

Premature Infant Oral Motor Intervention Background & Continued Evidence

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Premature Infant Oral Motor Intervention



- Provides assisted movement to activate muscle contraction
- Provides movement against resistance to build strength
- Focus is to increase functional response to pressure and to movement, and control of movement for the lips, cheeks, jaw, and tongue
- Cheeks, lips, gums, tongue and palate are targeted per specific techniques for **3 minutes** > 5 mins
- Ends with non-nutritive sucking for **2 minutes**



Feeding Difficulties in Preterm Infants

Functional and neurologic immaturity of the oral motor structures

Immature sucking skills

Lack of coordination of suck, swallow & breathe

Exposure to negative oral stimuli

Inability to maintain physiologic stability & weight during oral feeding progression

Feeding difficulty & prolonged length of hospital stay

Preterm Oral Musculature

Preterm infants have poor oral-motor control related to:

- Weaker muscle tone around mouth
- Less sensation
- Decreased lip strength and lip seal
- Less tongue strength
- Decreased sucking strength & endurance



Intervention Fidelity is VITAL

"The competent & reliability delivery of an intervention or treatment by the interventionist."

It means that an intervention...

- ✓ Has a clear, accurate **TRAINING PROGRAM**
- ✓ Can be **CONSISTENTLY PERFORMED** across sites
- ✓ Provides **INTERNAL VALIDITY** to the global studies
- ✓ Allows **ACCURATE REPLICATION** in global studies

Standardized Training is KEY!



The PIOMI has established Intervention Fidelity
Lessen, Morello & Williams, 2015

	Correct Order	Correct Technique	Correct Timing	TOTAL RELIABILITY
Interobserver	100%	97.20%	95.52%	97.57%
Interuser				97.59%
RN A and RN B	100%	95.83%	93.33%	96.39%
RN A and RN C	100%	97.87%	97.87%	98.58%
RN B and RN C	100%	97.92%	95.45%	97.79%
Test-Retest				97.58%
RN A	100%	100%	95.65%	98.55%
RN B	100%	100%	95.35%	98.45%
RN C	100%	100%	87.23%	95.74%

Comparative International Studies

Lessen
(2011)
IL, USA

- Sample Size: 19 1x day 7 days PIOMI vs control
- PMA (At Birth): 26-29 weeks
- PMA (At PIOMI Start): 29 weeks
- PMA at first bottle feed: Mean = 31.4 weeks
- Results: **Transitioned to total feed 5 days sooner, ↓LOS**
- P = 0.043



Mahmoodi et al
(2013)
Tehran, Iran

- Sample Size: 50 1x day 7 days PIOMI vs control
- GA (At Birth): 28-32 weeks
- GA (At PIOMI Start): 29-32
- GA at first bottle feed: Mean = 33 weeks
- Results: **Earlier first bottle feed, ↑ % of total feed, ↓LOS**
- P = 0.034, P < 0.0001, P = 0.027



Rearkyai et al
(2014)
Bangkok, Thailand

- Sample Size: 30 7 days PIOMI vs control
- PMA (At Birth): 31-34 weeks
- PMA (At PIOMI Start): m=33
- PMA at first bottle feed: 34
- Results: **↑ Feeding efficiency days 1,3,5**
- P < 0.001



Osman, et al
(2016)
Assuit, Egypt

- Sample Size: 75 7 days PIOMI vs 8-full fdg vs control **HI/LO D**
- PMA (At Birth): 30-32 weeks
- PMA (At PIOMI Start): 30-32 weeks
- PMA at first bottle feed: Mean = 33 weeks
- Results: **High dose PIOMI = better transition time and LOS**
- P < 0.0001



Thakker, et al
(2018)
Vadodara, India
(NOT Pre-feeding-DURING feeding)

