

# Cross-Sectional Analysis of Current State of Arts and Community Pharmacists' Attitudes toward Value-Added Pharmacy Services in Bulgaria

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## Abstract

Value-added pharmacy services (VAPS) are not connected with traditional pharmacy activities and do not include services, related to dispensing of medicines and professional consultation. A cross-sectional study that included pharmacists working in the community pharmacies in Bulgaria was carried-out. The pharmacists' attitudes toward VAPS and an implementation of remuneration were studied. The most commonly offered VAPS were blood pressure (BP) measuring with confirmation of 67.4% of the respondents and blood glucose (BG) measuring - 12.9%, but 42.9% of the pharmacists were willing to provide the different VAPS. Most of the respondents (63.5%) did not support the idea of implementation of a fee for BP measuring, but 53.7% considered it is necessary to charge a fee for BG measuring. VAPS are proven to have added value from societal, healthcare and economic point of view, but additional remuneration should be provided.

**Keywords:** Value-added pharmacy services, remuneration, pharmacists, community pharmacy, patient benefits

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## INTRODUCTION

Value-added pharmacy services (VAPS) are additional to the traditional pharmacy activities that do not include dispensing of medicines and professional consultation. It is demonstrated that supplying VAPS can reduce the health system expenses, while inset added value to the pharmacists' work [1, 2]. According to Porter "The value in healthcare is measured by the outcomes achieved, not the volume of services delivered" [3]. He also determines the value in healthcare as the ratio of the health outcomes achieved for the amount of money spent [4].

According to Moullin, offering value-added pharmacy services correlates to more effective medical treatment, improvement of health outcomes and an opportunity to carry out an overall assessment of the health of the patient [5].

The great administrative pressure that the pharmacist is exposed to is a growing topic of discussion and becomes very important. Pharmacists should be able to carry out much more activities other

than dispensing medicinal products and other health goods. Typical examples are monitoring and optimization of the medicinal use, monitoring of the effects of therapy, activities related to additional services in the pharmacy, etc [6]. Pharmacists spend 68% of the working time dispensing medicinal products [7], with a possibility of even bigger percentages in Bulgaria. Roe [23] points out that the big pressure on pharmacists to dispense medicinal products as quickly as possible limits their time to discuss with the patient potential medicinal product interactions, adverse reactions and drug-related problems.

Developed countries show a clear trend and practice, in which the pharmacy actually has the functions of a health establishment, facilitating the access of the patient to health professionals. Over the recent years, there has been a rise in the amount of introduced pharmacy services in various countries around the world. Professional advice and additional services provided in pharmacies are becoming increasingly important [8-10].

A major goal of most professional pharmaceutical organizations is to change the attitude of the patients, the health insurance providers and the mindset of pharmacists themselves toward the pharmacy services offered in the pharmacy [11]. The aim is to point out to society that the pharmacist is a healthcare specialist who offers professional pharmaceutical services and consultations, that extend far beyond the current, more limited frameworks on dispensing medicinal products and food supplements [12].

The Joint document of International Pharmaceutical Federation (FIP) and World Health Organization (WHO) – Guidelines on Good Pharmacy Practice (GPP) requires that the objective of each element of pharmacy service is relevant to the patient, clearly defined and effectively communicated to everyone involved [13].

The aims of our study were:

1. To identify the value-added pharmacy services (VAPS) offered in Bulgarian pharmacies.
2. To identify the patients' needs to VAPS.
3. To clarify the pharmacists' attitudes toward VAPS.

## MATERIAL AND METHODS

A cross-sectional study was carried-out in 2018. The study included pharmacists working in community pharmacies. A web-based questionnaire consisting of 15 questions was developed. Some questions obtained information about VAPS such as blood pressure and blood glucose measurement, vaccination in a pharmacy, etc. Needs of VAPS were identified and information about patients characteristics (age, chronic diseases, number of patients served per day, proportion of loyal patients) were obtained. The pharmacists' attitudes toward VAPS and an implementation of remuneration were studied. The service fee is measured in local currency Bulgarian lev (BGN). The fixed exchange rate is 1 EUR=1.95583 BGN.

