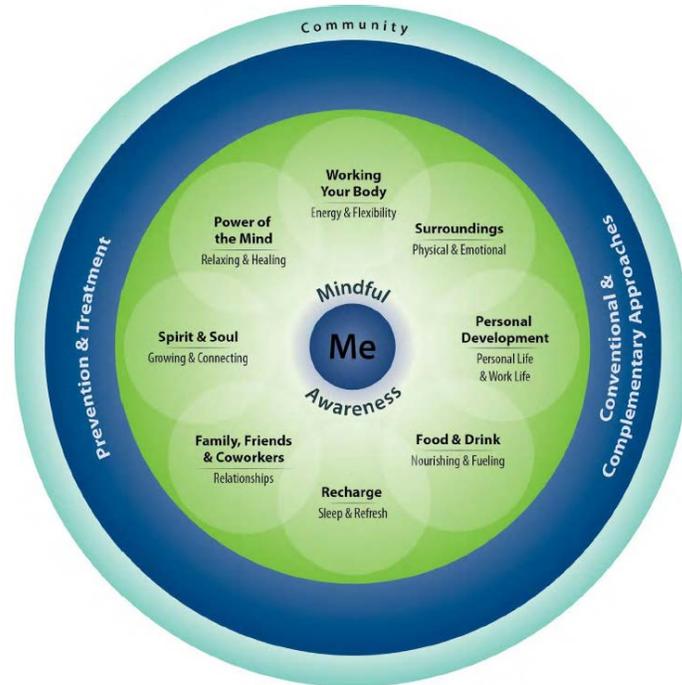


WHOLE HEALTH: CHANGE THE CONVERSATION

Advancing Skills in the Delivery of
Personalized, Proactive, Patient-Driven Care

Hypertension Summary Clinical Tool



This document has been written for clinicians. The content was developed by the Integrative Medicine Program, Department of Family Medicine, University of Wisconsin-Madison School of Medicine and Public Health in cooperation with Pacific Institute for Research and Evaluation, under contract to the Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration.

Information is organized according to the diagram above, the *Components of Proactive Health and Well-Being*. While conventional treatments may be covered to some degree, the focus is on other areas of Whole Health that are less likely to be covered elsewhere and may be less familiar to most readers. There is no intention to dismiss what conventional care has to offer. Rather, you are encouraged to learn more about other approaches and how they may be used to complement conventional care. The ultimate decision to use a given approach should be based on many factors, including patient preferences, clinician comfort level, efficacy data, safety, and accessibility. No one approach is right for everyone; personalizing care is of fundamental importance.

WHOLE HEALTH: CHANGE THE CONVERSATION

Hypertension Summary

Clinical Tool

This clinical tool is a brief summary of the **Hypertension** clinical tool, also available in this module. See the larger document for additional details, including all references.

New Blood Pressure Guidelines

Significant changes to hypertension management guidelines were published in 2014. A concise, condensed version of the new guidelines and associated recommendations can be found on the website for AAFP [American Academy of Family Physicians] News (<http://www.aafp.org/news/health-of-the-public/20131218hypertensiongdln.html>):

1. In the general population **ages 60 and older**, pharmacologic treatment to lower blood pressure (BP) should be initiated at a systolic blood pressure (SBP) of 150 mmHg or higher, or a diastolic blood pressure (DBP) of 90 mmHg or higher. Some Joint National Committee (JNC) members were concerned that aggressive management of hypertension in the elderly might lead to an increased risk of falls. This remains a point of contention among experts.
2. In the general population **younger than age 60**, initiate pharmacologic treatment at a DBP of 90 mmHg or higher, or an SBP of 140 mmHg or higher.
3. In the population ages 18 years or older **with diabetes (DM) or chronic kidney disease (CKD)**, initiate pharmacologic treatment at an SBP of 140 mmHg or higher, or a DBP of 90 mmHg or higher. Previous target blood pressure for this population was 130/80.
4. In the general **nonblack population**, including those with DM, initial treatment should include a thiazide-type diuretic, calcium channel blocker (CCB), angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB).
5. In the general **black population**, including those with DM, initial treatment should include a thiazide-type diuretic or a CCB.
6. In the population ages 18 or older with **CKD and hypertension**, initial (or add-on) treatment should include an ACE inhibitor or an ARB to improve kidney outcomes.
7. **If goal blood pressure is not reached within a month** of initiating treatment, increase the dose of the initial drug or add a second drug from one of these four classes. If goal blood pressure cannot be reached with two drugs, add and titrate a third drug. Avoid concomitant use of ACE inhibitors and ARBs.

