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# OPUS



THE INTERNATIONAL SOCIETY  
FOR GYNECOLOGIC ENDOSCOPY

Spring Issue,  
April 2020

## The ISGE Newsletter

No. 10

## Editorial

### Sailing Cautiously

#### Dear Colleagues

In these turbulent times of Covid-19 pandemic, we stay together as members of this International Society.

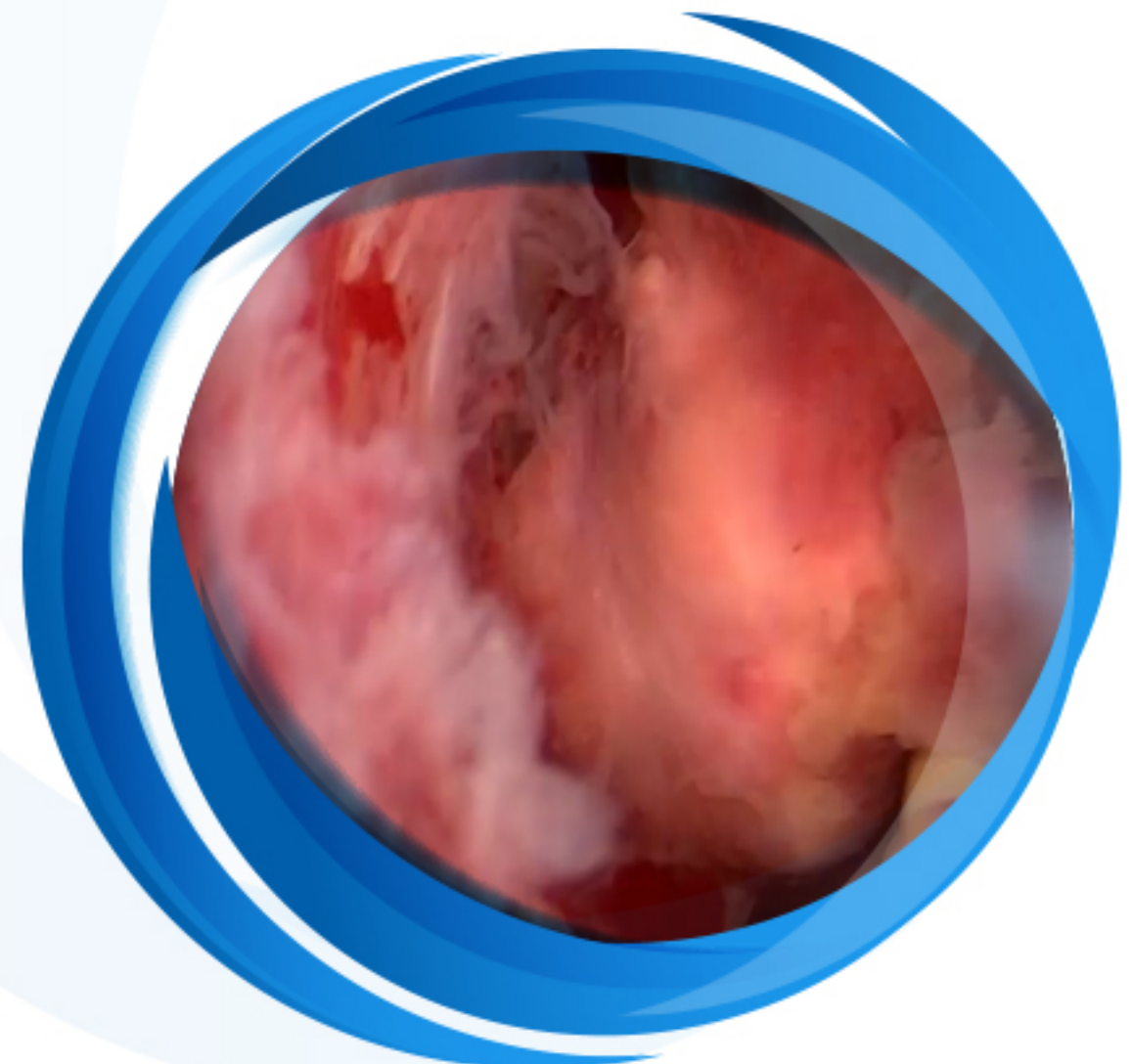
I know, we all are doing our best at various levels of responsibilities to help the victims and to stay safe. In order to maintain safe minimal invasive surgery during this crisis, an updated practice guideline have been developed by ISGE and it is included in this issue along with references to similar ones prepared by other sister societies.

