Surgical training and education in gynecology

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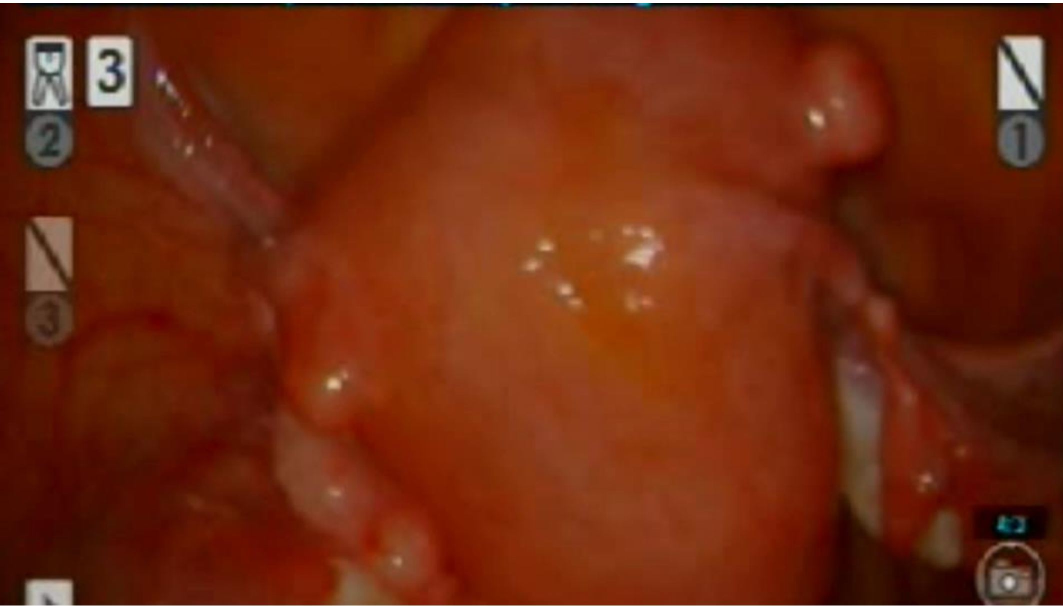
Disclosures

I am a consultant for Arthrex and Hologic

I have partial ownership in Freyja Healthcare, a start-up company developing several medical devices

Mistakes happen



Does surgical skill matter?

20 bariatric surgeons submitted a single representative video of a laparoscopic gastric bypass

Each video tape was rated on various domains of technical skills on a scale of 1 to 5 by at least 10 surgeons who were unaware of the identity of the operating surgeon

Investigators then assessed relationship between skill ratings and risk-adjusted complication rates, using data from a prospective clinical outcomes registry involving 10,343 patients

When the bottom quartile (n=5) was compared to the top quartile (n=5) there was a significantly higher risk of;

- Complications (14.5% vs. 5.2%, p<0.001)
- Mortality (0.26% vs. 0.05%, p=0.01)
- Longer operating time (137 minutes vs. 98 minutes, p<0.001)
- Reoperation (3.4% vs. 1.6%, p=0.01)
- Readmission (6.3% vs. 2.7%, p<0.001)

Bottom quartile surgeons also had significantly lower procedural volumes (53 vs. 157 per year)

Birkmeyer et al. N Engl J Med 2013;369:1434-42

Resident training may be a problem

Rapid evolution of surgery, and in particular minimally invasive surgery within the field of Ob/Gyn

