priority to preventive care and the need for permanently increasing HL are perceived as the core orientation of any modern health system (WHO, 2021). However, health systems and PC in the Central and Eastern Europe (and not only in this region), focus more on the curative care (Murante et al., 2017) and do not sufficiently motivate to prevention and growing HL. Both as the source of such dichotomy and the result of it, health spendings in the region overwhelmingly go on curative care, not prevention (OECD, 2020).

The health workforce, the key component of any health system (i.e. Burau et al., 2022; Campbell et al., 2013; Chamberland et al., 2019), forms a prerequisite for promoting the prevention and HL. On the level of PC, the main workforce involved in these areas are general practitioners (hereinafter referred to as 'GPs') and nurses. The goal of this research is to check the role of Czech PC nurses in preventive care and HL. The focus on nurses is related also to the fact that the literature on health workers' competencies and tasks acknowledges the importance of nurses' role, even so far that some sources claim that nurse-led PC achieves the same or better results as physician-led PC (i.e., De Maeseneer et al., 2019; Gong et al., 2018; Laurant et al., 2018; Martínez-Gonzáles et al., 2015).

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The research goals of this article are as follows:
RQ1: What is the profile of nurses working in the Czech PC?
RQ2: How nurses working in the Czech PC perceive their role in preventive care and HL?
RQ3: What are the factors that influence the involvement of PC nurses in prevention and HL promotion?
RQ4: What are the critical barriers of effective involvement of PC nurses in prevention and HL promotion?

In the literature (Jusot et al., 2012), there is limited access to systematic comparative evidence in relation to how and by whom preventive care is delivered. This manuscript reacts to this gap by providing the evidence as to the way preventive services are provided in Czech Republic (hereinafter referred to as 'CZ')—this is very timely in the context of the ongoing PC reform.

## PREVENTION, HL AND NURSES´S ROLE

Increasing HL[4] as well as an emphasis on preventive care are considered as a driving force for strengthening and enhancing the health systems' resilience (WHO 2021, OECD 2020a). Research provides evidence that prevention and HL-oriented policy is effective in improving the population's health as well as in contributing to financial sustainability of the system (i.e. Jackson et al., 2006; McDonald, Shenkman, 2018; Rasu et al., 2015). Yet, the preventive services account for only 9% of PC spending on average across the EU (OECD, 2020b) and the OECD health policy study (2020 a) shows insufficient focus on prevention when pointing out that too many patients do not receive preventive care, especially the most vulnerable populations.

Healthcare workforce in PC (Eurostat, 2019) have a key role to play in the delivery of preventive care and are best placed to influence their patients in terms of increasing HL (WONCA[5], 2011). In particular, their communication with patients and the appropriate design of the practice environment is crucial (Kickbusch et al., 2020). The communication interactions between PC healthcare workforce and their patients are the fundamental processes through which people are informed, educated, convinced and motivated to take care of their health and adopt healthy behaviours (Schulz, Nakamoto, 2013).

Among the existing PC healthcare workers involved in HL and prevention, nurses are particularly important (Iriarte-Roteta et al., 2020). Nurses have a very close contact with patients and, according to Wilhelmsson & Lindberg (2009), also a positive attitude and interest in prevention and HL. At the same time, they have the necessary expertise and skills – thus, nurses are the most appropriate and competent health professionals for the development of HL and prevention activities (Pender, 2013).

Higher HL as well as rapid progress in medicine, technology or medical devices is leading to different (not only) preventive care delivery patterns. These dynamics also call for a more comprehensive general education and skills of health professionals to meet the changing needs of their patients, so the nurse's role is changing. This often entails shifts in the roles of health professionals, for example from GPs to nurses. In general, when nurses take over some tasks that were previously reserved for physicians, usually in the context of a single condition with a clear protocol with defined cut-off points, they can achieve as good or better care outcomes as physician-led treatment (De Maeseneer, 2019). Research by Laurant et al. (2018) shows that nurse-led PC leads to fewer deaths in certain patient groups, better treatment of high blood pressure, better quality of life, and also higher patient satisfaction with care. In particular, patient satisfaction is higher because nurses take longer to discuss treatment with patients, provide more information than physicians, and communication is generally better according to patients (Laurant et al., 2018).

However, the literature related to the role of nurses shows that there is no consensus on what the appropriate role of nurses in (not only) HL and prevention is (i.e. Gonzaga et al., 2014; Hoekstra et al., 2016; Iriarte-Roteta et al., 2020; Lundberg et al., 2017). As indicated by the research of Iriarte-Roteta et al. (2020), this role confusion remains one of the barriers to address for developing nurses' involvement in HL and prevention.

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**4** HL is defined as 'the skills to obtain, understand, evaluate, and use health-related information so that an individual is able to make decisions about health care, disease prevention, and health promotion' (Kicbusch et al., 2020).

