

Implementing **SipTilSend** in Major Metropolitan Hospitals: Lessons Learnt



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The history of preoperative fasting

- Mendelson's 1946 audit:
- 66/44,000 aspirated = 0.15%
- 2 deaths – solid food blocked airway
- Others all recovered within 36hrs
- NBM (NPO) began in 1950s

THE ASPIRATION OF STOMACH CONTENTS INTO THE LUNGS DURING OBSTETRIC ANESTHESIA*

CURTIS L. MENDELSON, M.D., NEW YORK, N. Y.

(From the Department of Obstetrics and Gynecology, Cornell University Medical College and New York Hospital)

IN MOST texts on pulmonary complications, aspiration of stomach contents into the lungs during general anesthesia is considered under the heading of postanesthetic pneumonia. Aspiration of infected material is said to produce atelectasis, pneumonia, and lung abscess.

A survey of New York Lying-In Hospital records of patients that aspirated gastric contents during obstetric anesthesia revealed the following different diagnoses: suffocation, massive atelectasis, partial atelectasis, disc atelectasis, pulmonary infarct, aspiration pneumonia, bronchopneumonia, lobar pneumonia, virus pneumonia, atypical pneumonia, tuberculous pneumonia, pulmonary tuberculosis, fungus infection, pulmonary metastasis, drowned lung, cardiac failure, pulmonary edema, and paroxysmal tachycardia. Obviously, a better understanding of this condition is wanting.

Present Study

There have been sixty-six instances of aspiration of stomach contents into the lungs in 44,016 pregnancies at the Lying-In Hospital from 1932 to 1945. The incidence of this complication is 0.15 per cent.

An analysis of the cases is presented and followed by experimental work to clarify the pathology of aspiration, and thereby gain insight into its diagnosis, prevention, and treatment.

Analysis of Cases

The significant data in the 66 cases are summarized in Table I.

The incidence of prolonged labor was somewhat higher than that of the total clinic population, which is 10 per cent.

Obstetric Reactions

Slightly more than half of the cases had operative intervention requiring relatively longer administration and greater depth of anesthesia than those delivered spontaneously. A mixture of gas, oxygen, and ether was employed in all instances.

Current Recommendations

- Two hours of fluid fasting
- Oral Carbohydrate loading

Fasting

Intake of clear fluids until 2 hours before the induction of anesthesia, and a 6-hour fast for solid food is recommended.

Evidence level—Moderate

Recommendation grade—Strong

Preoperative CHO (2 hours before anesthesia) could be used to improve insulin sensitivity, but offers no advantage in comfort or clinical outcomes over standard short fasting protocols.

Complications (no difference): Moderate-high.

Symptoms delaying discharge (no difference): Moderate.

LOS: Low-moderate.

Reduced insulin resistance: Moderate.

Recommendation grade: Weak.



ANZCA 2023 Summer Bulletin:

“The ANZCA PG07(A) fasting guideline recommends a safe practice based on the best available evidence. The challenge is that the guideline appears to preclude SipTilSend, and potentially poses a medico-legal obstacle.” Dr Phuong Markman



ANZCA
FPM

Issues with prolonged fasting

- Increased thirst, hunger, anxiety, discomfort, nausea
- Patient dissatisfaction
- Increased metabolic stress response
- Increased insulin resistance
- Increase in incidence of delirium
- Increased risk of AKI





- Pioneered in NHS Tayside, Scotland
- A growing, global initiative that reduces preoperative **fluid fasting** times to improve patient outcomes
- Patients can have **clear fluids** until they are called to the operating theatre
 - **1 cup of clear fluid per hour (150-200ml)**