Moreover, we still hope that prayers and reflections will see us through this time of trial for the souls of men and women throughout our world. We are convinced that things will get better and as the resilient teams we are, we will overcome together this challenge and will come back stronger, better and united.

Sincerely,  
**Hisham Arab**



## Cover Quest



**This is not a myoma or a polyp,  
What else could it be?**

Find the answer at The Trocar on our website: [www.isge.org](http://www.isge.org) or just go to the following link [https://www.thetrocar.tv/index.php?option=com\\_content&view=article&id=181:removal-of-placental-residual&catid=17&Itemid=186](https://www.thetrocar.tv/index.php?option=com_content&view=article&id=181:removal-of-placental-residual&catid=17&Itemid=186)

## Letter from the President



**Dear colleagues and friends,**

I hope that you and your families are doing well and staying safe during these extraordinary times of the Covid-19 pandemic. My heart goes to all of those that were directly affected by this deadly disease. This pandemic illustrates how the world is indeed a small place and there is no country on the globe that has not been directly affected by it. We all are experiencing the hardship and at this point no passport is worth more than the other because we cannot travel with any one of them. We in the United States are preparing for the peak of the epidemic and despite the fact that we have tremendous resources if compared to other countries, we are being hit very hard and testing the limits of our healthcare system.

All elective surgeries in the U.S. have been cancelled to alleviate the pressure on the healthcare system and allow for care of COVID-19 patients. We only perform emergency surgeries. The recommendation of the SAGES, as well as the AAGL and ESGE, is to test patients for Covid19 before surgery and to take extra precautions with laparoscopic surgeries when using monopolar, bipolar and harmonic energy in order to limit the exposure of healthcare workers. Please note that as tissue is coagulated the viral particles are released and healthcare workers may be exposed to the contagious smoke. ISGE also posted its statement and the "Handbook of Covid-19 prevention and treatment," edited by Dr. Tingbo Liang, on its web site, describing the experience of our Chinese colleagues on how to fight this epidemic.

As majority of educational events throughout the world have been cancelled or rescheduled, the ISGE board of directors has decided to postpone the 2020 Annual Meeting in Split, Croatia for one year; it has been rescheduled for **June 6 - 9, 2021** at the same venue. We hope to see all of you there.

I plead with you to respect the recommendations of social distancing and isolation as much as you can and to show your compassion with those less fortunate who are experiencing hardship on different levels. We are all in this together and it is a test of humanity and our resilience. I am sure that we will come out of this stronger and I hope to see you in Croatia in 2021 where we will celebrate our victory.