Internal consistency of a scale was measured by Cronbach's alpha. The overall Cronbach's alpha

(N=6) is 0.540. There were no rejected items (if item deleted, the Cronbach's alpha coefficients are from 0.210 to 0.520).

The questionnaire was submitted to all active members of the Bulgarian Pharmaceutical Union (n=5165). Two-hundred thirty-three questionnaires were filled (response rate of 4.5%).

Data were processed by SPSS v.24.0. The number of cases falling in each range of the categories and the percentage were displayed. The variable "number of chronic diseases" was continuous and was described as median (Mdn), minimum and maximum values (Min, Max).

For statistical analysis, some variables were recoded. For example, variables "attitudes toward an implementation of charging fee for measuring a BP" and "attitudes...a BG" consisted 5 categories. Three of the categories, b) "I would charge a fee to EUR 2.56-5.11", c) "I would ... to EUR 5.62-7.67" and d) "I would... more than EUR 7.67" were combined into the new category "I would ... more than EUR 5.11". The category "I would ... more than EUR 5.11" of the variable "attitudes toward an implementation of charging a fee for injection and vaccination" was recoding and consisted one additional category "I would ... more than EUR 10.23" besides the categories listed above.

Pearson's chi-square test was used. We assume the differences between groups are significant if the p-value is less than or equal to 0.05.

## RESULTS

Distribution of the respondents by socio-demographic characteristics was shown in Table-1. Most of the respondents were female (214 or 74.7%) which corresponds to the general distribution of pharmacists working in community pharmacy. 152 (65.2%) were between 20 and 40 years of age. Eighty-six (36.9%) had professional experience of 5 years or less; 66 (25.3%) had an experience in the range of 6-15 years.

**Table-1: Characteristics of the pharmacists (Number, %)**

Variable	Number (%)	Variable	Number (%)	Variable	Number (%)
<b>Gender</b>		<b>Age</b>		<b>Professional experience</b>	
Male	59 (25.3)	20-30 years	93 (39.9)	5 years or less	86 (36.9)
Female	174 (74.7)	31-40 years	59 (25.3)	6-15 years	66 (25.3)
<i>Total</i>	<i>233 (100.0)</i>	41-50 years	38 (16.3)	16-30 years	53 (22.7)
		51-60 years	31 (13.3)	Over 30 years	28 (12.0)
		Over 60 years	12 (5.2)	<i>Total</i>	<i>233 (100.0)</i>
		<i>Total</i>	<i>233 (100.0)</i>		
				<b>Total</b>	<b>233 00.0)</b>

**Value-added pharmacy services (VAPS)**

121 (51.9%) respondents worked in community pharmacies offering VAPS. The most commonly offered VAPS were BP measurement (157 or 67.4%) and BG measurement (30 or 12.9%).

29.2% of the pharmacists used an automatic BP monitor; 49 (21%) other used a commercial BP chair and rarely – a mechanical BP monitor (12.4%) or a semiautomatic BP monitor (4.7%).

**Patients' Needs of VAPS**

49.8% of the community pharmacists dispensed multiple prescriptions mostly for children and adults (Table-2).

To identify the chronically ill patients, the pharmacists used information from "Prescription document of the chronically ill person". This document was processed in the pharmacy on the day the questionnaire was completed. Most common chronic diseases within the group of loyal patients were hypertension (86.7%), cerebrovascular disease (97.9%) and chronic obstructive pulmonary disease (COPD) (54.9%).

Three or more chronic diseases were found in 163 patients (or 70%). Average number of chronic diseases in the patients was three (Mdn, 1 Min, 5 Max).

