Postprint of Standards for Integrated Medical-Preventive Services for Hypertension at the Primary Care Level

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Abstract

Hypertension is one of the most common chronic diseases in China. As of 2021, the number of hypertensive patients in China exceeded 270 million, and hypertension has become the most significant risk factor for cardiovascular and cerebrovascular disease mortality among urban and rural residents. China has now entered the stage of comprehensively building a Healthy China, and exploring the construction of a chronic disease management pathway centered on the integration of medical treatment and prevention has become an important trend. Based on existing hypertension medical-preventive integration service content and processes, this standard establishes standardized diagnostic and treatment guidelines for hypertension medical-preventive integration services. The guidelines primarily include basic requirements for service provision, service content, service processes, and other components, aiming to optimize primary care diagnosis and health management workflows for hypertension, control the incidence and mortality rates of hypertension, reduce and delay the occurrence of complications, thereby effectively establishing a frontline defense for chronic disease management at the primary care level.

Full Text

Specification for the Integration of Healthcare and Prevention Services in Hypertension at the Primary Level

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Abstract

Hypertension is one of the most prevalent chronic diseases in China. As of 2021, there are over 270 million people suffering from hypertension in our country, which represents the most significant risk factor for cardiovascular and cerebrovascular mortality among urban and rural residents. China has now entered the stage of comprehensively building a Healthy China, and exploring the construction of a chronic disease management pathway with integrated healthcare and prevention as its core has become an important trend. This specification is based on existing content and processes for integrated hypertension healthcare and prevention services, and formulates standardized diagnostic and treatment norms for such integration. The specification primarily includes basic requirements for service provision, service content, service processes, and other elements, aiming to optimize primary-level diagnosis, treatment, and health management workflows for hypertension, control its incidence and mortality, and reduce or delay the occurrence of complications, thereby effectively establishing a frontline for chronic disease prevention and management at the primary level.

Keywords: Hypertension; Integration of healthcare and prevention; Specification; Group standards

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1 Scope

This document specifies the standard terminology, definitions, basic requirements, content and processes for integrated healthcare and prevention services

for hypertension, as well as service evaluation and improvement measures for medical institutions.

The primary target audience includes primary-level medical and health institutions that provide medical services and basic public health services to key populations requiring hypertension prevention, control, and treatment, as well as other institutions offering integrated hypertension healthcare and prevention services. The main service population comprises residents aged 18 years and older within the local jurisdiction, particularly confirmed hypertension patients and high-risk individuals.

2 Normative References

The following documents contain provisions that constitute essential terms of this specification: - *Service Specification for Chronic Disease Management Centers in Primary-Level Medical and Health Institutions* (DB32/T 4383-2022) - *Hospital Public Health Work Specification: Guidelines for Integrated Healthcare and Prevention Work of Disease Control Institutions* (DB32/T 4659.2-2024)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Integrated Healthcare and Prevention (医防融合)

Integrated healthcare and prevention refers to the combination of disease prevention and treatment. In addition to providing medical services to those in need, it integrates preventive services, referral services, follow-up services, and health education with medical services, ensuring effective linkage, orderly provision, and mutual coordination. This approach enhances the continuity and efficiency of preventive, diagnostic, rehabilitative, and follow-up services, improves disease awareness, early diagnosis rates, and full-course standardized management rates, and minimizes the incidence, disability, and mortality of hypertension in the target population.

3.2 Hypertension

Hypertension refers to abnormally high vascular pressure, with diagnostic thresholds defined as office blood pressure (measured on three separate occasions) showing systolic blood pressure (SBP) $\geq$ 140 mmHg (1 mmHg = 0.133 kPa) and/or diastolic blood pressure (DBP) $\geq$ 90 mmHg [1]. Blood pressure is expressed by two values: systolic pressure represents the maximum pressure generated when the heart contracts and pumps blood through the circulatory system, while diastolic pressure reflects vascular resistance to blood flow during cardiac diastole. During blood pressure measurement, accurate identification of white-coat hypertension, masked hypertension, and resistant hypertension is required.

