NLS guidelines 2025

MUDr. K. Krylová, PhD.

NEONATAL LIFE SUPPORT
KEY MESSAGES

GUIDELINES 2025
EUROPEAN RESUSCITATION COUNCIL©

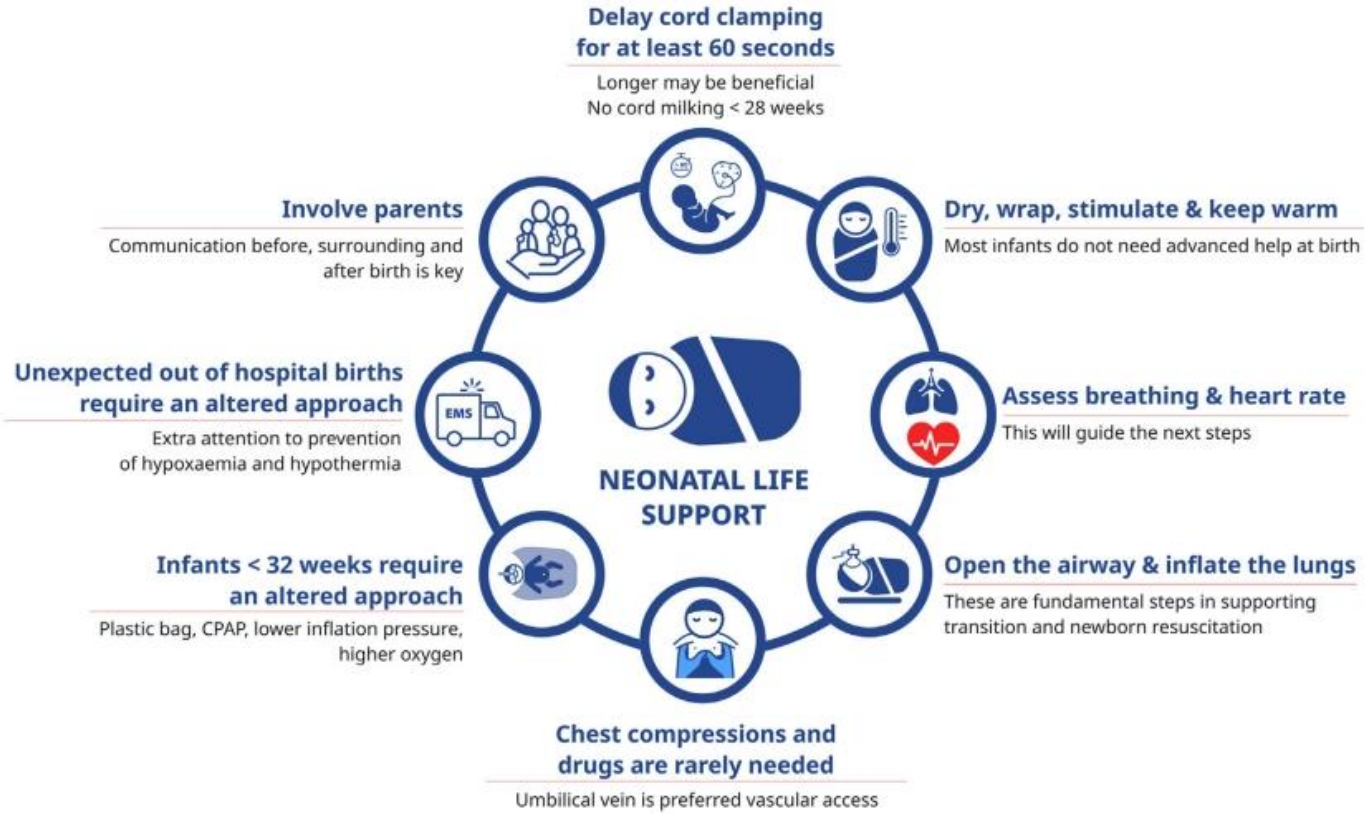

Fig. 1 – Neonatal life support – key messages.

