



# Slowing the Inpatient Fasting Epidemic

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NPO now

NPO at midnight



# What do Guidelines Say?

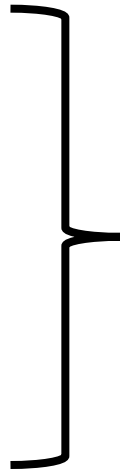


- 1999 – Anesthesia guidelines<sup>1</sup>
- 2002 – Anesthesia guidelines<sup>2</sup>
- 2017 – Anesthesia guidelines<sup>3</sup>

Ingested Material	Minimum Fasting Period† (h)
Clear liquids‡	2
Breast milk	4
Infant formula	6
Non-human milk§	6
Light meal¶	6

1) Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration. (1999). *Anesthesiology*, 90(3), pp.896-905.  
2) Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists. (2002). *Anesthesiology*, 96(4), pp.1004-1017.  
3) Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration. (2017). *Anesthesiology*, 126(3), pp.376-393.

- Lower risk of aspiration<sup>(4)</sup>
- Equivocal gastric volume<sup>(4)</sup>
- Equivocal gastric pH<sup>(4)</sup>
- Less patient reported hunger<sup>(4)</sup>
- Equivocal emesis, apnea, oxygen<sup>(5)</sup>



Cochrane Review

Longer NPO ≠ Increased Safety

4) Brady, M., Kinn, S., Stuart, P. and Ness, V. (2003). Preoperative fasting for adults to prevent perioperative complications. *Cochrane Database of Systematic Reviews*.

5) Bell, A., Treston, G., McNabb, C., Monypenny, K. and Cardwell, R. (2007). Profiling adverse respiratory events and vomiting when using propofol for emergency department procedural sedation. *Emergency Medicine Australasia*, 19(5), pp.405-410.



# What do the patients say?



- BMJ Quality Improvement Reports, 2014
  - Classic “at midnight” approach, patients reported
    - 70% subjective dehydration
    - 40% clinical evidence of dehydration
  - Clears until 2 hours before surgery
    - 25% subjective dehydration
    - 25% clinical evidence of dehydration



# Non-Anesthesiologists?



Assuming procedural sedation only  
(not general anesthesia)

STILL clear liquids, then NPO 2 hours before procedure<sup>(7-8)</sup>

Created in 2002, confirmed in March 2018

- 7) Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists. (2002). *Anesthesiology*, 96(4), pp.1004-1017.
- 8) Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018. (2018). *Anesthesiology*, 128(3), pp.437-479.



# Levels of Sedation



**Table 1.** Continuum of Depth of Sedation, Definition of General Anesthesia, and Levels of Sedation/Analgesia

	Minimal Sedation (Anxiolysis)	Moderate Sedation/Analgesia (Conscious Sedation)	Deep Sedation/Analgesia	General Anesthesia
Responsiveness	Normal response to verbal stimulation	Purposeful* response to verbal or tactile stimulation	Purposeful* response after repeated or painful stimulation	Unarousable, even with painful stimulus
Airway	Unaffected	No intervention required	Intervention may be required	Intervention often required
Spontaneous ventilation	Unaffected	Adequate	May be inadequate	Frequently inadequate
Cardiovascular function	Unaffected	Usually maintained	Usually maintained	May be impaired