4 Basic Requirements

4.1 Institutional Setup and Staffing

4.1.1 Establish institutions providing chronic disease health management services such as hypertension, including township health centers, community health service centers (stations), village clinics, integrated medical and elderly care institutions, and other relevant organizations offering integrated hypertension healthcare and prevention services [2].

4.1.2 Relying on the family doctor contract system, primary-level medical and health institutions should form professional teams comprising physicians, nurses, public health personnel, etc., and invite specialists from higher-level hospitals to provide professional guidance. All team physicians must have completed national unified training and passed qualification assessments, with performance-based incentive mechanisms established to continuously improve service quality and efficiency [4].

4.2 Equipment Requirements

4.2.2 Other equipment: standard flexible tape measure, height and weight scale, blood routine analyzer, urine routine analyzer, blood biochemical analyzer, and electrocardiograph, all subject to regular calibration.

4.2.3 Institutions with adequate conditions may be equipped with ambulatory blood pressure monitors, cardiac ultrasound equipment, chest X-ray examination equipment, etc. [4].

4.3 Drug Equipment Requirements

Primary-level medical and health institutions should be equipped with the following five classes of antihypertensive drugs [4]:

4.3.1 Angiotensin-converting enzyme inhibitors (ACEI), such as enalapril, fosinopril, and benazepril.

4.3.2 Angiotensin receptor blockers (ARB), such as valsartan and irbesartan; primary-level institutions should have at least one type available.

4.3.3 β-blockers, such as bisoprolol, metoprolol, and carvedilol.

4.3.4 Calcium channel blockers (CCB): dihydropyridine CCBs, commonly including amlodipine and felodipine.

4.3.5 Diuretics: thiazide diuretics such as hydrochlorothiazide and cyclopenthiazide.

4.4 Collaborative Mechanisms

4.4.1 Establish vertical and horizontal communication mechanisms, with community health service centers (stations) and township health centers as the core, communicating upward with county-level medical institutions and providing guidance downward to village-level medical institutions. Strengthen horizontal linkages, implement vertical step-by-step communication, and ensure institutional coordination. Establish and improve specific implementation rules for tiered diagnosis and treatment, clarify referral service processes, and ensure smooth referral channels.

4.4.2 Update patient health records in a timely manner, documenting detailed information from screening and treatment processes. Institutions with adequate conditions should establish comprehensive information management systems to achieve electronic management of patient information and improve medical service efficiency [4].

4.4.3 Fully utilize the unique advantages of traditional Chinese medicine to provide comprehensive health management for hypertension patients, including rehabilitation treatment, prevention of complications, and alleviation of related clinical symptoms.

5 Service Content

5.1 Screening and Assessment Services

5.1.1 Screening Services Township health centers, village clinics, and community health service centers should actively conduct both active and passive screening services to identify and diagnose hypertension patients at an early stage.

5.1.1.1 Hypertension patients typically show no obvious symptoms in early stages. As blood pressure increases, patients may experience headaches, dizziness, palpitations, fatigue, blurred vision, nosebleeds, and facial flushing [7].

5.1.1.2 Populations with high-sodium/low-potassium diets, overweight/obesity, smoking, and excessive alcohol consumption are priority targets for hypertension screening [8].

5.1.1.3 Free blood pressure screening should be provided annually for populations over 35 years old within the jurisdiction; regions with adequate resources may implement annual blood pressure screening for adults aged 18 and older, with results recorded in residents' electronic health records. Simultaneously, internal policies for blood pressure measurement at first visit should be adopted. In regions with adequate conditions, first-visit blood pressure measurement services should be provided for adults aged 18 and older.

5.1.2 First-Visit Assessment Services Township health centers and community health service centers (stations) should conduct etiological diagnosis for hypertension patients at first visit, with annual assessments recommended thereafter. First-visit assessment includes:

5.1.2.1 Medical History Taking: During clinical history taking, first confirm whether the patient has hypertension. If confirmed, classify them according to blood pressure readings and distinguish between primary and secondary hypertension. Inquire about patient history, including comorbidities such as diabetes, stroke, coronary artery disease, heart failure, atrial fibrillation, kidney disease, and peripheral artery disease [4].