WHOLE HEALTH: CHANGE THE CONVERSATION
Clinical Tool: Hypertension Summary

The guidelines also emphasize the central role of diet and lifestyle factors in the prevention and treatment of hypertension. Exercising, eating a diet rich in fruits and vegetables, and maintaining appropriate weight can reduce the risk of cancer, heart disease, diabetes, and stroke while reducing SBP by approximately 10-15 mmHg.

Food and Drink

- It is important to maintain ideal body weight.

DASH (Dietary Approaches to Stop Hypertension) Diet

- Closely related to Mediterranean type diet.
- High in fruits and vegetables.
- Low in dairy, animal meat, and saturated fat; consider plant-based protein sources.
- High in nuts, seeds and beans.
- Low in snacks and sweets.
- Emphasizes reduction in sodium intake, avoidance of sugar-sweetened drinks.
- In those with high BP, the DASH diet lowers SBP 11.6 mmHg and DBP 5.3 mmHg, on average.

DASH also

- Lowers homocysteine levels.
- Has positive effect on bone strength.
- Raises high-density lipoprotein (HDL).

For details on the DASH diet, see the following

website: <http://www.nhlbi.nih.gov/health/health-topics/topics/dash/>

Sodium Restriction

- Considerable debate continues about healthy upper limits of sodium intake.
- Prudent to encourage ingestion of less than 2,400 mg of salt (one tsp) daily.
 - The body only requires 500 mg (1/4 tsp)/day for optimal functioning.
- Encourage taking salt shaker off the table.
- Encourage avoidance of salt-rich foods (canned soups, broths, frozen dinners, chips, lunch meats, salad dressings, pizza, packaged mixes).
- For more information on a low salt diet, see the following website: http://www.nhlbi.nih.gov/files/docs/resources/heart/hbp_salt.pdf.

Milk Peptides

- Epidemiological studies show association with lower BP in those who consume dairy products.
- Calcium content contributes some.
- Milk-derived proteins or peptides are also involved.
- Drinking traditionally pasteurized milk will destroy the bacteria that activate these peptides.

WHOLE HEALTH: CHANGE THE CONVERSATION
Clinical Tool: Hypertension Summary

Dark Chocolate

- Cacao bean (*Theobroma cacao*) is rich in polyphenols, including procyanidins, that have beneficial influences on the endothelium.
- Most commercial chocolate is processed in a way that destroys flavonoids.
- Advise individuals to look for “gourmet” chocolate containing at least 70% cocoa.

Working Your Body

- Benefits health beyond contributing to healthy BP.
- May take one to three months to have positive effects.
- Guidelines from the U.S. Department of Health and Human Services may be considered solid ground (adapted from The U.S. Department of Health Human Services - <http://www.health.gov/paguidelines/guidelines/summary.aspx>):
 - Adults should avoid inactivity. Adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous intensity aerobic physical activity, or an equivalent combination of moderate and vigorous intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week.
 - For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate intensity, or 150 minutes a week of vigorous intensity aerobic physical activity, or an equivalent combination of moderate and vigorous intensity activity.
 - Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on two or more days a week.

Power of the Mind

- Emotions such as anxiety, hostility, and anger influence hypothalamic-pituitary axis.
 - They stimulate the sympathetic nervous system.
 - They cause release of neurotransmitters and hormones that elevate BP.

Mind-body tools to lower blood pressure

- **Meditation** – mindfulness-based, transcendental show benefit.
- **Breathing Exercises** – deep breaths help to balance autonomic nervous system activity, lower blood pressure, and enhance heart rate variability.
- **Biofeedback**
 - Key is to slow the breath to 6 breaths per minute (one “in and out” breath every 10 seconds).
 - Exhalation should be about twice as long as inhalation.
 - Individuals to breathe in for count of 3 to 4.
 - Then breathe out for a count of 6 to 7.
 - Encourage regular practice (60-80 slow breaths daily).

