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THEME: INGUINAL HERNIAS

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Title: Who Is Repairing Groin Hernias in the USA? A national survey of the ACHQC

Background and Objectives

Background:

- Inguinal hernia repair techniques have proliferated—open, laparoscopic, robotic—but it's unclear how surgeon specialty drives choice of approach, mesh use, and outcomes.

Objectives:

- To characterize variations in patient demographics, surgical approach, mesh type, operative time, and practice setting across **surgeon specialties** (General Surgery, MIS, Trauma/Acute, Other).

Methods

- **Data Source:** ACHQC database (2017–2023), **n=40,057**
- **Surgeon Specialties:**
  - General Surgeons (GS) 54.8%
  - Minimally Invasive Surgeons (MIS) 26.7%
  - Trauma/Acute Care Surgeons (ACS) 16.8%
  - Other Specialists (e.g. plastics) 1.8%
- **Variables Analyzed:**
  - Patient age, ASA class
  - Practice setting (academic vs. private vs. hybrid)
  - Mesh use (none, biologic, permanent synthetic, resorbable synthetic)
  - Surgical approach (open, laparoscopic, robotic)
  - Operative time categories (<60 min; 60–120 min; >120 min)
- **Statistics**: χ^2-tests, z-tests for proportions; ANOVA + Tukey HSD for means

Key Results

Inguinal Hernias	GS	MIS	Trauma/Acute	p-value
Mean Age (years)	60.2	58.8	58.9	
Affiliation Distribution, N	21932	10709	6713	**<0.01**
• Academic	8379 (38.2%)	5894 (55.0%)	**4623 (68.9%)**	
• Private	8222 (37.5%)	3678 (34.3%)	936 (13.9%)	
• Hybrid	5331 (24.3%)	1137 (10.7%)	1154 (17.2%)	
Surgical Approach, N	20732	9907	6383	**<0.01**
• Open	**7965 (38.4%)**	1806 (18.2%)	1990 (31.2%)	
• Laparoscopic	7760 (37.4%)	3434 (34.7%)	876 (13.7%)	
• Robotic	5007 (24.1%)	**4667 (47.1%)**	**3517 (55.1%)**	
Mesh Type, N	21921	10684	6710	**<0.01**
• No Mesh	**2631 (12.0%)**	876 (8.2%)	476 (7.1%)	
• Biological Tissue-Derived	**285 (1.3%)**	4 (0.0%)	0 (0.0%)	
• Permanent Synthetic	18984 (86.6%)	9744 (91.2%)	6220 (92.7%)	
• Resorbable Synthetic	39 (0.2%)	62 (0.6%)	9 (0.1%)	
Operation Time, N	21756	10696	6694	**<0.01**
• 0-59 minutes	**11357 (52.2%)**	3776 (35.3%)	3153 (47.1%)	
• 60-120 minutes	8115 (37.3%)	5188 (48.5%)	2892 (43.2%)	
• 120+ minutes	2284 (10.5%)	**1733 (16.2%)**	656 (9.8%)	

Affiliation:

- Trauma/Acute surgeons were primarily **academic** (68.9%) followed by MIS and GS
- GS had the most balanced distribution across academic (38.2%), private (37.5%), and hybrid (24.3%) practices.

Surgical Approach:

- Trauma/Acute and MIS groups favored **robotic** repair (55.1% and 47.1%, respectively), while GS showed a more **balanced use** of open (38.4%) and laparoscopic (37.4%) techniques ($p < 0.01$).

Mesh Type:

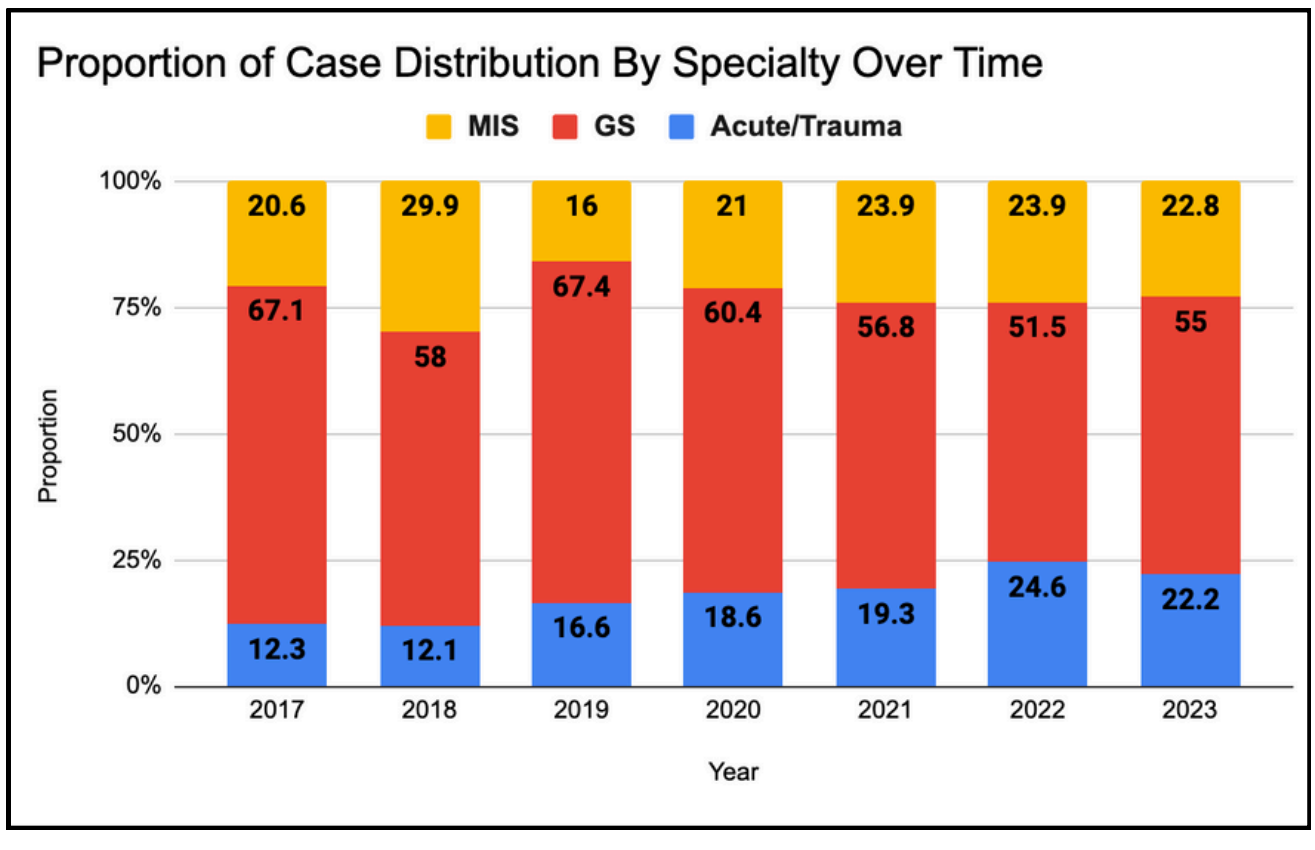
- **Permanent synthetic** mesh was used most frequently across all specialties (91.2% in MIS, 86.6% in GS, 92.7% in Trauma/Acute).
- GS has the highest rate of **tissue repairs (12.0% no mesh) ($p < 0.01$).**

Operation Time:

- GS performed significantly more short-duration procedures (<60 min, 52.2%), while MIS had the most in the 60–120 min range (48.5%) and highest share of long cases (120+ min, 16.2%).
- Trauma/Acute cases were more often under 60 minutes (47.1%).

Surgical Trends Based on Specialty:

- From 2017 to 2023, the proportion of cases performed by GS steadily **declined from 67.1% to 55.0%.**
- MIS involvement increased overall, peaking at **29.9%** in 2018 and stabilizing around 23–24% from 2020 onward.
- Acute/Trauma participation rose **consistently**, nearly **doubling** from 12.3% in 2017 to 22.2% in 2023.



Limitations and Conclusions

Limitations:

1. Retrospective design introduces risk of selection bias and limits causal inference.
2. ACHQC surgeons may not be representative of the broader surgical community.
3. Lack of long-term outcome data limits evaluation of clinical effectiveness across specialties.

Conclusions:

- Groin hernia repair patterns differ significantly by specialty, with MIS favoring laparoscopic and robotic techniques, while GS more frequently performed open and non-mesh repairs.
- Variations in approach likely reflect differences in training and case exposure; identifying these gaps can inform targeted education and guideline development across specialties.