5.1.2.2 Physical Examination: Check blood pressure, heart rate, cardiac rhythm, height, weight, waist circumference, and confirm presence of lower extremity edema.

5.1.2.3 Common Laboratory and Other Tests: Recommended tests include blood routine, urine routine, biochemical tests (creatinine, uric acid, alanine aminotransferase, potassium, sodium, chloride, glucose, lipids), electrocardiogram (to identify left ventricular hypertrophy, myocardial infarction, arrhythmias such as atrial fibrillation, etc.). Optional tests include ambulatory blood pressure monitoring, echocardiography, carotid ultrasound, urine albumin/creatinine ratio, chest X-ray, and fundus examination.

5.1.2.4 Observe for presence of other risk factors, target organ damage, and related clinical conditions.

5.1.3 Health Record Establishment Health records for residents within the jurisdiction should be established according to the *Resident Health Record Management Service Specification* [9].

5.1.3.1 Primary-level medical and health institutions must provide integrated healthcare and prevention services based on residents' health records. For residents receiving services for the first time, health records must be established documenting their main health issues and treatment status, with resident health record information cards completed and distributed.

5.1.3.2 In regions implementing resident electronic health record information systems, primary-level institutions should establish electronic health records and update health information in a timely manner according to standards.

5.1.3.3 Follow voluntary and confidential principles. On the basis of respecting residents' personal wishes, guide and encourage residents to establish health records. During record usage, emphasize protection of record information and personal privacy to ensure data security.

5.2 Treatment Services

5.2.1 Treatment Plan Formulation Township health centers, village clinics, and community health service centers (stations) must comprehensively consider factors including patient age, gender, medical history, and complications to develop targeted treatment plans. Pay attention to implementing stratified prevention and treatment measures for high-risk special populations with hypertension.

5.2.1.1 Hypertension in Older Adults: For individuals aged 65-79, consider pharmacological treatment when blood pressure $\geq$ 140/90 mmHg; for those $\geq$ 80 years, initiate pharmacological treatment when SBP $\geq$ 150 mmHg. Standards may be appropriately relaxed for frail patients with geriatric syndromes. Patients with cardiovascular complications, target organ damage, or high risk require early blood pressure reduction with medication, and strict blood pressure control strategies should be implemented within tolerance ranges after comprehensive geriatric assessment (CGA).

5.2.1.2 Hypertensive Disorders in Pregnancy: For patients with hypertensive disorders in pregnancy, initiate antihypertensive treatment when blood pressure $\geq$ 140/90 mmHg, with a reasonable safety lower limit of 110/70 mmHg. If pre-existing high-risk factors are present, aspirin (75-150 mg/d) should be used from 12-16 weeks of gestation until delivery.

5.2.1.3 Hypertension with Stroke: For stable stroke patients, control blood pressure below 140/90 mmHg; if tolerated, it may be reduced to <130/80 mmHg. The benefits of initiating antihypertensive treatment are unclear for patients with blood pressure <140/90 mmHg. For ischemic stroke or transient ischemic attack patients caused by intracranial large artery stenosis (70%-99%), control SBP within 140 mmHg.

5.2.1.4 Hypertension with Diabetes: Diabetic patients should control blood pressure below 130/80 mmHg. For elderly patients or those with severe coronary artery disease, blood pressure control may be relatively more lenient. Pregnant women with diabetes should control blood pressure below 135/85 mmHg. Diabetic patients should receive lifestyle interventions when blood pressure exceeds 120/80 mmHg, consider antihypertensive medication when exceeding 140/90 mmHg, and should immediately initiate antihypertensive medication when exceeding 160/100 mmHg.

5.2.1.5 Hypertension with Kidney Disease: For chronic kidney disease (CKD) patients without proteinuria, immediately initiate pharmacological antihypertensive treatment when SBP $\geq$ 140 mmHg or DBP $\geq$ 90 mmHg, with blood pressure controlled below 140/90 mmHg; if tolerated, it may be reduced to 130/80 mmHg. For CKD patients with proteinuria, initiate pharmacological treatment when SBP >130 mmHg or DBP $\geq$ 90 mmHg, with a target blood pressure of <130/80 mmHg.

