COMMONWEALTH of VIRGINIA

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Office of Integrated Health
Health & Safety Information

Home Blood Pressure Monitoring
Health and Safety Alert

Management of health care needs among individuals with intellectual and developmental disabilities can be very challenging due to the unique needs that are not always consistent with those of the general population. The presentation of symptoms and management of medical conditions often differ from the usual approaches and require creative strategies to manage them. As more Individuals with intellectual and developmental disabilities enter into community settings, it is important that all support professionals offering assistance are familiar with commonly presenting features and evidence-based treatment guidelines pertaining to this vulnerable population. This will improve the quality and health and safety services provided to all Individuals with intellectual and developmental disabilities (Smith & Escude, 2015).

Why is Frequent Monitoring of Blood Pressure So Important?

Hypertension is a major risk factor for cardiovascular disease that contributes to 1 in 7 deaths in the United States each year. The CDC has determined that about 33.2% of adults in the United States have hypertension (CDC, 2016). The incidence of hypertension increases with age. As the human body ages, so do the arteries. There is a direct correlation between age, arterial stiffness (or lack of elasticity) and hypertension. There is also a higher prevalence of hypertension among adults aged 60 and over and non-Hispanic black adults.

Adults with developmental disabilities are now aging in a manner very similar to their peers, who are living well beyond their third decade of life. Like their peers, adults who have developmental disabilities will be negatively impacted by age-related risk factors such as adverse dietary and lifestyle factors, obesity and low physical activity (Journal of Pharmacy Technology, 2016).

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How to Use a Home Blood Pressure Monitor

- **Make sure the person is calm.** Do not take blood pressure if the person has smoked, drank caffeinated beverages, experiencing any type of stress or exercised within 30 minutes before measuring their blood pressure. Make sure the person does not need to use the bathroom and ensure at least 5 minutes of quiet rest before measurements.
- **Position.** Preferably, the person needs to sit up in a relaxed position. Provide seating that will allow the person to sit with their back straight and supported if possible (on a dining chair, rather than a sofa). Their feet should be flat on the floor and legs should not be crossed (if possible). Provide a flat surface for arm support (such as a table) with the upper arm at heart level. If the person is lying down and unable to sit up, the arm should be along their side, leveled with their body.
- **Placement of the cuff.** Gently feel for brachial pulse located in the bend of arm with middle and index finger. Place the cuff smoothly and snuggly around the arm to ensure an accurate reading. Make sure the bottom of the cuff is placed 1 inch above the bend of the elbow. The arrow on the cuff should be aligned with where the brachial pulse was felt. Check the monitor's instructions for an illustration or have a medical professional show you how.
- **Measure at the same time every day.** It's important to take the readings at the same time each day, such as morning and evening. It is best to take the readings daily or as recommended by the doctor.
- **Take multiple readings and record the results**. Take two or three blood pressure readings one minute apart (if the person allows) and document the results. If the monitor has built-in memory to store the readings, take the monitor to individual's follow-up physician appointments (American Heart Association, 2017).
- **DO NOT take the measurement over clothes.**
- **DO NOT take the blood pressure in an "injured" arm: an arm with an IV access; an arm with "AV" (Arteriovenous) Fistula; an arm with an "AV" Graft (shunt) placement (for people receiving dialysis); and/or in the arm on the side in which an individual has had a mastectomy (breast removal)** (Harvard Medical School, 2019b).

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What do these numbers mean???

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult a physician immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

A diagnosis of high blood pressure must be confirmed by a medical professional.

A doctor should also evaluate any unusually low blood pressure readings.

What Should You do if an Individual Has One High Blood Pressure Reading?

A single high blood pressure reading is not an immediate cause for alarm. If you check an individual's blood pressure and it is slightly or moderately higher than normal, wait a few minutes and re-check their blood pressure. Repeat the process a few more times and record the readings. If the blood pressure readings are still higher than the normal range, let the individual's primary care physician know, and schedule an appointment to see if the individual needs some form of treatment for high blood pressure, or if there may be an issue with the monitor.

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- ★ If the blood pressure readings exceed 180/120 mm Hg, wait five minutes and test again. If the readings are still unusually high, **seek medical advice immediately**. This could be a hypertensive crisis.

If the blood pressure is higher than 180/120 mm Hg and the person is experiencing symptoms such as chest pain, shortness of breath, back pain, numbness/weakness, change in vision, difficulty speaking, do not wait to see if the individual's blood pressure comes down on its own, **call 9-1-1 immediately.**

The American Heart Association recommends home monitoring for anyone diagnosed with high blood pressure or hypertension to help their healthcare provider determine whether treatments are working. Monitoring blood pressure at home can reduce repeated visits to the physician's office, can help encourage better control, and can reduce the number of false high readings due to physician-inspired anxiety aka "white coat hypertension". Home monitoring can also reveal fluctuations or patterns of high/low readings, and as a result, can help physicians make better-informed adjustments to dosages, etc. for individuals diagnosed with hypertension. Home monitoring (self-measured blood pressure) is not a substitute for regular visits to the physician.

Choosing a home blood pressure monitor

The American Heart Association recommends an automatic, cuff-style, bicep (upper-arm) monitor.

- Wrist and finger monitors are not recommended because they can produce less reliable readings.