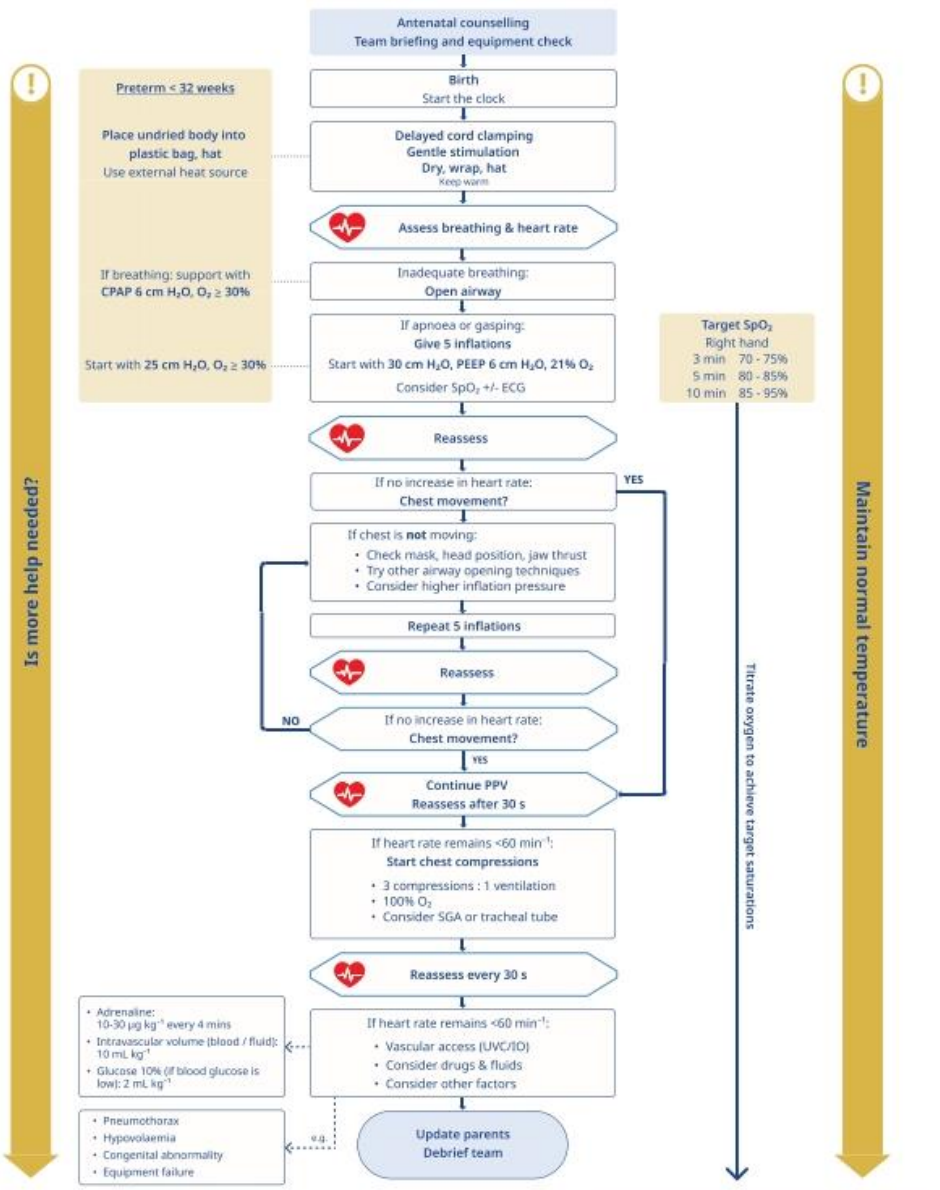

Fig. 2 – Neonatal Life Support algorithm. CPAP: continuous positive airway pressure; ECG: electrocardiography; IO: intra-osseous needle; PEEP: positive end-expired pressure; PPV: positive pressure ventilation; SGA: supraglottic airway; SpO2: peripheral oxygen saturation; UVC: umbilical venous catheter.

GUIDELINES 2025

Antepartum factors

Fetal

- Intrauterine growth restriction
- < 37 weeks gestation
- Multiple pregnancies
- Serious congenital abnormality
- Oligo and polyhydroamnios

Maternal

- Infection
- Gestational diabetes
- Pregnancy-induced hypertension
- Pre-eclampsia
- High BMI
- Short stature
- Preterm lack of antenatal steroids

Intrapartum factors

- Evidence of fetal compromise
- Meconium stained amniotic fluid
- Birth by vaginal breech
- Forceps or vacuum delivery
- Significant bleeding
- C-section before 39 weeks
- Emergency C-section
- General anaesthesia
- Out of hospital birth

Fig. 3 – Common factors associated with the need for stabilisation, or resuscitation at birth BMI: body mass index.