5.2.2 Pharmacological Treatment Services Whether to initiate antihypertensive pharmacological treatment should primarily consider overall cardiovascular risk including blood pressure levels [12-13]. Whenever possible, select the five major classes of antihypertensive drugs with clear evidence for improving outcomes: ACE inhibitors (ACEI), angiotensin II receptor blockers (ARB), β-blockers, calcium channel blockers (CCB), and diuretics [10-11]. For elderly hypertension patients with heart failure or high risk of orthostatic hypotension, initiate treatment with low drug doses; other hypertension patients may start with commonly used initial doses.

5.2.2.1 Blood pressure $\geq 160/100$ mmHg: Immediately initiate pharmacological treatment.

5.2.2.2 Blood pressure 140-159/90-99 mmHg: High-risk and very high-risk patients should immediately initiate pharmacological treatment; low-risk and medium-risk patients may implement lifestyle modifications for 4-12 weeks, and if blood pressure remains uncontrolled, pharmacological treatment should be initiated as early as possible.

5.2.2.3 High-normal blood pressure (130-139/85-89 mmHg): High-risk and very high-risk patients require active risk factor control and lifestyle interventions with regular follow-up; low-risk and medium-risk patients without special circumstances are recommended to continue lifestyle interventions.

5.2.3 Non-Pharmacological Treatment Services 5.2.3.1 Nutritional Guidance: Provide personalized nutritional counseling and dietary guidance, such as controlling intake of sodium, sugar, and fat, and increasing dietary fiber and protein intake to help patients control blood pressure.

5.2.3.2 Exercise Guidance: Provide personalized exercise guidance involving moderate-intensity activities (such as brisk walking, jogging, cycling, swimming, etc.) [14], recommended at 30 minutes per session, 5-7 times per week [14], to help patients control blood pressure and prevent complications.

5.2.3.3 Psychological Support: Provide psychological counseling and support to alleviate patient stress and anxiety, enhance self-confidence, and improve disease resistance.

5.2.3.4 Health Management: Encourage hypertension patients and high-risk individuals to improve their proactive health awareness and cultivate healthy lifestyle habits, including healthy eating, weight control, smoking cessation and alcohol limitation [15-16], increased physical activity, psychological balance, and sleep management [4].

5.3 Referral Treatment Services

Referral should be initiated when any of the following conditions are met.

5.3.1 Upward Referral Conditions 5.3.1.1 Initial Diagnosis Referral Conditions: 1. Blood pressure significantly elevated $\geq$ 180/110 mmHg that remains uncontrolled after short-term management; 2. Suspected new cardiac, cerebral, renal complications, or other serious clinical conditions; 3. Pregnant and lactating women; 4. Onset age <30 years; 5. Accompanied by proteinuria or hematuria; hypokalemia caused by non-diuretics or low-dose diuretics (blood potassium <3.5 mmol/L); paroxysmal blood pressure elevation with headache, palpitations, and hyperhidrosis; SBP difference >20 mmHg between both upper limbs; 6. Diagnostic needs (e.g., suspected white-coat hypertension, masked hypertension, or other unclear diagnoses) requiring further examination at higher-level hospitals [17].

5.3.1.2 Follow-up Referral Conditions: 1. Blood pressure remains uncontrolled despite adequate use of at least three antihypertensive drugs (including one diuretic); 2. Significant blood pressure fluctuations that are difficult to control; suspected adverse reactions related to antihypertensive drugs that are difficult to manage; 3. Discovery of cardiac, cerebral, or renal damage or other serious clinical diseases during follow-up that are difficult to manage [2]; 4. Blood pressure control remains unsatisfactory at two follow-up visits within 2 weeks.

5.3.2 Downward Referral Conditions

1. Hypertension diagnosis has been confirmed;
2. Treatment plan has been established;
3. Blood pressure and clinical symptoms are stable and controlled [18].

