



Blood Pressure Checks in Adults with Osteogenesis Imperfecta

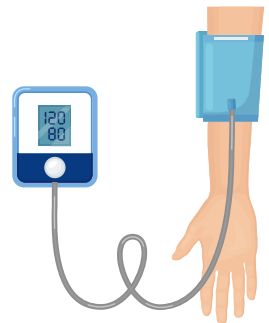
Why is Blood Pressure Measurement Important for Adults with Osteogenesis Imperfecta

It is important to have a holistic approach to patient care for adults with Osteogenesis Imperfecta. One of the commonest illnesses in adults with OI is heart disease. An important aspect of this is checking for high blood pressure. If high blood pressure is found there are clear and effective lifestyle and medications that lower the risk of serious heart complications. There is however concern that measuring blood pressure can lead to broken arm bones in individuals with OI.

Two studies in children have shown that blood pressure cuffs are safe to use and do not lead to fractures. [Click here to read more.](#)

Based on this limited information, the BBS Medical Advisory Board's recommendation for adults needing a blood pressure check is to:

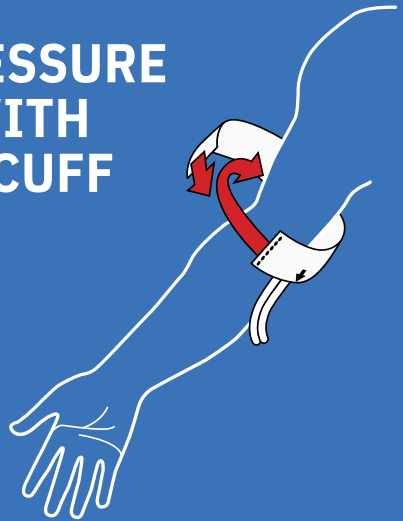
1. Use the right size of cuff (see below)
2. Automatic machines are generally considered safe but should be avoided if the arm is deformed, has a recent fracture, is bruised or painful.
3. If there are concerns, then a manual blood pressure machine should be used.
4. If the arm becomes painful during blood pressure measurement, then stop the measurement immediately and discuss with your healthcare team.



It is important to choose the right size of cuff when measuring blood pressure. The size depends on the size of the arm and go to the larger size if you are in between. Below is some information you may find helpful.

MEASURING BLOOD PRESSURE ACCURATELY BEGINS WITH THE CORRECTLY SIZED CUFF

1. Begin by measuring the patient's mid upper arm circumference.
2. Using the sizing chart below, determine what size cuff should be used based on the measurement reading.
If a patient's cm measurement is overlapping between sizes, default to the larger cuff if width is appropriate.
3. Place the artery mark located on the cuff over the patient's brachial artery.
4. Wrap the cuff snugly and securely, allowing space for two fingers to fit between patient and cuff.



| Infant | Child* | Small Adult* | Adult* | Large Adult* | Thigh |
|---------------|----------------|----------------|----------------|----------------|----------------|
| | | | | | |
| Range 8-13 cm | Range 12-19 cm | Range 17-25 cm | Range 23-33 cm | Range 31-40 cm | Range 38-50 cm |

* Also available in long size

COMMON SOURCES OF ERROR IN BLOOD PRESSURE MONITORING

| Error Type | Cuff | Human |
|-------------------|--|--|
| False High | <ul style="list-style-type: none"> • Inflatable portion of cuff too narrow • Inflatable portion of cuff too short • Cuff too loose or uneven • Cuff deflated too slowly (Diastolic) • Cuff overinflated • Cuff inflated too slowly (Diastolic) | <ul style="list-style-type: none"> • Recording BP immediately after meals, while smoking or with distended bladder • Patient's arm below level of heart |
| False Low | <ul style="list-style-type: none"> • Cuff too wide | <ul style="list-style-type: none"> • Patient's arm above level of heart • Failure to notice auscultatory gap • Inability to hear feeble Korotkoff sounds • Failure to have meniscus of mercury at eye level • Stethoscope bell applied too firmly |
| False High or Low | | <ul style="list-style-type: none"> • Caregiver's error • Cuff deflated too fast |

Using the **WRONG SIZED BLOOD PRESSURE CUFF** can affect accuracy **UP TO 30 mmHG2**

The American Heart Association recommends that a cuff bladder width be 40% of the arm circumference and that a cuff bladder length be 80% of the arm circumference.



¹ Pickering, T., et al Recommendations for Blood Pressure Measurement in Humans; An AHA Scientific Statement from the Council on High Blood Pressure Research Professional and Public Education Subcommittee. *Hypertension* **45**, 142-161 (2005).

² Manning, D.M., et al Miscuffing: Inappropriate blood pressure cuff application. *Circulation* **68(4)**, 763-6 (1983).

Notes



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