**5** World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians

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## BACKGROUND: THE CZECH HEALTH CARE SYSTEM AND THE POSITION OF NURSES IN IT

The CZ has a system of statutory health insurance based on compulsory membership in one of seven health insurance funds. Most health expenditure is financed from public sources. The Czech system provides a broad benefits package. Despite the life expectancy showing an increasing trend (except during pandemics), the country – although first among Central and Eastern European countries – still lags behind the EU average. A relatively high rate of preventable mortality rates remains, nearly half of all deaths in CZ in 2019 could be attributed to behavioural risk factors – particularly poor diet, smoking and alcohol consumption (OECD, 2021). HL of the Czechs is at a very low level (Kučera et al., 2016; Veselá et al., 2023). Therefore, promoting prevention and HL remains an opportunity for the Czech system.

As per the WHO reports (2022), by 2030 there will be a shortage of up to 10 million health workers worldwide, especially in certain specialties and regions. CZ currently suffers more from a shortage of nurses than doctors, data indicate a shortage of almost 3,000 general nurses in Czech hospitals (MoH, 2021). A total of 4,678 nurses work in GPs offices in the CZ (IHIS CZ, 2022). The availability of nurses has been a challenge long before the COVID-19 pandemic in the country, this situation has been driven by a mix of factors, with relatively low wages and limited career progression opportunities being the key drivers (OECD, 2021). Even if a variety of measures have been taken to address this shortage – most importantly a law in 2017 that updated the requirements on nursing qualifications and an increase in salaries across all health care professions, the scarcity of practising nurses remains an issue.

Nursing is a state-regulated profession and can only be practised by those who meet the standards of a regulated profession. Professional competence to exercise the profession of general nurse is obtained in the CZ by completing at least three years of accredited medical bachelor's degree studies for the preparation of general nurses, or at least three years of studies in the field of diploma general nurse at higher medical schools (Act No. 96/2004 Coll. 'Non Medical Healthcare Workers Act'). Nurses' responsibilities are defined by the decree on activities (Decree No. 55/2011 Coll. 'Healthcare Workers Competencies Decree'). Table 1 demonstrates the differences in nurses' responsibilities in selected European countries showing that nurses in the United Kingdom, Austria, Poland and Slovakia have higher autonomy than in CZ. In Germany, on the other hand, a lower level of nurse autonomy is evident.

**Tab. 1:** Differences in nurses' competences compared to the CZ (MoH, 2021)

| Country | Differences in nurses' competences compared to the Czech Republic |
|---|---|
| Slovakia | - inserts duodenal probes<br>- performs continuous abdominal dialysis<br>- performs functional diagnostics |
| Austria | - performs arterial blood sampling<br>- performs dialysis solution exchange during peritoneal dialysis<br>- measures residual urine using non-invasive methods<br>- performs measurement of residual urine volume using non-invasive methods, including a decision on the need for a single catheterisation<br>- performs exchange of suprapubic catheters and percutaneous gastric exchange systems |
| Poland | - Master degree educated nurses can prescribe selected medications and therapeutic agents<br>- Master degree educated nurses can indicate selected examinations |
| Germany | - lower degree of autonomy of nurses, they perform professional procedures based on a doctor's indication only |
| UK | - prescribes medicinal products<br>- prescribes other medical devices<br>- performs and interprets the results of selected examinations |

There are two ongoing policy initiatives taking place in CZ in the domains of the role of nurses, prevention and HL: (1) The Strategic Framework for Healthcare Development in CZ until 2030 (hereinafter referred to as 'Health 2030') and (2) the country's Nursing Conception, focused on the role of nurses. As summarised in Table 2, increasing and expanding nurses' competencies is a priority in both policy initiatives.

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**Tab. 2:** Objectives of policy initiatives in the field of PC, Prevention and Role of Nurses (Authors, based on MoH 2021, 2023)

| Aims of Policy initiative | Policy initiative | | |
|---|---|---|---|
| | 'Health 2030' | | 'Nursing conception' |
| | Reform of PC | 'Health promotion and literacy initiative' | |
| | Strengthening the GPs and nurses' competences | Increasing HL | Strengthening the nurses' competences |
| | Increasing the number of periodic preventive check-ups | Intensify nurses' education system in HL and health promotion | Increasing the attractiveness and prestige of the nurse's work |
| | Establishing group practices | | Increasing the nurses' well-being |

## METHODOLOGY

### Study design and sampling

In order to get as complete a picture as possible of the nurse role in preventive care and HL in CZ, a mixed method approach was adopted for the purpose of this study. Since data were first collected through an online survey, and then individual expert structured commentaries followed, the explanatory sequential design was chosen.

