

Measuring the Effect of Oral Nutrition in Low-Risk Parturients: A Retrospective Chart Review

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NO CONFLICTS OF
INTEREST TO DECLARE



Objectives

1. Comprehend the current literature gap regarding appropriate diet order in parturients.
2. Discuss the effect that oral nutrition had on common obstetric outcomes.
3. Draw conclusions about the safety and potential benefits of advancing oral dietary intake during labor.



Background

Current labor diet guidelines for parturients are based on outdated anesthetic management practices from the 1940s

Pulmonary aspiration of gastric contents during labor is exceptionally rare

Existing data support the safety and benefits of liberating parturient oral dietary intake during labor



Current Practice

- 68% of deliveries in the US are vaginal
- 32% are via Cesarean section
- 5% of cesarean sections require general anesthesia
- Clear liquids for epidurals or planned operative delivery
- Regular diet for a “natural child birth” or up until epidural is requested



Significance

Rodrigues et al.
(2022)

- **Postpartum mothers** reported feeling **weak, dehumanized, and exhausted during and after delivery** when kept **NPO**

Phelps et al.
(2018)

- Meta-analysis of **10 RCTs** and **3,982 parturients**
- **No incidence of pulmonary aspiration of gastric contents**
- PO parturients experienced a shorter mean total duration of labor compared to NPO parturients by 15 minutes

Singata et al.
(2013)

- **Systematic review of 3,100 parturients**
- No statistically significant difference between PO and NPO parturients or their neonates
- **No incidence of pulmonary aspiration of gastric contents**

In A Nutshell

The existing literature concludes that
no added risks are found when
parturients partake in a prescribed
regular diet during labor.



Research Question



What is the impact of **oral dietary intake** in **laboring patients** on **physiological and psychological maternal sequelae** and **physiological neonatal outcomes** compared to parturients that do not receive oral dietary intake?

Project Aims



Determine if specific labor diets affected relevant laboratory values in mothers or neonates



Assess if there was a relationship between labor diet and alterations in the labor and delivery process



Evaluate peripartum risk factors to determine differences between intervention groups



Serve as a literature review and postulate a need for a primary prospective study by Northwestern Medicine



Provide evidence to update best practice guidelines



Promoting Action on Research Implementation in Health Services (PARiHS) Model

Primary studies:

- Mayernik et al., 2022 – SS increase in energy, patient satisfaction when eating
- O'Sullivan et al., 2009 – no SS difference in risks
- Parsons et al., 2006 – SS longer duration of latent phase of labor, no SS difference in risks
- Rahmani et al., 2012 – SS shorter duration of labor if eating
- Rodrigues et al., 2022 – patients feel “dehumanized” when NPO
- Rooks et al., 1989 – no aspiration noted in those that ate

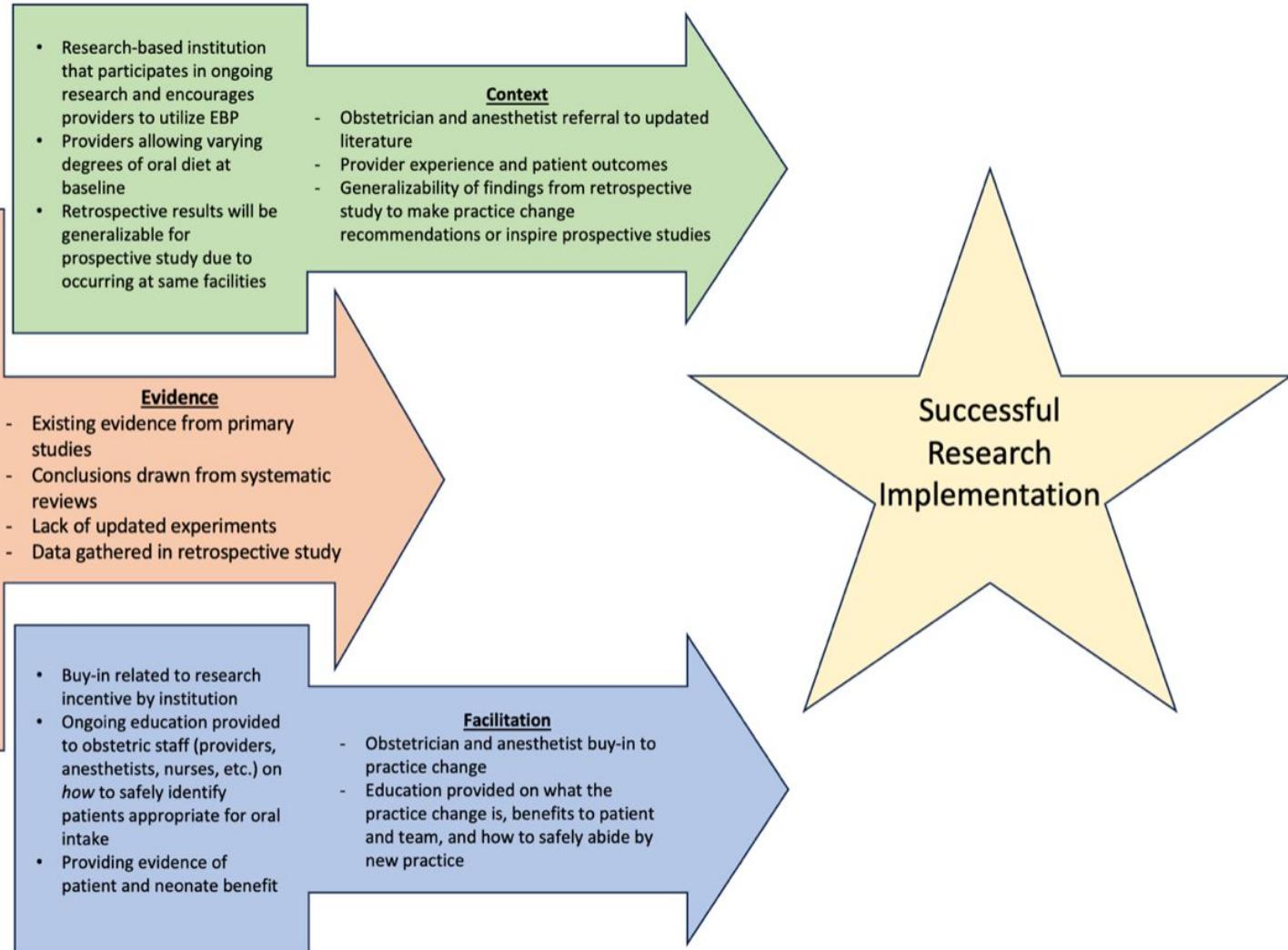
Systematic reviews:

- Singata et al., 2013 – no SS difference in risks or benefits

Reports:

- Funai & Norwitz, 2023 – SS shorter duration of labor if eating
- Phelps et al., 2006 – no aspiration occurred in meta-analysis
- Sperling et al., 2016 – current recommendations are outdated

* SS = statistically significant



Methods



Background literature search



Obtain IRB Exemption



Conduct retrospective chart review



Analysis and dissemination of findings



Outcome Variables

- Incidence of gastric aspiration
- Estimated blood loss (EBL)
- Time spent in the 2nd stage of labor
- Route of neonate delivery
- Augmentation of labor
- Use of anti-emetics



Parturient Demographics

Race	Frequency	Percent
White	87	77%
Black or African-American	18	15.90%
Asian/Indian	3	2.60%
American Indian or Alaska Native	2	1.80%
None of the Above	3	2.70%
Marital Status		
Married	49	43.75%
Unmarried	52	46%
Unknown/Missing Data	11	9.82%

Characteristics of NPO and PO Groups

Baseline Characteristics of NPO and PO Groups

Age (years)		NPO (n= 57)	PO (n= 55)	(p-value)
	Mean	30.79	28.98	p = 0.045*
	SD	5.84	5.32	
	Range	(16-45)	(16-45)	
EBL (mL)				p < 0.001*
	Mean	515.37	297.8	
	SD	446.25	182.75	
BMI (kg/m ²)				p = 0.281
	Mean	34.22	33.49	
	SD	7.38	5.89	
	Range	22.78 - 52.73	22.78 - 52.73	

BMI = body mass index, EBL = estimated blood loss, NPO = nil per os, PO = per os, SD = standard deviation, *p<0.05

Labor Augmentation and Corresponding Diet Ordered

	NPO	Clear Liquids	Regular Diet
Oxytocin & AROM	n = 4 (7%)	n = 0 (0%)	n = 1 (2.8%)
AROM	n = 6 (10.5%)	n = 5 (26.3%)	n = 10 (27.8%)
Oxytocin	n = 8 (14%)	n = 3 (15.8%)	n = 7 (19.4%)
Missing data	n = 18 (31.6%)	n = 6 (31.6%)	n = 12 (33.3%)
No Augmentation	n = 21 (36.6%)	n = 5 (26.3%)	n = 6 (16.7%)
Total	n = 57 (51%)	n = 19 (17%)	n = 36 (32%)

AROM = artificial rupture of membranes



In other words:

There was **no statistical significance** found in parturients who required labor augmentation versus those who did not, with respect to PO or NPO status
($p=0.103$)



Primary Outcomes and Corresponding Labor Diet

	Number of Parturients	2 nd stage (minutes)	Average EBL	Delivery Method		
				Vaginal	Vaginal Vacuum	Operative
NPO	57	58 ± 84	515 ± 446	30 (52.5%)	2 (3.5%)	25 (43.9%)
Clear Liquids	19	39 ± 36	236 ± 128	18 (94.7%)	0	1 (5.3%)
Regular Diet	36	53 ± 69	330 ± 199	28 (77.8%)	0	8 (22.2%)

EBL = estimated blood loss, NPO = nil per os,
 2nd stage = second stage of labor

Clinical Impact

- There was no relationship found between advancing parturient oral diet intake and the incidence of pulmonary aspiration
- This retrospective study suggests clinical practice guidelines can be updated to reflect the safety of liberating regular diets during labor
- Low and high risk parturients were included in this study with no incidences of gastric aspiration in vaginal or operative deliveries
- In 2018, the American College of Obstetricians and Gynecologists recognized the need for ongoing research on what a safe recommendation for a laboring diet should include



Translation of Findings

Increasing oral dietary intake among parturients is safe

Improve the labor experience and avoid undesirable outcomes.

Partner with more sites in prospective studies to strengthen the data available

Publish study findings in relevant academic journals concerning anesthesia, obstetric and neonatal healthcare providers

Spread the knowledge!



References



Scan me!



Questions?

