UDC 614.27:615.12/.15:616.12-008.331.1
DOI: 10.54503/0514-7484-2026-66.2-94

Assessment of Pharmacists Practices in the Dispensing and Counseling of Antihypertensive Medications

A.B. Barseghyan, R.S. Martirosyan, L.G. Nazaryan, M.H. Simonyan

Yerevan State Medical University after M. Heratsi,
Department of Pharmaceutical Management,
0025, Yerevan, 2 Koryun Street

Keywords: self-medication, pharmacists' role, hypertension, hypertension management

Introduction

Arterial hypertension is one of the most significant public health problems worldwide and a leading risk factor for cardiovascular diseases, stroke, renal failure, and premature mortality. During the past three decades, the global burden of hypertension has increased largely with the number of affected people nearly doubling between 1990 and 2019. This increase has been mainly evident in low- and middle-income countries, whereas several high-income countries have achieved relative stabilization or simple reductions in prevalence due to effective prevention and control strategies [5, 14]. According to the World Health Organization (WHO), hypertension is defined as a systolic blood pressure of ≥140 mmHg and/or a diastolic blood pressure of ≥90 mmHg. Despite the availability of effective antihypertensive therapies and evidence-based clinical guidelines, blood pressure control remains not optimal worldwide. Global estimates indicate that only about half of individuals with hypertension are aware of their condition, fewer than half receive treatment, and only a small proportion achieve adequate blood pressure control [5]. The WHO Global Report on Hypertension (2023) highlights that insufficient screening, poor treatment adherence, and limited access to healthcare services continue to impede effective hypertension management, particularly at the primary healthcare level. Considerable regional disparities in hypertension prevalence, treatment, and control have been documented. Countries such as Canada, South Korea, Japan, and several Western European nations report relatively high control rates, whereas many regions in South and Southeast Asia, Africa, and other low-resource settings face rapidly increasing prevalence and persistently low control levels [5, 14, 18]. These inequalities can mostly be attributed to the following: socioeconomic inequalities, inadequate capacity within the health system, lack of awareness within the general population. This gap has created a significant burden. Hypertension is a complex condition with multiple risk factors, which can be both unmodifiable and modifiable. Age, sex, family

tendencies, and ethnicity are major contributory factors in its causation, whereas lifestyle factors such as physical inactivity, poor diet rich in sodium, obesity, smoking, alcohol, stress, and sleeping disorders are major risk factors for hypertension [4, 6, 15]. Moreover, certain medications and concomitant illnesses can also impair hypertension control [2, 13, 15]. Apart from the clinical implications, it is important to note that the socioeconomic implications of hypertension cannot be overestimated, as it is a contributing factor of lower working efficiency, disability, early deaths, and high healthcare costs. It is estimated that the economic burden of hypertension will continue to thrive in the coming decades, especially in developing countries, given the limited accessibility of these countries to preventive and treatment services [1, 11]. It is essential to ensure the effectiveness of the management of this chronic disorder by adopting not only medications but also monitoring, education, and inter-professional collaboration. In this respect, the role of pharmacists and pharmacy staff members cannot be underestimated, particularly in counseling hypertensive patients, encouraging safe and rational use of drugs, recognizing medication problems, as well as encouraging patient adherence to treatment. Increased collaboration of physicians, pharmacists, and patients largely represents a promising direction towards enhanced control of high blood pressure of higher socioeconomic implications of this chronic disorder [7, 12, 19]. The aim of this study is to analyze the knowledge and skills of pharmacy staff in providing appropriate counseling to hypertensive patients and in preventing the improper use of antihypertensive medications.

Materials and Methods

General Characteristics of the Study Design

This study employed a quantitative, cross-sectional design to address the research objectives. Primary data were collected through a questionnaire-based survey using semi-structured questionnaires. The questionnaire was developed based on guidelines from the World Health Organization (WHO), the U.S. Centers for Disease Control and Prevention (CDC), the American Pharmacists Association (APhA), and the International Pharmaceutical Federation (FIP), considering the professional characteristics of pharmacy staff and the study objectives [3, 8, 9, 20]. The sample size was calculated using Cochran’s formula, based on 1,096 licensed pharmacies in Yerevan [17]. Participants were selected according to predefined inclusion and exclusion criteria.