The survey was designed for nurses working in GP practices only. Out of the 4,678 nurses working in GP practices in CZ, a total of 204 respondents completed the online questionnaire. The respondent population $N = 204$ constitutes approximately 4% of the nurse total. At the chosen significance level of 95% and a sample result at the 50% level, the sampling error of the sample is less than 7%. At the same significance level but with the sample result at 10%, the sampling error is 4%.

Participants were given a description of the study's purpose and invited to participate voluntarily and anonymously in a message sent via the mailing list of the Czech Nurses Association (the professional organisation of non-medical healthcare workers, hereinafter referred to as 'CNA').

The online survey was further evaluated by five individual expert structured commentaries.

### Instruments and data analysis

#### *Online survey*

To map the role of nurses in preventive care and HL in CZ, the online survey among the nurses was conducted to learn how they perceive their role in those two areas, what preventive services they consider crucial, how they educate their patients and whether they are satisfied with the level of responsibilities assigned to them by law as well as with the level of responsibilities that GPs delegate to them. The data collection took place from May to June 2022.

The questionnaire design was consulted upon with representatives of the CNA and the Society of General Practice of the Czech Medical Association (professional organisation of GPs). The questions in the survey were formulated partly as closed-ended with a choice of answers, partly as semi-closed-ended with the possibility of adding a comment and enumeration items that were used to allow respondents to choose more than one possible answer.

The questionnaire was created as an Internet-based survey using the Click4Survey platform and consisted of three sections. The initial part established general demographics, including age, region of practice, length of experience in healthcare and PC and the model of practice. The second part focused on prevention and the continuing voluntary education of nurses in this area. The last part was devoted to HL and the issue of trust between patients and nurses.

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### *Expert commentaries*

Following the completion of the online survey and data analysis, five experts in PC and nursing were contacted by e-mail and asked to comment on the main findings of the research. The aim of the commentaries was to map the views and positions of key experts in relation to the findings of our research. The structure of the commentary form was identical for all invited experts and consisted of the main findings of the research.

The experts were selected based on their expertise and position within the areas under study. Among the invited experts were representatives of both the professional associations (nurses and GPs) as well as representatives of the Ministry of Health. All five experts (3 females, 2 males) accepted our request; four accepted mention of both their professional background and their name in the manuscript. Table 3 summarises the expert characteristics.

**Tab. 3:** Expert characteristics

| Expert | Expert name | Expert position |
|---|---|---|
| 1 | Dana Jurásková | Ex-minister of health |
| 2 | Martina Šochmanová | President of Czech Nurses Association |
| 3 | Bohumil Seifert | Academic expert; Scientific Secretary, Society of General Practice of Czech Medical Association |
| 4 | Alice Strnadová | Chief Nurse of the Czech Republic, Ministry of Health |
| 5 | Anonymous | Academic expert |

### *Data analysis*

Based on the results of the online survey, the expert commentary form was designed. The results from both parts were then integrated to obtain the overall results.

Quantitative research was processed using the software IBM SPSS (v18 with the custom tables module). The data were imported from the online Click4Survey environment. Descriptive statistics were used for all questions, and all questions were sorted and tested according to type of nurse, work practice and length of employment and experience. In all tables, testing between columns (z-test) was used, with the $P$ value adjusted by the Bonferroni correction in the case of multiple comparisons. The value $P < 0.05$ was considered statistically significant. IBM SPSS was very useful for processing and evaluating the quantitative research data. The program provides very easy access to data and quick results and allows for automatic corrections, such as Bonferroni's $P$ value correction, that could be used to evaluate the data. This quantitative research methodology was effective and useful in obtaining the necessary research information. Data were coded, and a structured codebook was used.

The expert commentaries were received by e-mail and then analysed.

## RESULTS

A total of 204 respondents completed the online survey. First the demographic and descriptive data of respondents are presented (Table 4), then the results are presented according to our four research questions.

### The profile of nurses working in the Czech PC (RQ1)

Most of the nurses surveyed (81.4%) work in a solo practice (1 GP and 1 nurse). The group practice model was mentioned by less than 10% of respondents. About 92.2% of nurses who have longer experience of working in a GP practice (15–30 years) work in a solo practice. The survey demonstrates that patients confide in nurses about their personal concerns – 94.1% of respondents confirmed this fact. Czech patients mostly confide in senior nurses who have more than 36 years of professional experience and also in nurses who work in solo practice rather than nurses who work in group practice.

