## How to take blood pressure accurately in unwell children

## Accessible transcript

**Visual**

A white screen with black text appears that reads ‘How to take blood pressure accurately in unwell children’. The screen is replaced with a room in a hospital. There is a window on the right, an empty hospital bed in the centre and a blood pressure machine to the left of the bed. Behind the bed is a green wall with medical equipment and switches on it. The camera zooms in on the bed, then the blood pressure machine, then a medical chart being held by a nurse.

**Audio**

Throughout the testing and rollout of the Aotearoa New Zealand national paediatric early warning system (PEWS), it was found that blood pressure was often not measured.

**Visual**

The scene is replaced by a caregiver and child sitting on the hospital bed, and a nurse smiling and talking to them. It changes again to a close-up of a different child. A nurse is placing a blood pressure cuff on her arm, and a woman is seated in the background watching. The scene then changes to a close-up of the blood pressure machine screen, then the first child cuddled on the caregiver’s lap while a nurse takes the child’s blood pressure.

**Audio**

This video provides education on accurate blood pressure measurement in acutely unwell children and aims to support staff to routinely measure blood pressure.

**Visual**

Dr Richard Matsas stands in the empty hospital room, shown from the waist up. He is looking off to the side of the camera and has a stethoscope around his neck. While he is speaking, the shot changes to a close-up and back out again.

**Audio**

It is important to know a child's blood pressure because when a child is sick, changes in the body can occur that result in either a high or low blood pressure, even if the child looks relatively well. Causes of a high blood pressure can be pain, heart and cardiovascular defects, kidney, hormonal and metabolic conditions and changes in body habitus such as obesity. Low blood pressure can indicate a medical emergency resulting from conditions such as dehydration, blood loss, sepsis and allergic reactions.

**Visual**

A white screen with black text appears that reads ‘How to take blood pressure correctly’. It is replaced by footage of the second child sitting on the bed playing with a doll, then a close-up of the blood pressure machine while the nurse changes its settings. The shot returns to the child, who now has a blood pressure cuff fitted and an oxygen monitor on her finger.

**Audio**

Before placing the cuff on the patient, check that your machine is set to the appropriate neonatal, paediatric or adult setting. This ensures the cuff does not cause unnecessary discomfort by being overinflated.

**Visual**

A close-up of a range of blood pressure cuffs is shown. Then we see a nurse measuring the circumference of the second child’s arm using a tape measure, then measuring cuff width on the child’s arm, then fitting the cuff.

**Audio**

It is important to use the right-sized cuff. The best way to do this is to measure the arm with a measuring tape and match with the corresponding range on the cuff. Ensure the cuff width is at least 40 percent of the circumference of the limb. Ensure the cuff bladder length covers 80 to 100 percent of the circumference of the limb. Ensure the cuff is placed correctly.

**Visual**

A close up is shown of the blood pressure machine and the nurse completing the child’s PEWS chart.

**Audio**

A cuff that is too large gives a false low reading, and a cuff that is too small gives a false high reading. Remember to note down the cuff used, in either the child's care plan or on the chart itself. Using the same cuff size for future measurements means the blood pressures will be comparable.

**Visual**

The second child is seated on the bed with her caregiver behind her in a chair. The nurse pulls out the tape measure and fits the cuff correctly, placing the child’s arm on a soft toy.

**Audio**

Make sure the arm is at the level of the heart by placing either a pillow or child's soft toy under their arm. Placement should be on the right upper arm. Try to avoid using the calf because it gives higher readings in infants and children. There will be times, however, due to injury, medical lines and surgery, when the calf needs to be used, or when more than one limb is used to check for a blood pressure difference between them.

**Visual**

A close-up of the blood pressure machine and PEWS chart is shown, then the nurse. The screen then changes to the first child; the caregiver is holding them in their lap and reading a book to them.

**Audio**

If a measurement cannot be obtained because the child isn't comfortable, try repositioning them on their caregiver’s knee so they feel more relaxed. Another way of reducing discomfort is to take a manual blood pressure as the cuff can be more easily controlled and inflated to just over the estimated systolic measurement.

**Visual**

A close-up of Dr Richard Matsas.

**Audio**

Some clinicians say you only need to take blood pressure on some children and not others. But, when research was done to look at the vital signs that predict the need for a child to go to intensive care, the sensitivity and specificity of the paediatric early warning scores improved when systolic blood pressure was added. That is why it became part of the PEWS scoring system. What is more important, though, than taking a single blood pressure is the changes over time. Subtle changes in blood pressure can be seen as part of a trend before a dramatic drop in blood pressure, in conditions such as sepsis. So even if a child looks well, it is important to look at blood pressure trends and take note if the blood pressure is rising or falling.

**Visual**

A close-up of a range of blood pressure cuffs is shown. On-screen text reads, ‘Make sure there is a range of cuffs available’.

**Audio**

Make sure there is an appropriate range of blood pressure cuffs available from neonate through to large, long adult cuffs.

**Visual**

The first child seated on their caregiver’s knee is shown. A nurse is fitting the cuff while the caregiver helps hold the clothing out of the way. The shot zooms in on the child’s arm, showing correct cuff placement.

**Audio**

The process is the same if taking blood pressure on an infant or toddler. If the baby is unsettled, try getting their caregiver to feed them or distract them while you try again. If possible, the child should be relaxed, not talking or moving. Encourage staff and whānau to help with distraction techniques. If necessary, come back to the child when they are more settled.

**Visual**

A close-up of the blood pressure machine is shown. It cuts to Dr Matsas holding and reading a chart, then between the first child seated on their caregiver’s knee, the second child smiling in the hospital bed and a close-up of the range of blood pressure cuffs.

**Audio**

Remember, a blood pressure reading in an acutely unwell child contributes to recognising deterioration as well as supporting diagnosis. To gain accurate readings, clinicians need to ensure children are positioned correctly and are as relaxed as possible. It is very important to use the correct cuff size and placement. Electronic machines need to be set to paediatric settings.

**Visual**

The nurse is shown changing the settings on the blood pressure machine then leaning over the hospital bed showing the chart to the second child’s caregiver, followed by a shot of the child playing with dolls on the bed and a close-up of the nurse, who is smiling.

**Audio**

The best way to gain confidence in taking a child's blood pressure is to make it part of your everyday practice.

**Visual**

A white screen with black text is shown that reads, ‘Learn more about the paediatric early warning system hqsc.govt.nz/PEWS’. The New Zealand Government and Te Tāhū Hauora Health Quality & Safety Commission logos appear at the bottom. The text fades away and is replaced by text that reads ‘Ngā mihi nui to Middlemore Hospital and the tamariki, whānau and staff featured in this video’.