Research Methods. A quantitative sociological approach was applied using a semi-structured questionnaire aimed at assessing pharmacy staff knowledge, practical skills, and professional behavior regarding antihypertensive medications. The survey included 143 pharmacy employees selected through random, non-repetitive sampling from pharmacies in Yerevan. Inclusion criteria were current

employment in a pharmacy, Armenian language proficiency, and permanent residence in Armenia.

Ethical Considerations. Participants were informed about the study purpose, voluntary participation, and confidentiality measures. Informed consent was obtained from all participants, and anonymity was maintained throughout the study. The study protocol was approved by the Ethics Committee of YSMU.

Statistical Analysis. Data entry and statistical analysis were performed using SPSS 23.0. Descriptive statistical methods were applied, as well as appropriate statistical tests to examine relationships between variables. Results were considered statistically significant at a p-value of less than 0.05 ($p < 0.05$).

Results and Discussion

A total of 143 pharmacy staff participated in the study, the majority of whom were pharmacy technicians (46.9%). The mean age of the participants was 29.45 ± 9.66 years. According to age distribution, the largest proportion of respondents belonged to the 18–25 age group (40.56%), followed by those aged 26–30 years (27.97%) and 31–40 years (20.98%). Older age groups were less represented in the study sample. Most participants were female (68%), while males accounted for 32% of the respondents. Analysis of educational level showed that nearly half of the participants had a secondary vocational pharmaceutical education (46.9%). Regarding professional experience, the majority of respondents had up to 10 years of work experience in a pharmacy setting. Participants with less than one year of experience constituted 23.9%, those with 1–5 years of experience accounted for 31.3%, and those with 6–10 years of experience represented 29.9% of the sample. Approximately 15% of the participants had more than 10 years of professional experience. In terms of pharmacy type, most respondents were employed in large pharmacy chains (more than 10 pharmacies), accounting for 57.5% of the sample. Employees of small pharmacy chains (up to 10 pharmacies) represented 27.6%, while 14.9% worked in independent pharmacies (Table).

Table

Sociodemographic characteristics of the study participants

Sociodemographic variables	Frequency (n)	Percentage (%)
Age (years)		
18–25	58	40.56
26–30	40	27.97
31–40	30	20.98
41–50	7	4.90
51–60	6	4.20
≥61	2	1.40
Mean ± SD	29.45 ± 9.66	

Sex		
Female	97	68
Male	46	32
Education level		
Secondary vocational pharmaceutical education (Pharmacy technician)	67	46.9
Bachelor's degree in Pharmacy (YSMU)	14	9.8
Bachelor's degree in Pharmacy (YSU)	34	23.8
Master's degree in Pharmacy (YSMU)	6	4.2
Master's degree in Pharmacy (YSU)	20	14.0
Other	2	1.4
Work experience in a pharmacy		
Less than 1 year	34	23.9
1–5 years	45	31.3
6–10 years	43	29.9
11–15 years	16	11.2
More than 15 years	5	3.7
Type of pharmacy		
Large pharmacy chain (>10 pharmacies)	82	57.5
Small pharmacy chain (≤10 pharmacies)	39	27.6
Independent pharmacy	22	14.9

The majority of survey participants indicated that antihypertensive medications can be both prescription-only and available without a prescription (30.6%), reflecting ambiguous knowledge on the topic (Fig. 1).

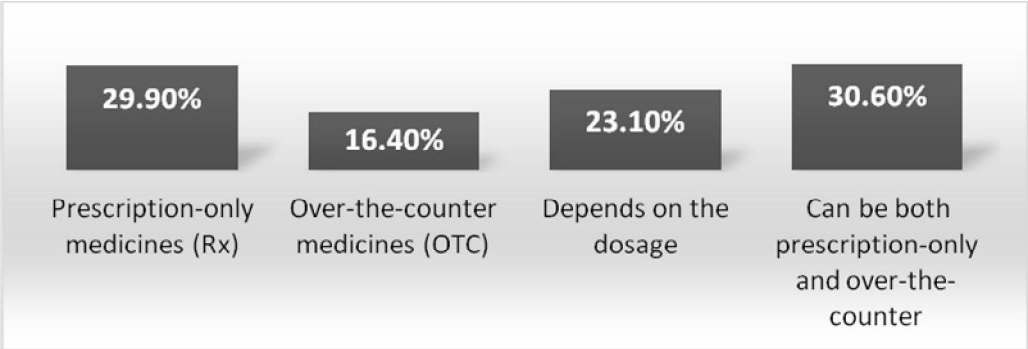

Fig. 1. Pharmacy Employee Perspectives on the Dispensing of Antihypertensive Medicines

When patients approach the pharmacy requesting advice on antihypertensive medications without a doctor's prescription, the responses of pharmacy staff vary. The majority of participants (44.8%) provide counseling, assisting with the selection of the medication and dosage (Fig. 2).

