PHARMACISTS' ATTITUDES AND PREPAREDNESS PRIOR TO INTRODUCING THE SYSTEM OF ELECTRONIC PRESCRIPTIONS IN BULGARIA

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ABSTRACT

INTRODUCTION: By introducing electronic prescribing in December 2020, Bulgaria took a major step towards the digitalization of healthcare in the country. The regulatory framework was swiftly changed which resulted in little time for testing and implementing the e-prescription system.

AIM: This study aims to explore the awareness, preparedness and attitudes of pharmacists towards the innovation prior to its mandatory launch.

MATERIALS AND METHODS: A sociological method was used: a face-to-face anonymous survey among pharmacists in the region of Varna, utilizing paper questionnaires.

RESULTS: The results showed the respondents' positive attitudes and well equipped pharmacies. However, a number of challenges were also identified, such as insufficient information and trainings, a short trial period leading to concerns and lack of confidence in community pharmacists.

CONCLUSION: The functioning e-healthcare system is a priority goal of healthcare development in Bulgaria. The introduction of the electronic prescription is an important step for the future digital transition in our country. Despite pharmacists' positive attitudes towards the innovations and the expectations that it would enhance medical care, we should note that at the start of the project the focus was more on technological performance and not on staff training. Trainings, time and experience are needed to build an effective functioning system in support of professionals and society.

Keywords: *e-prescribing, e-health, pharmacists, community pharmacies*

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INTRODUCTION

E-health is part of the EU strategy for digitalisation which aims to promote the healthcare effectiveness in the European Union. Electronic prescriptions are a modern and effective tool for health system. Thanks to the rapid development of web and mobile applications, electronic prescriptions have become an efficient component of modern telemedicine.

The development of this innovative model will provide a detailed snapshot of citizens' health; it will allow strategic planning and forecasting the future processes in healthcare; priority setting for the national health policy as well as a higher quality of healthcare services (1,2,3,4,5,6,7).

The chief goal is to place the focus on the needs of the individual patient (8). An indicator of achieved outcomes is the improved health of the population (9).

In Bulgaria e-health was introduced into practice through the implementation of the *National Health Strategy 2014–2020* and the *e-Governance Development Strategy of the Republic of Bulgaria 2014–2020*.

The documents envisaged the design and launch of registries and classifications in the field of healthcare; the development and implementation of a national unified identifier; an expert system in pharmacotherapy; the design of the National Health Information System (NHIS) platform and the introduction of an electronic health record, electronic referral, electronic prescription, etc. (10,11,12,13,14,15).

The process of implementing the e-health infrastructure in Bulgaria is moving slowly and according to the analysis of DESI 2020 (Digital Economy and Society Index) our country ranks 23rd among EU countries in terms of digital public services and 25th as regards the development of full public administration (7).

In 2020 the COVID-19 pandemic forced a rapid change in the working style of many institutions and private entities in order to transition to a digital environment. The critical step towards e-health was made the same year with the implementation of the electronic referral, the electronic prescription, and the design of NHIS. In December 2020, through an amendment of the *Ordinance on the Terms and Conditions for Prescribing and Dispensing of Medicinal Products*, the terms *electronic prescription* and *qualified electronic signature* (QES) were brought into use and 30.04.2021 was set as a deadline for the launch of the system (16,17,18).

The new requirements directly concern activities performed by pharmacists. Providers of specialized pharmaceutical software are the main actors that need to make the necessary technological changes. The chief pharmacist is accountable for organizing the activities in the pharmacy and compliance with the regulations. For the purposes of performing these responsibilities, a head of a pharmacy needs to be well-informed about any legislative changes, guidelines and requirements from the Ministry of Health, NHIS, and NHIF relating to the dispensing of medicinal products and the relevant administrative activities (17,19,20). The lack of sufficient information on the main government web portals triggered our interest to conduct a survey on the topic among pharmacists.

