Panel Session 6:
Future of MIGS: Perspectives from Around the World

PROGRAM CHAIR
Anusch Yazdani, MBBS, FRANZCOG, CREI

Supuni Kapurubandara, MBBS
Resad P. Pasic, MD, PhD

Moty Pansky, MD
Prakash Trivedi, MD, DNB, FCPS, DGO
Professional Education Information

Target Audience
This educational activity is developed to meet the needs of residents, fellows and new minimally invasive specialists in the field of gynecology.

Accreditation
AAGL is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The AAGL designates this live activity for a maximum of 1.0 AMA PRA Category 1 Credit(s)™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Panel Session 6:  
Future of MIGS: Perspectives from Around the World

Anusch Yazdani, Chair  
Faculty: Supuni Kapurubandara, Moty Pansky, Resad P. Pasic, Prakash Trivedi

This session will provide an overview of minimally invasive gynecology from a global perspective. The speakers will explore the challenges of education, certification and credentialing in a variety of settings, addressing current and future trends. The session will specifically address the future of minimally invasive surgery within each resource setting.

Learning Objectives: At the conclusion of this course, the clinician will be able to: 1) Describe the role of minimally invasive gynecology in each resource setting; and 2) discuss the global challenges faced in education, credentialing and the delivery of minimally invasive surgery health services.

Course Outline

12:10   Welcome, Introductions and Course Overview               A. Yazdani
12:15   American Perspective                                      R.P. Pasic
12:20   Indian Perspective                                        P. Trivedi
12:25   Israeli Perspective                                       M. Pansky
12:30   Asia-Pacific Perspective                                  S. Kapurubandara
12:35   Panel Discussion                                            All Faculty
1:10    Adjourn
PLANNER DISCLOSURE
The following members of AAGL have been involved in the educational planning of this workshop (listed in alphabetical order by last name).
Art Arellano, Professional Education Manager, AAGL*
R. Edward Betcher*
Amber Bradshaw
Speakers Bureau: Myriad Genetics Lab
Other: Proctor: Intuitive Surgical
Sarah L. Cohen
Consultant: Olympus
Erica Dun*
Joseph (Jay) L. Hudgens
Contracted Research: Gynesonics
Frank D. Loffer, Medical Director, AAGL*
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Speakers Bureau: Covidien
Linda Michels, Executive Director, AAGL*
Karen C. Wang*
Anusch Yazdani
Stock Ownership: Virtus Health
Johnny Yi*

SCIENTIFIC PROGRAM COMMITTEE
Sawsan As-Sanie
Consultant: Myriad Genetics Lab
Jubilee Brown*
Aarathi Cholkeri-Singh
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Andrew I. Sokol*
Kevin J.E. Stepp
Consultant: CONMED Corporation, Teleflex
Stock Ownership: Titan Medical
Karen C. Wang*

FACULTY DISCLOSURE
The following have agreed to provide verbal disclosure of their relationships prior to their presentations. They have also agreed to support their presentations and clinical recommendations with the “best available evidence” from medical literature (in alphabetical order by last name).
Supuni Kapurubandara*
Moty Pansky*
Resad P. Pasic
Consultant: CooperSurgical, Medtronic, Karl Storz
Prakash H. Trivedi*
Anusch Yazdani
Stock Ownership: Virtus Health
Content Reviewer has no relationships.