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**Tab. 4:** Demographic and descriptive data

| Variable | N | % |
|---|---|---|
| Study population | 204 | |
| Age | | |
| 20–35 | 12 | 5.90% |
| 36–50 | 95 | 46.60% |
| 51–65 | 88 | 43.10% |
| 66 and more | 9 | 4.40% |
| Length of experience in healthcare | 204 | |
| 1–20 years | 52 | 25.50% |
| 21–30 years | 58 | 28.40% |
| 31–40 years | 67 | 32.80% |
| 41 and more | 27 | 13.20% |
| Length of experience as a nurse with a GP | 204 | |
| less than 5 years | 66 | 32.40% |
| 5–15 years | 62 | 30.40% |
| 15–30 years | 64 | 31.40% |
| more than 30 years | 12 | 5.90% |
| How many inhabitants does the municipality in which your practice operates have? | 204 | |
| up to 1,000 inhabitants | 2 | 1.0% |
| 1,001–5,000 | 41 | 20.1% |
| 5,001–30,000 | 58 | 28.4% |
| 30,001–100,000 | 29 | 14.2% |
| more than 100,000 | 74 | 36.3% |
| Region | 204 | |
| Prague | 60 | 29.4% |
| Bohemia except Prague | 97 | 47.5% |
| Moravia | 47 | 23.0% |
| What is the model of your practice? | 204 | |
| Solo practice (1 doctor, 1 nurse) | 166 | 81.4% |
| Solo practice + administrative assistant | 1 | 0.5% |
| Group practice (multiple doctors, 1 nurse, administrative worker) | 8 | 3.9% |
| Group practice (multiple doctors, multiple nurses, administrative staff) | 20 | 9.8% |
| Solo practice (1 doctor, 2 nurses) | 6 | 2.9% |
| Another model | 3 | 1.5% |

Our respondents actively participate in continuous education programs in preventive care, senior nurses prefer in-person education while younger nurses prefer e-learning. Only 2.5% of respondents stated that they do not participate in any continuing education in the field of preventive care. These nurses cited lack of motivation and low competence as reasons for not pursuing continuing education. A statistically significantly higher percentage of respondents pursuing any continuing education are nurses working in solo practices.

Based on our results, Czech nurses seem to be satisfied with the level of their responsibilities and (lower) autonomy and do not call for their expansion. About 92.6% of the respondents (especially in the age categories over 51 years and with more than 20 years of professional experience) perceived their responsibilities in preventive care and HL as sufficient. Only the nurses working in group practices are more likely (25%) to perceive their responsibilities in prevention as insufficient. Among the responses expressing a preference for expanding responsibilities, two ways in which nurses' responsibilities in preventive care should be expanded prevailed, namely defining and delegating responsibilities between the nurse and the GP (53.3%) and patient education (40%). Only 6.7% of respondents perceived changes in responsibility settings as related to the level and/or type of reimbursement for preventive care.

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About 63.7% of the respondents reported that their GP delegated some specific preventive care tasks to them – the longer a nurse has been practising in a GP office, the more often the physician delegates preventive care tasks to the nurse. GPs delegate the most tasks to nurses with 31–40 years of total professional experience and to nurses working in solo practices. The most frequently reported delegated tasks are screening (66.9%), administrative tasks (29.2%), ECG measurements (27.7%), blood pressure measurements (26.2%) and vaccinations and patient education in HL (identical at 25.4%).

### How nurses working in the Czech PC perceive their role in preventive care and HL (RQ2)

Czech nurses stay proactive in the field of prevention. Vaccination (89.2% of respondents), screenings (68.1% of respondents) as well as increasing HL and electrocardiograms[6] (both indicated by 24.5% of respondents) are perceived as the most important activities in the area of preventive care.

Chart 1 demonstrates what nurses perceive as the key priority areas to focus on in preventive care, these priorities vary depending on the age of the nurse.

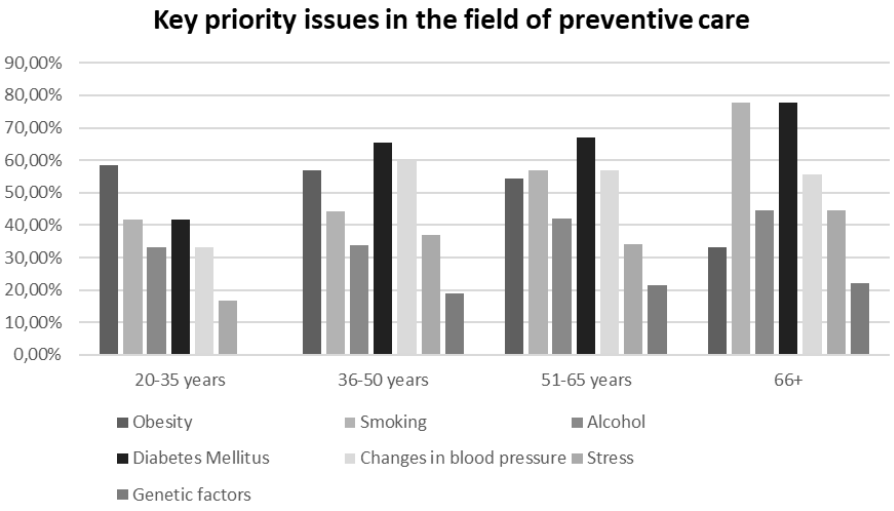


Chart 1: Key priorities issues in the field of preventive care (%)