Fig. 2. Pharmacy Staff Approaches to Dispensing Antihypertensive Medicines without a Doctor's Prescription

In cases where a patient has independently discontinued a prescribed antihypertensive medication, pharmacy staff applies different approaches. Some participants (56,7%) recommend resuming the medication at the same dosage (Fig. 3).

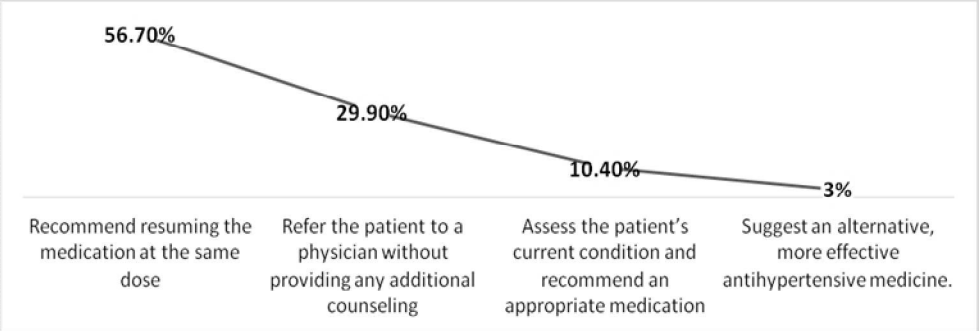

Fig. 3. Pharmacy Staff Approaches When Patients Independently Discontinue Prescribed Antihypertensive Medication

When a patient independently adjusts the dosage of an antihypertensive medication, the most commonly reported responses are explaining the potential risks of self-adjusting the dose (38,8%) and advising to continue with the adjusted dosage if no concerning symptoms are present (29,9%) (Fig. 4).

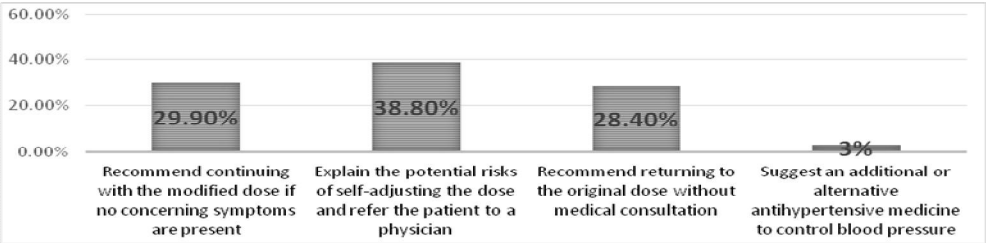

Fig. 4. Pharmacy Staff Responses to Patients Who Independently Adjust the Dosage of Antihypertensive Medication

The present study evaluated the knowledge and practices of pharmacy staff in Armenia regarding antihypertensive medications. A total of 143 pharmacy staff members participated, predominantly pharmacy technicians (46,9%), with a mean age of 29,45 ± 9.66 years. The majority of respondents were female (68%), and nearly half had secondary vocational pharmaceutical education (46,9%). Most participants worked in large pharmacy chains (>10 pharmacies, 57,5%), and their professional experience varied, with the majority having up to 10 years in the field. According to the results, there appears to be some ambiguity among pharmacy staff regarding the prescription status of antihypertensive medications. While all antihypertensive drugs in Armenia are registered as prescription-only medicines, 30,6% of participants indicated that they could be both prescription-only and over-the-counter. This finding highlights the need for continued education and reinforcement of regulatory knowledge among pharmacy personnel. When patients request antihypertensive medications without a physician's prescription, most pharmacy staff (44,8%) provide counseling to assist with medication selection and dosing. Although this demonstrates proactive engagement, it underscores a critical point: hypertension is a condition primarily managed by physicians, and pharmacists should focus on ensuring patient safety rather than independently adjusting therapy. The role of pharmacists should remain supervisory—preventing inappropriate self-medication, advising adherence to prescribed therapy, and referring patients to their physician when necessary [16]. The study also revealed varying approaches when patients had independently discontinued prescribed antihypertensive therapy. While 56,7% of pharmacy staff recommended resuming the prescribed medication at the same dose, other responses included referring the patient to a physician or assessing the patient’s condition. These results indicate that while many pharmacy employees understand the importance of maintaining treatment continuity, there is room to standardize interventions, emphasizing the pharmacist’s role in patient education and referral rather than self-directed medication changes. Regarding dose adjustments made independently by patients, the most common responses were explaining the risks of self-adjusting the dose (38,8%) and, in some cases, allowing continuation if no adverse symptoms were observed (29,9%). While providing information is valuable, it is essential that pharmacists prioritize patient safety and adherence to the physician’s prescription. Independent dose changes in antihypertensive therapy can lead to serious cardiovascular complications, and pharmacists must consistently reinforce the need for medical supervision [10].