AIM

The aim of this article is to monitor the attitudes, awareness, and readiness of pharmacists to work with electronic prescriptions prior to the launch of the system.

MATERIALS AND METHODS

A sociological method was used through conducting a face-to-face anonymous survey among community pharmacists in the region of Varna utilizing paper questionnaires. The survey was performed between 14.02.2021 and 25.04.2021 just before electronic prescriptions were to become mandatory (01.05.2021).

RESULTS

A total number of 56 pharmacists from community pharmacies participated in the survey.

The information about the respondents' demographics, academic degrees and advanced studies, and work experience is presented in Table 1.

The share of respondents who worked with electronic prescriptions during the trial period was 62.50%, while the remaining 37.50% did not fill e-prescriptions at the time of the system trial.

A significant share of the professionals, a total of over 75 %, reckoned that the electronic prescription would fully facilitate or partially facilitate their workflow. A total of 67.99% of respondents shared that the innovation would fully or partially facilitate the patient as an end user. The results are presented in Table 2.

Half of the respondents held the firm view that complete information was missing on the website of the NHIS, whereas almost 45% of the participants

Table 1. Gender, academic degrees, certifications, and work experience.

Variables	Respondents %
Gender	
Men	23.20%
Women	76.80%
Academic degrees and certifications	
Master of Science of Pharmacy	85.70%
MPharm and a specialty certification	5.40%
MPharm and a PhD in Pharmacy	1.80%
MPharm and an academic degree in a different field	7.10%
Work experience in years	
Less than 5	66.10%
From 5 to 10	5.40%
From 10 to15	14.30%
From 15 to 20	1.80%
Over 20	12.50%

Table 2. Facilitating pharmacists and patients through the introduction of the e-prescription.

Does the electronic prescription facilitate:	Yes	Partially	No
Pharmacists' workflow	37.50%	35.70%	26.80%
Patients	17.99%	50.00%	32.10%

Table 3. Information availability, pharmacy preparedness and confidence when working with electronic prescriptions.

	Yes, completely	Yes, to some degree	No	I don't know
Is information on the NHIS website sufficient?	3.60%	41.00%	50.00%	5.40%
Is the pharmacy prepared to operate with e-prescriptions?	39.30%	44.60%	12.50%	3.60%
Are you confident in filling e-prescriptions?	14.00%	46.40%	26.80%	1.80%

answered that the available information was partially or totally sufficient. According to more than 83.90% of the respondents, pharmacies were completely or partially prepared for operating with electronic prescriptions. As regards pharmacists' confidence in working with e-prescriptions, a positive response was given by a little over 60% of the sample. The results are presented in detail in the Table 3.

The pharmacists consider that health professionals need additional trainings on how to work with e-prescriptions, which must be provided by the Ministry of Health and its structures as part of the implementation of the system. The responses are given in Table 4.

The study explored the sources pharmacists preferred for obtaining information about electronic prescriptions. The respondents were given the opportunity to provide more than one answer. Over 64% of them indicated the pharmacy software provider as a main information source; less than half of them responded that they found the information from the MH or NHIS. One third of the respondents received information on e-prescribing from NHIF/RHIF. The results are presented in Table 5.

Table 4. Need of additional training on the implementation of the system provided for by the Ministry of Health and its structures.

Yes	82.10%
No	16.10%
Such trainings should have happened.	1.80%

Opinions on whether the time for trial and introduction of the system was sufficient were diverse.

Table 5. Sources used by respondents to obtain information about the electronic prescription.

Ministry of Health	16.10%
MH, NHIS website	28.60%
NHIF/RHIF	32.10%
Pharmacy software provider	64.30%
Wholesalers	1.80%
Bulgarian Pharmaceutical Union	19.60%
Regulatory framework	12.50%
Colleagues	3.60%

Two groups of responses were outlined: Group A ('Yes') and Group B ('No'). The majority of respondents (58%) pointed at the lack of sufficient time for implementation and gave the answer 'No'. A small number of the respondents (only 9%) stated that the implementation time was ample. Over 32% of the survey participants indicated that the implementation time was sufficient, but they lacked specific testing elements. The bar chart in Fig. 1 shows the results.