Czech nurses stay proactive when it comes to the motivation of their patients to participate in preventive check-ups. Most of the respondents actively invite patients for preventive check-ups (87.3 % of respondents), these are mainly nurses in the age category of 51–65 years (90.9%) and 66 years and more (88.9 %) who have been working as a PC nurse for more than 5 years. Patients are mostly invited to preventive check-ups in person (72.5% of respondents). Remote invitation are reported by 26.4% of respondents method. Only 27.9% of respondents reported that they do not invite patients for preventive check-ups.

Respondents perceive interest in preventive check-ups mainly among people aged between 40 and 60 years. On the contrary, patients in the age group of 20 to 30 years (3.9%) and seniors over 70 years (3.4%) show very low interest in preventive check-ups.

Czech nurses reported that they are satisfied with the content (85% of the respondents ) and the frequency (94.1% of respondents) of preventive check-ups. Among the respondents who do not consider the current content of preventive check-ups to be sufficient, nurses from the age category of 20–35 years are predominantly represented (25%). The most frequent suggestions for expanding the content of preventive check-ups include more detailed blood analysis (43.3% of respondents), pulmonary examination (30%), sonographic examination (23.3%) and cardiological examination (20%).

6 ECG; part of a preventive check-up

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Concerning HL, the vast majority of nurses are involved in improving the HL of their patients. Most respondents (92.2%) stated that they discuss the lifestyle and diet with their patients. These are mainly nurses with 31–40 years of healthcare experience (94%) and nurses working in large cities with a population over 100 000 (91.9%). No regional differences were noted. Nurses who do not discuss their lifestyle and diet with patients cite high nurse workload and low financial reimbursement of preventive care by health insurance companies as reasons.

Regarding the methods used to educate patients, nurses strongly prefer face-to-face discussions (96.5% of respondents), followed by information leaflets distributed to patients (79%) and then information posted in the waiting room (53.6%). In-person contact prevailed in solo practice, while education based on information leaflets was reported mainly in group practices. Some of the other methods of patient education mentioned by the nurses' included booklets by diagnosis in the waiting room, telephone-based education and Internet links.

On the contrary, only 60.3% of nurses are dedicated to checking the patient compliance and adherence. The highest number of positive responses was recorded among nurses with 31–40 years of total experience in healthcare (67.2%), as well as those who have been working as a nurse in GP practice for more than 30 years (75%). Neither the size of the municipality nor the region played a significant role in this response. More positive responses were recorded for nurses to whom the physician delegated some preventive care tasks (70.8%). Nurses who check patient compliance and adherence primarily do so verbally (59.3%), followed by laboratory tests or scales (38.2%).

### The factors that influence the involvement of PC nurses in prevention and HL promotion (RQ3)

The results show that the involvement of nurses in prevention and HL is influenced by the type of practice and the age of the nurse (the engagement is higher for nurses working in solo practices and also for senior nurses, to whom GPs are more likely to delegate competencies).

Czech nurses do not perceive the method and level of reimbursement for preventive care as important for their decision to actively engage or not in prevention and literacy. On the contrary, the results show that the involvement of nurses in HL may be influenced by the level and/or type of reimbursement. The respondents report that they would be more committed to HL if it was better reimbursed and also if the administrative burden was reduced.

### Critical barriers of effective involvement of PC nurses in prevention and HL promotion (RQ4)

Nurses working in PC stay proactive in both prevention and HL. The lower level of nurses' autonomy and responsibilities (not only) in these areas may represent one of the barriers of higher involvement in prevention and HL. Our results show that the nurses themselves are satisfied with the level of their autonomy and responsibilities.

The lack of interest of patients in preventive care (41.2%) represents another barrier of higher involvement of nurses in prevention and HL.

Overwork and high administrative burden are other barriers to the effective involvement of nurses in prevention and HL. Czech nurses feel overworked and under time pressure. According to our respondents, the time pressure (32.4%) is one of the main obstacles for the respondents to devote more time to preventive care in their work.

The main findings from the online survey are as follows:

- Nurses working in PC stay proactive in both prevention and HL. However, their autonomy and responsibilities (not only) in these areas are rather low compared to other countries. Nonetheless, the results show that the nurses themselves are satisfied with them.
- The involvement of nurses in prevention and HL is influenced by the type of practice and the age of the nurse (engagement is higher among nurses working in solo practices and for senior nurses, to whom GPs are more likely to delegate responsibilities) and, conversely, is not influenced by the level and/or type of preventive care reimbursement.
- The analysis shows that patients confide more in nurses working in solo practices than in nurses working in group practices.