Conclusion

Overall, these findings highlight that pharmacists and pharmacy technicians in Armenia are actively involved in patient counseling but also reveal gaps in

knowledge and practices concerning prescription regulations and the limits of their professional role. Strengthening education on antihypertensive therapy, prescription laws, and the pharmacist's supervisory role could improve patient safety and adherence to treatment. The results underscore the critical role of the pharmacist in monitoring therapy rather than independently modifying it, aligning with best practices in hypertension management.

Accepted 13.02.26

Оценка профессиональной практики провизоров при консультировании и отпуске антигипертензивных лекарственных средств

А. Б. Барсегян, Р. С. Мартиросян, Л. Г. Назарян, М. Г. Симонян

Артериальная гипертензия является одной из важнейших проблем общественного здравоохранения и выступает основным фактором риска сердечно-сосудистых заболеваний, инсульта, почечной недостаточности и преждевременной смертности. Несмотря на эффективность антигипертензивных препаратов, контроль артериального давления остается недостаточным, особенно в странах с низким и средним уровнем дохода. В данном контексте важную роль играет консультативная деятельность провизоров/ фармацевтов.

Целью исследования являлась оценка уровня знаний и профессионального поведения провизоров/ фармацевтов при отпуске антигипертензивных лекарственных средств и консультировании пациентов. Исследование было проведено с использованием количественного поперечного метода с применением полуструктурированной анкеты. В исследовании приняли участие 143 провизора/ фармацевта. Статистический анализ данных проводился с использованием программы SPSS 23.0.

Результаты показали, что значительная часть респондентов не имеет четкого представления о рецептурном статусе антигипертензивных препаратов: 30,6% участников указали, что данные препараты могут отпускаться как по рецепту, так и без рецепта. В случаях обращения за консультацией без назначения врача 44,8% опрошенных оказывают помощь в выборе препарата и его дозировки, не обладая соответствующими полномочиями. В ситуациях самостоятельного прекращения приема назначенного препарата 56,7% участников рекомендуют возобновить лечение в прежней дозировке. При самостоятельном изменении дозы чаще всего отмечались разъяснения возможных рисков (38,8%) и рекомендация продолжить лечение в измененной дозировке при отсутствии симптомов (29,9%). Между тем, любые изменения в лекарственной терапии должны осуществляться только после консультации с врачом.

Полученные результаты свидетельствуют о том, что работники аптек активно вовлечены в процесс консультирования пациентов, однако сохраняются определенные профессиональные пробелы, что подчеркивает необходимость непрерывного образования и повышения квалификации с целью повышения безопасности пациентов и эффективности лечения.

Դեղագետների մասնագիտական գործելակերպի գնահատումը հակահիպերտենզիվ դեղերի տրամադրման և խորհրդատվության գործընթացում