**Regular diet**



**Clear liquids, then NPO for 2 hours**



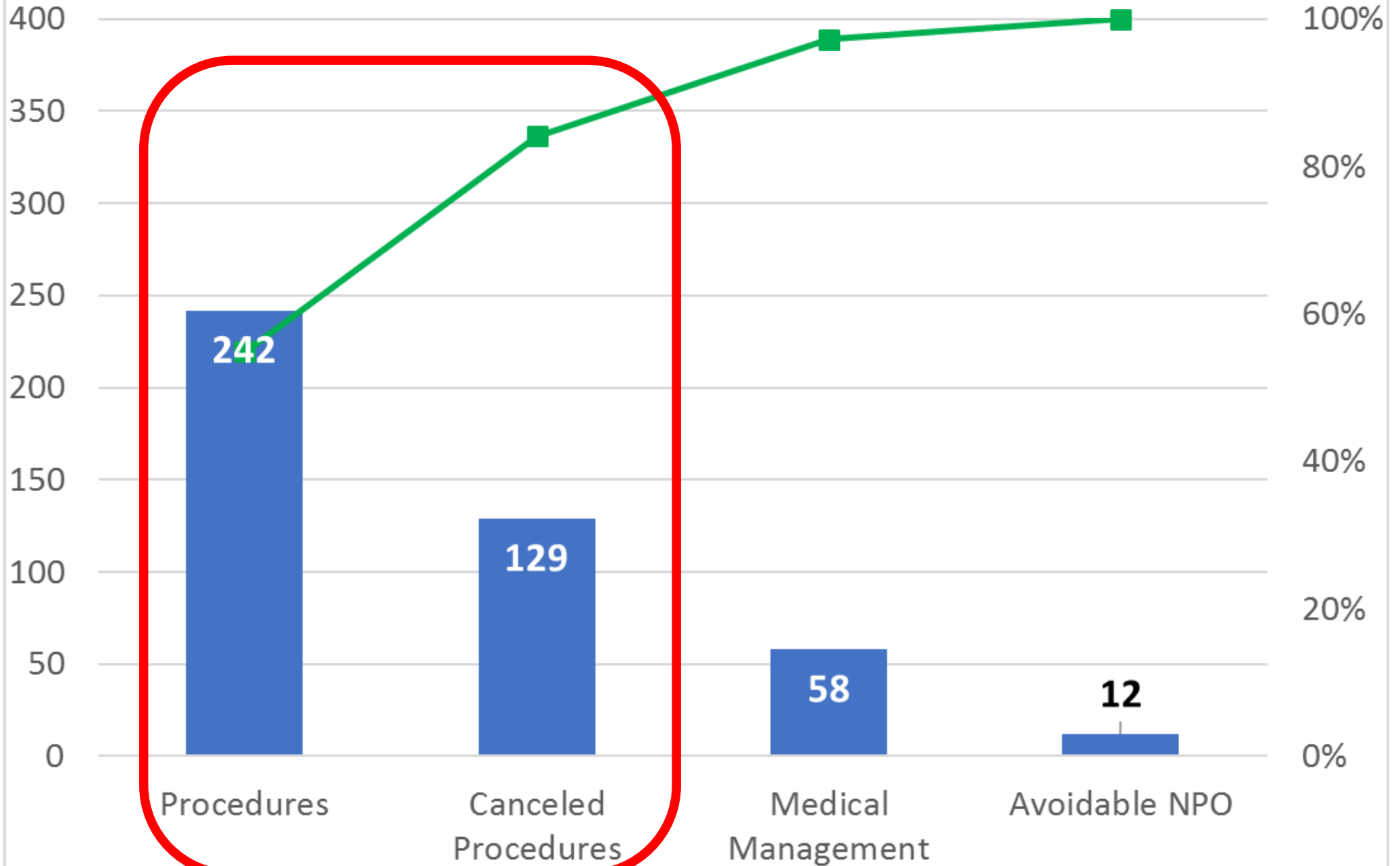
# About our data



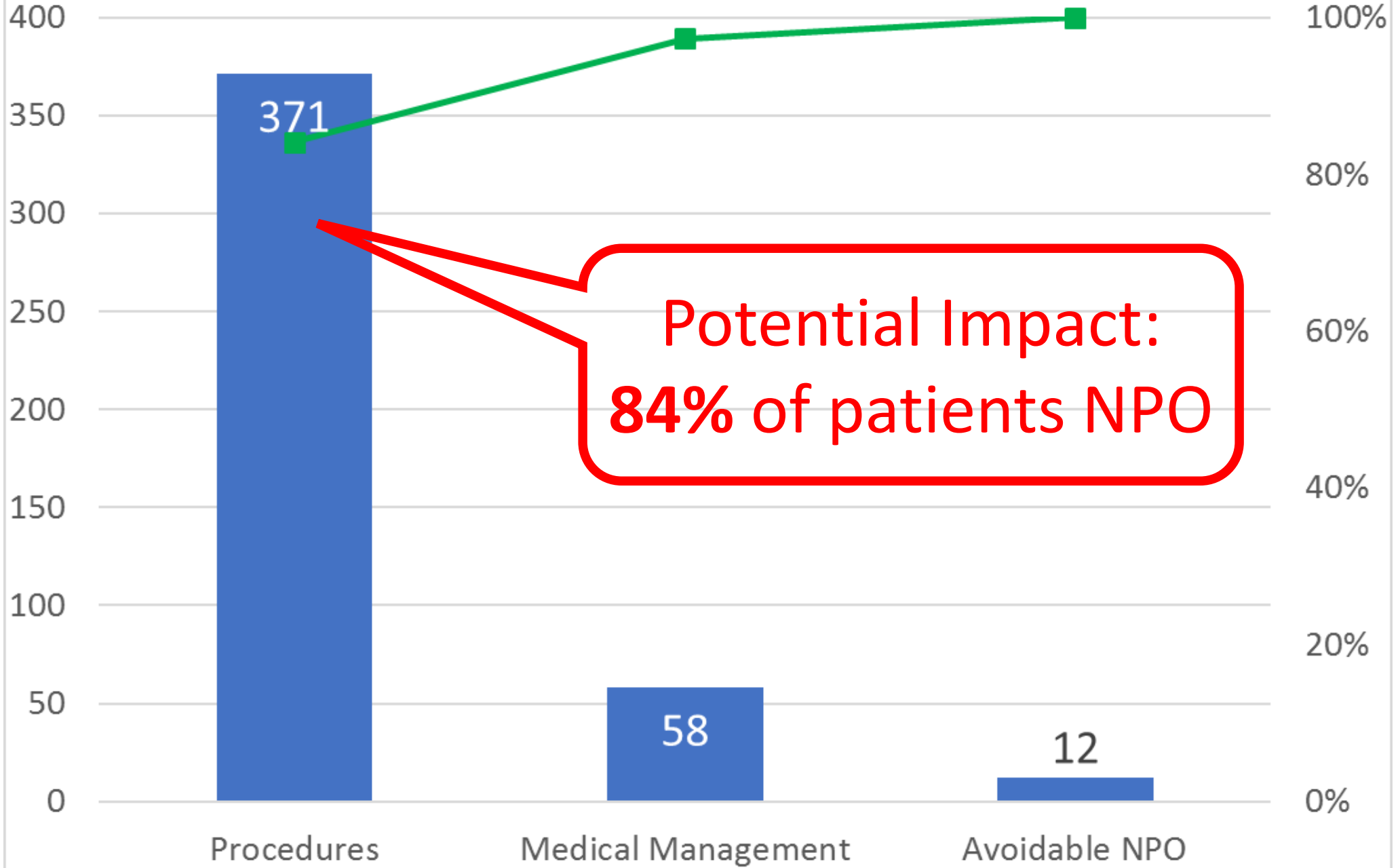
- 3 months: June - August 2017 totaling 441 patients
- Used all 5 inpatient VA medicine wards teams only
  - Excluded neurology, surgical, and ICU services
- Using coding data, analyzed patients with any NPO order placed:
  - Heart Catheterization
  - Bronchoscopy
  - Medical Management + No procedure performed
  - Other procedure



