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## Integrated Neonatal Support with Placental Transfusion and Resuscitation (INSPIRE)

TECH ID #: 1236.1

### Impact Statement

Current international guidelines for management of infants at birth suggest that there should be a delay before the umbilical cord is clamped, this may confer benefit by improving cardiovascular function and postnatal adaptation. Studies show that remaining connected to the umbilical for one to three minutes after birth reduces the risk of bleeding in the brain by as much as 50 per cent. The standard of care for healthy newborns is now to wait at least one minute after birth before cutting the umbilical cord.

### Description of Technology

Approximately 10 per cent of infants born annually in North America require some level of assistance at birth to begin breathing. Delayed cord clamping is not currently possible for these infants, as standard clinical guidelines recommend they be removed from placental circulation, primarily due to technical constraints of current resuscitation practices.

As such, infants who are *most vulnerable* are the ones *least likely* to experience the benefits of delayed cord clamping. To address this problem, clinicians and researchers at the University of Calgary have developed the mobile device INSPIRE, which allows resuscitation to occur while the infant remains attached to the umbilical cord.

### Areas of Application

- Any instance where neonatal resuscitation is required immediately after birth
  - Hospitals
  - Birthing centre

### Competitive Advantages

- Operation of resuscitation equipment is independent of external gas or electrical support
- Easy integration of resuscitation equipment (e.g., infant ventilator, oxygen blender, suction device, pulse oximeter, electrical timer, pre-warmed gel mattress)



- Motorized height adjustable platform suitable for all types of delivery
- Easily maneuverable, allowing infant and mother to remain close and achieve delayed cord clamping

## Stage of Development

The device is the first of its kind in Canada and has been used to help resuscitate and offer delayed cord clamping to > 20 pre-term infants in Alberta since its introduction.

## Media

<https://www.albertahealthservices.ca/news/Page12775.aspx>

<https://www.cbc.ca/news/canada/calgary/neonatal-transfusion-resuscitation-device-foothills-1.3300402>

<https://globalnews.ca/news/2314662/calgary-invention-gives-premature-babies-better-start-to-life/>