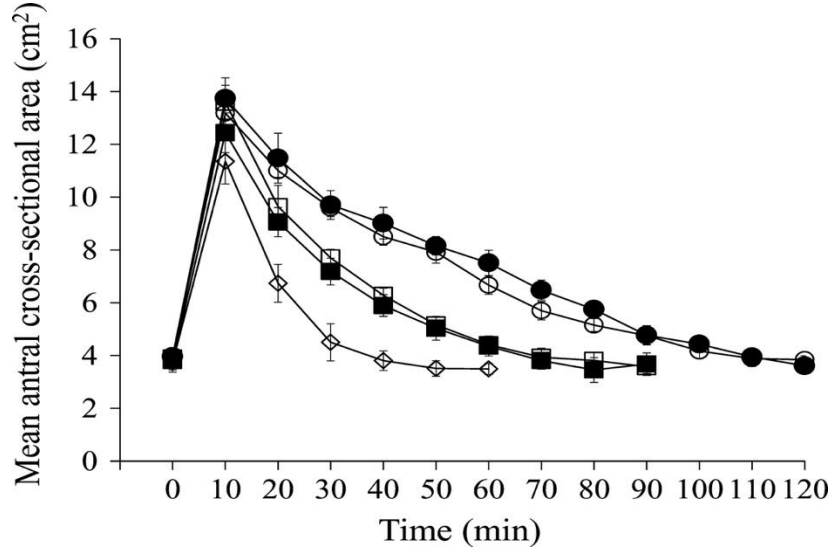
ACI's SipTilSend Website



GASTRIC EMPTYING

Anaesthesia, Volume: 72, Issue: 11, Pages: 1344-1350, First published: 14 August 2017, DOI: (10.1111/anae.14026)

- (■) 1 x Calorie Mate+380 ml of water (100 Kcal, 400 ml);
- (○) 2 x Calorie Mate+360 ml of water(200 Kcal, 400 ml);
- (□) 400 ml of 6.25% glucose solution (100 Kcal);
- (●) 400 ml of 12.5% glucose solution (200 Kcal);
- (◇), 400 ml of water (0 Kcal).

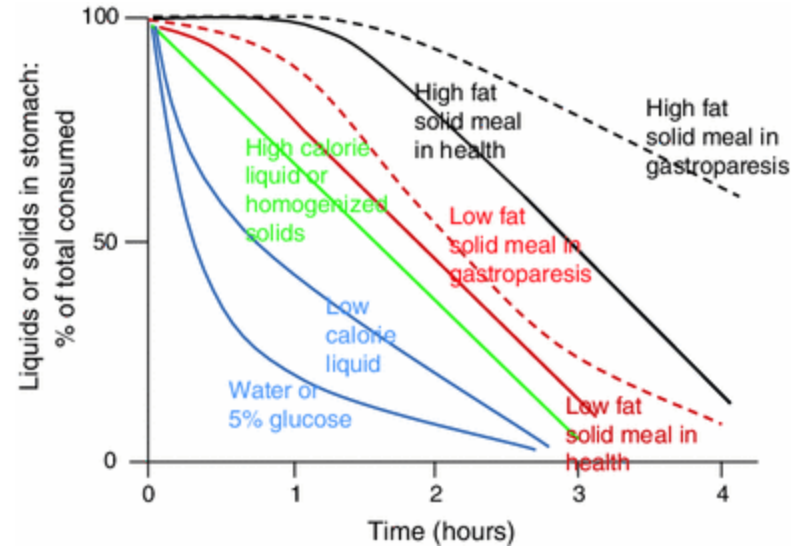


Home > Digestive Diseases and Sciences > Article

Novel and Validated Approaches for Gastric Emptying Scintigraphy in Patients with Suspected Gastroparesis

Editorial | Published: 22 May 2013

Volume 58, pages 1813–1815, (2013) [Cite this article](#)



GASTRIC EMPTYING

There is no additional delay in elderly patients regarding gastric emptying after ingesting oral carbohydrates [1]

There is no additional delay recorded for diabetic patients [2]

There is no additional delay recorded for obstetric (elective caesarean; 40) baseline USG evaluation [3].

Baseline USG of antrum:

80% (32) having a Perlas grade 0 antrum and

20% (8) having a Perlas grade 1 antrum patients.

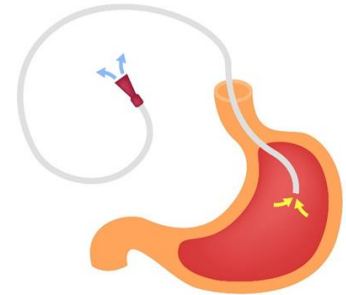
By 100 minutes after consuming the CHO drink,

77.5% Perlas grade 0

22.5% grade 1

By 120 minutes,

82.5% grade 0



1. Hellström, P.M., et al., *Normal gastric emptying time of a carbohydrate-rich drink in elderly patients with acute hip fracture: a pilot study*. BMC Anesthesiology, 2017. **17**(1).
2. Lee, B., et al., *Preoperative Carbohydrate Drink Intake Increases Glycemic Variability in Patients with Type 2 Diabetes Mellitus in Total Joint Arthroplasty: A Prospective Randomized Trial*. World Journal of Surgery, 2022. **46**(4): p. 791-799.
3. Popivanov, P., et al., *Gastric Emptying of Carbohydrate Drinks in Term Parturients Before Elective Cesarean Delivery: An Observational Study*. Obstetric Anesthesia Digest, 2020. **40**(4): p. 205-205.

