



**Resuscitation at Birth**

**Neonatal**

**Paediatric <50 kg**

**Paediatric 50 kg+**

**Burns**

**NETS**  
"moving intensive care for kids"  
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**This document expires on: Mar 31, 2020 (35 days)**  
For the latest version, please go to [online clinical calculator](#) or contact NETS

**NETS CLINICAL CALCULATOR**

**Disclaimer**  
This clinical calculator is made available as an on-line aid to clinicians providing critical care of newborns, infants and children prior to the arrival of a NETS retrieval team. It is provided "as is" and without support or warranty of any kind. Although NETS uses this tool and has sought to verify the contents and calculations in good faith, no responsibility is accepted for its use by others. The clinical calculator should always be used directly from the website for each individual patient and not stored locally since NETS reviews and updates the calculator regularly to maintain currency. Stored copies should not be used.

This document is not a substitute for a legible, carefully checked prescription. It is intended to give guidance in the preparation and administration of intravenous drugs. It has been designed to meet the particular needs of NETS retrieval teams and is not appropriate for every situation.

For some of the drugs there is a dose range given. A dose that has been used for the preparation is indicated on the "based on" column. Doses and volumes which are calculated from the weight are indicated by a box around the calculated dose. Doses are written in square boxes. Doses and volumes which have been rounded with varying degrees of precision are indicated by a box around the dose or volume.

The infusion calculator gives a dose to be added to the syringe and the volume of the drug. This is defined as a step that requires someone to perform a calculation manually. The final infusion rate is calculated by dividing the dose by the time. To give up the same concentration in a smaller syringe, the dose should be added into the syringe and diluted to the required volume. In a fluid restricted child it may be necessary to make certain infusions more concentrated.

Neonatal ETT sizes and connections are based on the guideline procedure in the Australian Resuscitation Council (2010), nasal lengths are based on the retrograde paediatric ETT table. The weight-based formula for ETT length is based on the APLS (2011) formula. For paediatric ETTs, the weight-based formula is limited in Lau et al (2006) are used. The ETT lengths provided are for general purpose, and will not be suitable for all patients. The aim should be careful positioning guided by direct observation at the bedside.

Acute care of the newborn infant requires a range of procedures for which a range of appropriate equipment and consumables of limited quantities may be vital. The Resuscitation at Birth calculator does not replace clinical expertise and procedural skills. The most senior and experienced practitioner should be available for any very sick patient; prior to the NETS retrieval team's arrival until the baby's departure for hospital.

Please check all prescriptions and medication carefully as NETS takes no responsibility for the accuracy of doses or calculations. This dose calculator is designed to be used in conjunction with appropriate formularies which contain information on drug interactions, compatibilities, cautions, side effects, rates of flow, maximum/minimum doses and drug monitoring.

This version authored by Adrian Bonnell, NETS CMO based on previous versions by Ian Brathwaite, NETS Retrieval Nurse, and Jeannette Marchant, NETS Retrieval Consultant. Original concept by Dr Andrew Barry, NETS State Director with further development by Dr Janel Puthucherry. Many thanks to all the staff of NETS. Designed for Adobe Reader version 8.0 or higher: <http://get.adobe.com/reader>. Any queries or suggestions, contact: [info@nets.health.nsw.gov.au](mailto:info@nets.health.nsw.gov.au). (Updated March 2019)

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Weight ranges:  
Resuscitation: 400g to 500g  
Neonatal: 4kg to 6kg  
Paediatric: 6kg to 50kg  
Adult: 50kg to 150kg  
Paediatric: 4kg to 150kg

Warning for children <28 days or >14 years. Maximum age is 16 years.

Estimated paediatric weight ranges:  
(Uses Best Guess formula extrapolated for ages 15-16 years. Age is in completed years.)  
Age between 2-5 years: weight = (age + 5) x 2  
Age between 5 and 16 years: weight = 4 x age

4:2:1 rule:  
For maintenance use 4 mL/kg/hr for the first 10 kg + 2 mL/kg/hr for the second 10 kg + 1 mL/kg/hr for each subsequent kg  
For example: 25 kg = (10 x 4) + (10 x 2) + (5 x 1) = 65 mL/hr

**Hypertonic NaCl**  
Warning - hypertonic NaCl solutions should be used with extreme caution and under expert guidance\*\*  
To dilute a 20% NaCl solution into a 3% NaCl solution, mix 20% NaCl with 0.9% NaCl in the ratio 1:8.  
For example: 10 mL of 20% NaCl added to 80 mL of 0.9% NaCl gives 90 mL of 3% NaCl.

**Customised Glucose Concentrations**  
To increase the glucose concentration in a 500mL bag of fluid, use the following formula:  
Volume of 50% glucose (mL) to add to the bag of fluid = Final glucose percentage required - starting glucose percentage (in bag) x 10  
For example, to make a 500 mL bag of 5% glucose up to 10% glucose: (10 - 5) x 10 = 50  
... discard 50 mL from the 5% glucose bag and add 50 mL of 50% glucose to the bag. Mix well.

**Check and verify all doses and rates.**  
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The old PDF NETS Clinical Calculator or 'Drug Calculator' has been retired and is no longer available.

There is a new web-based NETS Clinical Calculator at <https://calc.nets.org.au>.

Log in to the [NETS website](#) & navigate to the Clinical Calculator on the Health Professionals menu for more information.

## NETS Clinical Calculator

Version 5.1

"moving intensive care for kids"  
Patient Referral Hotline: 1300 36 2500  
Calculator Technical Support:  
[clincalc@nets.health.nsw.gov.au](mailto:clincalc@nets.health.nsw.gov.au)

**Resuscitation at Birth**

(weights: 0.4 - 5.0 kg)

**Neonatal Calculator**

(weights: 0.4 - 6.0 kg)

**Paediatric Calculator**

(weights: 4 - 150 kg, ages: 29 d - 16 yr)

**Burns Fluid Calculator**

(weights: 0.4 - 150 kg)

Enter Weight:  Kg

[Disclaimer, Further Information & References](#)

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