



Quick Tips for Intensivist Caring for the Critically-Ill Pregnant Patient

Organ System	Pregnancy Considerations	Clinical Pearls
Neurologic	Common sedatives and paralytics safe in pregnancy (avoid NSAIDs)	Variability in the fetal heart rate tracing will decrease with maternal sedation or paralysis
Pulmonary	Baseline physiology is compensated respiratory alkalosis to facilitate dissociation of oxygen from maternal to fetal compartment at placental interface.	Titrate ventilation closer to normal pH if possible as opposed to permissive hypercapnea tolerated in ARDS.
	Oxygenation targets classically set at >95% with little data to support.	Variability in fetal heart rate can be helpful signal of adequate oxygenation
	Respiratory mechanics with decreased functional residual capacity and increased minute ventilation due to increased tidal volume.	Decreased FRC leaves little reserve favoring early intubation.
		Consider erring towards higher side of 6-8 cc/kg as peak pressures allow. May need more PEEP due to limited diaphragmatic excursion
Consideration of delivery in conjunction with OB team to improve maternal oxygenation in late third trimester cases.		
Cardiovascular	Normal physiology of increased cardiac output, decreased systemic vascular resistance	Check baseline blood pressures from clinic visits to suggest target BPs, can titrate MAPs to fetal variability
	Compression of the uterus on the IVC limits preload after 20 weeks	Position in lateral position where possible, consider role of position change in hypotension
	CK-MB is released by the placenta and not a reliable marker for ACS or cardiac injury	Check baseline EKG which can have access deviation. Rely on troponins and any changes in EKG from baseline.
	Most vasopressors considered safe in pregnancy and management of shock should follow standard of care.	Theoretic concern about use of vasopressin as oxytocin analogue, but data associating vasopressin and preterm labor confounded.
Gastrointestinal	Alkaline phosphatase is secreted by the placenta and elevated in pregnancy, while bilirubin, AST and ALT are unchanged from nonpregnant norms.	Entertain preeclampsia on differential diagnosis for transaminitis, particularly in the presence of thrombocytopenia or hemolysis.
	Increased metabolic demand of pregnancy may alter nutrition goals	Early involvement of dietician for consideration of enteral nutrition, avoidance of PICC lines due to high rates of thrombosis.
	Progesterone-mediated delayed gastric emptying	Low threshold to keep patients NPO if any concern for possible intubation



Genitourinary	Plasma volume increases throughout pregnancy reaching peak around 32 weeks.	Diuretics including furosemide are safe in pregnancy but err towards euvoemia to ensure fetal perfusion, minimize risk of contractions.
	Increased in GFR leads to lower creatinine from baseline state	Small increases in creatinine signal significant loss of nephron function.
	Increase in clearance coupled with increased volume of distribution alter medication metabolism	Low threshold to check levels of critical medications when available.
Hematology	Alterations in coagulation cascade in pregnancy increase thrombosis risk	Routine pharmacologic DVT prophylaxis with unfractionated heparin TID avoiding LMWH due to potential need for neuraxial
	D-dimer and fibrinogen elevated in pregnancy	Normal fibrinogen level according to nonpregnant reference range can be an early signal of DIC
	Physiologic anemia of pregnancy due to increased plasma volume	Transfusions thresholds same as for nonpregnant patients, favor 1:1 resuscitation with red blood cells and fresh frozen plasma in bleeding
Infectious Disease	Leukocytosis normal in pregnancy but differential should be normal	Compare leukocytosis to baseline from prenatal labs
	Most common antibiotics safe in pregnancy with reassuring data to support use	Avoid fluoroquinolones, doxycycline, and Bactrim if possible though none are contraindicated if risks outweigh benefits
	Many laboratory markers of infection including are either unstudied or unreliable	CRP elevated from baseline, procalcitonin appears to be reliable but not well studied
Endocrine	Placental hormone secretion leads to baseline state of hyperglycemia to ensure glucose supplies for fetus	Low threshold for insulin infusion to meet glycemic targets but not overshoot
Obstetric	Fetal monitoring plan important beyond 24 weeks to assess fetal status and inform maternal resuscitation	OB team will provide guidance but additional fetal surveillance should be considered if any significant change in maternal status
	Steroids often given for fetal benefit most impactful between 48 hours and 7 days of initiation of course	Steroids should be discussed with OB team in light of maternal risks and likelihood of delivery
	Delivery may be spontaneous due to labor or rupture of membranes or indicated based on maternal status, fetal status, or in cases of maternal cardiac arrest	Provide left uterine displacement as a part of pregnancy-modified ACLS and support cesarean delivery by 4 minutes of if no ROSC with delivery of fetus by 5 minutes for maternal resuscitation