Asterisk (*) denotes no financial relationships to disclose.
The Future of MIGS
Perspectives from Around the World:
A perspective from the USA

Resad P. Pasic MD, PhD
University of Louisville

Lecture objectives

1. Discuss the population demographics in our region
2. Describe how residents are trained in the United States and how to gauge competency
3. Discuss the estimated cost of rural vs. urban training sites
4. Discuss the surgical trends and future of MIGS in the United States

-Region: Southern United States
-State: Kentucky
-Population: approximately 4.4 million people
-Uninsured: 7.5% of the population average of 10.2% uninsured in neighboring states
-Access to care: after the affordable care act, fewer adults went without access to care because of cost —16 percent in 2015, compared with 19 percent in 2014.
-Approximately 1.2 million insured by medicaid (27%)

CDC statistics: 2015
Population of the United States: approximately 320 million

Uninsured
Number of persons under age 65: 28.4 million
Percent of persons under age 65: 10.5%
Percent of children under age 18: 4.5%
Percent of adults aged 18-64: 12.8%

Private insurance
Percent of persons under age 65: 65.5%
Percent of children under age 18: 54.7%
Percent of adults aged 18-64: 69.7%

Public insurance
Percent of persons under age 65: 25.3%
Percent of children under age 18: 42.2%
Percent of adults aged 18-64: 18.8%

Credentialing
ACGME case minimum for OB/GYN residents

<table>
<thead>
<tr>
<th>Category</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spontaneous vaginal delivery</td>
<td>200</td>
</tr>
<tr>
<td>Cesarean delivery</td>
<td>145</td>
</tr>
<tr>
<td>Operative vaginal delivery</td>
<td>15</td>
</tr>
<tr>
<td>Obstetric ultrasound</td>
<td>50</td>
</tr>
<tr>
<td>Abdominal hysterectomy</td>
<td>35</td>
</tr>
<tr>
<td>Vaginal hysterectomy</td>
<td>15</td>
</tr>
<tr>
<td>Laparoscopic hysterectomy</td>
<td>20</td>
</tr>
<tr>
<td>Incontinence and pelvic floor procedures</td>
<td>25</td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>10</td>
</tr>
<tr>
<td>Laparoscopy</td>
<td>40</td>
</tr>
<tr>
<td>Hysteroscopy</td>
<td></td>
</tr>
<tr>
<td>Abortion</td>
<td>20</td>
</tr>
<tr>
<td>Transvaginal ultrasound</td>
<td>50</td>
</tr>
<tr>
<td>Surgery for invasive cancer</td>
<td>25</td>
</tr>
</tbody>
</table>

Emphasis on vaginal hysterectomy decreasing 20 LH, and 35 TAH required for graduation

Disclosures
Consultant: CooperSurgical, Medtronic, Karl Storz

Resad P. Pasic MD, PhD
University of Louisville
Cost of TLH
University of Louisville (Rural)

Mean cost
$41,694
cash only: $10,006

OR costs
First hour: $5,475
Each additional 30 minutes: $2,532
Anesthesia for every 30 minutes: $1,116

Cost of TLH
Brigham and Women’s (Urban)

Mean cost
$38,312

The Future of MIGS in the United States…

“FMIGS fellowships are now offered through more than 40 hospital sites.

Educational objectives focus on evidence based medicine, anatomical principles, instrumentation, operative laparoscopy, operative hysteroscopy, and robotics.

The Fellowship offers in-depth experience using state-of-the-art techniques.

To date, 315 Fellows have successfully graduated from the program.”

References
2. www.acgme.org
3. www.healthinsurance.org/kentucky-medicaid/
4. University of Louisville Hospital department of billing
5. www.census.gov
6. aagl.org
7. cdc.gov
OBJECTIVES

• Review history and the future of MIGS in India.
• Discuss surgical trends, credentiality and legal issues related to MIGS in India.

SCOPE AND POTENTIAL OF MIGS

- Nearly 20 million women of India have either fibroids, endometriosis, need to remove uterus for excessive bleeding, female urinary leak are the huge takers of MIGS.
- Providers of MIGS mushroomed in capital cities and then smaller places after 2000.
- Out of 32000 Gynecologists with 2500 members of IAGE few hundred turned in MIGS specialists.