The respondents had the opportunity to describe the problems and difficulties they encountered during the implementation of the system. The answers given by the survey participants are outlined in Table 6.

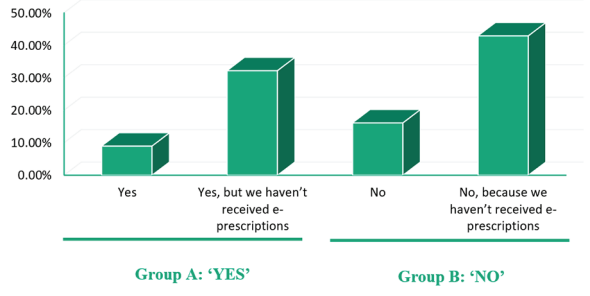

Fig. 1. Sufficiency of time for implementing and testing the electronic prescription.

DISCUSSION

Utilizing the e-prescription is a key stage in the process of developing an effective e-health infrastructure. It is promising that during the trial period more than half of the respondents succeeded in testing the system and worked with electronic prescriptions. In line with that the professionals expressed positive attitudes and expectations for a facilitated dispensing of electronically prescribed medicinal products. The analysis confirms the results of other studies on the subject, made before the regulatory changes (21,22,23). In one of these studies, conducted in 2018, over 87% of pharmacists explicitly stated that they want the e-prescription to be put in place (24).

Table 6. Reported problems and difficulties in the implementation of the electronic prescription.

◈ Lack of precise information for health professionals and patients;
◈ Software problems such as slow loading of the program with the prescriptions;
◈ Software problems associated with prescribing: dose, quantity and dosage form;
◈ Technology-related difficulties in comparing the prescribed and the dispensed quantity of a medicinal product;
◈ Discrepancies in the number of prescribed treatment days;
◈ Impossible to refill an e-prescription in another pharmacy.

Pharmacists' positive attitudes towards this innovation might be due to the advantages of e-prescribing: saving both professionals' and patients' time; minimizing technical errors; facilitating communication among health professionals; providing possibilities for corrections; improving access to medicinal products; facilitating monitoring of pharmacovigilance; promoting the rational use of medicinal products, etc. (21,22,23,24).

Our study found that pharmacies are technologically prepared to operate with e-prescriptions despite the reported insufficiency of information from official sources.

Lack of information and subsequent problems are the issues indicated throughout the survey. An alarming statistic is that more than half of the pharmacists trust the pharmacy software provider who is not an official source of information due to the business services they provide. This is probably associated with the fact that most of the issues reported by pharmacists are technology-related. The time for im-

plementation of the system specified in the regulatory framework at the time of the study was 5 months. It turned out to be insufficient not only because of the short trial period but owing to lack of specific testing elements. The problems and difficulties outlined by the respondents mostly concern technological issues or lack of information, which confirms the need for conducting a learning campaign. This has been communicated by the surveyed group of pharmacists as well.

All the uncertainties and insufficient experience with the innovations probably affect respondents' confidence in their knowledge and skills to operate with electronic prescriptions.

CONCLUSION

Policy trends indicate a stepwise approach for introducing an e-health infrastructure and modernizing the healthcare system. Despite pharmacists' positive attitudes towards the innovations and pharmacy preparedness to work with the new prescriptions, more time, experience, and trainings are needed to achieve effective outcomes. Thus, a functioning system in support of both professionals and the society will be built.

Achieving that goal is a major step, which will increase the efficiency and quality of pharmaceutical care and health services.