**Table-2: Characteristics of the pharmacy customers (Number, %)**

Variable	Number (%)	Variable	Number (%)
<b>Patients</b>		<b>Number of chronic diseases</b>	
Mostly adults	116 (49.8)	<i>Average number</i>	3 (Mdn)
Mostly children	3 (1.3)	1 disease	20 (8.6)
Adults and children	114 (48.9)	2 diseases	50 (21.5)
<i>Total</i>	233 (100.0)	≥3 diseases	163 (70.0)
		<i>Total</i>	233 (100.0)
<b>Most common diseases*</b>		<b>Patients served a day</b>	
Hypertension	202 (86.7)	Less than 50 patients	21 (9.0)
Cerebrovascular disease	228 (97.9)	50-200 patients	123 (52.7)
COPD	128 (54.9)	201-500 patients	64 (27.5)
		501-1000 patients	19 (8.2)
		More than 1000 patients	6 (2.6)
		<i>Total</i>	233 (100.0)
<b>Proportion of permanent customers</b>			
Less than 20%	20 (8.6)		
21-40%	45 (19.3)		
41-60%	76 (32.6)		
61-80%	71 (30.5)		
More than 80%	21 (9.0)		
<i>Total</i>	233 (100.0)		

\*Total number of diseases exceeds 233 (100%) because most of the patients had several diseases.

52.7% of the pharmacies served between 50 to 200 patients per day. According to 32.6% of pharmacists, the proportion of loyal patients in a month was in the range of 41-60%. One third of the respondents thought that the proportion was between 61-80% (Table-2).

**Pharmacists Attitudes toward VAPS**

57.1% of the pharmacists were willing to provide VAPS different from BP and blood glucose measurement.

We studied the attitudes towards the implementation of a fee for VAPS.

63.5 % of pharmacists did not support the idea of implementation of a fee for BP measurement. 30.5% agreed to charging a fee not greater than EUR2.56.

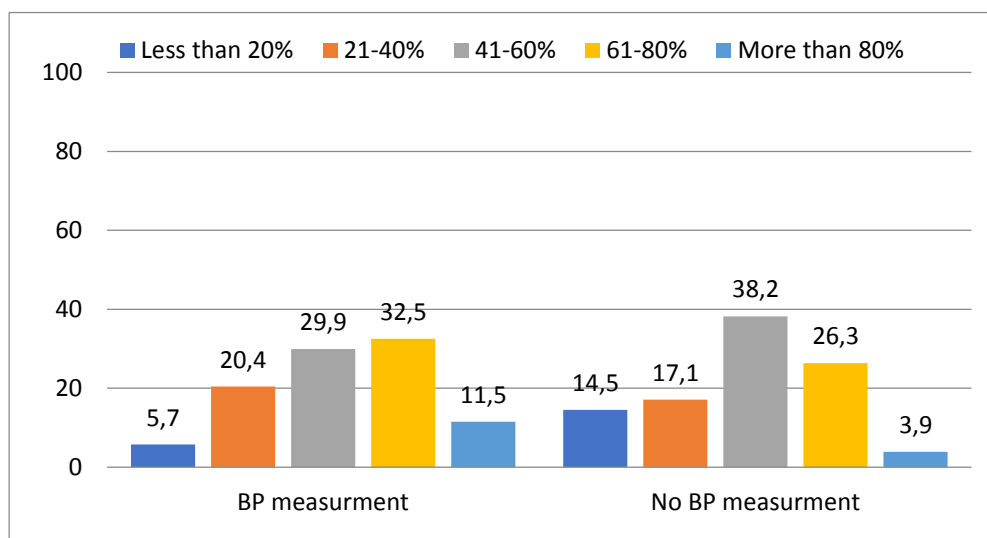
Only 6% of the respondents agreed to charging a fee higher than EUR 2.56.

125 (53.7%) pharmacists considered charging a fee for BG measurement a necessity as opposed to 108 (46.4%) respondents who did not. 103 (44.2%) respondents agreed that fee should not be more than EUR 2.56. 22 (9.5%) opted for a fee higher than EUR 2.56.

