# CENTRAL PULSE WAVE VELOCITY: FEASIBILITY AND COMPARISON TO NORMATIVE DATA

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## METHODS

### Study Design

(a) Meta-regression
(b) Feasibility study

### Participants/Sampling

(a) Studies reporting cfPWV in children (>19 y)
- Electronic databases from study inception to May 2018.

(b) Neonates

### Measurement Variables

Pulse wave velocity (PWV) is a clinically relevant, non-invasive measure of arterial stiffness.

PWV measures the velocity of pressure waveforms from one arterial segment to the next—most commonly, the carotid to femoral (cfPWV) segment and/or brachial to femoral (bfPWV) segment. Both cfPWV and bfPWV focus on evaluating the central components of the arterial tree.

## PROBLEM

(a) Normal rate of cfPWV progression in children is unknown.
(b) Feasibility of assessing bfPWV in neonates is unknown.

## TAKE HOME

(a) cfPWV ↑ 0.12 m/s per year in children.
(b) Mean bfPWV values overlap with intercept from the meta-regression analysis.

**QR Download :** poster, further data
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Cardiometabolic Laboratory
Est. 2016

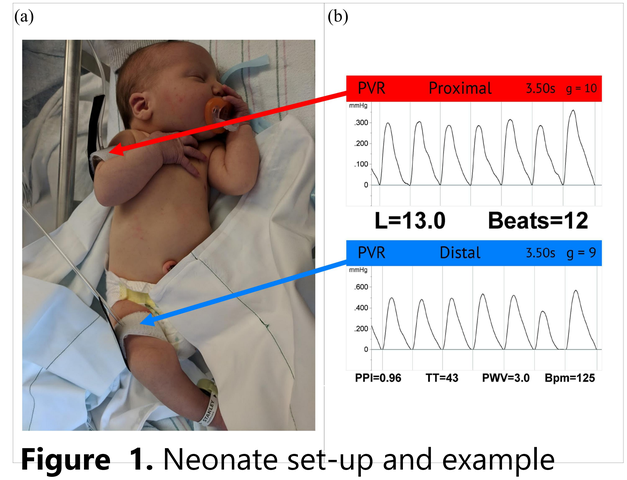


**Figure 1.** Neonate set-up and example waveform. (a) Neonate set-up: bfPWV was assessed using oscillometric cuffs, attached to the upper right arm and thigh. (b) Example waveform: (top) proximal cuff measurement located on the upper right arm, (bottom) distal cuff measurement located on the thigh.

## RESULTS

(a) Meta-regression (9 studies)
- ↑ cfPWV per year (age) was 0.12 (95%CI: 0.07, 0.16) m/s.
- cfPWV intercept (0 y) was 3.61 (95%CI: 3.07, 4.16) m/s.

(b) 5 neonates (1-2 days old; 3.65 kg [SD: 0.52])
- bfPWV was successfully collected in all neonates.
- Mean bfPWV 3.64 (95%CI: 3.31, 3.97) m/s.

**Table 1.** Infant Characteristics

| | X | SD |
|---|---|---|
| ***Age (days)*** | **1.40** | **0.54** |
| ***Mean weight (kg)*** | **3.65** | **0.52** |
| ***HR (bpm)*** | **107.40** | **18.79** |
| ***Beats (bpm)*** | **6.50** | **2.92** |
| ***TT (s)*** | **35.30** | **5.12** |
| ***Length (cm)*** | **13.20** | **0.84** |
| ***bfPWV (m/s)*** | **3.64** | **0.37** |