5.3.3 Emergency Referral Conditions

1. Loss of consciousness or confusion; blood pressure $\geq$ 180/110 mmHg with severe headache, vomiting, or sudden speech disorders and/or limb paralysis;
2. Significantly elevated blood pressure with persistent severe chest/back pain;
3. Elevated blood pressure with lower extremity edema, dyspnea, or inability to lie flat;
4. Chest tightness/pain lasting $ $10 minutes with profuse sweating, ECG showing ST-segment elevation in at least two leads: refer with maximum speed, and if acute ST-elevation myocardial infarction is confirmed, immediately perform thrombolysis or emergency coronary intervention. In remote areas where referral time $ $1 hour, patients confirmed with acute ST-elevation myocardial infarction should receive local thrombolysis before referral;
5. Other emergencies that may endanger vital signs, such as confusion with significant blood pressure drop or unmeasurable blood pressure, abnormally slow or fast heart rate, and sudden severe systemic allergic reactions [18].

After referral, primary-level medical personnel should conduct follow-up visits to the higher-level hospital within 2-4 weeks.

5.4 Long-Term Follow-Up Services

Long-term follow-up management should be conducted for patients within the jurisdiction, with particular focus on those with unsatisfactory blood pressure control. Emphasize the role of family doctors in regular follow-up.

5.4.1 Follow-up aims to achieve long-term stable and effective blood pressure control for hypertension patients within the jurisdiction and ensure patient satisfaction with blood pressure control.

5.4.3 Each follow-up visit should assess whether patients have developed new comorbidities and conduct physical examinations for patients meeting referral criteria.

5.4.4 Provide personalized medication guidance based on patients' economic conditions, blood pressure control status, and other specific circumstances.

5.5 Health Education Services

Regularly conduct health lectures and training courses, utilizing media platforms such as radio, television, social networks, and video platforms to popularize hypertension education for different patient groups. Regions with adequate resources may establish specialized health education centers providing health consultation, physical examination, and disease prevention services [18-19]. Main content for different groups includes:

5.5.1 General Population: Definition of hypertension; harms of hypertension to human health; healthy lifestyle measures for blood pressure control and health maintenance; risk factors that may lead to hypertension.

5.5.2 High-Risk Population: Definition of hypertension; harms of hypertension; healthy lifestyle measures; risk factors; targeted correction of individual daily behaviors and personalized lifestyle guidance.

5.5.3 Confirmed Hypertension Patients: Definition of hypertension; harms of hypertension; healthy lifestyle measures; risk factors; targeted correction of daily behaviors and personalized lifestyle guidance; importance of non-pharmacological treatment and long-term follow-up; efficacy and potential side effects of antihypertensive drugs; self-management skills for hypertension.

6 Service Process

The comprehensive flowchart for integrated hypertension healthcare and prevention services is shown in Figure 1 [Figure 1: see original paper]. The hypertension screening and assessment flowchart is shown in Figure 2 [Figure 2: see original paper]. The hypertension health record establishment flowchart is

shown in Figure 3 [Figure 3: see original paper]. The hypertension referral flowchart is shown in Figure 4 [Figure 4: see original paper].

7 Service Evaluation and Improvement

7.1 Evaluation Indicators

7.1.1 Establish and improve scientific personnel and service evaluation mechanisms. Evaluation content can be divided into three categories: organizational management, service management, and work effectiveness.

7.1.1.1 Organizational Management: Primarily evaluates the organizational structure for integrated healthcare and prevention management, including functional settings within the organization, organizational system construction, and staffing conditions.

7.1.1.2 Service Management: Primarily evaluates the completion of work indicators and project implementation status of institutional integrated healthcare and prevention work.

7.1.1.3 Work Effectiveness: Primarily evaluates business guidance, personnel training effectiveness, information system construction, and public health big data application in institutional integrated healthcare and prevention work.

7.1.2 Focus on outcome indicators after hypertension patients receive integrated healthcare and prevention services, mainly including standardized hypertension management rate, blood pressure control rate in managed populations, and patient service satisfaction.