Supplements

Note: Please see the module on *Dietary Supplements* for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.

Coenzyme Q10 (CoQ10, ubiquinone)

- Thought to preserve endothelial nitric oxide, allowing for vasodilation.
- Promising effects for heart failure and diabetes.
- Not all studies support CoQ10 being an effective adjunct for managing high BP.
- Beneficial effects can take up to four weeks.
- Recommended dose ranges from 60-120 mg in the gel form, 100 mg twice daily for the tablet form.
 - Fat soluble – should be taken with a meal that includes some fat to enhance absorption.
 - Potential benefits for people taking statins, tricyclic antidepressants, or metformin.

Fish Oil

- More beneficial at reducing risk of heart disease through its anti-platelet and anti-inflammatory effects than by its impact on BP.
- Consists of two essential fatty acids, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).
- Evidence suggests that DHA has more of a hypotensive effect than EPA.
- Dose: total of 1 gm of EPA+DHA combined daily to reduce CVD risk.
- Most important for those with recent heart attack.

Vitamin D

- Vitamin D deficiency associated with increased risk of high BP.
- Debate exists, but most experts recommend supplementation to keep 25-hydroxy vitamin D levels at or above 40 ng/ml (75 nmol/L).
- 1000 IU of vitamin D3 daily will raise levels approximately 8-10 points.

Minerals (Magnesium, Potassium and Calcium)

- **Magnesium**
 - Smooth muscle relaxer.
 - Supplementation studies indicate mixed results for treating hypertension.
 - Consider checking erythrocyte (intracellular, or red blood cell) magnesium levels.
 - More sensitive than serum magnesium.
 - May help predict who will respond to treatment.

WHOLE HEALTH: CHANGE THE CONVERSATION

Clinical Tool: Hypertension Summary

- Typical dosing regimen might be 6 mg/kg (about 420 mg for a 154 lb. person)
- Use caution with renal impairment.
- Glycinate or aspartate forms cause less diarrhea.

- **Potassium**
 - Encourage eating potassium-rich foods like bananas, grapefruit, broccoli, pumpkins, squash, dried beans, and peas.
 - If supplementing, potassium aspartate may have more BP lowering effects than potassium chloride.

- **Calcium**
 - Greater BP-lowering effect in those with poor dietary calcium intake and low serum calcium levels.
 - Can be helpful lowering BP in those with CKD.
 - Effects are modest at best.
 - Calcium supplementation has come under intense scrutiny.
 - Concerns about increased risk of heart attack and death.
 - At present, calcium supplements should only be recommended to patients who do not consume adequate dietary calcium.
 - Dose is 500-700 mg daily (carbonate or citrate)

Botanicals

- **Hawthorn (*Crataegus spp.*)**
 - Traditionally considered cardiac tonic.
 - Was most commonly used to help in management of heart failure.
 - Concerns about safety (worsening heart failure) exist.
 - May possess modest hypotensive effect.
 - Stimulation of peripheral vasodilation.
 - Induction of endothelium-dependent arterial relaxation.
 - Dose: 0.5-1.0 ml three times a day or 600-1800 mg daily of whole herb.

- **Garlic (*Allium sativum*)**
 - Contradictory evidence for positive impact on high BP.

WHOLE HEALTH: CHANGE THE CONVERSATION
Clinical Tool: Hypertension Summary

Whole Health: Change the Conversation Website

Interested in learning more about Whole Health?
Browse our website for information on personal and professional care.

<http://projects.hsl.wisc.edu/SERVICE/index.php>

This clinical tool was written by Russell H. Greenfield, MD, Director of Greenfield Integrative Healthcare, PLLC, and President of Greenfield Consulting, LLC. Sections of this clinical tool were adapted from the University of Wisconsin Integrative Medicine Pearls for Clinicians document on Non-Pharmaceutical Therapy for Hypertension prepared by David Rakel, MD.