

## Resuscitation In Pregnancy

Nolan McDonnell<sup>1,2</sup>

1. *King Edward Memorial Hospital for Women, Perth, Western Australia*
2. *School of Women's and Infants' Health, University of Western Australia, Perth, Western Australia*

Cardiac arrest in pregnancy is a rare event, estimated to occur in approximately 1:20-30 000 deliveries and may occur even in traditionally low risk birthing environments. In this regard, the education of all obstetric care providers into the management of collapse and resuscitation in pregnancy is a key step in the prevention of maternal morbidity and mortality.

The management of cardiac arrest in pregnancy differs from conventional adult resuscitation in two key areas. If this is not appreciated resuscitation may be futile despite otherwise exemplary care. The two key differences are the requirement for measures to prevent aorto-caval compression and the performance of a perimortem caesarean delivery if there has been no response to standard treatment after 4 minutes. In addition to this, there are a number of causes of collapse which are either unique or more likely to occur in pregnancy such as amniotic fluid embolism, haemorrhage and pulmonary embolism.

The performance of a perimortem caesarean was initially popularised by Katz et al in 1986 and a "four minute rule" from the onset of maternal arrest to initiation of caesarean delivery was advocated. This time frame presents a significant challenge and even in well trained teams it can be very difficult to meet this benchmark. Transfer to an operating theatre is not usually possible and hence plans need to be in place to be able to perform the caesarean at the scene of the arrest. Only a minimum amount of equipment is required for this and in our institution this equipment forms part of a perimortem caesarean pack which is located on resuscitation trolleys in key areas of the hospital. As the fetus is likely to be severely compromised at birth, staff trained in neonatal resuscitation should form part of the response team.

The potential benefits of a perimortem caesarean include the relief of aorto-caval compression, improved chest mechanics and a decreased maternal oxygen demand as well as the improved chance of fetal survival. A perimortem caesarean is not usually recommended below 24 weeks gestation, although it may occasionally be indicated in situations where significant aorto-caval compression exists.

It is highly recommended that institutions practice mock scenarios in regards to collapse in pregnancy to help refine local protocols, especially in regards to perimortem caesarean deliveries. A number of multidisciplinary courses are now available to assist with training obstetric care providers.