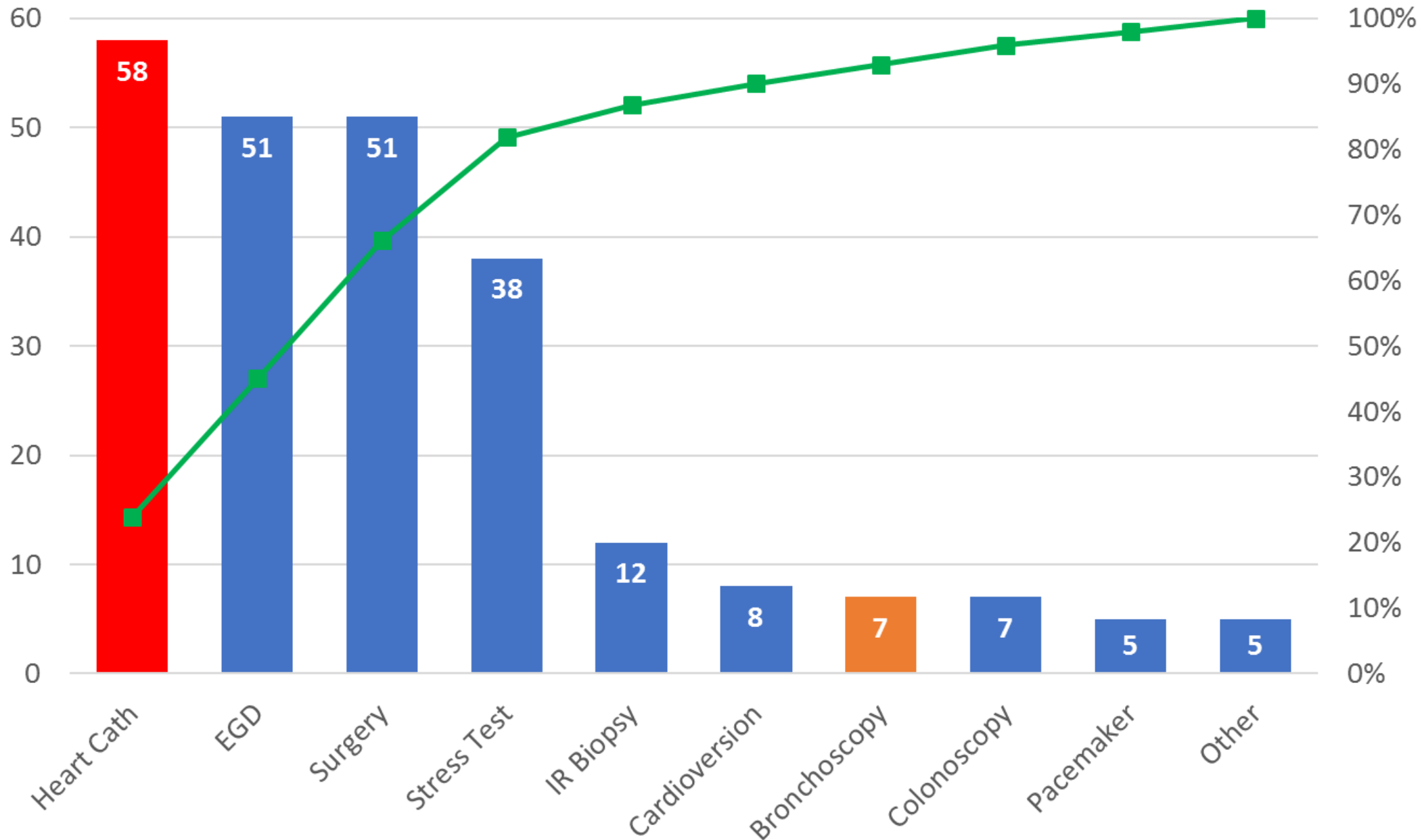
# NPO Orders



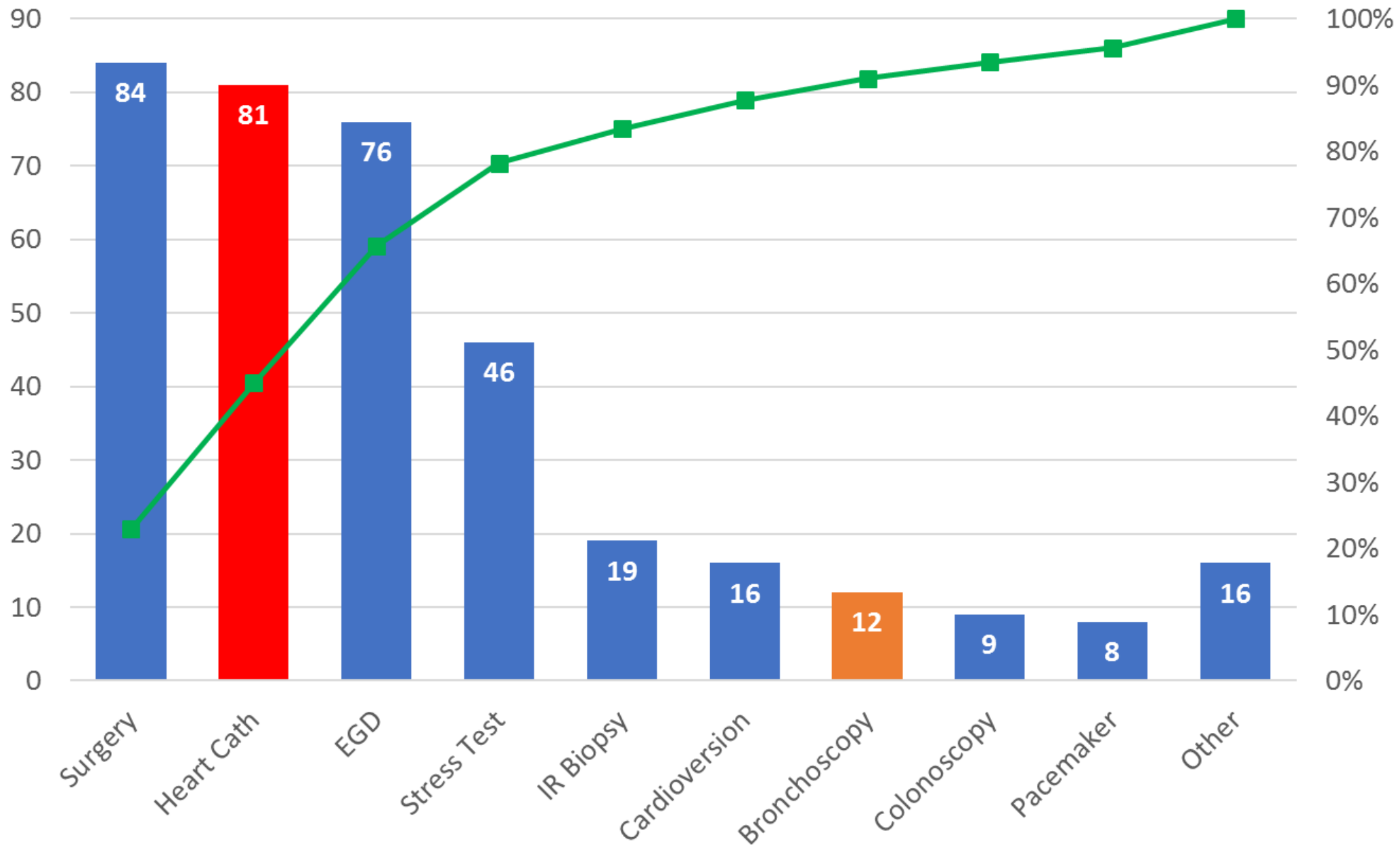
# NPO Orders



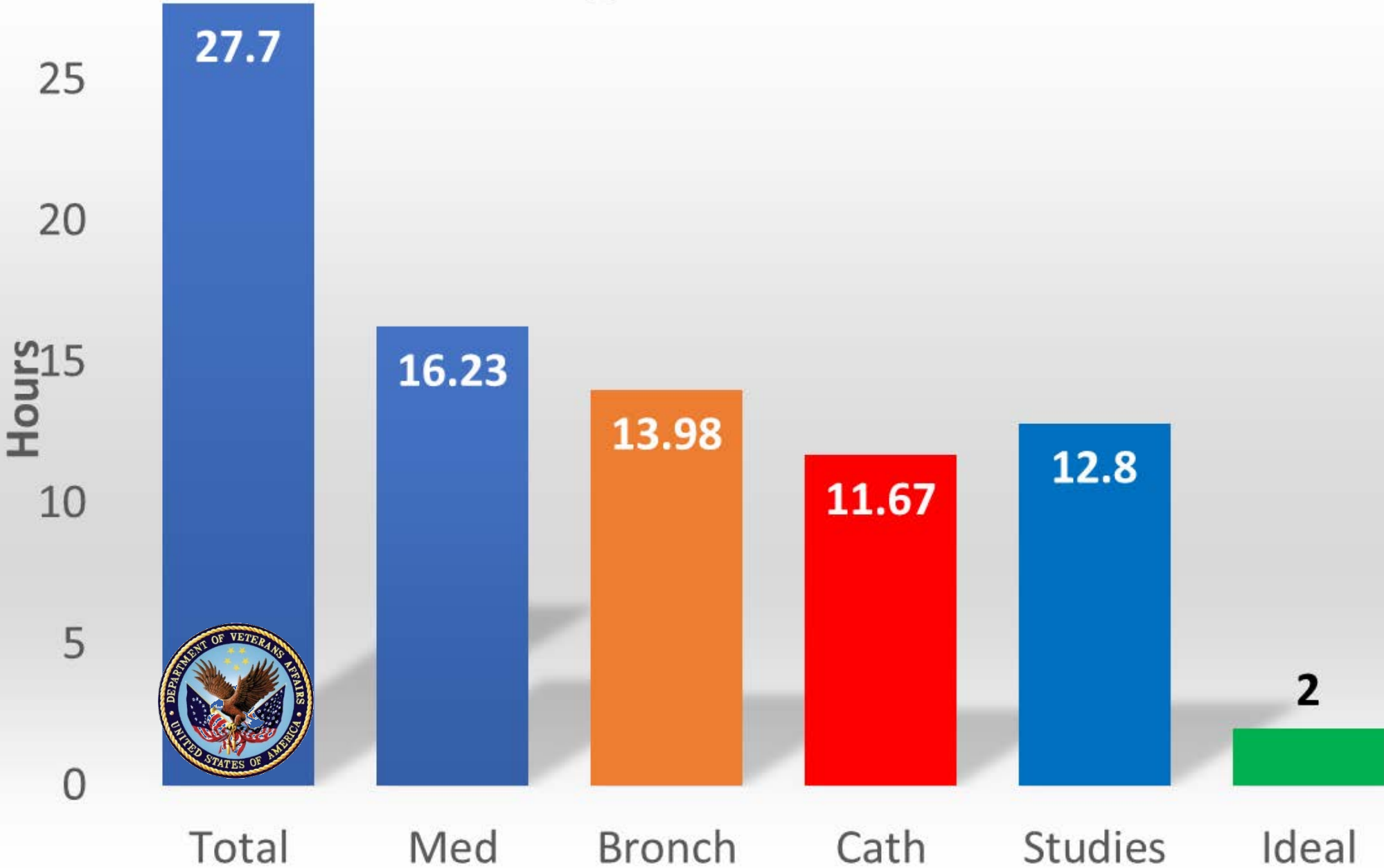
# Procedures Performed



# Procedures - Performed & Planned



# Average NPO Hours





# Our Vision



Implementation of a **graduated diet and NPO** in an inpatient population undergoing procedures with the goal of substantially **decreasing the NPO duration** in order to better adhere to contemporary evidence-based guidelines



# Methods



- Multi-disciplinary coordination:
  - Dietary/Nutrition, Nurses, proceduralists, residents, hospitalists
- Utilized design-based, rapid prototype development workshop with resident physician in UK **Hospital Medicine Track** for ideal menu design
- New **Clear Liquid Diet until 0800** hard-stop order
- Order prompts door sign placement & appropriate dietary tray



**DIETS**

- ← Regular
- ← Carb 2
- ← Cardiac

CHF

- ← Edentulous
- ← Clear Liquid
- ← Diet Order

**OTHER ORDERS**

- Additional Orders
- Early/Late Tray
- ← Isolation/Precautions

**INPATIENT TUBEFEEDING**

Inpatient Tube Feeding (Enteral)

**NPO ORDERS**

[NPO for Procedures/Surgeries](#)

NPO Now

← NPO Now (Except for Meds)

**CONSULTS**

Diet Consults



**Select Appropriate NPO order.**

Not all procedures require strict NPO at midnight.

If your procedure is listed below, please use appropriate order to allow clear liquid diet until 0800.

**Cardiac Cath**

NPO for Cardiac Cath (Clear liquid after midnight, NPO at 0800)

**Bronchoscopy**

NPO for Bronchoscopy (Clear liquid after midnight, NPO at 0800)

