

# NICU Premature Oral Motor Intervention

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## Abstract

Speech-Language Pathologists in the NICU are tasked with many roles and responsibilities. An SLP needs to be aware of what these different roles and responsibilities require because, with an “increase in the birth and survival rate of the premature infants, a need for supportive health care services becomes more evident” (Ghomi et al., 2019). This presentation will provide an overview of the general roles and responsibilities of SLPs within the NICU. Specifically, Premature Infant Oral Motor Intervention (PIOMI) will be discussed. PIOMI was compared to Oromotor Stimulation (OMS), and it was found to ultimately be more effective on oral feeding readiness than OMS (Sumarni et al., 2021). PIOMI has also been linked to a decreased length of hospital stay in premature infants (Ghomi et al., 2019). Given the effectiveness of PIOMI, it is beneficial to be aware of the rationale and implementation of this technique and the associated benefits.

**Learning Outcomes:** At the culmination of this session, participants will be able to

Outcome 1: List the general roles of the SLP in the NICU

Outcome 2: Describe the rationale and implementation of Premature Infant Oral Motor Intervention

Outcome 3: Identify the known benefits and implications of premature oral motor intervention

## Introduction

The need for SLPs within the setting of the NICU has grown, and “American Speech-Language-Hearing Association (ASHA) recognized the need for a comprehensive set of documents defining the roles and responsibilities, evidence-based practice, and the needs in research and education for SLPs working in the NICU” (Greenlee, 2013). The “Ad Hoc Committee on Speech-Language Pathology Practice in the Neonatal Intensive Care Unit was formed” to draft documentation for SLP roles within the NICU and “ASHA’s Legislative Council in 2004” accepted these (Greenlee, 2013). The main roles of SLPs in the NICU can be put into four sections

- “(a) communication evaluation and intervention,
- (b) feeding and swallowing evaluation and intervention,
- (c) parent/caregiver education and counseling, staff (team) education and collaboration, and
- (d) other roles” (Greenlee, 2013).

The main role that this presentation will focus on is a specific type of feeding intervention known as Premature Infant Oral Motor Intervention or PIOMI.

## The Rationale and Implementation of PIOMO

The increase in the rate of survival of preterm infants the “immature oral feeding ability” has been negatively affecting their typical development and causing an increase in “morbidity in this given population” (Tian et al., 2015). Considering the morbidity increase and development impact on infants, it is important that all SLPs within the NICU provide appropriate care that leads to the best outcome for all premature infants when feeding (Tian et al., 2015). Premature Oral Motor Intervention or PIOMI “provides assisted movement to activate muscle contraction and provides movement against resistance to build strength” (Lessen, 2011). PIOMI was created as an 8-step process that is completed in 5 minutes with techniques used on the preterm infant’s oral structures to “accommodate the small size oral cavity, and correct positioning was included to ensure proper head and neck support” (Lessen, 2011). The technique is appropriate for preterm infants at 29 weeks postmenstrual age for “10 days of 5-min intervention” (Ghomi et al., 2019). During treatment with PIOMI, the following occur (Shokri et al., 2022):

- Stimulation of facial and oral structures
- Roll curl and stretch the lips
- Cheek stretching
- Massaging tongue, gums, cheek and palate
- Initiating a suck
- NNS

PIOMI PREMATURE INFANT ORAL MOTOR INTERVENTION				
8 Steps	Technique	Purpose	Frequency	Duration
Cheek C-Stretch	1. Place a finger inside the cheek, and one on the outer cheek. Slide and stretch front to back (forward the ear), then down, then back to front (C pattern). 2. Repeat for other side.	Improve range of motion and strength of cheeks, and improve lip seal.	2X each cheek	30 sec
Lip Roll	1. Place a finger on the inside and thumb on outside of upper lip. 2. Move finger in horizontal direction while moving thumb in opposite direction (rolling lip between fingers). 3. Do on the left side of lip, then repeat on right side (2 placements). 4. Repeat on lower lip.	Improve lip range of motion and seal.	1X each lip	30 sec
Lip Curl or Lip Stretch	1. Place a finger on outside of upper lip, and one on the inside. 2. Gently compress lip, and stretch downward towards midline, moving across lips. 3. Repeat on lower lip, stretching upward. Or (If lips are too small to grab for Lip Curl, replace with this Lip Stretch) 1. Lay finger across upper lip, slightly compressing tissue. 2. Move tissue horizontally, stretching to one side, then the other. 3. Repeat for bottom lip.	Improve lip strength, range of motion, and seal.	1X each lip	30 sec
Gum Massage	1. Place finger on left side of the upper gum, with firm sustained pressure slowly move across the gum to the other side. 2. Move down the lower gum (to continue a circle), with firm sustained pressure slowly move across to other side.	Improve range of motion of tongue, stimulate swallow, and improve suck.	2X	30 sec
Lateral Borders of Tongue/Cheek	1. Place finger at the level of the molar between the side blade of the tongue and the lower gum. 2. Move the finger toward midline, pushing the tongue towards the midline. 3. Then move the finger back and all the way into the cheek, stretching it.	Improve tongue range of motion and strength.	1X each side	15 sec
Midblade of Tongue/Palate	1. Place finger at center of the mouth, give sustained pressure into the hard palate for 3 seconds. 2. Move the finger down to contact center blade of the tongue. 3. Displace the tongue downward with a firm pressure. 4. Move the finger back up to the center of the hard palate.	Improved tongue range of motion and strength, and improve suck.	2X	30 sec
Elicit a Suck	1. Place finger at the midline, center of the pallet, gently stroke the palate to elicit a suck.	Improve suck, and soft palate activation.	N/A	15 sec
Support for Non-Nutritive Sucking	1. Leave finger/pacifier in mouth (or place pacifier in mouth) and allow sucking.	Improve suck, and soft palate activation.	N/A	2 min

The above image was taken from Ghori, H., Yadegari, F., Soleimani, F., Knoll, B. L., Noroozi, M., & Mazouri, A. (2019). The effects of premature infant oral motor intervention (PIOMI) on oral feeding of preterm infants: A randomized clinical trial. *International Journal of Pediatric Otorhinolaryngology*, 120, 202–209. <https://doi.org/10.1016/j.ijporl.2019.02.005>

## PIOMI Resource



## PIOMI Benefits and Implications

Known Benefits of PIOMI:

- enabled infants “to transition from gavage to total oral feeding on an average of 5 days sooner than controls” (Lessen, 2011).
- “PIOMI improved oral feeding skills, enhanced feeding readiness and increased effectiveness of oral feedings” (Mahmoodi et al., 2019).
- Infants who underwent PIOMI were discharged “9.47 days earlier” than the control group (Ghomi et al., 2019).

## Conclusion

It is important that SLPs are aware of the best practices to use within the NICU to support premature infant and their caregivers. Premature Infant Oral Motor Intervention is a beneficial treatment for premature infants in the NICU. It is essential that SLPs’ within the NICU become familiar with PIOMI in order to accurately conduct the treatment within the NICU. Not only should the SLP in the NICU be trained in PIOMI, but it is also essential that the SLP keep up with all important information and treatment found to be beneficial within the NICU.

## Acknowledgements

