

# Annual Congress and Medicare Expo on **Trauma & Critical Care**

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## Effects of trauma on fetus

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Trauma caused by accidents and violence is a common and important complication of pregnancy, involving 5-20% of pregnancies. Unless the treating physician is aware of maternal physiological adaptation to pregnancy, misdiagnosis and suboptimal treatment may ensue. A central focus is balancing the health and well-being of the fetus against the mother's need for surgery. A demonstrable increase in risk to the fetus occurs from surgery alone and the risk appears to be greatest in the first and third trimesters. Fetal tolerance of maternal haemorrhage depends on the degree of maternal sympathetic response, oxygen carrying capacity and maternal blood pressure. In the presence of acute decrease in intravascular volume, progressive fetal acidosis occurs, with significant peripheral vasoconstriction as fetus entirely relies on cardiovascular function and placental transfer of oxygen. Further a 5 minute episode of hyperventilation that drops the maternal PaCO<sub>2</sub> by 6 mmHg results in a 4 mmHg drop in fetal PaCO<sub>2</sub> and a 3.5 mmHg drop in fetal PaO<sub>2</sub>. Also hypoventilation and apnea results in a more rapid onset of hypoxia. Four factors in maternal trauma or surgery predict fetal morbidity and mortality are hypoxia, infection, drug effects and preterm delivery. Decrease in maternal haematocrit  $\geq 50\%$  and decrease in maternal mean blood pressure of 20% or a maternal PaO<sub>2</sub> less than 60 mmHg results in fetal hypoxia, acidosis and compromise. Also preterm delivery poses a significant risk of perinatal morbidity and mortality. Further anaesthetic agent poses risk of teratogenesis and acidosis (15-20%). Anaesthetic agents in the third trimester have the potential to affect neonatal and childhood neurodevelopment.

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