Ա.Բ. Բարսեղյան, Ռ.Ս. Մարտիրոսյան, Լ.Գ. Նազարյան, Մ.Հ. Սիմոնյան

Զարկերակային գերճնշումը հանրային առողջապահության կարևոր խնդիրներից է. այն սիրտ-անոթային հիվանդությունների, ինսուլտի, երիկամային անբավարարության և վաղաժամ մահացության հիմնական ռիսկի գործոնն է: Չնայած հակահիպերտենզիվ դեղերի արդյունավետությանը՝ արյան ճնշման վերահսկումը դեռևս մնում է ոչ բավարար մակարդակի վրա, հատկապես ցածր և միջին եկամուտ ունեցող երկրներում: Այս համատեքստում կարևոր է դեղագետների և դեղագործների խորհրդատվական դերը: Հետազոտության նպատակն էր գնահատել դեղատան աշխատակիցների գիտելիքները և մասնագիտական վարքագիծը հակահիպերտենզիվ դեղերի տրամադրման և հիվանդների խորհրդատվության գործընթացում: Ուսումնասիրությունն իրականացվել է քանակական, խաչաձև մեթոդաբանությամբ՝ կիսակառուցվածքային հարցաշարի միջոցով: Մասնակցել են 143 դեղատան աշխատակիցներ, տվյալների վերլուծությունը կատարվել է SPSS 23,0 ծրագրով:

Արդյունքները ցույց տվեցին, որ հարցվածների զգալի մասը հստակ պատկերացում չունի հակահիպերտենզիվ դեղերի դեղատոմսային կարգավիճակի վերաբերյալ. 30,6%-ը նշել է, որ դրանք կարող են տրամադրվել ինչպես դեղատոմսով, այնպես էլ առանց դեղատոմսի: Առանց բժշկի նշանակման խորհրդատվության դիմելու դեպքերում հարցվածների 44,8%-ը աջակցում է դեղի և դեղաչափի ընտրությանը՝ չունենալով համապատասխան լիազորություն: Նշանակված դեղի ընդունման ինքնուրույն դադարեցման դեպքում մասնակիցների 56,7%-ը խորհուրդ է տալիս վերսկսել բուժումը նույն դեղաչափով: Դեղաչափի ինքնուրույն փոփոխության դեպքում արձանագրվել

են ռիսկերի բացատրություն (38,8%) և բուժումը շարունակելու առաջարկ փոփոխված դեղաչափով՝ ախտանշանների բացակայության դեպքում (29,9%): Մինչդեռ դեղորայքային ցանկացած փոփոխություն պետք է իրականացվի բժշկի հետ քննարկումից հետո: Արդյունքները վկայում են, որ դեղատան աշխատակիցներն ակտիվորեն ներգրավված են խորհրդատվության գործընթացում, սակայն առկա են մասնագիտական բացեր, ինչը վկայում է շարունակական կրթության և վերապատրաստման անհրաժեշտության մասին՝ հիվանդների անվտանգության և բուժման արդյունավետության բարձրացման նպատակով:

References

1. *Abba M.S., Nduka C.U., Anjorin S., Zanna F.H., Uthman O.A.* Socioeconomic Macro-Level Determinants of Hypertension: Ecological Analysis of 138 Low- and Middle-Income Countries. J. Cardiovasc. Dev. Dis., 2023, 10, 57. https://doi.org/10.3390/jcdd10020057.
2. British heart faundation. High blood pressure – causses and symptoms. 1 March 2023, https://www.bhf.org.uk/informationsupport/risk-factors/high-blood-pressure.
3. *Centers for Disease Control and Prevention. Using the Pharmacists' Patient Care Process to Manage High Blood Pressure: A Resource Guide for Pharmacists. Atlanta, GA: Centers for Disease Control and Prevention, U.S.* Department of Health and Human Services; 2016. Accessed December 26, 2025. https://www.cdc.gov/cardiovascular-resources/media/Pharmacist-Resource-Guide.pdf.
4. *Farrar J, Frieden T.WHO global report on hypertension 2025 The Lancet, 406, 2318-2319.*
5. *Kario K., Okura A., Hoshide S. et al.* The WHO Global report 2023 on hypertension warning the emerging hypertension burden in globe and its treatment strategy. Hypertens Res 47, 1099–1102 (2024). https://doi.org/10.1038/s41440-024-01622-w.
6. *Iqbal AM., Jamal SF.* Essential Hypertension. [Updated 2023 Jul 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK539859/.
7. *Ivan Eduku Mozu, Afia Frimpomaa Asare Marfo, Mercy OPARE-Addo, Kwame Ohene Buabeng, Frances Thelma Owusu-Daaku,* Exploring the role of pharmacists in improving blood pressure control among hypertensive patients at the workplace, Scientific African, Volume 14, 2021, e00983,ISSN 2468-2276, https://doi.org/10.1016/j.sciaf.2021.e00983. (https://www.sciencedirect.com/science/article/pii/S2468227621002878).
8. International Pharmaceutical Federation (FIP). Educational Guide: Supporting Pharmacists in Hypertension Care. The Hague, Netherlands: FIP; 2025. Accessed December 26, 2025. https://ncd.fip.org/wp-content/uploads/2025/10/Educational-Guide_final.pdf.
9. International Pharmaceutical Federation (FIP). Let's Talk About Uncontrolled Hypertension: Patient-Pharmacist Conversation Record. The Hague, Netherlands: FIP; 2025. Accessed December 26, 2025. https://ncd.fip.org/wp-content/uploads/2025/10/uHTN_Patient-Leaflet.pdf.
10. International Pharmaceutical Federation (FIP). Let's Talk About Uncontrolled Hypertension: Patient-Pharmacist Conversation Record. The Hague, Netherlands: FIP;

