

1. Switch intravenous fluid to 5% albumin (isotonic premixed 5% albumin or 200 cc of 25% albumin in 800 cc 0.9% NS, at the previous crystalloid IVF rate.
2. Check bladder pressures every 4 hours.
3. If urine output (UOP) < 30 ml/hr, strongly consider the placement of a cardiac output monitoring device to guide resuscitation with specific pulmonary capillary wedge pressure (PCWP) and mixed venous saturation (SvO<sub>2</sub>) goals (Goal PCWP 10-12 mmHg, SvO<sub>2</sub> 65-70%). If PA catheter is not practical then consider monitoring central venous pressures (CVP) from a subclavian or IJ along with central venous (ScvO<sub>2</sub>) saturations (Goal CVP 8-10 mmHg, ScvO<sub>2</sub> 60-65%).
  - a. If CVP or PCWP not at goal then increase fluid rate by 33%.
  - b. If CVP or PCWP at goal then consider vasopressin 0.04 Units/min to augment mean arterial pressure (and thus UOP) or dobutamine 5 µg/kg/min (titrate until SvO<sub>2</sub> or ScvO<sub>2</sub> at goal). Max dose of dobutamine is 20 µg/kg/min.
  - c. If both CVP or PCWP and SvO<sub>2</sub> or ScvO<sub>2</sub> at goal, then stop increasing fluids (even if UOP < 30 ml/hr). The patient should be considered hemodynamically optimized and the oliguria is likely a result of established renal insult. Some degree of renal failure should be tolerated and expected. Continued increases in fluid administration despite optimal hemodynamic parameters will only result in “resuscitation morbidity,” that is oftentimes more detrimental than renal failure.
4. If the patient becomes hypotensive along with oliguria (UOP <30 ml/hr), then follow the hypotension guidelines.
5. Every attempt should be made to minimize fluid administration while maintaining organ perfusion. If UOP >70 ml/hr, then decrease the fluid rate by 33%. Do not decrease below the maintenance IVF rate based on the patients weight.
6. After 24 hours, infusion of Lactated Ringer’s should be titrated down to maintenance levels and 5% albumin continued until the 48-hour mark.