Restrictions on resident work hours – 80 hours/week

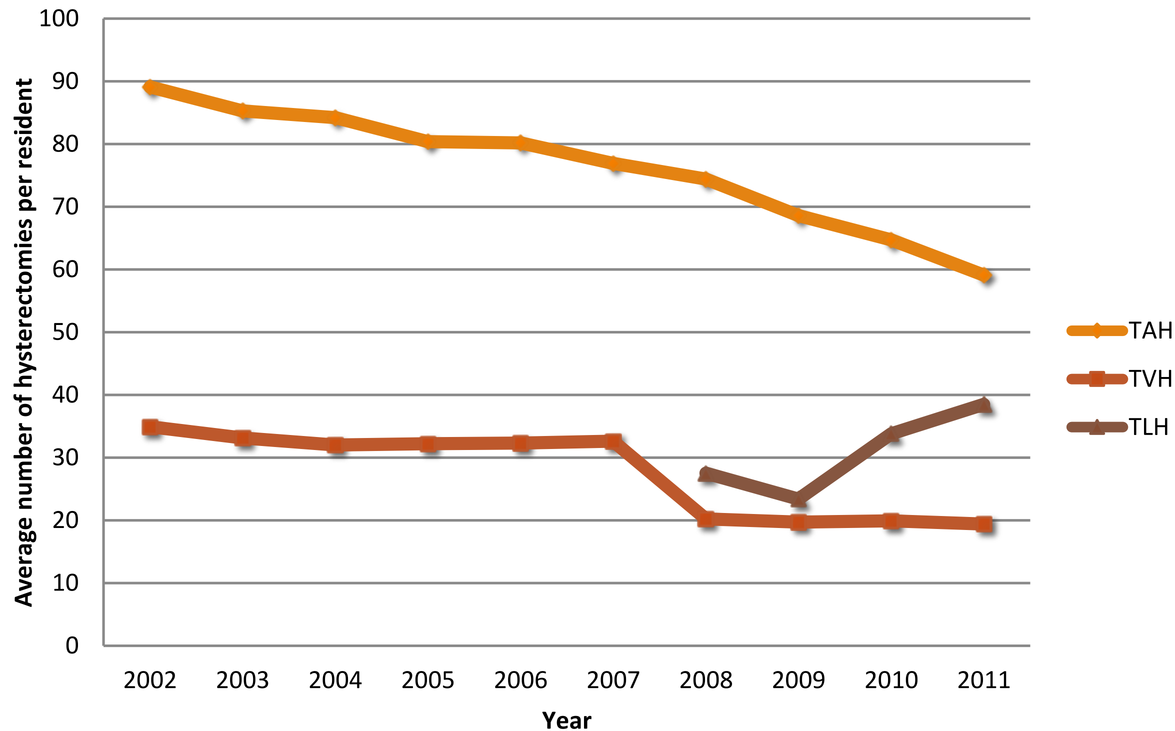
Is it realistic to expect a resident to be able to master all aspects of gynecologic surgery upon graduation?

30 years ago, there were basically 3 kits that gynecologic surgeons needed

- Laparotomy
- Vaginal surgery
- Hysteroscopy and D&C

The current operating room environment is far more complex

Hysterectomies in residency



Washburn E, Cohen SL, Manoucheri E, Zurawin RK, Einarsson JI. JMIG 2014;21(6):1067-70.

Hysterectomy minimums have changed

Category	Minimum graduates through June 30, 2018	Minimum graduates on or after June 30, 2019
Abdominal hysterectomy	35	15
Vaginal hysterectomy	15	15
Laparoscopic hysterectomy	20	15
Minimally invasive hysterectomy (includes vaginal, laparoscopic and robotic)	(35)	70
Total hysterectomy	(70)	85

American Board of Medical Specialties (ABMS)

- 24 ABMS certifying boards
- The American Board of Obstetrics and Gynecology (ABOG) was one of the founding members in 1933
- ABOG board certification is voluntary but strongly recommended
- Some hospitals require Board certification for staff privileges, but not all
- When a resident graduates from an accredited residency program they are considered board eligible. You can only be board eligible for 6 years before you pass your boards.
- Initial board certification consists of a written exam and an oral exam. The oral exam includes a review of patients that were cared for by the candidate
- Maintenance of certification (MOC) program then ensues to make sure physicians are keeping up with the current literature and practice patterns

Maintenance of certification

Measured within a four part framework

- Part I: Professionalism and professional standing
  - Active license, disciplinary actions, mental impairment etc
- Part II: Lifelong learning and self-assessment
  - Reading assignments provided. Testing done from 30 articles and must have 80% correct answers
- Part III: Assessment of knowledge, judgment and skills
  - Computer based examination every 6 years
- Part IV: Improvement in medical practice
  - Complete improvement in medical practice modules or complete an ABOG approved simulation or a quality improvement program