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### Expert commentaries results

Five experts were asked to comment on the three abovementioned main findings from the online survey. The first finding relates to nurse responsibility setting in prevention and HL. In their comments, the experts agreed that Czech nurses indeed do not seek an increase in responsibilities. Among the reasons is that nurses are overworked and overloaded, but they also do not have sufficient competence in the responsibilities as specified in the law, and the defined responsibilities do not reflect the needs of real work in practice.

The second finding relates to factors influencing the involvement level of nurses in prevention and HL. The experts confirm that both age and type of practice have a significant impact on nurse engagement, with age and length of GP practice reported as other drivers. Our research shows that nurses do not perceive the method and level of reimbursement for preventive care as important in their decision to actively engage or not in prevention and literacy. According to experts, this may be explained by the fact that preventive care provided by a nurse cannot be reimbursed by health insurance companies (only physician-led care); hence, this area is usually beyond nurses' interests. Conversely, experts report that nurses are usually employed by a GP, and therefore the GP frequently reflects the extent of a nurse's involvement in prevention in the level of a nurse's salary.

The last finding relates to the level of trust between nurse and patient and, respectively, how much patients confide in them about their personal concerns. All five experts perceive trust as important in (not only) primary and preventive care. They agreed that a group practice might be perceived as more anonymous for patients. On the other hand, they refer to a relatively small number of group practices in CZ and to the fact that Czech patients need time to accept the new concept. The experts also highlight the quality of the practice as crucial.

## DISCUSSION AND LESSON LEARNED

Following the objectives of the manuscript, the main findings of our research can be divided into two groups. The first group relates to research questions one and two when providing a profile of Czech nurses working in PC and maps how they perceive their role in preventive care and HL. The second group relates to third and fourth research questions and discusses the factors and critical barriers of effective involvement of PC nurses in prevention and HL promotion.

### Czech PC nurse profile and the way they perceive their role in prevention and HL

Half of our respondents work in the Central Bohemian Region or the city of Prague. Most respondents are between 36 and 65 years of age, work in a solo practice (1 GP and 1 nurse) and remain active in their own continuous education.

Most nurses reported that, generally, they try to motivate their patients towards prevention. The surveyed nurses agreed on the two most important areas in preventive care: vaccinations and voluntary preventive check-ups. Most actively invite patients for preventive check-ups and do so personally. Respondents perceive interest in preventive check-ups mainly among people aged 40–60 years old. This is in line with a 2021 Czech survey showing that one in three Czechs has not had a preventive check-up with a GP in the last two years and that the economically active part of the population is the most neglectful of check-ups (Zentiva, 2021). Czech nurses reported that they are satisfied with the content and frequency of preventive check-ups.

Concerning HL, the vast majority of nurses are involved in improving the HL of their patients. On the contrary, only 60.3% of nurses are dedicated to checking patient compliance and adherence – nurses to whom GPs have delegated more responsibilities in preventive care (i.e., senior nurses and nurses in solo practices) are more involved in compliance and adherence checks. According to Martínez-Gonzáles et al. (2015), De Maeseneer et al. (2019) and Leong et al. (2021), nurse-led PC would achieve even better outcomes if treatment was linked to patient education, leading to better patient adherence.

In contrast to preventive check-ups, nurses report that they would be more committed to HL if it was better reimbursed and if the administrative burden was reduced.

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### Factors and critical barriers of effective involvement of nurses in prevention and HL

**The type of practice represents the first barrier** of effective involvement of nurses in prevention and HL. Solo practice is the predominant practice model in CZ. According to Maier et al. (2017), this model of practice has long been the leading model in OECD countries; however, the increase in chronic diseases is causing pressure to change the practice model—that is, to group practices, health centres, integrated care programmes or provider networks (Nolte et al., 2014). This was voiced by Expert 5.

#### Expert 5

'Establishing more group practices represents the solution. More GPs, more nurses and more administrative workers would be employed in them, and this would open the space for nurse involvement in prevention.'

Our findings indicate that the responsibilities of nurses working in preventive and, respectively, PC in CZ are generally rather low. This is in line with Delamaire and Lafortune (2010), who claim that countries relying primarily on solo practices are less likely to employ nurses in advanced roles compared to countries with group practices. The **low level of nurse responsibilities** may also indicate persistent paternalism in the Czech health system and may present a **second critical barrier** of effective involvement of nurses in prevention and HL.

Czech nurses seem satisfied with the level of their responsibilities and (lower) autonomy and do not call for their expansion. Only nurses working in group practices would more often welcome an expansion of their responsibilities. The fact that nurses do not call for an expansion of their responsibilities might relate to the type of healthcare system. The corporatist system (Kuhlmann, 2006), with its typically strongly integrated medical powers, may present a challenge or read as a kind of communist legacy (Křížová and Šimek, 2007; Martin and Carter, 2018). The experts voiced their concerns regarding this level of nurses' competencies.