## A Corona Victim Among the ISGE Family

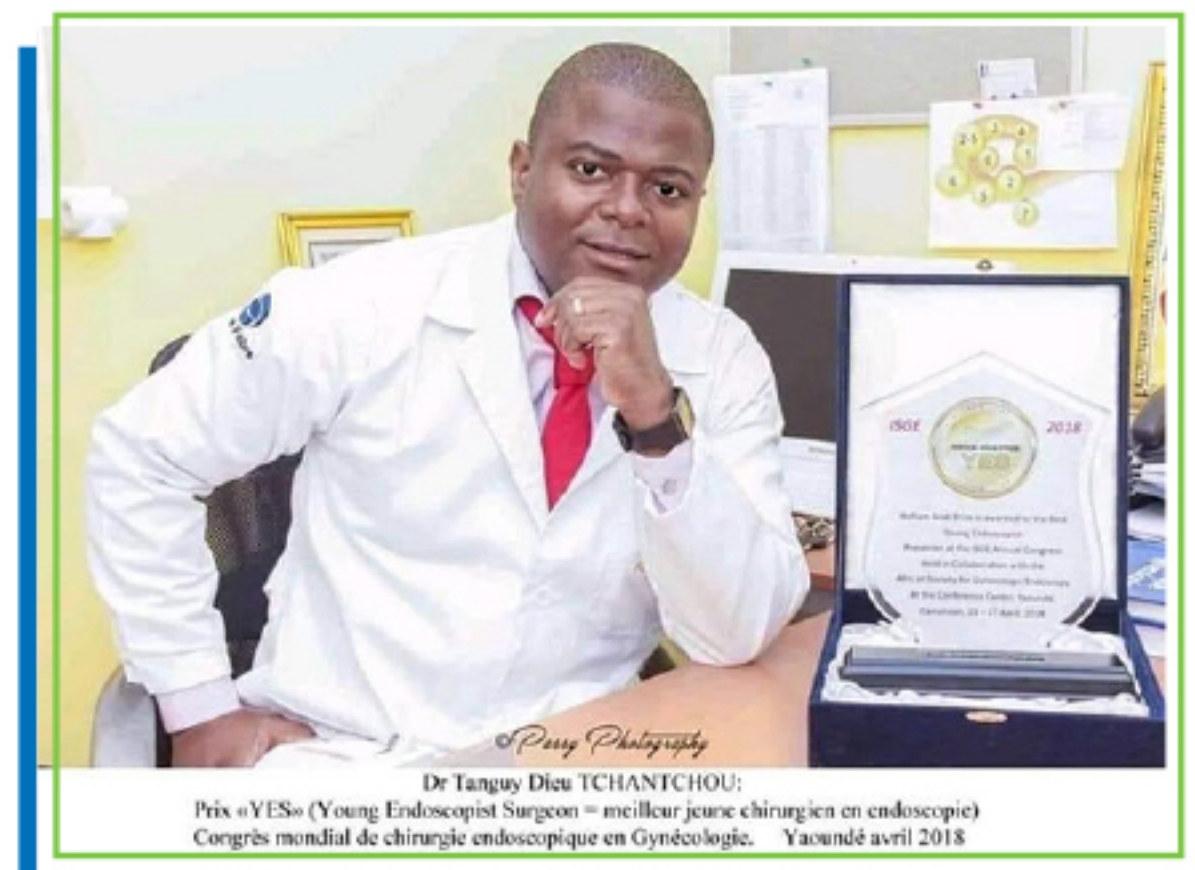
**Dear All,**

Today we did get notice of the passing away of our member **Dr. Tanguy de Dieu Tchanchou**, after fighting a covid-19 infection in an intensive care unit in Gabon.

He is a young, 40 years old, Laparoscopic Gynecologic Surgeon, winner of the Hisham Arab prize in Yaounde 2018.

Our sincere condolences to his wife and family!

**The ISGE Family**



Dr Tanguy Dieu TCHANTCHOU:  
Prix «YES» (Young Endoscopist Surgeon = meilleur jeune chirurgien en endoscopie)  
Congrès mondial de chirurgie endoscopique en Gynécologie. Yaoundé avril 2018

# Message From The Medical Director and the Honorary Secretary of ISGE



ISGE Medical Director  
**Dr. Bruno Van Herendael**



Honorary Secretary of ISGE  
**Dr. Viju Thomas**



**AFSGE**



## Joint statement of ISGE - SASGE - AFSGE – CAGES on Gynaecological Endoscopy during the evolutionary phases of the SARS – CoV – 2 (COVID 19) pandemic

### Introduction

The ISGE is privileged to enjoy patronage of members from around the globe. Countries affiliated with us are experiencing different stages of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, for example, South Africa is in the early stages while other countries such as China and Italy have passed their peak and plateau phases. Given the uncertainty of immunity and new emerging strains, caution must be practiced to ensure the safety of all health care providers. The ISGE is proud to be a global leader in this regard and we are pleased to provide relevant guidelines on practicing minimal access surgery during this dynamic time and in the period of evolving back to normality. As emerging evidence becomes available, this guideline will be

updated.

### Background

The outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) which originated in Hubei was declared a pandemic in March 2020 by the World Health Organization [1,2] and now poses a massive health and economic burden internationally [3,4].

Endoscopic procedures potentially put all involved at risk of inhalation and conjunctival exposure from bioaerosol (endoscopically generated and otherwise), direct contact and contact with faecal matter [5,6,7,8,9]. As gynaecological endoscopists, we must review our current role by evaluating and mitigating risk, to ourselves, colleagues, staff and above all, to our patients.

## Infection risk with SARS-CoV-2

The theoretical risk of infection from endoscopically generated bioaerosols may potentially be increased due to three main factors peculiar to laparoscopy [10,11]:

1. The use of gas insufflation, both during entry and intra-operatively.
2. Creation of bioaerosols from electrosurgery, a cornerstone of endoscopy.
3. A possibility of gas leaks which can potentially result in higher viral counts in the air.