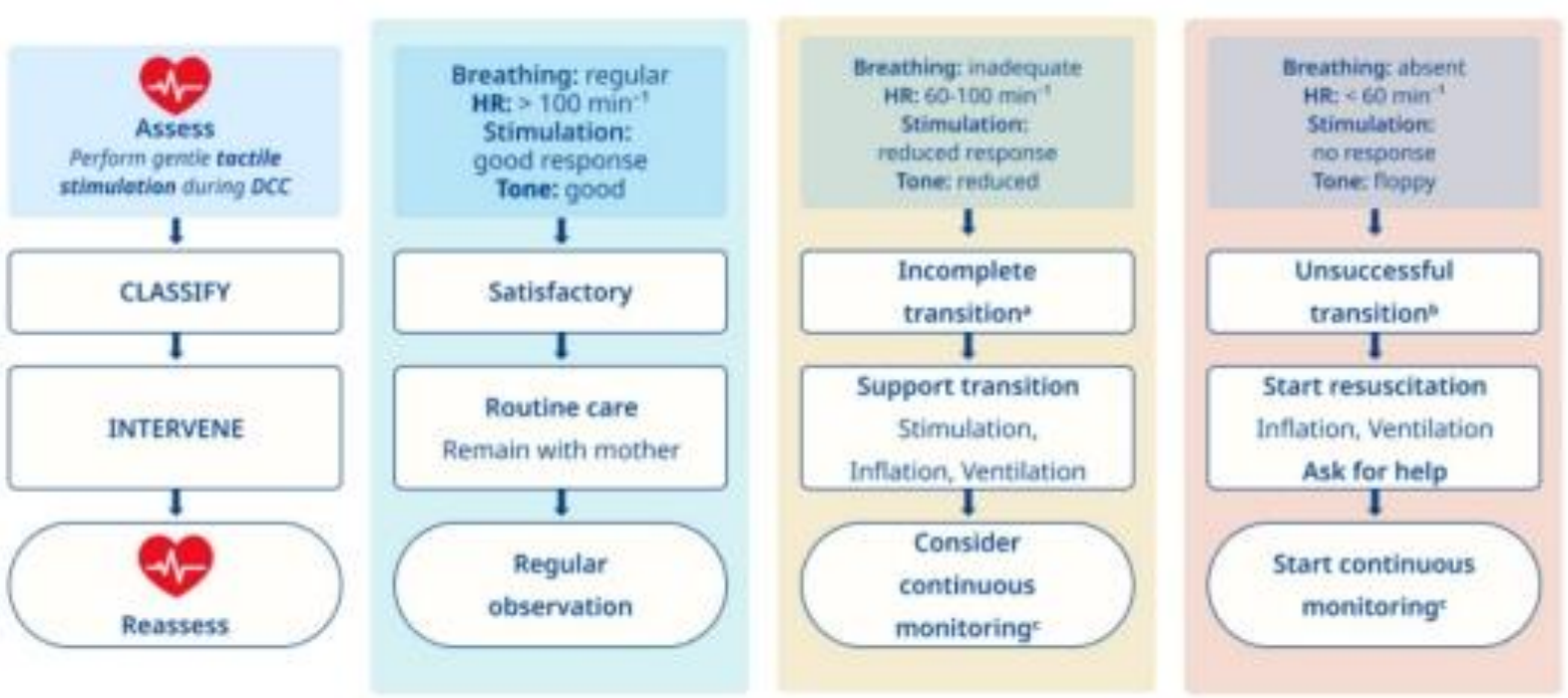

Fig. 4 – Initial assessment and interventions. DCC: delayed cord clamping; HR: heart rate; SpO2: peripheral oxygen saturation; ECG: electrocardiography. [a] Slow HR may indicate hypoxia, so airway and breathing require support. Ventilatory support will likely be adequate for a higher HR and adequate transition. [b] HR suggestive of significant hypoxia, so airway and breathing support required urgently. [c] SpO2 +/- ECG.