#### Expert 1

'Nurses do not require any broader competencies as long as there is responsibility attached to them. Moreover, nurses do not really know their responsibilities in the field of preventive care; these responsibilities are set out in a rather general way. The next question, however, is where other healthcare professions will allow nurses to enter. This is also related to the personality of the GP, whether he or she is willing to delegate some of the tasks (such as education, for example) to the nurse.'

#### Expert 2

'It is unfortunately true that the majority of nurses do not call for the expansion of their responsibilities. That is why it is crucial to talk more about it.'

#### Expert 4

'Nurses often do not know how their responsibilities (not only) in preventive care are set. Moreover, the responsibilities must be set in a way which reflects the needs of the real work practice. The Ministry of Health is continually working on this.'

The abovementioned prevalence of the solo practice model and lower reliance on teamwork suggest a **lower level of task shifting/sharing in preventive care provision – the third critical barrier**. Based on a study by Groenewegen et al. (2022) in which task shifting from GPs to nurses in PC in 34 countries was examined, CZ ranked below average. Our results do generally confirm this trend. Our data show that task shifting and/or sharing in preventive care in CZ are influenced by the practice model and the age of the nurse, not reimbursement issues. Based on Van Schalkwyk et al. (2020), providing care for and coordinating patients with chronic illness and prescribing medications are the tasks most often transferred to nurses.

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Czech patients confide in nurses working in PC about their personal concerns, because they trust them. This is in line with literature (Gong et al., 2018) claiming that patients are often more satisfied with the care provided by nurses than with the care provided by GPs. This might be explained by the fact that nurses tend to take longer to discuss treatment with patients, provide more information than GPs and, according to patients, generally communicate better. In contrast to the abovementioned literature, our research indicates that tasks in preventive care are more often delegated to nurses working in solo practices than those in group practices. The survey also shows that Czech patients confide more in nurses who are working in a solo practice than nurses working in group practices. Experts 2, 3, 4 and 5 confirmed these findings.

**Expert 2**

'The nurse is more autonomous in solo practice. This gives her the chance to be closer to patients. Group practice is anonymous; the space for the nurse might be reduced.'

**Expert 3**

'I can understand that [higher level of trust in solo practice]. Patients are continually in close contact with one person.'

'There are not that many group practices in CZ. People have only started to get used to them.'

**Expert 4**

'Often, Czech patients are registered with their GPs for years; the relationship with and trust in the GP as well as the nurse is continuously built. I can easily understand that they prefer a practice in which GPs and nurses remain the same.'

**Expert 5**

'A patient can have his/her "own" nurse in a group practice too. The truth is that there are not many group practices that function well at the moment.'

**Overwork and high administrative burden present the fourth barrier** of the effective involvement of nurses in prevention and HL. Czech nurses feel overworked and under time pressure. This – along with the passivity of their patients – is the main barrier to their higher involvement in prevention. Experts 3 and 5 confirmed this.

**Expert 3**

'Since nurses feel overworked in CZ, I am not surprised that they do not call for the expansion of their responsibilities. The situation would be different if more administrative workers [such as receptionists, telephonists, etc.] were employed in the practices.'

**Expert 5**

'As nurses are overloaded, any expansion of responsibilities is impossible.'

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## POLICY RECOMMENDATIONS

Establishing group practices in CZ may constitute the first policy recommendation. It is also one of the main objectives of the PC reform. The first step planned is the introduction of new legislation that clearly defines how group practices should operate. The draft legislation should have been ready by the end of 2022, allowing five hundred group practices per year to be established between 2023 and 2030 (MoH, 2023). This has not yet transpired. The reasons may be multiple, for example, the historical and cultural context, methodology, a lack of financial and/or human resources or low motivation. According to The Society of General Practice of Czech Medical Association of Jana Evangelusty Purkyně (2022), it seems that the main barrier in CZ is this lack of personnel – which is a global trend.

Group practices are expected to place more emphasis on teamwork and, according to Maiorova et al. (2007), this opens up space for expanding the responsibilities of non-medical staff, including nurses. Appropriate definition of the roles of individual health professionals and higher level of task shifting/task sharing resulting in increasing nurse responsibilities represent the second policy recommendation. This is in line with the main aims of the Czech Nursing Conception. Because of the low level of nurse (and GP) responsibilities in the country, PC providers may struggle to meet the increasing demands of an ageing and chronically ill population in the near future. Given the expected demographic development in CZ, the demand for healthcare will increase, and the proportion of patients who will need care from GPs will rise (MoH, 2021). It is particularly the involvement of nurses in the prevention and monitoring of patients and management of comorbidities in an ageing population that will enable GPs to focus more on patients with more serious illnesses (MoH, 2021).