In a recent article, Mallick et al. reviewed the evidence surrounding aerosolization. The authors highlight a paucity of evidence [12]. Studies on HPV, *Corynebacterium*, HBV and HIV have identified pathogens in surgical smoke, notably 40% of HPV during LLETZ procedures and 90% during laparoscopies in HBV infected patients. The high presence of pathogens in smoke plumes translates to very few actual documented cases of transmission, with four documented cases of HPV and none of HBV or HIV. Despite the reassuring nature of these findings, caution should be maintained, especially when extrapolating to potentially more virulent pathogens such as SARS-CoV-2 [5,6,7,8,9].

The main route of transmission is via droplet spread and via contact transmission from contaminated surfaces to mucosal surfaces [13,14,15]. The virus may also become aerosolized during certain airway interventions and cardiopulmonary resuscitation [16]. Additionally, Wang et al reported of SARS-CoV-2 viral RNA particles in stool in 29% of cases and detected live virus in few cases. SARS-CoV-2 uses Angiotensin Converting Enzyme II (ACE2) receptors in the gastrointestinal tract to gain entry into the cell, and this receptor seems well expressed in the GIT, however, a lower presence of 1-15% of RNA particles are found in the blood [17].

This is supported by a study in children where they tested negative for nasopharyngeal swabs but positive for rectal swabs and further highlights the false negative rates of nasopharyngeal swabs [18].

The above information and mostly anecdotal evidence highlight a severe paucity of academic ammunition available to us for decision making and we must attempt to apply it with care and caution to our clinical practice]. It must also be noted that the risk of open surgery with regards to the spread of COVID-19 infection is also not known, and open surgery also produces electrocautery fumes that can potentially spread the virus.

## Considerations for elective surgery

### Early phase of pandemic:

It is important to take advantage of governmental strategies in the early phase of an outbreak which would be to create capacity by anticipating the exponential nature of infection. For example, the Australian and New Zealand Hepatic,

Pancreatic and Biliary association categorized three phases [19].

- (1) Semi-urgent setting where there are few SARS-CoV-2 patients, good hospital and ICU capacity
- (2) Urgent setting: many SARS-CoV-2 patients and limited capacity and
- (3) where all resources are re-routed to the SARS-CoV-2 cause.

It would be prudent in the early phase to fast track “time sensitive diseases” during this time - such as certain oncological cases - as failure to do this would worsen the patients outcome. Once the exponential phase overruns capacity, surgeons will find themselves with inadequate operating time and safe recovery facilities for their urgent cases and left with uncertainty as to when these cases can be performed.

- Priority should be given to urgent cases such as early stage endometrial and cervical cancer.
- Perform urgent cases by laparoscopy and discharge early while the pandemic and the cancer are in their early phases.
- It would be prudent to prospectively stratify and prioritize the urgency of each cancelled case.

In the acute phase of the COVID-19 pandemic, all elective surgical procedures should be postponed where it is possible to safely to so without harm to patients [20,21,22]. It is prudent to ensure that postponement is balanced against the patient’s outcome and quality of life.

- Decisions regarding the management of malignancies should be undertaken in conjunction with an oncologist.
- ISGE supports medical optimization and delaying surgery for prolapse and incontinence.
- Where a delay in surgery will influence the reproductive prognosis of a patient, the case should be managed with a reproductive medicine specialist with the aim of optimizing medical management and consideration given to fertility preservation options.
- Surgery for endometriosis should be deferred as it is not life threatening and when bowel involvement is present, the risk of viral exposure is increased during excision [21].
- Any procedure where there is a risk of bowel involvement including conditions (such as pelvi-abdominal sepsis, or tubo-ovarian abscesses) should be performed by open surgery as studies have found a high amount of viral RNA in stool [17].