Surgical credentialing in the USA

Each state licensing board grants a license to practice in that particular state

Surgical privileges are granted by each individual hospital

Surgical privileges are granted based on what the applicant requests and assumes that the candidate was appropriately trained during residency/fellowship

Granting surgical privileges usually does not involve objective evaluation of surgical skills

Some hospital require minimum number of procedures to be performed to obtain or maintain surgical privileges. Examples include laparoscopic hysterectomies and robotic surgery

Some hospital systems (Keiser for example) puts ob/gyns in 3 main buckets; gyn surgery, office gynecology, ob/gyn focused on obstetrics

Problem with purely a numbers based system is that it does not evaluate good surgical judgement. Some relatively high volume surgeons may repeatedly show poor judgement intraoperatively or when selecting patients for surgery

Surgeon volume is a problem

The average gynecologist in the USA performs approximately 20-30 hysterectomies per year

Low surgeon volume is one of the main reasons for a slow uptake of minimally invasive surgery in gynecology

Surgeons have to pick one option; usually pick laparoscopic or robotic

In a recent study, 50% of hysterectomies performed in the state of Maryland were done by gynecologists doing 1-5 hysterectomies per year

Patient outcomes have been clearly shown to be improved in the hands of high volume surgeons

The absolute cut off value in terms of number of procedures per year does not tell the whole story though

Endometriosis – incomplete resection

We examined patients that were referred to our MIGS division for incomplete excision of endometriosis by a non MIGS provider with prior mode of access being

- Laparoscopy 35 (89.7%)
- Laparotomy 3 (7.6%)
- Laparoscopy converted to laparoscopy 1 (2.5%)

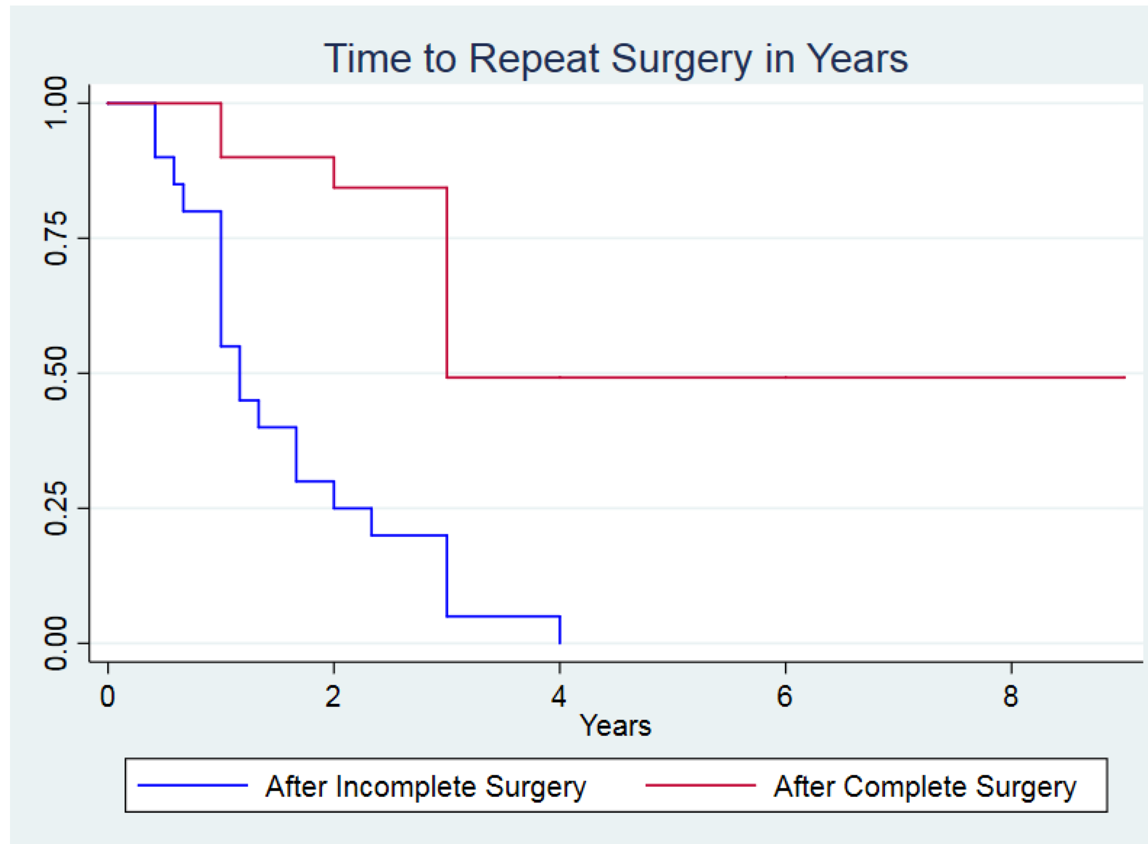
All cases were completed laparoscopically by the MIGS providers with no conversions