XIAO-li et al,
(2014)
Better NOMAS

LinLin, et al
(2016)
Breastfeeding

Kamiitsuka, et al
(2017)
Home tube fdg

Arora, et al
(2018)
NOMAS/Wati Spoon

Zhang, et al
(2018)
Better NNS Score

Lessen Knoll, et al
(2019)
Exponential improvement

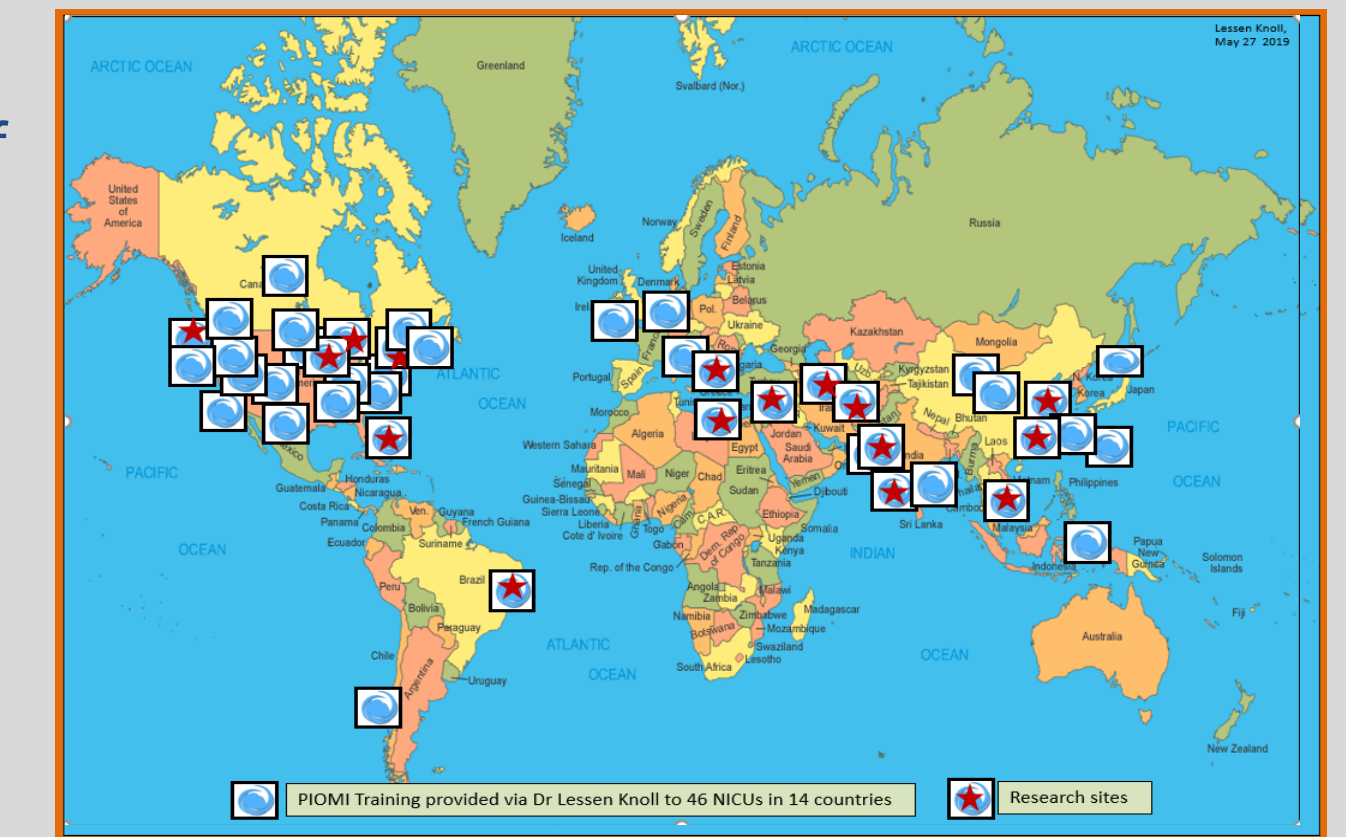
Mahmoodi, et al
(2019)
Feeding Readiness (PTOFRAS)

Ghomi, et al
(2019)
Earlier/Longer = better

International PIOMI Implementation

Global Map of
PIOMI
Practice

ทั่วโลก แผนที่ ของ
การปฏิบัติ PIOMI



نقشه جهانی از
تمرین PIOMI

Mapa Global
das PIOMI
Practice

PIOMI as an Oral Motor Program offers...

- ✓Evidence to Support faster feeding transition and decreased LOS
- ✓Randomized Controlled Trials
- ✓Four Systematic Reviews on oral motor programs included PIOMI
- ✓Intervention Fidelity formally tested and published
- ✓Published Training Program available
 - Consistency of training
 - Continuity among providers
 - Continued fidelity of the intervention (validity/reliability of use)

Training Program

- ✓Training Bundle (per order)
 - 13 min DVD with live demonstration
 - PIOMI Tool/Illustrated version
 - Quick Reference Guide
 - ID Badge size Quick Guide
 - Reliability Rating Tool



- ✓On-Site Training

- ✓Streaming capable flashdrive for install (Healthstream, etc)

Meta-Analysis including PIOMI
2013, 2015, 2016 (Cochrane), 2017