2025. Accessed December 26, 2025. https://ncd.fip.org/wp-content/uploads/2025/10/uHTN_Patient-Leaflet.pdf.

11. *Asis, Leilani Basa Mercado Asis; Ona, Deborah Ignacia David; Bonzon, Dolores; Vilela, Gilbert; Diaz, Alejandro; Balmores, Benjamin; Co, Marlon; Mina, Arnold Benjamin; Cabral, Esperanza; Aquino, Abdias; Abelardo, Nelson; Gomez, Lynn; Valdez, Les Paul; Castillo,* Rafael. S-31-5: Socio-economic impact and burden of hypertension in the Philippines projected in 2050. Journal of Hypertension 41(Suppl 1):p. e73-e74, January 2023. | DOI: 10.1097/01.hjh.0000913436.82943.89.
12. *Mauro Silveira de Castro, Flávio Danni Fuchs, Melissa Costa Santos, Paulo Maximiliano, Miguel Gus, Leila Beltrami Moreira, Maria Beatriz Cardoso Ferreira*. Pharmaceutical Care Program for Patients With Uncontrolled Hypertension: Report of a Double-Blind Clinical Trial With Ambulatory Blood Pressure Monitoring, American Journal of Hypertension, Volume 19, Issue 5, May 2006, pp. 528–533, https://doi.org/10.1016/j.amjhyper.2005.11.009.
13. *Meher M., Pradhan S., Pradhan SR.* Risk Factors Associated With Hypertension in Young Adults: A Systematic Review. Cureus, 2023 Apr 12;15(4):e37467. doi: 10.7759/cureus.37467. PMID: 37187665; PMCID: PMC10181897.
14. NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. Lancet, 2021 Sep 11;398(10304):957-980. doi: 10.1016/S0140-6736(21)01330-1. Epub 2021 Aug 24. Erratum in: Lancet. 2022 Feb 5;399(10324):520. doi: 10.1016/S0140-6736(22)00061-7. PMID: 34450083; PMCID: PMC8446938.
15. High Blood Pressure. National Heart, Lung, and Blood Institute website. https://www.nhlbi.nih.gov/health/high-blood-pressure. Accessed April 8, 2026.
16. *Okoro RN., Nduaguba SO.* Community pharmacists on the frontline in the chronic disease management: The need for primary healthcare policy reforms in low and middle income countries. Explor Res Clin Soc Pharm., 2021 Apr 13;2:100011. doi: 10.1016/j.rcsop.2021.100011. PMID: 35481111; PMCID: PMC9032016.
17. *Setia MS. Methodology Series Module 3:* Cross-sectional Studies. Indian J Dermatol. 2016;61(3):261-264. doi:10.4103/0019-5154.182410.
18. *Shiva Raj Mishra, Gautam Satheesh,Vishnu Khanal, Bipin Adhikari, Daniel Parker, Dean S. Picone, Niamh Chapman, Aletta E. Schutte, Richard I. Lindley,* Bridging hypertension care shortfalls between provider capacity and patient needs: A pooled analysis of data from 199 countries and territories, hypertension, 82, 11, (1906-1915), (2025).
19. University of South Carolina. Health watch: Pharmacist play important role in managing hypertension. May 24, 2024 https://sc.edu/uofsc/posts/2024/05/health-watch-pharmacists-hypertension.php.
20. *World Health Organization. Guideline for the Pharmacological Treatment of Hypertension in Adults. Geneva, Switzerland: World Health Organization; 2023. Accessed December 26, 2025. https://iris.who.int/server/api/core/bitstreams/f062769d-f075-4a00-87af-0a2106e0bd04/content.*