MIGS IN INDIA ….SO FAR

- Vaginal surgery in difficult situation which is in India since many decades.
- Advanced MIGS was started 25 years back in few major cities of India.
- MIGS is not taught in the primary curriculum of Post Graduate Gynecology in Medical Colleges all over India.
- Education and skill began by entrepreneur Gynecological Endoscopist who self trained abroad. Hysteroscopy, Laparoscopy, Vaginal or Urogynacology training is imparted by them from 1993 and later recognized with the FOGSI The Federation of Obstetric & Gynecological Societies of India 1997 and IAGE Indian Association of Gynecological Endoscopy 2010.

CURRENT SCENARIO

- Pioneers of MIGS in India at least >10 have their major educational centre backed up by a huge turnover of MIS.
- Educational and Live Workshops in MIGS started in 1992-93 became the most popular events well attended and are biggest stimulant to interested Gynecologist.
- Probably India outnumbers any country in the number of Live demonstration Of MIGS.
- Strong leaders of Indian Endoscopic organization had International events with experts from America, Europe & world over. They had events with AAGL, ISGE, ESGE and most active participation with AAGL.
CREDENTIALITY AND LEGAL STATUS

- Two centers Total Health Care Centre, Mumbai and Galaxy Hospital, Pune got one year official Post doctoral Fellowship Training Course in Minimal Access Surgery - Gynecology and or Oncology by Maharashtra University of Health Sciences (state body). Few centers are clubbed with a Private Medical Capital College.
- MIGS educational inanimate lab set ups by companies grew, but Advanced MIGS is still a unregulated science inspite of innumerable experts.
- All India Institute of Medical Sciences Hospital in Delhi and few hand full Government Hospitals started proper training from residency since few years.
- Though issues of laparoscopic morcellation and urinary incontinence tapes are global, with ban or withdrawal of such techniques, in India there is no official ban on Morcellation or use of tapes for Urinary Incontinence. Safe methods of In bag morcellation and use of microporous slings for female urinary incontinence is mastered by few and benefitted thousands of women.
- Litigations by patients are increasing, but far less than global. No Insurance or equipment making company can dictate terms with consultants or corporate hospitals.
- BIG RESPONSIBILITY IS SAFETY for patients and authentic credentiality.

REFERENCES

- Laparoscopic Morcellation of fibroid and uterus in bag-JOGI, 2015 December ;45(3):396–400
- A comparative evaluation of sub urethral and transobturator sling in 209 cases with SUT-JOGI vol-I/issue-2/Jul-Dec2009
- Ureteric injury in Total laparoscopic hysterectomy, repaired by laparoscopic Neoureterocystotomy-J.MIG. 2015 Nov-Dec22(6S):S146
- "Beyond the boundaries of Endoscopic surgery, Vaginal Hysterectomy and Urogynaecology" published in 2003, Textbook editor-Dr. Prakash Trivedi
- "Safe and effective Gynaecological endoscopy" published in 2012, Textbook editor-Dr. Prakash Trivedi
- Understanding female urinary incontinence, published in 2011, Textbook editor-Dr. Prakash Trivedi
Disclosures

“I have no financial relationships to disclose.”

Objective

• Review history, discuss simulation/robotic training and the future of MIGS in Israel

Israel

• 9.000.000
• Start up nation
• After USA highest rate of start up companies per population

Medical Simulation - Changes in the Wind

• To err is human report: as many as 98,000 people, die in hospitals each year as a result of medical errors that could have been prevented.
• Simulation improves safety and closes gaps
• Team training, the better the team the lower the complication rates
• Paradigm for learning is changing – no longer see one do one teach one