IS SIPTILSEND SAFE?



Reports from Tayside, UK

- Significant decreases in clear fluid fasting times seen: Median 5h45 → 17 mins
- No increase yet detected in significant aspiration events
- NHS UK 45,000 cases, 2/3 non elective cases
 - Only 6 episodes of regurgitation
 - All mild regurgitation – only 1 spent an extra night in hospital
 - No sequelae

Why now?



- Clinicians' desire for better care
- Agreement on difficulty of “two hours fluid fasting”
- Pioneers
- Simplicity
- Multidisciplinary collaboration
- Alignment with existing workflows
- Post-pandemic surgical backlogs
- IV fluid shortages

Plan and Implement



85% of anaesthetists supported the intervention.

Nurses found SipTilSend acceptable and **not burdensome**.

The rollout has started with adult hip fracture and elective paediatric patients for one hospital, implemented hospital wide for others.

Concerns were addressed: gastric emptying and the type, quality of the clear fluids, the cohort of patients was clarified, and the information was disseminated throughout the hospitals.

Implementation reached over 100 stakeholders, **including 42 education sessions, 8 departmental presentations, a webinar, a consumer workshop, and over 60 program meetings.**

Appropriate implementation models, frameworks

- Choosing Wisely De-Implementation Framework (CWDIF),
- Consolidated Framework for Implementation Research (CFIR)
- Exploration, Preparation, Implementation, Sustainment (EPIS) Framework
- The Behaviour Change Wheel
- The Theoretical Domains Framework (TDF)-CFIR
- CFIR-ERIC
- RE-AIM
- COAST-IS

Type of fluids



Allowed preoperative clear fluid diet

- Water
- Ice-cubes/ice chips
- Clear fruit juices (No Cloud or pulp)
- Black tea or coffee (No Milk)
- Rehydration/electrolyte drinks (e.g. *DexTM*, *HydralyteTM*)
- Sports drinks (e.g. *GatoradeTM* and *PoweradeTM*)
- Clear carbonated drinks (e.g. lemonade)
- Cordial
- Ice blocks/icy poles (if clear when thawed)
- Sugar or artificial sweetener added to drink

Not allowed: Protein, fat, fibre or thickener

- Thickeners: Starch, gelatin, xanthan gum, guar gum, gluten
- Milk (animal or plant-based) and derivatives (cow, goat, almond, oat, soy, coconut yogurt, skim milk, formula, yoghurt, YakultTM, ice-cream)
- Lollies and sweets, or jelly
- Broths, beef-extract or beef-tea, chicken soup etc.
- Protein drinks (e.g. Some Preop drinks)
- Juice with pulp, cloud or fibre (e.g. freshly pressed/real/crushed fruit/vegetable juices)
- Alcohol
- Chewing gum
- Carbonated drinks other than lemonade (e.g. coke, FantaTM, MotherTM, RedbullTM)



No adverse events to date, with less than 1% of surgeries delayed or cancelled.

Audit

55% of RPAH Hip Fractures

65% of CRGH Hip Fractures



Potential barriers

Outer setting

Potential barriers: Economic and institutional complexities in the perioperative environment requiring adaptive strategies, complex governance processes to update local policies

Inner setting

Outdated opinions, inconsistent messaging across departments and patients, dynamic surgical environments, senior clinicians reverting to old routines, fear of reprimand as a disincentive, high staff turnover requiring repeated education, and divided management of high-risk groups



Individuals

Process

- Structural and cultural characteristics of departments and hospitals
- A bottom-up approach and contingency planning

Innovation

- Lack of empirical data for STS
- Patient and organisation variation increases complexity
- Dynamic perioperative environment for OCL vs STS!



- Medico-legal concerns
- Motivation depends upon clinicians' perception of the strength of the evidence
- Education, audit and feedback could build capability & opportunity for implementation
- Perianaesthesia leaders' engagement by presenting evidence and retrospective local data is crucial

Key enablers

Outer setting

Shared clinician values around patient safety and comfort, external partnerships and professional networks, financial considerations, international practice guidelines, and further work to establish the cost-effectiveness of STS

Inner setting

- Efficient preadmission clinics
- Flexible preparation,
- Defined responsibilities
- Strong organisational support
- Open interprofessional communication
- Training via multiple channels



Individuals

- Include day surgery nurses, ward nurses, allied health and other professionals
- Education, professional development and audit and feedback could build capability & opportunity for implementation
- Perianaesthesia leaders' engagement by presenting ideas, emerging evidence and retrospective local data is crucial