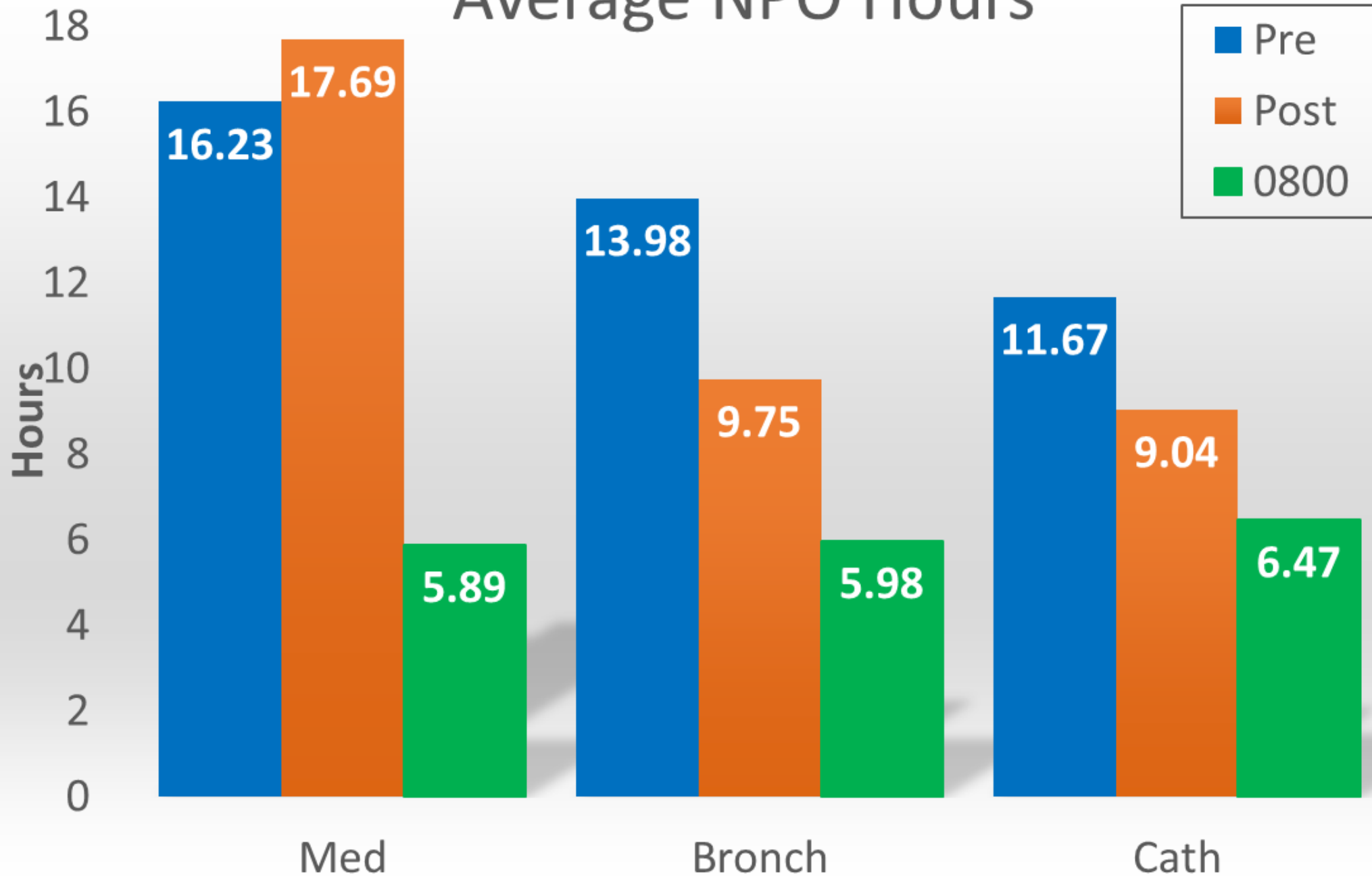
**NPO for all other procedures/surgeries**

NPO at midnight (and no meds)

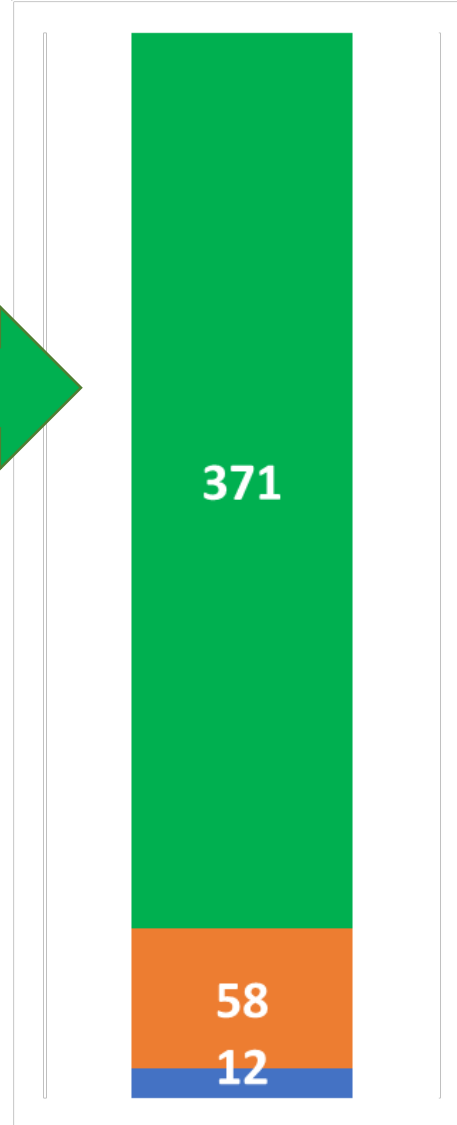


NPO at midnight (except for meds)

# Average NPO Hours



- Broaden implementation to other procedures and services
  - EGD
  - Colonoscopy
  - Stress Tests
  - IR Procedures – biopsies, tunneled lines, etc.
  - Surgeries
  - Transesophageal echocardiograms
- Education efforts to reduce unnecessary NPO orders
- NPO AM/PM
- NPO menus progression





DIETS



OTHE



NPO

Done

Done

**Select Appropriate NPO order.**

Not all procedures require strict NPO at midnight.