Medical Errors - USA Statistics

3rd Medical Death Cause, Preceded Only by Heart Disease and Cancer

• 180,000 deaths annually from medication errors and adverse reactions (S. G. Holland, E. Y. Depuy, Drug-Induced Disorders, American Family Physician, 1998)
• 46,000 to 96,000 deaths annually from medical errors (Top 10 death causes, IOM, 1999)
• 225,000 deaths annually from medical errors, including 45,000 deaths due to "preventable adverse events of care" (Office of Inspector General for Health and Human Services, 2007)
• 150,000 people are annually due to preventable adverse events in hospital medical errors, according to a study of 37 million patient records. (Health Grades Inc. "Patient Safety in American Hospitals" 2004)
• Bad hospital care contributed to the deaths of 186,000 patients in Medicare alone in a given year (2010, the Office of Inspector General for Health and Human Services)
• Serious harm seems to be 10-20 fold more common than lethal harm (Journal of Patient Safety, 2011, volume 7, issue 3)
• 210,000 - 440,000 patients each year who go to the hospital for care suffer some type of preventable harm that contributes to their death. (A Study of the Joint Commission Saftey)
Laozi

Lao Tzu
Chinese Philosopher (604 – 532 BCE)

Knowledge is a treasure,
But practice is the key to it.

The Changing Paradigm of Surgical Training

“We learn by actively doing.”
Dr. Arnold Advincula, 40th President of the AAGL

Virtual Reality Based Surgical Simulation

Practicing with Precision

• A virtual reality medical simulator is a digital visualization of a medical procedure manipulated by a hardware component that a surgeon can use to accurately practice and test a surgical procedure.

Robotics in Medical Care

Robot

“A reprogrammable, multifunctional manipulator designed to move materials, parts, tools, or other specialized devices through various programmed motions for the performance of a variety of tasks.”
Robot Institute of America.

Robotic Surgery Driving MIS Adoption

2004 US Procedures
2015 US Procedures

Robotic Surgery Adoption Challenges

• Cost-benefit
• Training & accreditation
• Efficacy & safety
Drive for Simulation in Training in Robotic Surgery

- Professional organizations identify the needs for training in robotic surgery
- Device manufacturer involvement in training & simulation
- Other: FDA/regulatory, legal ramifications, amplification by media

Robotic Surgery Lends Itself To Simulation Training

- Surgeon console & image-based surgery
- No haptic feedback
- Steep learning curve
- Disengaged from the surgical field
- Anatomy and procedural steps are different from open surgery
- Little access to robotic procedures

Significant amount of training necessary for the best outcomes
- Dual console use for training and collaboration
- Simulators

Value of Procedural Simulation

- Procedural steps
- True-to-life anatomical environment
- "Visual haptic" cues to tissue manipulation
- Demonstration of a variety of techniques
- Simulation of complications and injuries

Training with procedural VR simulators proven to be superior to basic VR simulators, leading to improved performance in the operating room.
(Herrick et al Surgical Education Annual Meeting, 2009)

3DS Patient Specific Surgical Planning
Simulation of Stent-Graft Placement

- Simulate, analyze and evaluate preoperative surgical options
- Hands-on experience of possible treatment plans customized to the specific patient’s pathology

Simulation + 3D Printed Models

3DS Patient Specific Surgical Planning

Virtual Surgical Planning “VSP®”

Simulation + 3D Printed Guides

HEALTHCARE THREAD

Digital Thread for Personalized Surgery, from medical imaging to surgical outcomes.

Our products and services meet the needs of customers ranging from medical device OEMs and teaching hospitals to individual healthcare professionals.
Summary

• A brief overview of developing technologies: **augmented reality** allows us to view structures during surgery
• Advance **segmentation** technology allows us to reconstruct a precise three dimensional anatomical model. Such models may be viewed using 3D viewing tools and even printed into physical replicas, allowing to see touch and practice before surgery.
• Simulators today are able to recreate a **complete Virtual Reality** clinical procedural simulation.

Summary

• The popular **VR goggles** provide a totally immersive environment during training and surgery. **Team training** is another field which may benefit from the use of VR simulation.
• The virtual reality reproducible environment is being used by groups such as FRGS and SERGS to design and validate standardized training and assessment curricula. Within the FRGS, a complete VR robotic hysterectomy simulation was developed.
• New entrants to the robotic surgery field are promising the next surgical revolution and are aiming to provide a seamlessly connected OR. A future where **algorithms knowledge together with advanced imaging and virtual reality** will benefit patient care and physician training alike.