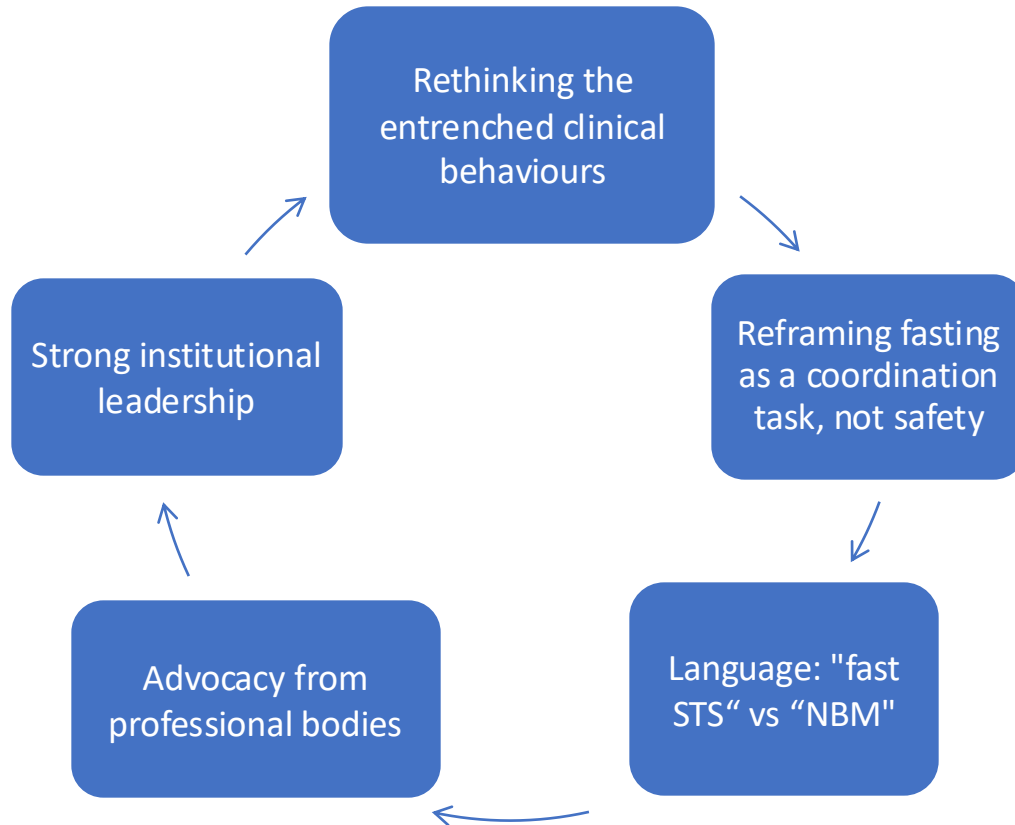
Process

- Audits and surveys
- Planning time
- Accounting for structural and cultural characteristics
- Adapting implementation strategies to local needs
- Using observational data to evaluate outcomes on patient safety

Innovation

- Adaptability of STS
- Evidence-base supports OCL
- Credible sources promoting STS and OCL in guidelines
- Trialability for small-scale pilots before adoption (trialability)

How to shift from conservative to evidence-based preoperative fasting practice



The most effective strategies to reduce resistance in surgical care

Early multidisciplinary collaboration

RAPID AND TARGETED education

Aligning with existing perioperative workflows

Collect evidence

Advertise: No adverse outcomes!

Patient-centred co-design

Flexible implementation, adaptation



Lessons

- Clear communication
- Whole-hospital or pilot cohort
- Co-designed patient instructions
- Engagement of diverse clinical teams



