

# Consensus Statement for Infant Car Seat Challenge (ICSC) Testing: UCSF Northern California Neonatal Consortium (NCNC)

## Executive summary

### Objectives

- To eliminate practice variation around Infant Car Seat Challenge (ICSC) testing.
- To reduce unnecessary prolonged hospital stays or use of car beds for infants.

### Recommendations

- The NCNC does not recommend routine ICSC testing before discharge for preterm infants or other infants thought to be “at risk” for abnormal oxygenation when in a carseat.
- Parents and other care providers should be counselled regarding safe car seat use and be able to demonstrate appropriate technique and practice – preferably using their own car seat – before their infant is discharged from hospital.

### Methods

This guideline was developed through local consensus based on published evidence and expert opinion as part of the UCSF Northern California Pediatric Hospital Medicine Consortium.

### Metrics Plan

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## Introduction

### Inclusion Criteria:

- Any infant in whom a car seat test might previously have been considered. For example:
  - Are less than 37 weeks GA at birth, or less than 2500 grams
  - Have other medical conditions, which may put the infant at risk for respiratory compromise in a car seat
  - Infant with respiratory or cardiac conditions
  - Infants with neuromuscular abnormalities
  - Infants with craniofacial malformations that can lead to abnormal airway
  - Infant with history of apnea
  - Any infant thought to be “at risk” for abnormal oxygenation

### Background

- The American Academy of Pediatrics (AAP) recommends that all neonates born at <37 weeks gestation receive a pre-discharge Infant Car Seat Challenge (ICSC) to assess the risk for desaturation, apnea, or bradycardia
- The Canadian Pediatric Society (CPS) does not recommend ICSC
- Kaiser Permanente in Northern and Southern California does not perform car seat tests
- A retrospective review of 1173 preterm neonates over 2 years found no statistically significant or clinically important difference between those who passed and those who failed (Davis et al. 2013).
- Another study looked at 7899 infant cared for in 788 hospitals (Jensen et al. 2017)
  - Car seat challenge failure was associated with longer post-test hospitalization, but no difference in the risk adjusted odds for 30-day mortality or hospital readmission
- A study of 60 preterm infants born between 30<sup>0/7</sup> weeks' GA to 36<sup>6/7</sup> weeks' GA were studied at a minimum corrected GA of 35<sup>0/7</sup> weeks using three consecutive ICSCs, conducted every 24 h to 48 h. (Davis et al 2014).
  - 11% of infants that passed a first test failed one of the two subsequent tests.
- These studies cast doubt as to the reliability, reproducibility, and utility of the ICSC.

### Recommendations

- Using a car seat challenge (ICSC) to determine if a baby can be safely discharged home **should not be standard practice** due to inconsistency of ICSC results and lack of association with mortality risk.
  - A car seat test may be done on a case-by-case basis if there is provider concern, but there is minimal evidence for doing so.
- Instead, safety for discharge should be assessed based on other signs of physiologic maturity
- Parents and other care providers should be counselled regarding safe car seat use and be able to demonstrate appropriate technique and practice – preferably using their own car seat – before their infant is discharged from hospital.

## References

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Jensen, E., Foglia, E., Dysart, K., Aghai, Z., Cook, A., Greenspan, J., & DeMauro, S. Car Seat Tolerance Screening in the Neonatal Intensive Care Unit: Failure Rates, Risk Factors, and Adverse Outcomes. J Pediatrics 2018; 194: 60-66.

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