For injection and/or vaccination, 107 (45.9%) pharmacists would implement a fee between EUR 7.67-10.23. 72 (30.9%) thought that fees should be not more than EUR 2.56. About 18% expected a fee between EUR 2.56 and 5.11. Only 2 (0.9%) were in favor of charging a fee higher than EUR 10.23.

### Relationships between VAPS and characteristics of the pharmacy customers

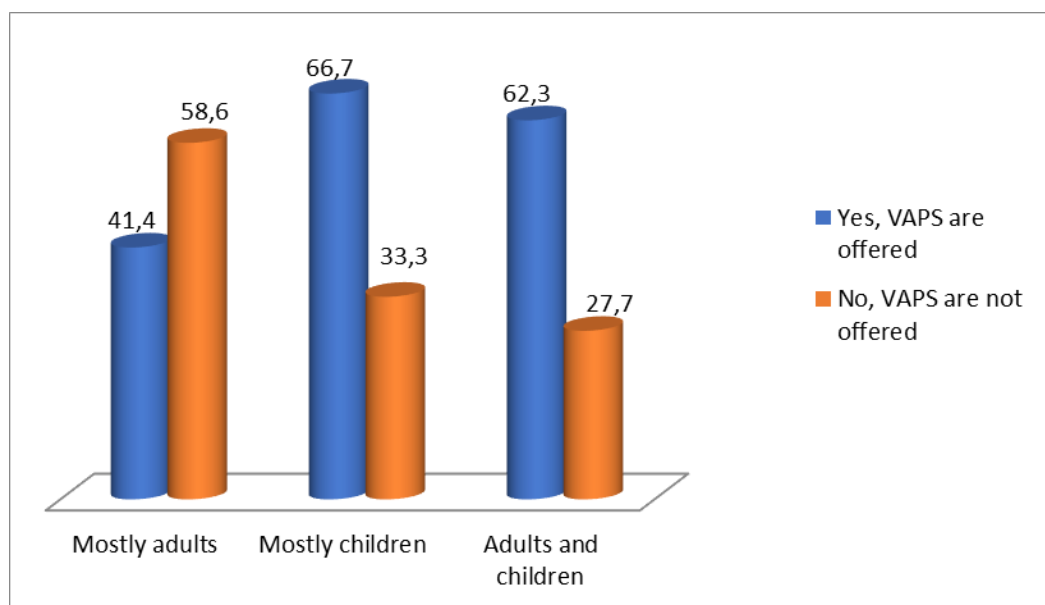
Of all 5 variables listed in Table-2, statistically significant associations with VAPS was found only for two of the variables.



**Fig-1: Correlation between regular patients and blood pressure measurement offered in the pharmacy (%)**

No correlation was found ( $p > 0.05$ ) for patients with polymorbidity (presence of three or more chronic diseases per person), hypertensive patients, patients with cerebrovascular disease, as well as adults visiting the pharmacies offering VAPS (BP and/or BG measurement). Plausible reason for such a result is that pharmacists working with comorbidity patients are

mainly occupied with dispensing multiple medicinal products and do not have time to propose/offer additional services. Also, there were no statistically significant associations between the number of patients served per day and BP ( $p = 0.921$ ) and BG measurements ( $p = 0.635$ ).



**Fig-2: Distribution of pharmacists by VAPS and type of patients served in a pharmacy (%)**

As shown in Figure-2, pharmacies that served mostly children (66.7%) or both children and adults (62.3%), offered VAPS different from BP and BG measurements  $\chi^2 = 10.327$ ;  $df = 2$ ;  $p = 0.006$ .

### Effect of pharmacist's age and patients served in pharmacies on pharmacist's attitudes towards VAPS

39.2% of pharmacists unwilling to charge a fee for BP measurement, belonged to the 20-30 years age group, 23.6% belonged to the 31-40 years age group.

Almost 60% of the pharmacists aged 20-40 years were against implementation of a fee for BG

measurement and only 21.3% of pharmacists aged over 50 years had the same opinion. The differences between the groups were not statistically significant ( $p=0.193$ ).