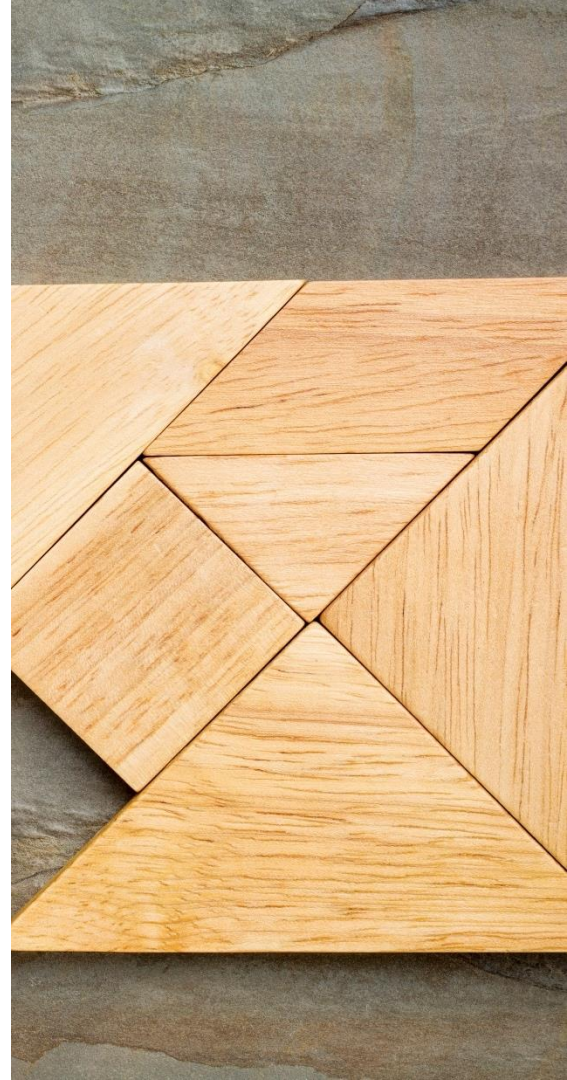
Missing pieces

Consensus on:

- Definition of “clear fluids”
- GLP-1 medications
- Governance for practice change
- Fasting instructions and terminology

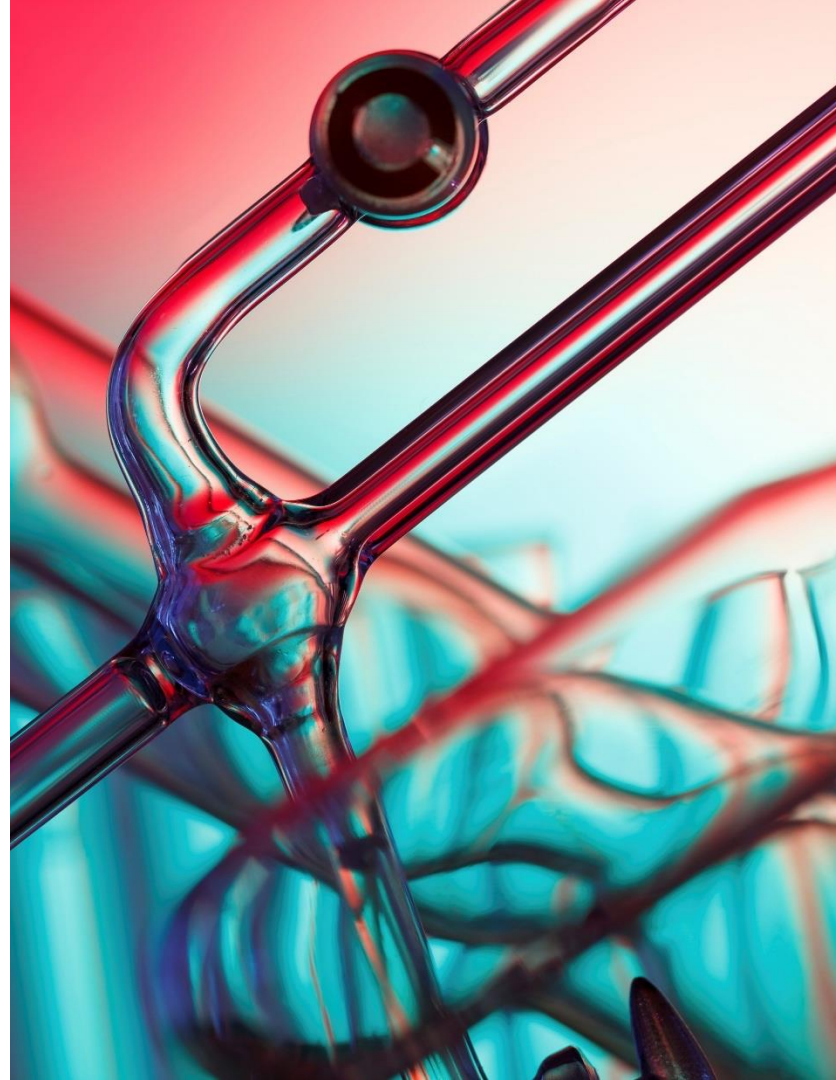
Impact on:

- Clinical pt outcomes
- Impact on PREMs & PROMs



Future Research

1. Spread and Upscale
2. Policy Engagement
3. Clinical Impact
4. Content of Fluids



THANK YOU!

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