NEW ZEALAND
Resuscitation Council
WHAKAHAUORA AOTEAROA

Resuscitation of the Newborn – Removal of initial sustained inflation (SI) ventilations

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Tēnā koutou

Resuscitation of the Newborn – Removal of initial sustained inflation (SI) ventilations

The NZ Resuscitation Council, following consultation with the Newborn Clinical Network and the NZ College of Midwives, recommend that in the teaching and clinical application of newborn resuscitation in New Zealand, the current practice of initiating resuscitation with 5 inflation, 3 second inspiratory time ventilations be discontinued.

We acknowledge that there will be a period of transition in clinical practice. NZ Resuscitation Council resources are being updated to reflect this change and the removal of teaching of SI ventilations can be integrated into course delivery.

We emphasise that there is no evidence to suggest that current practice causes harm. This recommendation comes following our review of the currently available science. In summary our review found:

1. There is currently no evidence in non-anaesthetized, non-intubated models that SI ventilations of this design achieve the desired outcome of accelerating the transition from a fluid filled newborn lung to a gas filled organ.[1]

   The International Committee on Resuscitation (ILCOR) Neonatal Task Force last reviewed the evidence regarding SI ventilations in 2020.[2] No recommendation for the use of SI ventilations could be made for Term and Late Preterm babies as there was no evidence at that time to support the use of any specific duration. Likewise, no recommendation could be made for Preterm babies. For this group ILCOR suggested against any SI ventilations longer than 5 seconds.

2. In addition to New Zealand, the current design of delivering SI ventilations is only practiced in the UK and Europe. The practice throughout America, Asia and importantly Australia, is to give the first 30–60 seconds of ventilations with a higher peak inspiratory pressure.

3. The removal of SI ventilations is a simplification of approach, reducing the risk of confusion and the overall training burden for novice candidates and those who typically would resuscitate infrequently.

Included is an outline of the new recommended sequence for resuscitation of the newborn, and a Q and A summary. For any additional questions, please contact info@resus.org.nz

Ngā mihi nui

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Chair

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References:

1. Barnat NA, Soll RF. Commentary on "Sustained versus Standard Inflations during Neonatal Resuscitation to Prevent Mortality and Improve Respiratory Outcomes". Neonatology 2021; 118:143-144

2. Nolan J P et al. Executive Summary 2020 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. Resuscitation 2020, 156, A1-A22

Resuscitation of the Newborn – Q and A

Why are we making this change now?

In the absence of evidence to support the use of initial sustained inflation ventilations, it's important to simplify our approach and align practice in NZ with our Australian colleagues.

Why have we been doing initial sustained inflation ventilations?

This practice was introduced when New Zealand embraced the Resuscitation Council of the United Kingdom (Northern Neonatal Network) in the late 1990's.

It's very important to emphasise that there is no evidence to suggest harm has been caused by initial sustained inflation ventilations, as currently practiced in NZ. We are making this change because there is no evidence to support any benefit.

What is the recommended approach to beginning resuscitation of the newborn now?

For all babies born with breathing effort absent or judged inadequate, resuscitation starts with 30 seconds of ventilations at a rate of 40–60 ventilations per minute.

If using a T-piece resuscitator, modified ventilations are used with increased peak inspiratory pressure (PIP). Reassessment occurs every 30 seconds with consideration of airway maneuver interventions, one of which could be alterations in PIP. For more details see the process outline below.

I work in a primary health care setting, how is my approach different when I don't have a T-piece resuscitator?

If using a bag mask ventilation device, resuscitation starts with 30 seconds of ventilations at a rate of 40–60 ventilations per minute. Reassessment occurs every 30 seconds with consideration of airway maneuvers.

As an NLS Advanced Instructor, when do I introduce this change to my teaching?

Our course resources are being updated to reflect this change. The removal of teaching of SI ventilations can begin from now. We have acknowledged that there will be a period of transition in clinical practice.

Initial Resuscitation of the Newborn

For babies born with breathing effort absent or judged inadequate:

1. Start with 30 seconds of ventilations with a rate of 40–60 per minute:

If using a T-piece resuscitator:

- Use ventilations with a peak inspiratory pressure (PIP)
  - For term babies 30 cmH_2O
  - For preterm (< 32 weeks) 20 cmH_2O
- PEEP 5 cm

2. After 30 seconds assess response:

Heart rate / chest rise; breathing effort / tone

If the baby is responding to the initial ventilations, consider reducing the PIP by 5 cmH_2O

If breathing or airway not established; consider airway maneuvers using "**CHOPSS**"

- **C**hin lift / Jaw thrust
- **H**ead position
- **O**ropharyngeal airway
- **P**ressure (PIP)
- **S**uction
- **S**eal

If the baby is not responding, consider increasing the PIP in 5 cmH_2O increments every 30 seconds to the maximum recommended pressure.

- Max 40 cmH_2O term
- Max 30 cmH_2O preterm

3. Every 30 seconds continue to reassess response