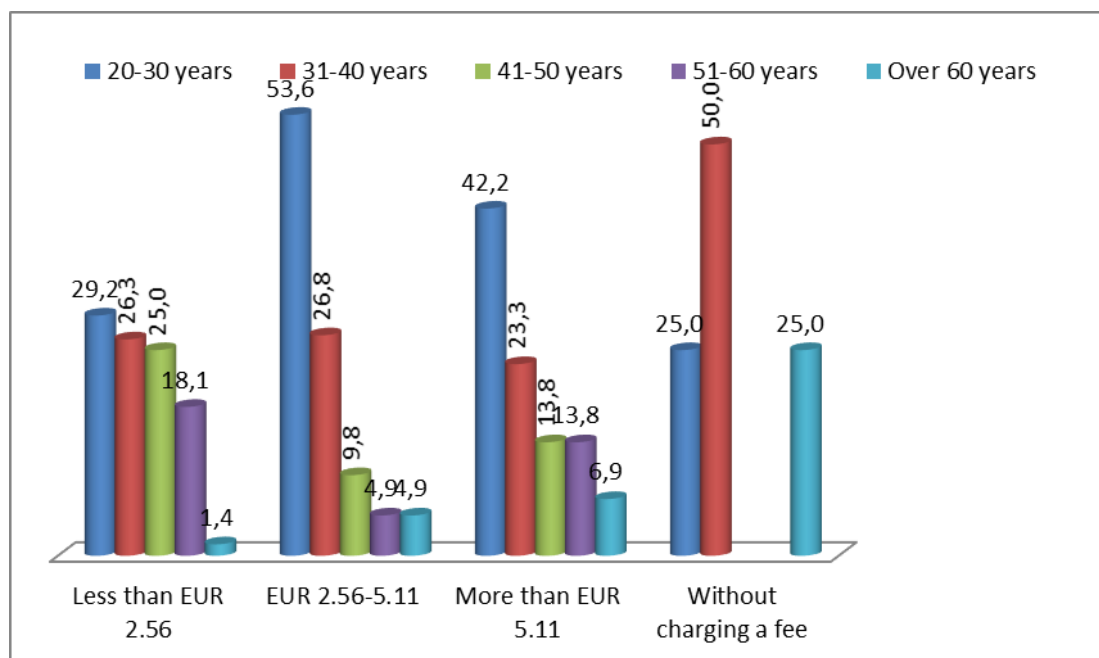


Fig-3: Correlation between pharmacist's age and their perception for charging a fee for injection and vaccination (%)

Higher percentage of pharmacists willing to charge an injection and/or vaccination fee greater than EUR 5.11, belonged to the 20-30 years age group (42.2%), while only 20.7% of them were older than 50

years. The differences between the groups were marginally significant ( $p=0.053$ ) (Figure-3).