7.1.2.1 Standardized Hypertension Management Rate = (Number of hypertension patients managed according to standardized requirements / Number of hypertension patients managed within the year) × 100%.

7.1.2.2 Blood Pressure Control Rate in Managed Population = (Number of patients with blood pressure 达标 at most recent follow-up within the year / Number of hypertension patients managed within the year) × 100%.

7.1.2.3 Patient Service Satisfaction = (Number of hypertension patients satisfied with integrated healthcare and prevention services provided by the institution / Total number of hypertension patients managed within the year) × 100%.

7.2 Evaluation Methods

7.2.1 Evaluation working groups should use on-site inspections, face-to-face interviews, random sampling surveys, and targeted spot checks to assess and supervise the actual implementation and completion status of integrated healthcare and prevention work targets by health institutions in the jurisdiction, forming

comprehensive evaluation reports with results reported to health and health departments at the same level.

7.2.2 Collect information through opinion solicitation (telephone, mail, internet, questionnaires, interviews, etc.) and on-site inspections. Health institutions should promptly listen to suggestions and opinions from hypertension patients and relevant third parties, adopting effective methods to collect information.

7.2.4 Implement internal evaluation through irregular spot checks and other methods, forming inspection reports.

7.3 Evaluation Procedures

7.3.1 Based on local realities, fully solicit opinions from disease control institutions, health supervision, medical institutions, and other departments to formulate evaluation plans and indicator systems, compile evaluation manuals, and standardize evaluation processes and requirements.

7.3.2 Select experts with experience in public health, disease control, and health management to form a performance evaluation group. Conduct centralized training for evaluators before evaluation to unify evaluation methods and standards.

7.3.3 Evaluation experts should group themselves according to their professional fields to evaluate corresponding indicators, while establishing quality control personnel to proofread and summarize various issues. After evaluation, expert groups should conduct centralized scoring of all evaluation indicators.

Figure 1 [Figure 1: see original paper] Comprehensive flowchart for hypertension in integrated medical-preventive services

Figure 2 [Figure 2: see original paper] Hypertension screening and risk stratification flowchart for integrated medical-preventive services

Figure 3 [Figure 3: see original paper] Hypertension health record establishment flowchart for integrated medical-preventive services

Figure 4 [Figure 4: see original paper] Stratified referral flowchart for hypertension in integrated medical-preventive services

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References

[1] World Health Organization. Hypertension [EB/OL]. (2023-03-16) https://www.who.int/zh/news-room/fact-sheets/detail/hypertension.

[2] National Health Commission Disease Prevention and Control Bureau, National Cardiovascular Disease Center, Fuwai Hospital Chinese Academy

of Medical Sciences, et al. Chinese Hypertension Health Management Specification (2019) [J]. Chinese Journal of Cardiology, 2020, 48(1): 10-46. DOI: 10.3760/cma.j.issn.0253-3758.2020.01.004.

[3] National Health Commission, Ministry of Finance, Ministry of Human Resources and Social Security, et al. Guiding Opinions on Promoting High-Quality Development of Family Doctor Contract Services [EB/OL]. (2022-03-03) [2024-03-03]. https://www.gov.cn/zhengce/zhengceku/2022-03/15/content_{5679177}.htm.

[4] National Cardiovascular Disease Center. National Guidelines for Prevention and Treatment of Hypertension at the Primary Level [EB/OL]. (2020-12-30) [2024-03-21]. https://www.nccd.org.cn/News/Information/Index/1090.

[5] CHOI W, WANG SG, LEE Y, et al. A systematic review of mobile health technologies to support self-management of concurrent diabetes and hypertension [J]. J Am Med Inform Assoc, 2020, 27(6): 939-945. DOI: 10.1093/jamia/ocaa029.

[6] MAO D, XIA T, LIN WX. Application analysis of data verification mode in regional health information platform [J]. Chinese Journal of Health Information Management, 2021, 18(4): 490-493. DOI: 10.3969/j.issn.1672-5166.2021.04.010.