Mean operative time was 100 minutes

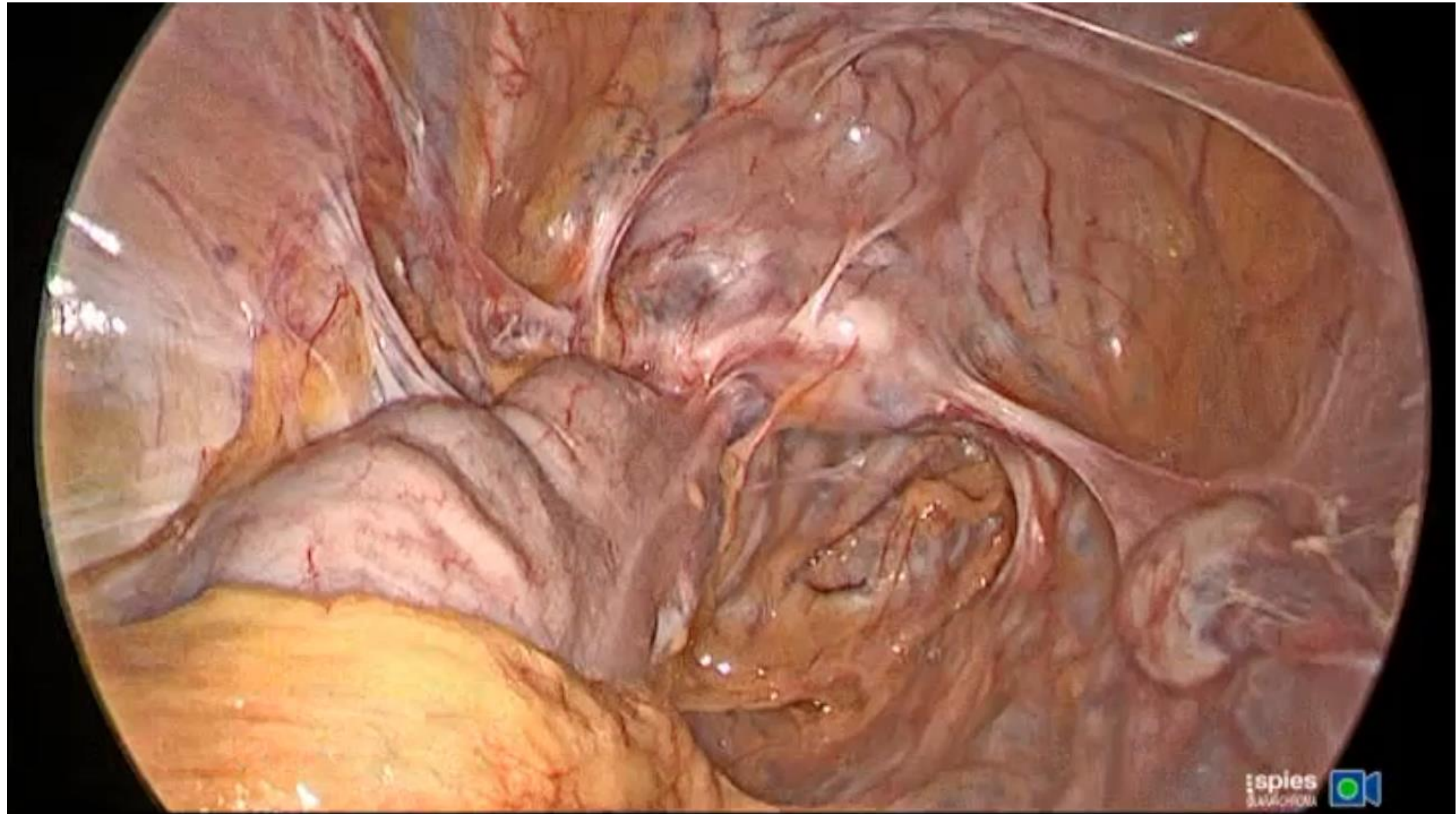
97.4% of women were discharged home on the day of surgery