Characteristics of the patients served in a pharmacy

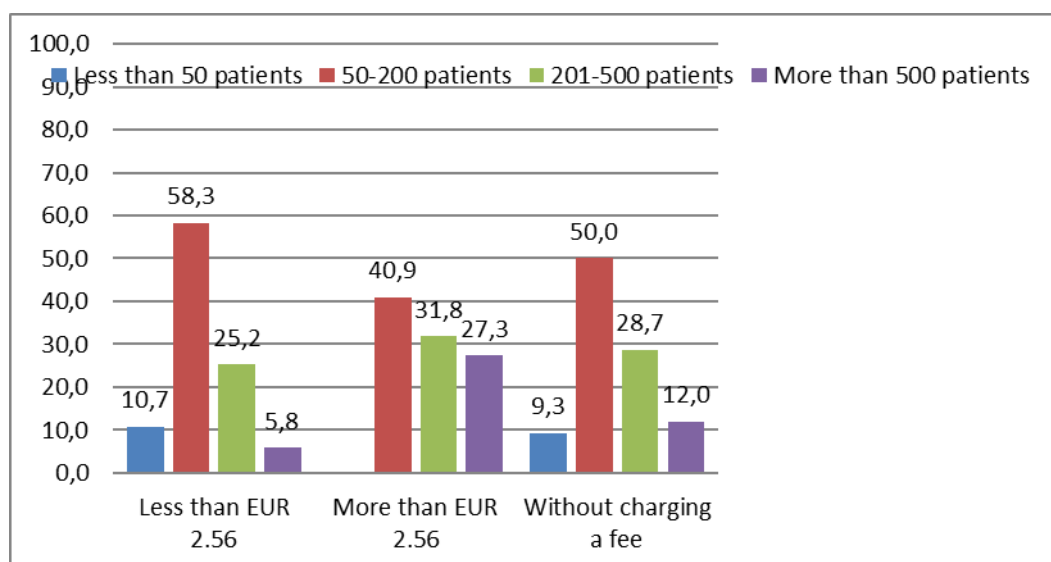


Fig-4: Correlation between pharmacist's age and their perception of charging a fee for injection and vaccination (%)

With increase in the number of patients treated at a pharmacy, the percentage of pharmacists not willing to implement a blood glucose fee also increases: 9.3% in pharmacies with less than 50 patients per day to

52% in the pharmacies with more than 500 patients per day ( $\chi^2=12.127$ ;  $df=6$ ;  $p=0.059$ ).

There were no statistically significant differences between number of patients visiting a



pharmacy per day and pharmacist's attitude toward implementation of remuneration for BP measurement ( $p=0.260$ ).

Pharmacists (38.9%) who would charge a fee less than EUR 2.56 for injection and/or vaccination had more regular patients (41-60% of total visiting patients). In 31.9% of the cases the proportion of regular patients ranged from 61-80%. Higher fee ( $>$  EUR 5.11) was offered by pharmacies with regular patients in the ranges of 41-60% (34.5%) and 61-80% (26.7%). There were no statistically significant differences between the pharmacist's attitudes toward implementation of a fee for BG measurement and the proportion of regular patients in a pharmacy ( $p=0.861$ ).

## DISCUSSION

Providing additional services that suit the needs of the patients visiting the pharmacy can contribute for bigger success and better competitiveness. [14]

Various studies conclude that pharmacists are successful in providing high-quality care to their patients. Strong data indicate that evidence-based pharmaceutical care lead to improvement in health outcomes and cost-effective therapy of the patient. [15, 16]. A good example can be seen in the United Kingdom where since 2015 the public funds cover the expenses of seasonal influenza vaccinations of high-risk patients' groups in pharmacies. Previous studies show that this leads to an increase of the number of vaccinated patients [17], while ensuring lower costs for vaccinations in comparison with the traditional approaches [18]. In 2015 more than 500 000 patients in the UK were vaccinated in the pharmacies, while not a single case of harm caused to a patient was reported [19]. In its annual report for 2018, the Pharmaceutical Group of the European Union [20] marks more successful examples for the integration of additional services in the pharmaceutical practice. In October 2017 in Belgium began the project "Family pharmacist", which aims to support patients with chronic diseases by preparing an individual medication plan. This plan is being updated with every change of the therapy and it can be sent electronically to the relevant medical specialist. For the first year, 80% of the pharmacies in the country were included in the project and 600 000 patients have benefited from it, which is 5% of the population of the country [20].

For the successful development of VAPS, a reasonable payment should be provided. There are two options for payment – from the patients (out-of-pocket) or from the external payer (insurer or external body – health institution, municipality, etc.). For this reason, pharmacies tend to aim at receiving remuneration for their services [21, 22].

## CONCLUSION

Value-added pharmacy services are proven to have positive impact on the patient well-being, pharmacies welfare and economic survival and to the healthcare system as a whole. Most of the pharmacists working in community pharmacies in Bulgaria are willing to provide additional services and this is expected to have a very positive perception by the patients. At the same time, such additional services in the pharmacy will have added value from societal, healthcare and economic point of view, but additional remuneration should be provided.

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