

Blood Pressure Measurement and Target Recommendations

There is insufficient data to provide evidence based blood pressure (BP) guidelines for continuous flow VAD support in children or patients with congenital heart disease. The following protocol has been developed through the ACTION network until further data is available.

- Routine assessment of symptoms and overall clinical status (e.g. end organ function) is recommended in order to avoid clinical sequelae of blood pressure therapy.
 - Individualized BP goals are anticipated for patients with persistent symptoms (e.g. dizziness) or end organ dysfunction thought to be secondary to inadequate organ perfusion as a result of antihypertensive therapy

BP Measurement

- If a reliable arterial line is present, the arterial line pressures should be used. Presence of a palpable pulse or a pulse pressure ≥ 20 mmHg will be used to assess if a patient is “pulsatile.”
- Prior to removal of arterial line, coincident blood pressure with the preferred non-invasive measurement (see below) may be instructive and help to inform patient goals and state, including pulsatility (as defined by pulse pressure ≥ 20 mmHg) given the variability in pulse exam.
- If an arterial line is not present:
 - Blood pressure measurement should be obtained with the aid of a Doppler for patients **with and without** a palpable pulse
 - The opening sound for patients without a palpable pulse will be considered the mean arterial pressure (MAP)
 - The opening sound for patients with a palpable pulse will be considered the systolic blood pressure
 - For patients **with a palpable pulse in whom a Doppler is not consistently available**, the following approach may be attempted for the use of an automated BP cuff:
 - At least two measurements (1-2 minutes apart) are suggested to show consistency in measurement.
 - If there are significant differences in blood pressure assessment (>5 mmHg without a physiologic explanation) or automated BP cannot be obtained, Doppler BP should be attempted
 - The opening sound for patients with a palpable pulse will be considered the systolic blood pressure (as above)

BP Targets

- Simplified BP tables have been derived from the NHLBI age based 75thile MAP and SBP values. These were established by group consensus as the recommended upper limit for BP goals until evidence based recommendations are developed.

(see chart on next page)

| Age (years) | SBP upper limit goal | MAP upper limit goal |
|-------------|----------------------|----------------------|
| 1 or less | 100 mmHg | 60 mmHg |
| 2 | 100 mmHg | 65 mmHg |
| 3 | 100 mmHg | 65 mmHg |
| 4 | 105 mmHg | 70 mmHg |
| 5 | 105 mmHg | 75 mmHg |
| 6 | 110 mmHg | 75 mmHg |
| 7 | 110 mmHg | 75 mmHg |
| 8 | 110 mmHg | 80 mmHg |
| 9 | 110 mmHg | 80 mmHg |
| 10 | 115 mmHg | 85 mmHg |
| 11 | 115 mmHg | 85 mmHg |
| 12 | 115 mmHg | 85 mmHg |
| 13 | 115 mmHg | 85 mmHg |
| 14 | 115 mmHg | 85 mmHg |
| 15 | 120 mmHg | 85 mmHg |
| 16 | 120 mmHg | 85 mmHg |
| 17 | 120 mmHg | 85 mmHg |