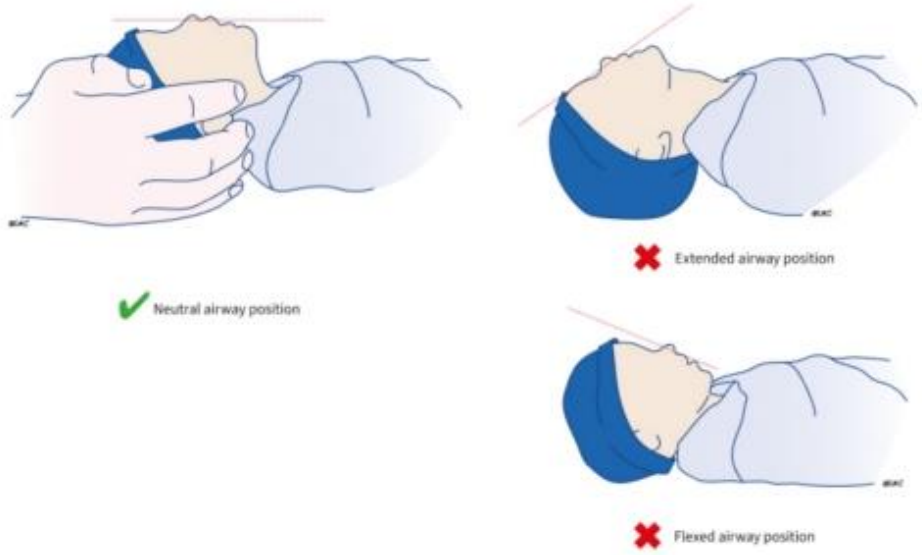

Fig. 5 – Head positions. Head needs to be in a neutral position. Face is horizontal.

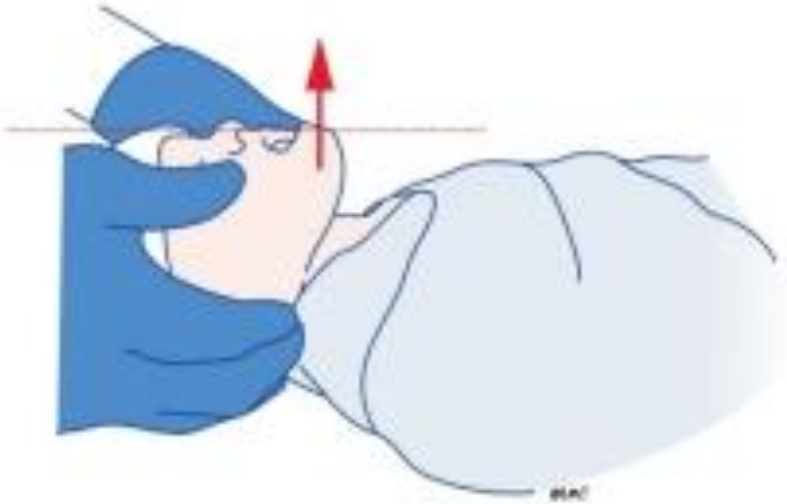

Fig. 6 – Jaw thrust. Jaw thrust = pushing the lower jaw forwards with pressure from behind, enlarges the pharyngeal space.

Fig. 9 – Two thumbs encircling technique for chest compressions.

Table 2 – Assessment of breathing and heart rate.

	Assessment	Intervention
Breathing assessment		
Regular	Satisfactory	None required
Slow, gasping or grunting	Inadequate	Assess – may require intervention
Not breathing	Absent	Intervention required
HR assessment		
>100 min^{-1} (fast)	Satisfactory	None required
60–100 min^{-1}	Inadequate	Assess – may require intervention
<60 min^{-1}(very slow or absent)	Emergency	Intervention required

Table 4 – Target oxygen saturation ranges. Derived from Dawson et al. 2010 and Wolfsberger et al. 2024, and consensus within the NLS WG.[10–12]

Time after birth	SpO_2 [%]
3 min	70–75
5 min	80–85
10 min	85–95

Table 3 – Inflations, inflation pressure, positive end-expiratory pressure and initial oxygen.