If your procedure is listed below, please use appropriate order to allow for NPO until 0800.

**Cardiac Cath**

NPO for Cardiac Cath (Diet 1000) (0800)

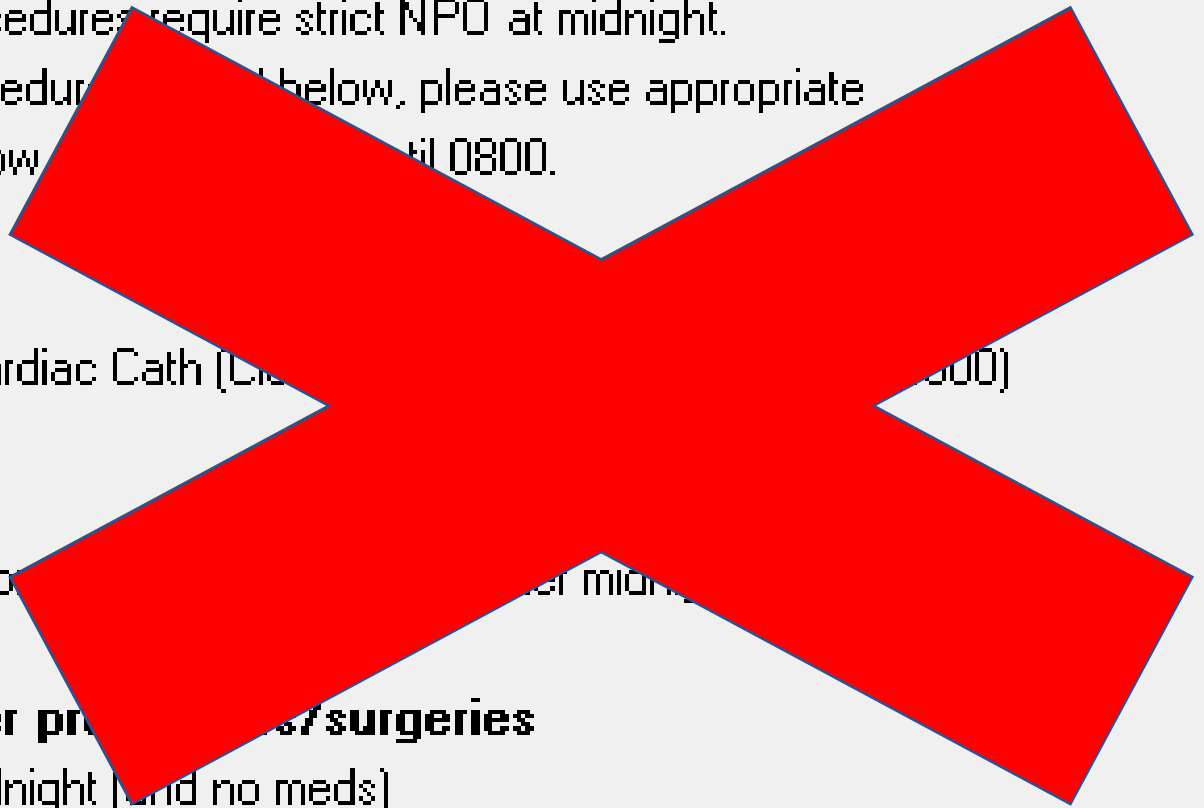
**Bronchoscopy**

NPO for Bronchoscopy (NPO until midnight)

**NPO for all other procedures/surgeries**

NPO at midnight (and no meds)

NPO at midnight (except for meds)





**DIETS**

- ← Regular
- ← Carb 2
- ← Cardiac

CHF

- ← Edentulous
- ← Clear Liquid
- ← Diet Order

**OTHER ORDERS**

- Additional Orders
- Early/Late Tray
- ← Isolation/Precautions

**INPATIENT TUBEFEEDING**

Inpatient Tubefeeding (Enteral)

**NPO ORDERS**

[NPO for Procedures/Surgeries](#)

NPO Now

- ← NPO Now (Except for Meds)

**CONSULTS**

Diet Consults



# Closing Thoughts



- Patients want a shorter NPO time
- Guidelines say we should have a shorter NPO time
- Studies show it's safe to have a shorter NPO time