- Make sure the monitor has been tested, validated and approved by the Association for the Advancement of Medical Instrumentation, the British Hypertension Society and the International Protocol for the Validation of Automated BP Measuring Devices (Heart Insight Magazine, 2016). If you are unsure, ask a doctor or pharmacist for advice.

- Children and adults with smaller or larger than average-sized arms may need special-sized cuffs. Specialized cuff sizes are available in some pharmacies, and online medical supply companies that sell BP cuffs. Measure around the upper arm and choose a monitor that comes with the correct size cuff.

After obtaining a blood pressure monitor, have a physician or nurse observe your technique to ensure that you are using the blood pressure monitor correctly. Bring the blood pressure monitor to the individual's physician visit (at least once a year), to ensure that the readings on the home blood pressure monitor match the readings on the blood pressure monitor at the physician's office.

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Care and Maintenance

Important Do's and Don'ts to consider to keep the digital blood pressure monitor in the best condition and protect the monitor from damage:

- Do not forcefully bend the arm cuff or air tube.
- Do not fold arm cuff tightly.
- Clean the monitor with a soft dry cloth.
- Do not spray any abrasive cleaners on the monitor or arm cuff.
- Do not submerge the monitor or the arm cuff in water.
- Do not subject the monitor to extreme hot or cold temperatures, humidity or direct sunlight.
- Store the monitor and the arm cuff in a clean, safe location.
- Do not subject the monitor to strong blows, such as dropping the monitor on the floor.
- Remove the batteries if the monitor will not be used for three months or longer.
- Always replace all the batteries with new ones at the same time.

Home blood pressure monitoring may be especially useful for:

- Anyone diagnosed with high blood pressure (HBP or hypertension).
- Individuals starting high blood pressure medication to determine its effectiveness.
- People requiring closer monitoring, especially individuals with risk factors for high blood pressure and/or conditions related to high blood pressure.
- Evaluating potentially false readings, such as:
  - People who only have high readings at the doctor's office ("white coat syndrome" hypertension).
  - People who only have high readings at home but not at the doctor's office ("masked" hypertension).

People with atrial fibrillation or other arrhythmias may not be good candidates for home monitoring because electronic home blood pressure devices may not be able to give accurate measurements. Ask the individual's physician to recommend an alternative monitoring method.

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Is There a Difference Between a Left-Arm vs. Right-Arm Blood Pressure?

Several studies have been conducted to determine what a normal variation between right and left arm is. In general, any difference of 10 mm Hg or less is considered normal and is not a cause for concern. If there is a difference greater than 10 mm Hg a physician should be consulted to evaluate for possible causes (American Heart Association, 2017).

Why Keep a Blood Pressure Journal?

One blood pressure measurement is like a snapshot. It only tells what someone's blood pressure is at that moment. A record of readings taken over time provides a "time-lapsed" picture of someone's blood pressure and can help the physician determine if treatments to lower high blood pressure (HBP or hypertension) are working and/or if medication dosages need to be changed (American Heart Association, 2017).

Resources

Watch these videos to learn more tips on using a home blood pressure monitor at the following sites:

American Medical Association. How to measure blood pressure accurately (2017) https://www.youtube.com/watch?v=gUHALsLeeoM

Harvard University. Measuring blood pressure at home (2019a): https://www.health.harvard.edu/heart-health/measuring-blood-pressure-at-home

American Heart Association. Monitoring your blood pressure at home: How to use a home blood pressure monitor (2019). https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings/monitoring-your-blood-pressure-at-home

The Cleveland Clinic. Blood Pressure: When & how to check at home: Test details (2019). https://my.clevelandclinic.org/health/diagnostics/4014-blood-pressure-when--how-to-check-at-home/test-details

References

American Heart Association (2019). Monitoring your blood pressure at home: How to use a home blood pressure monitor. Retrieved from https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings/monitoring-your-blood-pressure-at-home

American Heart Association (2016). Tips for choosing a blood pressure monitor. Retrieved from http://heartinsight.heart.org/Summer-2016/Tips-for-Choosing-a-Blood-Pressure-Monitor/

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Benetos, A., Waeber, B., Izzo, J., Mitchell, G., Resnick, L., Asmar, R., & Safar, M. (2002). Influence of age, risk factors, and cardiovascular and renal disease on arterial stiffness: Clinical applications. *American Journal of Hypertension*, *15*(12), 1101-1108.

Cleveland Clinic (2019). Blood pressure: When & how to check at home: Test details. Retrieved from https://my.clevelandclinic.org/health/diagnostics/4014-blood-pressure-when--how-to-check-at-home/test-details

Erickson, S. R., & Kornexl, K. (2016). Blood pressure screening, control, and treatment for patients with developmental disabilities in general medicine practices. *The Journal of Pharmacy Technology, 32*(6), 234–239. doi:10.1177/8755122516663219

Harvard University (2019a). Measuring blood pressure at home. Retrieved from https://www.health.harvard.edu/heart-health/measuring-blood-pressure-at-home

Harvard Medical School (2019b). Tips to measure your blood pressure at home. Retrieved from https://www.health.harvard.edu/heart-health/tips-to-measure-your-blood-pressure-correctly

Smith, M. A., & Escude, C. L. (2015). Intellectual and developmental disabilities. *Clinical Advisor*, 18(2), 48–59.

Yoon, S. S., Fryar, C. D., & Carroll, M. D. (2015). *Hypertension prevalence and control among adults: United States, 2011-2014* (pp. 1-8). U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics