LifeStart™
Neonatal Resuscitation Unit
Innovative technology for better outcomes

INDITHERM Medical
Inditherm have established themselves as experts in heating and warming solutions for a wide range of industries and applications. Their innovative, world-leading patient warming technology is widely used for patient care in surgery, neonatal and other critical care situations.

Despite the clear evidence of the benefit of delayed cord clamping, most guidelines state that priority should be given to resuscitation of the baby. The LifeStart unit now enables both of these to be achieved at the same time by making it practical to resuscitate with the cord intact.

The LifeStart system has been designed with comprehensive input from experienced paediatricians, midwives and obstetricians to ensure that it meets the demanding clinical needs. The key feature of the design is enabling the baby to be placed in a stable, warmed position without the need to cut the umbilical cord and still allow all the clinical staff the necessary access. Provision is made to add the user’s own preferred resuscitation devices to give a complete solution.

Clinical Background

The practice of clamping the umbilical cord almost immediately following delivery can probably be traced to the introduction of oxytocics to reduce post-partum haemorrhage in the mother and fears of increased incidence of hyperbilirubinaemia in the baby. However changes in drugs available and more recent research have rendered the approach of early cord clamping of no benefit in either respect.

There is a growing body of evidence showing that there are a number of very significant advantages for the newborn baby if clamping of the umbilical cord is delayed for three minutes or more following delivery. Delayed cord clamping (DCC) allows the baby to benefit from the continued supply of oxygenated blood from the placenta until spontaneous breathing is established, which can be of particular importance in the preterm neonate. It has been shown that if respiration starts before the cord is clamped then the risk of bradycardia is reduced.

Following delivery, provided the umbilical cord is not clamped, there is a process of blood transfer from the placenta to the baby, known as placental transfusion. Research has shown that during the three minutes immediately after birth this transfusion can account for over 30% of the newborn’s blood volume. If deprived of this volume the consequences can be critical, with hypovolaemia and reduced cardiac output, which can be of particular importance in babies with compromised cardiorespiratory function.

In pre-term babies lower blood volume in the baby increases the risk of intra-ventricular haemorrhage and a need for blood transfusion in the early stages, and late onset sepsis. In all babies there are also a number of longer term effects, such as anaemia and iron deficiency, lasting as long as 6 months. The deprivation of a significant volume of stem cells may also have implications on organ development and the spontaneous repair of any intra-partum injury. In addition to the shorter term benefits of delayed cord clamping, studies suggest that there are significant long-term effects, including a reduction in cognitive and behavioural problems.
Features and Benefits

**Comprehensive resuscitation capability**
- Easily configured to user preference
- Suited for all types of delivery
- Stable platform to aid resuscitation
- CosyTherm neonatal warming system*
- Adjustable height to suit delivery type
- In-built timer tracks clamping delay
- Easy addition of suction & PEEP resuscitator

* Supplied as a separate item

**Ergonomic design**
- Easily manoeuvrable
- Ergonomic top for placement of baby
- Compact design for easy positioning
- Simple, hands-free height adjustment

**Versatile system**
- Standard rail for ancillary equipment
- User choice of suction & resuscitation

An increasing number of national and international guidelines now recommend delayed cord clamping\(^{10,12}\). However, cardiorespiratory resuscitation and good early thermal management often remain a priority and thus prevent the practice of DCC in sick babies who are not considered suitable for "skin-to-skin" care. Preterm babies are likely to benefit most if clamping of the umbilical cord is delayed, yet these are the patients most likely to need resuscitation, making the provision of facilities to allow both these goals to be achieved together an important clinical need.

In summary, there are very significant benefits for the newborn if delayed cord clamping is practised, particularly in pre-term babies, with an ideal delay of at least 3 minutes, and the advantages extend well beyond the immediate post-delivery period. It has been established that there is no disadvantage for the mother in this approach which in reality exactly matches nature's own way.
**Product Range**

The key feature of the LifeStart design is enabling the baby to be placed in the right position for delayed cord clamping for all types of birth and still allowing clinical staff to have the necessary access and equipment for resuscitation of the baby.

The CosyTherm neonatal warming system is already the leading product in many markets for warming young babies in neonatal units, nurseries and delivery suites. The high performance, even with very small babies, and similarity with skin-to-skin nursing make it ideal for the immediate post-natal period. It warms from under the patient and so allows complete access to the baby, ensuring that there is no impediment to clinical treatment.

The in-built timer, with bright, clear, backlit display allows staff to easily track the time period with the cord intact and gives a clear alert after each of the first three minutes following delivery. This helps to optimise treatment by giving a clear reference of the clamping delay so that accrued benefit to the baby can be estimated, particularly in difficult situations.

The electrically operated raising and lowering mechanism allows the nursing platform to be easily positioned at the optimal height for each individual situation and adjusted as necessary. Foot pedal operation ensures that hands are free and aseptic techniques are not compromised.

The compact wheelbase and ergonomic design mean that the LifeStart unit, with all the resuscitation equipment, can be positioned close for types of delivery: natural; assisted; or Caesarean section. This ensures that all needed facilities can be accessible with the umbilical cord intact, giving the baby all the benefits of delayed cord clamping without compromising safety.

The standard equipment mounting rails allow the user to integrate resuscitation devices such as suction, blender and PEEP resuscitator. Inditherm can offer devices that are both compact and well suited for these functions or the user can fit their own choice of products if they prefer. Auxiliary mains power outlets are provided in case there is a need to add any extra equipment such as a pulse oximeter.
# Technical Specifications

**Construction:**

- Fabricated in mild steel, with powder coat paint finish, for durability and stability.
- Compact, low-profile wheelbase to allow easy and convenient positioning, close to mother, in all situations (natural birth, assisted delivery, Caesarean section, etc).
- High quality wheels, two with brakes.
- Electrically operated height adjustment with high quality actuator for smooth adjustment and complete stability.
- Ergonomic, unobtrusive resuscitation platform to give easy access to baby and convenient work environment.

**Adjustment:**

- Resuscitation platform height range from 0.8m to 1.2m from floor.
- Foot pedal operated adjustment to leave hands free and facilitate aseptic techniques.

**Timer:**

- In-built timer with bright, clear backlit display to monitor cord clamping delay.
- Intelligent audio alert at 1, 2 & 3 minutes from delivery.
- Battery operated for convenience, using 4 standard AA size 1.5V alkaline cells.
- Typical battery life 50 deliveries.

**Power:**

- 230 Vac or 110 Vac ±6%, 50/60Hz

**Dimensions:**

<table>
<thead>
<tr>
<th>Base: Height: Weight:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size: 570mm x 590mm</td>
</tr>
<tr>
<td>Maximum patient load:</td>
</tr>
<tr>
<td>Maximum additional equipment load:</td>
</tr>
</tbody>
</table>

**Accessories:**

- Two medirail mounting bars with range of attachment positions to suit user preference.
- Two mains power IEC outlets for ancillary equipment.
- CosyThermNT neonatal warming system recommended.
- Low flow venturi suction, air/oxygen blender and PEEP resuscitation can be supplied as optional devices to mount on the LifeStart unit.

**Compliance:**

- EN ISO 60601, Class I
- EN ISO 60601-1-2
- EEN ISO 60601-2-52
- 93/42/EEC, EEC Medical Devices Directive, Class I
References


3. Van Rheenen P. Delayed cord clamping and improved infant outcomes. BMJ. 2011; 343:d757


5. Andersen P et al. Effect of delayed versus early umbilical cord clamping on neonatal outcomes and iron status at 4 months: a randomized controlled trial. BMJ. 2011;343:d757


INDITHERM
Medical
Houndhill Park
Bolton Road
Rotherham
S63 7LG
United Kingdom
Telephone: +44 (0)1709 761000
Fax: +44 (0)1709 761066
Email: sales@inditherm plc.com
Website: www.inditherm.com/medical

MED LS01 0313