References

Thank you
The Future of MIGS: An Australian/New Zealand Perspective

Objective
- Demonstrate the characteristics of the region
- Strengths and Weaknesses
- Assess current Training and Credentialing
- Future of MIGS in the region

Disclosure
- I have no financial relationships to disclose

Assessing Strengths and Weaknesses
- Health Care Model
- Patient access
- Technology
- Workforce and Surgical Load
  - AUS 1:13,657 & NZ was 1:16,222
- Training and Credentialing

Training and Credentialing
- Australia and New Zealand (RANZCOG and AGES)
  - Trainees: 638 (M 121 (19%), F 517 (81%))
  - Fellows 2019 (AUS 1741, NZ 278)
    - M 178 (10%), F 156 (90%)
  - AGES trainees: 38
- Credentialing
  - Hospital based
Future of MIGS in the region

- Instrumentation and Apparatuses
- Techniques and Surgical approach
- Training and the Skilled Surgeon
- Patient Care & Safety
- Challenges

References

- RANZCOG: FRANZCOG training program 2014 procedure number Report
- AGES training report 2015
- MBCOA Activities Report 2015
- Review of Australian Government Health Workforce Programs: 4.2 Rural recruitment and retention strategies, 2013
- Caroline McInerney, Michael Penman, Louise M Carroll, Anne E Coffey and Ryan Barr. Integrating parental leave into specialist training: experience of trainees and faculty at gynaecology in Australia, Med J Aust (2012), 196 (1), 50-52
- Thank You
Governor Arnold Schwarzenegger signed into law AB 1195 (eff. 7/1/06) requiring local CME providers, such as the AAGL, to assist in enhancing the cultural and linguistic competency of California's physicians (researchers and doctors without patient contact are exempt). This mandate follows the federal Civil Rights Act of 1964, Executive Order 13166 (2000) and the Dymally-Alatorre Bilingual Services Act (1973), all of which recognize, as confirmed by the US Census Bureau, that substantial numbers of patients possess limited English proficiency (LEP).

California Business & Professions Code §2190.1(c)(3) requires a review and explanation of the laws identified above so as to fulfill AAGL’s obligations pursuant to California law. Additional guidance is provided by the Institute for Medical Quality at http://www.imq.org

Title VI of the Civil Rights Act of 1964 prohibits recipients of federal financial assistance from discriminating against or otherwise excluding individuals on the basis of race, color, or national origin in any of their activities. In 1974, the US Supreme Court recognized LEP individuals as potential victims of national origin discrimination. In all situations, federal agencies are required to assess the number or proportion of LEP individuals in the eligible service population, the frequency with which they come into contact with the program, the importance of the services, and the resources available to the recipient, including the mix of oral and written language services. Additional details may be found in the Department of Justice Policy Guidance Document: Enforcement of Title VI of the Civil Rights Act of 1964 http://www.usdoj.gov/crt/cor/pubs.htm.

Executive Order 13166,”Improving Access to Services for Persons with Limited English Proficiency”, signed by the President on August 11, 2000 http://www.usdoj.gov/crt/cor/13166.htm was the genesis of the Guidance Document mentioned above. The Executive Order requires all federal agencies, including those which provide federal financial assistance, to examine the services they provide, identify any need for services to LEP individuals, and develop and implement a system to provide those services so LEP persons can have meaningful access.

Dymally-Alatorre Bilingual Services Act (California Government Code §7290 et seq.) requires every California state agency which either provides information to, or has contact with, the public to provide bilingual interpreters as well as translated materials explaining those services whenever the local agency serves LEP members of a group whose numbers exceed 5% of the general population.

If you add staff to assist with LEP patients, confirm their translation skills, not just their language skills. A 2007 Northern California study from Sutter Health confirmed that being bilingual does not guarantee competence as a medical interpreter. http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2078538.