Procedure for initiating PAV™+ on a patient (based on Georgopoulos* study)

1. Ensure that the following are entered correctly:
   a. Height and gender, or ideal body weight (IBW)
   b. Endotracheal tube size and maximum airway pressure (40 cm H₂O)

2. As per usual criteria:
   a. Set initial settings of PEEP and fraction of inspired oxygen (FIO₂); however, as with other modes, the initial value of PEEP should be ≥5 cm H₂O
   b. Manage subsequent hypoxemia by adjusting PEEP and FIO₂; with PAV™+, compliance may be used to titrate PEEP (see 7 below)

3. After making a change to the ventilator settings, wait a minute or so to see what the pattern will actually become before deciding on next steps; keep in mind that:
   a. Immediate response following a change to PAV™+ varies considerably, depending on if the patient was over-assisted and if there was asynchrony with the previous mode
   b. Response may range from “no change” to “very shallow breathing” to “central apnea”

4. Breathing may be quite variable on PAV™+; this is normal. Tidal volume (VT) may be quite low (e.g., 3–4 mL/kg). To the extent that respiratory rate (RR) does not increase concurrently and there are no other signs of distress, low VT is not an indication to change assist level.

5. A high RR — even up to 50/min — need not be itself indicate distress, and that:
   a. Other signs of distress should be present (e.g., sustained change in heart rate or blood pressure, accessory muscle use, sweating)
   b. Many patients have high rates even when they are well supported, and this is masked in other modes (but not during PAV™+ ventilation) by nonsynchrony (i.e., ineffective efforts)

6. Partial arterial CO₂ pressure (PaCO₂) may rise after switching to PAV™+ ventilation, and that:
   a. This is most commonly due to over-ventilation before PAV™+ ventilation
   b. You should only be concerned if pH decreases below normal (i.e., <7.35)
   c. Acidemia without distress indicates depressed respiratory drive (until the cause of depressed drive no longer exists, the patient is not a candidate for PAV™+ ventilation)

7. Distress at 70% assist:
   a. Is uncommon and usually due to delayed triggering because of severe dynamic hyperinflation and weak muscles (e.g., patients with obstructive lung disease)
   b. May be due to very low compliance at low lung volume (e.g., patients with obesity, abdominal pathology, ALI/ARDS) and usually these patients exhibit hypoxemia
   c. Caused by either of these conditions may be improved by increasing PEEP; the increase in PEEP may be guided by response of C (i.e., increase PEEP until C no longer increases) although other factors need to be considered in determining how high PEEP can be increased

8. Very few patients continue to have distress at 70% assist after adjusting PEEP; in these patients:
   a. Increase % assist in steps of 5% up to 90%
   b. Wait 15–20 breaths between steps and observe for stretched-out breaths (delayed cycling off); if stretched-out breaths appear, decrease the assist to previous level

9. Usually these are patients:
   a. For whom trigger delay is excessive (see 7) and cannot be improved by increasing PEEP and % assist
   b. Who cannot be supported with PAV™+ ventilation until better triggering methods are incorporated

10. Usually these are patients who are not candidates for fast weaning; % assist and/or PEEP should be reduced slowly (over several hours or days, depending on the individual patient).

This guide is provided as a convenience companion document to the Operator’s Manual. It is not intended to replace the Operator’s Manual, which should always be available while using the ventilator. It is important to familiarize yourself with all information in the Operator’s Manual relevant to your institution’s use of the ventilator, including on-screen help instructions, warnings, and cautions.
Respiratory distress must include at least two of the following:

- Heart rate >120% of the usual rate for >5 minutes and/or systolic BP >180 or <90 mm Hg and/or systolic BP changes >20% of the previous value for >5 minutes
- Respiratory rate >40 breaths/minute for >5 minutes
- Marked use of accessory muscles
- Diaphoresis
- Abdominal paradox
- Marked complaint of dyspnea (in conscious patients)