2 patients had complications (rectal injury, repaired intraoperatively and ureterovaginal fistula treated with a stent for 6 weeks)

Not all patients get better



Case in point



We are actually getting better

Over 30 MIGS trained subspecialists are now graduating every year and pollinating MIGS skills across the United States

Referral centers are developing across the country with MIGS only surgeons

More "complicated" MIGS procedures are increasingly being performed at high volume centers

Increased patient awareness encourages women to seek second opinion if laparotomy is the only suggested option

1 MIGS specialist in Boston in 2006. Now there are over 20 of them with each major hospital having at least one

How to promote further safe and efficient MIS advancement?

Training needs to be standardized

- MIGS fellowships in the US are now all 2 years and have uniform criteria for surgical volumes and fellow experience

Evaluation of competencies

- Need for standardized validated evaluation methods

Evaluation and establishment of centers of excellence

Evaluation of competency

Since 2009, all general surgery residents have been required to pass a course entitled Fundamentals of Laparoscopic Surgery (FLS)

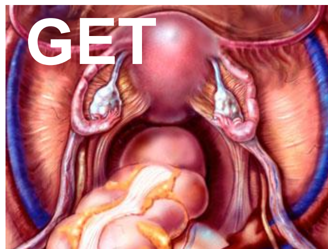
- Requirement for certification in general surgery by the American Board of Surgery (ABS)
- Joint undertaking of the society of American Gastrointestinal and Endoscopic Surgeons (SAGES) and the American College of Surgeons (ACS)

It will be mandatory for all obgyn residents to pass the FLS test as of 2020

C. Y. Liu, AAGL NewsScope, July-September 2008, Vol. 22, No. 3

G E S E A 5 pillars of competence to achieve the Diploma

pillar 1	pillar 2	pillar 3	**+he Academy**	pillar 4	pillar 5	**ESGE**
WINNERS PROJECT Free on line Theoretical tutorials with self evaluation module Called	Practical skills with online scoring platform to Benchmark the practical endoscopic skills	Theoretical and psychomotor skills exam	**Certificate**	Surgical competence	CME - CPD	**Diploma**



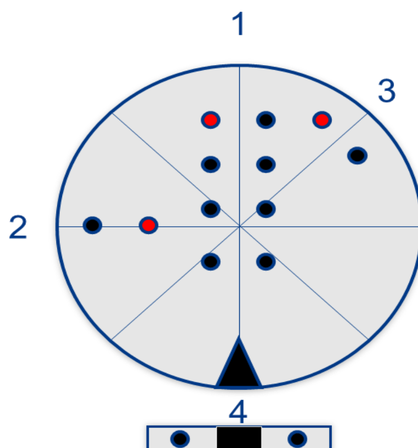
European +theAcademy of Gynaecological Surgery

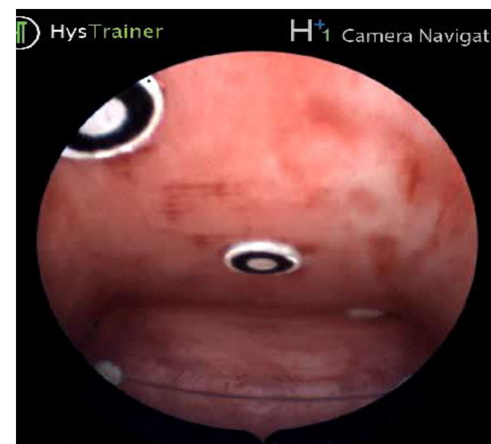
Certificate Diploma

LAST+T

SUT+T

HYST+T





Camera navigation
Hand eyes coordination
Bimanual coordination

Precise stitching
Greek suture itching
Stitch + Knot with right and left hand
Stitch + tissue approximation + Knot