GA	Inflations	PIP	PEEP	O_2
≥32 weeks	5 x up to 2–3 s	30 cm H_2O	6 cm H_2O	21 %
<32 weeks	5 x up to 2–3 s	25 cm H_2O	6 cm H_2O	≥30 %

Klíčové změny guidelines	
Kdy použít NLS?	Porodní sál / Neo JIP, jinak PLS
Jak u novorozenců pod 25./24.GT?	Nedostatečná data
Telemedicína	Může pomoci zlepšit péči, je vhodné ji podle možností zvážit
Pomůcky a prostředí	Optimální uložení a dostupnost pomůcek se zaškolením personálu pro minimalizaci časových prodlev při poskytování péče
Odložený podvaz pupečníku	U všech novorozenců, hlavně nedonošených, do 30s při potřebě resuscitace = neoddalovat ji
Milking pupečníku	Nikdy pod 28.GT, alternativa odloženého podvazu při potřebě resuscitace
Iniciální hodnocení barvy kůže	Příliš subjektivní, proto opuštěno
Hodnocení TF	Na úvod poslechem, dále vhodnější EKG monitoring
Zajištění DC	Vhodné držení 2 osobami + dále použití supraglotických pomůcek při nedostupnosti intubace

Klíčové změny guidelines	
DC - videolaryngoskopie	Použití zvyšuje úspěšnost 1.pokusů intubace, klasická intubace jako standard
Dechová podpora – CPAP/ PEEP	Používat obličejovou/ nosní masku/ nostrily adekvátní velikosti a PEEP + 6cm H2O; zvážit CPAP u > 32.GT s RDS a potřebou oxygenoterapie
Kyslík	> 32.GT začít 21%, < 32.GT začít min. 30%
Cílové Sp02	3.minuta: 70-75%, 5.minuta: 80-85%, 10.minuta: 85-95%; při SpO2 nad 95% snižovat oxygenoterapii
Cirkulace	Při potřebě srdeční masáže zajistit DC intubací/ supraglotickými pomůckami
Adrenalin	10-30ug/kg v ředění 1:10000 i.v./i.o. á 4 minuty
Bikarbonát, Naloxon	2025 vynecháno
Glukóza	Kontrolovat glykemii během resuscitace, podat při hypoglykemii 2ml/kg 10% G i.v.
Porod bez vybavení/ mimo ústav	Speciální podkapitola, klíčové zabránit hypotermii, stabilizovat a dopravit do nemocnice
Zapojení rodičů	Na guidelines spolupracovala rodičovská organizace, je zde podkapitola k jejich zapojení

App Store or Google Play Store

Scan for the Guidelines App

RESUSCITATION 215 (2025) 110766

Available online at ScienceDirect

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

ELSEVIER

EUROPEAN RESUSCITATION COUNCIL

Practice Guideline

European Resuscitation Council Guidelines 2025 Newborn Resuscitation and Support of Transition of Infants at Birth

Marije Hogeveen[a,1,], Vix Monnelly[b,1], Mathijs Binkhorst[a], Jonathan Cusack[c], Joe Fawke[c], Darjan Kardum[d,e], Charles C. Roehr[f,g,h], Mario Rüdiger[i], Eva Schwindt[j], Anne Lee Solevåg[k,l], Tomasz Szczapa[m,n], Arjan te Pas[o], Daniele Trevisanuto[p], Michael Wagner[q], Dominic Wilkinson[r,s,t], John Madar[u,v]*

Abstract

These European Resuscitation Council (ERC) Guidelines 2025 on Newborn Life Support are based on the International Liaison Committee on Resuscitation (ILCOR) Consensus on Science wtih Treatment Recommendations (CoSTRs) for Neonatal Life Support. These Guidelines present a logical approach to resuscitation and support of transition to extra-uterine life, for both preterm and term newborn infants. These Guidelines include factors before birth, training and education, thermal control, management of the umbilical cord after birth, initial assessment, airway, breathing and circulation assessment and interventions, emergency vascular access, low resource and out of hospital settings, communication with parents, and considerations on withholding and discontinuing life sustaining treatments. Life support guidelines for older infants and children are covered in the ERC Guidelines 2025 Paediatric Life Support.