[7] FAN JR, WANG ZH, DAI TG, et al. Study on correlation between core TCM symptoms and physical-chemical indicators in patients with essential hypertension [J]. China Journal of Traditional Chinese Medicine and Pharmacy, 2024, 39(9).

[8] Chinese Hypertension Prevention and Treatment Guidelines Revision Committee, Hypertension League (China), Chinese International Exchange and Promotive Association for Medical and Health Care Hypertension Branch, et al. Chinese Hypertension Prevention and Treatment Guidelines (2024 Revision) [J]. Chinese Journal of Hypertension: Chinese and English, 2024, 32(7): 603-700. DOI: 10.16439/j.issn.1673-7245.

[9] National Health and Family Planning Commission. National Basic Public Health Service Specification (Third Edition) [EB/OL]. (2017-02-28) [2023-03-22]. http://www.nhc.gov.cn/ewebeditor/uploadfile/2017/04/20170417104506514.pdf.

[10] CHEN JB. Study on efficacy and safety of low-dose nifedipine combined with captopril and metoprolol in treating hypertension [J]. Diet Health Care, 2021(33): 11-12.

[11] Chinese Geriatrics Society Hypertension Branch, Beijing Hypertension Prevention and Treatment Association, National Clinical Research Center for Geriatric Diseases (Chinese PLA General Hospital), et al. Chinese Guidelines for the Management of Hypertension in the Elderly 2023 [J]. Chinese Journal of Hypertension, 2023, 31(6): 508-538. DOI: 10.16439/j.issn.1673-7245.2023.06.003.

[12] Chinese Hypertension League High-Quality Blood Pressure Management in Hypertensive Patients Chinese Expert Recommendations Committee, CHEN

X, WANG JG. Chinese expert recommendations on high-quality blood pressure management in hypertensive patients [J]. Chinese Journal of Hypertension, 2024, 32(2): 104-111.

[13] GONZÁLEZ-GÓMEZ S, MELÉNDEZ-GOMEZ MA, LÓPEZ-JARAMILLO P. Fixed-dose combination therapy to improve hypertension treatment and control in Latin America [J]. Arch Cardiol Mex, 2018, 88(2): 129-135. DOI: 10.1016/j.acmx.2017.06.001.

[14] Exercise Prescription Chinese Expert Consensus (2023) Expert Group. Exercise prescription Chinese expert consensus (2023) [J]. Chinese Journal of Sports Medicine, 2023, 42(1): 3-13.

[15] DUNCAN MS, FREIBERG MS, GREEVY RA Jr, et al. Association of smoking cessation with subsequent risk of cardiovascular disease [J]. JAMA, 2019, 322(7): 642-650. DOI: 10.1001/jama.2019.10298.

[16] Chinese Preventive Medicine Association, Chinese Preventive Medicine Association Cardiac Disease Prevention and Control Professional Committee, Chinese Diabetes Society, et al. Chinese guidelines for healthy lifestyle prevention of cardiometabolic diseases [J]. Chinese Journal of Preventive Medicine, 2020, 54(3): 256-277. DOI: 10.3760/cma.j.issn.0253-9624.2020.03.006.

[17] National Cardiovascular Disease Center. National Handbook for Prevention and Treatment of Hypertension at the Primary Level [Z]. 2020.

[18] Chinese Hypertension Prevention and Treatment Guidelines Revision Committee. Chinese Hypertension Prevention and Treatment Guidelines 2018 Revision [M]. Beijing: People' s Medical Publishing House, 2018.

[19] LI J, XU M, JIANG Y. Building a personalized patient education model for general practice by Delphi method [J]. Fam Pract, 2023, 40(1): 105-112. DOI: 10.1093/fampra/cmac072.

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TANG Shangfeng was responsible for conceptualization and overall guidance; HUANG Yangzhen, PAN Yangyang, ZHENG Yanxi, and XIONG Zhongbao were responsible for manuscript writing and figure preparation; ZHANG Kangkang, SONG Jia, and WEI Yilin were responsible for manuscript revision; WANG Chunying, DONG Heng, and CHEN Manwei were responsible for data collection; QING Hua was responsible for final version revision.

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