Our results show that patients are more likely to confide in nurses working in solo practices and at the same time, expert 5 points out that not all group practices in the Czech Republic function well. Thus, organization of a series of interventions, addressed to both health professionals and patients constitutes the third policy recommendation. The aim of these interventions could be both to provide information about the challenges of group practice in terms of preventive care delivery patterns, and how group practice should be managed to maintain good quality of care. At the same time, preparing a campaign for patients explaining the added value of group practice would be beneficial.

## CONCLUSIONS

The profile of PC nurses as well as their role in the preventive care and HL promotion were studied. Our result suggests that Czech nurses feel overloaded but remain proactive in prevention and HL. Age and practice type, not reimbursement model, determines the level of engagement in prevention. The nurses' autonomy and responsibilities remain low in international comparison but they do not call for their expansion. A shift from solo to group practices as well as an adequate definition of the roles of individual health professionals that would result in nurse empowerment may constitute a major policy recommendation.

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## APPENDIX 1

**Questions in the field of prevention**

**P 1. Do you consider the current frequency of health checks to be sufficient?**

( ) Yes
( ) No
If not, please indicate what time interval you would consider appropriate ……..

**P 2. Do you consider the content of the preventive examination set at the same time to be sufficient?**

( ) Yes
( ) No
If not, please indicate what other examinations you would consider appropriate as part of the preventive check-up ……..

**P 3. If you answered no to at least one of the previous questions, what do you think prevents you from giving more space to preventive care in your work?**

( ) Nurse's time commitment
( ) Lack of patient interest in preventive care
( ) Low financial valuation of preventive care by health insurance companies
( ) Other factors, please specify……

**P 4. Are you trying to motivate patients to get preventive check-ups?**

( ) Yes
( ) No
If yes, please indicate how ……

**P 5. Do you invite patients for preventive check-ups?**

( ) Yes
( ) No
If so, what method do you use to invite patients?
( ) SMS
( ) E-mail
( ) Other method, please specify which one.....

**P 6. Based on your experience, which age group is most interested in preventive examinations?**

( ) 20 – 30
( ) 30 – 40
( ) 40 – 50
( ) 50 – 60
( ) 60 –-70
( ) Over 70 years of age

**P 7. Please indicate what you see as the three most important activities in the area of prevention:**

( ) ……
( ) ……
( ) ……

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**P 8. Did the physician delegate any specific preventive care tasks to you?**
( ) Yes
( ) No
If yes, please specify which ones …….

**P 9. Do you feel that your responsibility in prevention is sufficient?**
( ) Yes
( ) No
In case of a negative answer, please indicate how you think the nurses' responsibilities in the field of preventive care could be expanded?…….

**P 10. Did you notice a decrease in interest in preventive examinations during the COVID-19 pandemic compared to previous periods?**
( ) Yes
( ) No

**P 11. Now that the COVID pandemic is over, do you expect your practice to:**
( ) Rather an increase in interest in preventive examinations
( ) Less interest in preventive examinations
( ) I don't know

**P 12. Do you consider vaccination to be an essential part of preventive care?**
( ) Yes
( ) No

**P 13. Do you provide patients with information about vaccination against infectious diseases as part of their preventive check-ups?**
( ) Yes
( ) No

**P 14. Do you discuss vaccination-related issues with patients?**
( ) Yes
( ) No

**P 15. What is your preferred method of self-education in the area of preventive care (more than one option can be ticked)**
( ) Literature (studies, articles)
( ) Online training courses
( ) Face-to-face training
( ) Internet
( ) Other, please specify.……
( ) I have no training in preventive care – if so, why?

**Questions in the field of health literacy**
**ZG 1. Do you discuss with patients about their lifestyle?**
( ) Yes
( ) No

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**ZG 2. Do you educate patients about their lifestyle and motivate them to modify and improve it?**

( ) Yes

( ) No

If yes, how do you educate patients? (multiple options can be ticked in the table)

| Personal interview with patients | Information leaflets | Information posted in the waiting room | Other method |
|---|---|---|---|
| [ ] | [ ] | [ ] | [ ] |

**ZG 3. Do you check and monitor patients' compliance with your advice and any changes in their lifestyle?**

( ) Yes

( ) No

If yes, how? .....

**ZG 4. Do patients confide in you about their personal problems?**

( ) Yes

( ) No

**ZG 5. Which of the following risk factors are of active interest to you? (In the table, please give each factor a weight between 0 and 5, with 5 being the highest weight).**

| Factor weight (highest weight is 5) | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Obesity | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |
| Smoking | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |
| Alcohol | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |
| Diabetes mellitus | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |
| Changes in blood pressure | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |
| Stress | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |
| Genetic factors | [ ] | [ ] | [ ] | [ ] | [ ] | [ ] |

Other factors, please specify .....