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REFERENCES

1. Communication from the Commission to the EU Parliament, The Council, the European Economic and Social Committee and the Committee of the Regions on the Mid-Term Review on the implementation of the Digital Single Market Strategy. Available from: https://eur-lex.europa.eu/ resource.html?uri=cellar:a4215207-362b-11e7-a08e-01aa75ed71a1.0012.02/DOC_1&format=PDF
2. Concept "Objectives for Health 2020", Sofia. Ministry of Health of the Republic of Bulgaria; 2015. Available from: https://www.mh.government.bg/media/filer_public/2015/10/29/kontseptsiya-tseliza-zdrave-2020_eng.doc
3. Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare. Available from: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:088:0045:0065:en:PDF
4. E-health Infrastructure. Available from: http://ebox.nbu.bg/medteach/ne15/00.eHealthcare.pdf
5. European Commission. eHealth: Digital health and care. Available from: https://ec.europa.eu/health/ehealth/overview_en
6. Tateeda – E-Prescription Software. Available from: Development: https://tateeda.com/
7. The Digital Economy and Society Index - DESI2020. Available from: https://digital-strategy.ec.europa.eu/en/policies/desi
8. Nikolova V. Dimensions and indicators of quality of health care used for healthcare systems'performance assessment 2020. Health Econ Manag. 2020;20(1):27-35. (in Bulgarian). doi: 10.14748/hem.v20i1.7672
9. Bogdanova K. Main aspects in healthcare management; 2019. p. 112. Available from:https://www.researchgate.net/publication/344818833_Kamelia_Bogdanova_OSNOVNI_ASPEKTI_V_UPRAVLENIETO_NA_ZDRAVNITE_GRIZI
10. Data regarding patients' access to medicinal products including those fully or partially reimbursed by the NHIF. Available from:https://www.mh.government.bg/bg/novini/aktualno/informaciya-otnosno-dostpa-na-pacientite-do-lekars/
11. E-governance Development Strategy in the Republic of Bulgaria 2014–2020. Available from:https://www.mtitc.government.bg/sites/default/files/uploads/pdf/e_governance_strategy.pdf
12. Health 2020. A European policy framework and strategy for the 21st century. Available from: https://www.euro.who.int/__data/assets/pdf_file/0011/199532/Health2020-Long.pdf
13. Health Act. Prom. SG 70/10 Aug. 2004, in force from 01.01.2005, suppl. SG 21/12 March 2021.
14. Medicinal products in Human Medicine Act. Prom. SG 31/13 Apr. 2007 in force from 13.04.2007, amen. and suppl. SG 105/11 Dec. 2020
15. National Health Strategy 2020. Available from: https://www.mh.government.bg/media/filer_public/2016/09/12/nzs_2020.pdf

16. Functional specification on servicing the process of issuance and processing of electronic prescriptions in NHIS. Available from: https://his.bg/bg/dev/specifications"

17. Instruction for dispensing medicinal products from the National Health Insurance Fund. RD-16-5/10.02.2021. Available from: https://www.nhif.bg/bg/medicine_food/drugstores

18. Ordinance № 4 of 4.03.2009 on the terms and conditions for prescribing and dispensing of medicines Prom. SG 21/20th March 2009, amen. in SG 107/18.12. 2020

19. Ministry of Health. Available from: https://www.mh.government.bg/bg/

20. National Health Information System. Available from: https://his.bg/

21. Galeva S. The electronic prescription – an analysis of the opportunities for its implementation in Bulgaria. Dissertation. Sofia; 2019.

22. Galeva S, Belcheva V, Grigorov E, Electronic prescription of recipes and models for transfer and data exchange in them. Soc Med. 2019;27(1):40-5. (in Bulgarian). doi: 10.14748/sm.v0i1.6463.

23. Getova V. Regulatory and practical aspects of pharmacovigilance and practical aspects of patients' participation in monitoring pharmacovigilance. Dissertation. Plovdiv; 2019.

24. Kachulev K. The impact of macro-level healthcare decisions on the individual patient. Dissertation. Sofia; 2018.