Camera navigation
Hand eyes coordination

Excellent	Fair	Room for improvement

Evaluation of competency

AAGL has developed a gynecology specific cognitive test akin to the FLS test

Essentials in Minimally Invasive Gynecology (EMIG)

Standardized and validated

The test sets the bar low and weeds out the bad seeds

The skills portion of the test includes both laparoscopic and hysteroscopic modules

C-SATS

Crowd-Sourced Assessment of Technical Skills

Enables objective measurement of physician performance

- Professional reviewers
- Non-medical reviewers

Surgeons get instant feedback and gain better insight into their own skill level

C-SATS was acquired by J&J and is being developed further

Machine learning is being applied to thousands of videos to establish best practices. Will evolve into a real time guide during surgery where the system detects aberrations from the standard procedure

Also shows surgeons best practices from other surgeons, particularly steps that are rated poorly by reviewers

C-SATS

How it Works

1 Performance Capture

2 Objective Reviews

3 Continuous Improvement

Future credentialing standards

Operating on a live person is a privilege

Minimum requirements in skill and volume will probably be required for obtaining privileges in the future

This is already the case with robotic surgery where minimum volume guidelines have been established

- These are arbitrary and not validated as of yet

The AAGL plans to focus on objective evaluation of surgical skills through EMIG and build a comprehensive quality prospective database where data is inputted by dedicated staff

C-SATS may be a helpful addition for an objective evaluation of surgeon skills

Video registration/review may be helpful as well

Future of gynecologic surgery

Minimally invasive gynecologic surgery is gradually becoming a redundant term as this is evolving into the standard of care

MIGS = GS (Gynecologic Surgery)

High volume centers and surgeons will handle the majority of surgical cases in the near future

- This is already happening in major urban centers

Increased focus on cost will drive many of our procedures out of the large hospital setting into smaller and leaner units

- These may be satellite sites from the larger hospitals

The pelvic surgeon

There have been discussions about developing a board certified subspecialty in MIGS

Building a subspecialty around a mode of access never made sense

Now that minimally invasive surgery is the standard we are considering a subspecialty in advanced gynecologic surgery

The long term goal is to develop a board certified subspecialty in advanced gynecologic surgery

The pelvic surgeon is able to take care of any benign pathology in the pelvis and is an expert in pelvic anatomy

The pelvic surgeon

Focused Practice Recognition for MIGS given in 2019 by the American Board of Medical Specialties

Could be an interim step towards a Board Certified subspecialty

Is this what we actually want?

If FMIGS is ACGME approved, there will be fewer sites that will be able to offer fellowship training and FMIGS will be managed by ACGME

Further development of this needs years of work and planning to finally reach the goal of a board certified subspecialty

What is needed

Structured training

- Fellowship programs in the United States are getting more standardized
- Minimum standards have been set for various procedures

Examination that validates additional skills

- EMIG (Essentials in Minimally Invasive Gynecology) is a validated exam that has both a cognitive portion and a practical portion
- This will be validated for various expert levels including fellowship graduates

What will pelvic surgeons do?

They should be able to handle any benign pathology in the pelvis

- Severe endometriosis
  - Bowel resections
  - Ureter reimplantation and end-to-end anastomosis
  - Bladder endometriosis
  - Endometriosis of pelvic nerves
  - Diaphragmatic endometriosis
- Neuropelveology
- Management of large fibroids
- Extensive pelvic adhesive disease
- Push boundaries of what is possible surgically
- Innovate

In Summary

Gynecologic surgery is gradually migrating towards high volume providers

High volume surgeons have better outcomes and provide patients with safer surgery

MIGS fellowship programs are gradually producing better surgeons for the community

A pelvic surgeon subspecialty will probably develop in the next 5 to 10 years

Thank you