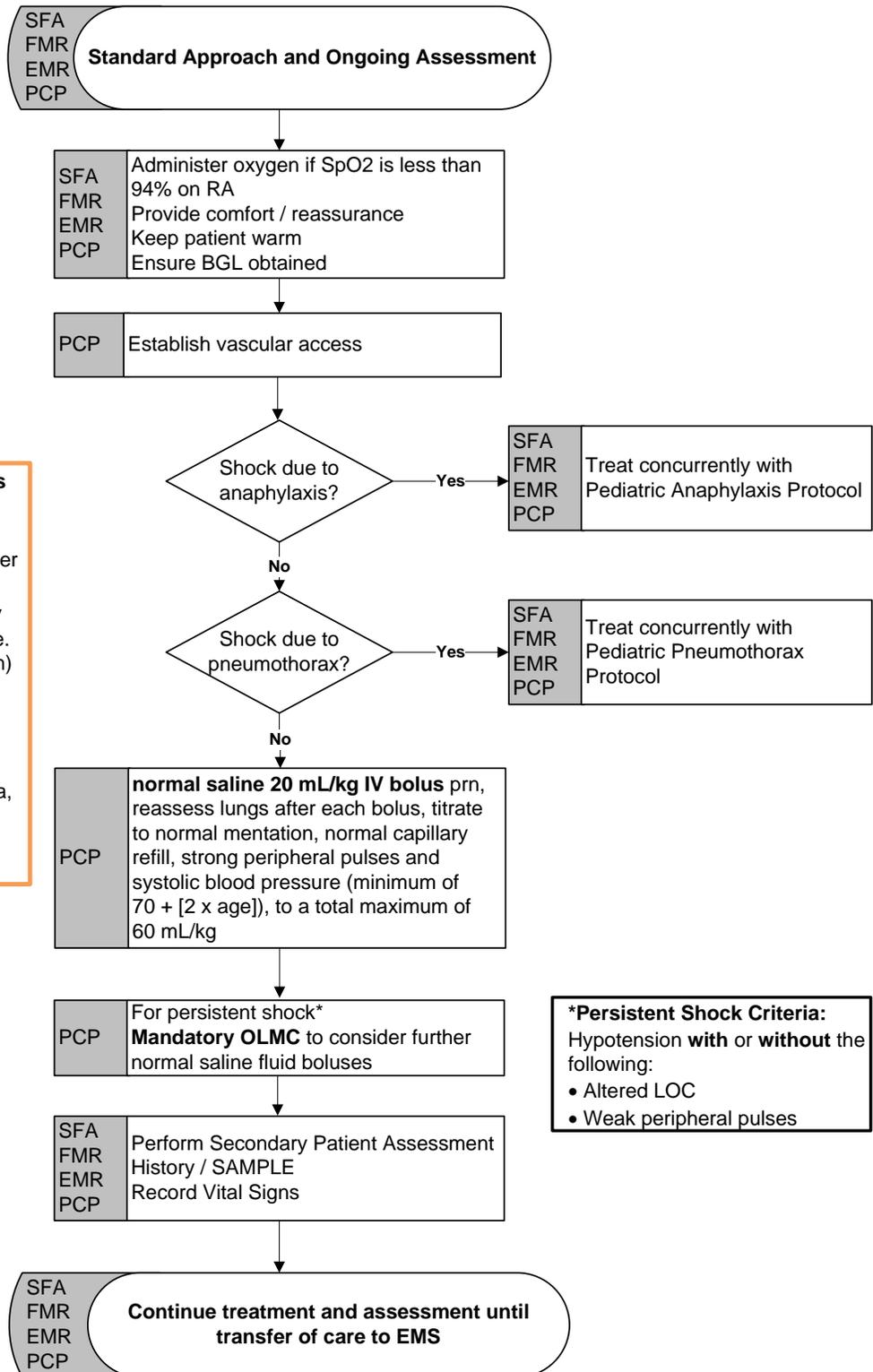


Patient Safety Considerations

- If the patient has a known congenital heart disease, **Mandatory OLMC** to consider normal saline fluid bolus
- Reassess patient continually for signs of fluid overload (i.e. crackles on lung auscultation) during fluid resuscitation
- Other signs of acute congestive heart failure in children include increased work of breathing (tachypnea, accessory muscle use, cyanosis, worsening vital signs)



Etiology

Pediatric Considerations

The initial signs of shock may be subtle in children and infants. Their compensatory mechanisms are very effective; however, they are also dependent on the child's previous cardiac and pulmonary health. As long as the compensatory mechanisms are able to maintain a systolic BP within an age-appropriate normal range, the shock is deemed as compensated. When the compensatory mechanisms fail, the child progresses quickly to decompensated shock where the "classic" signs and symptoms of shock are present (e.g. tachycardia, pallor, cold extremities, altered level of consciousness). When this happens, cardiopulmonary arrest may be imminent.

Interventions

Search for and treat possible causes:

1. The priority in shock management is to identify and treat the cause of the shock
2. Control any external hemorrhage
3. Treat shock due to anaphylaxis as per the Pediatric Anaphylaxis Protocol
4. Treat shock due to tension pneumothorax as per the Pediatric Pneumothorax Protocol

Fluid Resuscitation

1. Perform fluid resuscitation after an identified cause has been treated, if applicable
2. Blood pressure can be calculated in pediatric patients using:

$$\text{Blood pressure} = 70 + (2 \times \text{age})$$

e.g. A two year old's minimum blood pressure = 74 mmHg (this is the lowest acceptable systolic blood pressure and should not be considered normal)

Pediatric Advanced Life Support (PALS) provides the following guidelines for hypotension:

- Neonate (0 to 28 days old): SPB < 60 mmHg
- Infants (1 month to 12 month): SBP < 70 mmHg
- Children (1yr to 10 yrs): SBP < 70 + (2 x age in years) mmHg
- Children (> than 10 yrs): SBP < 100 mmHg

Medical First Response

3. If the patient is hypotensive, administer normal saline 20 mL/kg IV/IO bolus prn, reassess lungs after each bolus, titrate to normal mentation, normal capillary refill, strong peripheral pulses and a minimum normal systolic blood pressure (minimum of BP $70 + (2 \times \text{age})$ mmHg or greater, to a total maximum of 60 mL/kg)
4. Persistent shock is defined as hypotension, with or without, altered LOC and/or weak peripheral pulses
5. **Mandatory OLMC** to consider further normal saline fluid boluses if persistent shock

Patient Safety Considerations

- If the patient has a known congenital heart disease, **Mandatory OLMC** to consider normal saline fluid bolus

Special Circumstances

Pediatric Sepsis

Sepsis criteria are specific to the adult population. Despite this, the same physiological responses are present in children (e.g. tachycardia, tachypnea, altered levels of consciousness and fever) and these should prompt aggressive pre-hospital fluid resuscitation.

Infection Prevention and Control (IP&C) Considerations

Consider the following isolation precautions:

1. Pneumonia – Droplet precautions
2. Urinary tract infection (UTI) – Contact precautions
3. Acute abdominal infection – Contact precautions
4. Unknown Rash – Droplet precautions