**Recommended algorithm for patients requiring surgical intervention:**

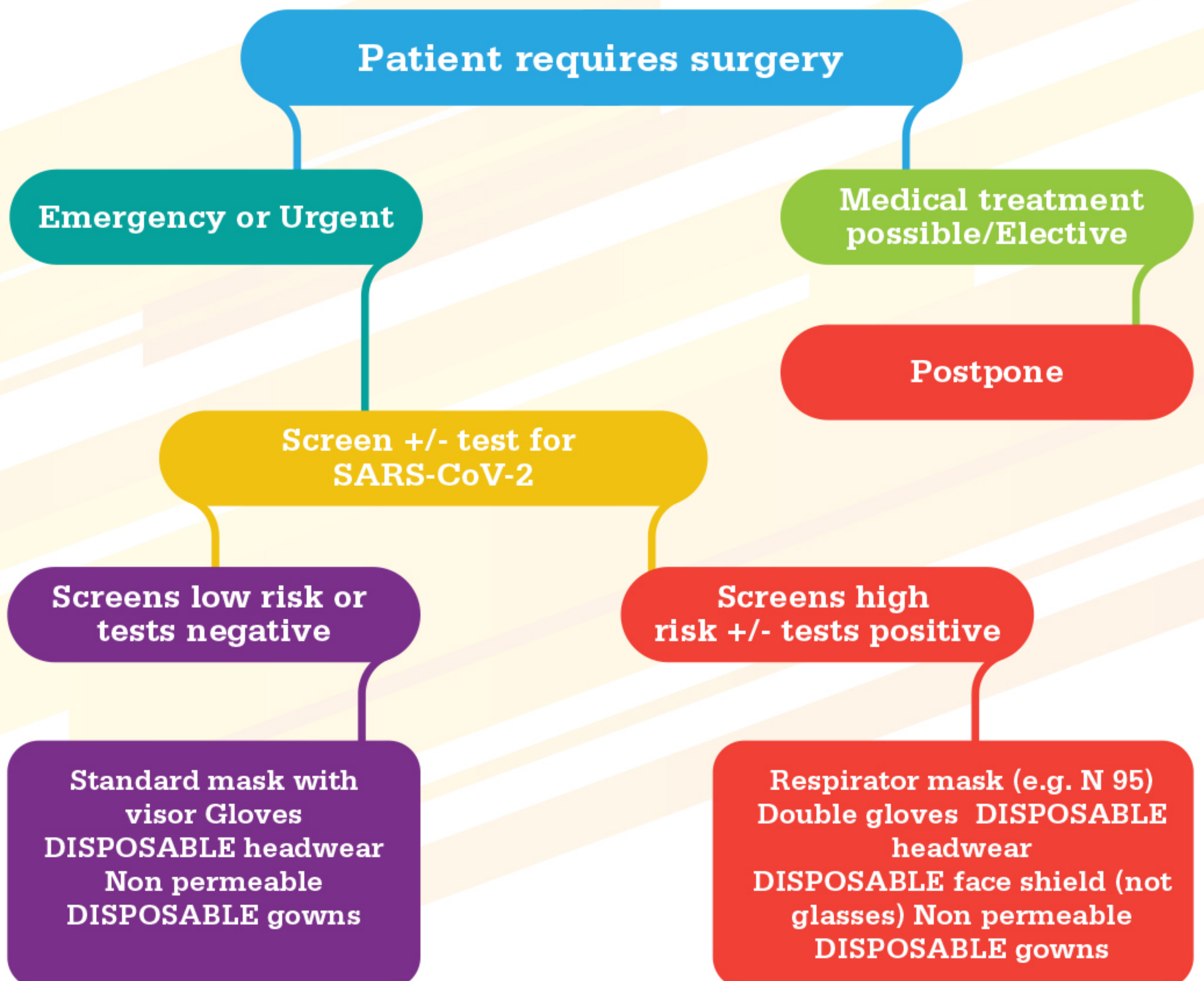
Although universal testing is probably ideal for all patients, this may not be practical in all settings. Screening and testing should be employed as per local protocol.

Testing includes screening for symptoms, nasopharyngeal swabs with nucleic acid amplification such as PCR which has a high specificity but a low sensitivity, rapid antigen/antibody but considering the 5-10-day delay for the production of antibodies [23]. The role of chest imaging is controversial. Zhu et al demonstrated radiological evidence of pneumonic changes in 67% of SARS-CoV-2 patients who tested negative [24]. In contrast PCR confirmed patients had normal CT findings in 56% of positively tested patients [25].

The role of imaging probably lies in the “grey zone” where there is discrepancy between clinical suspicion

and test results. With a high index of clinical suspicion, imaging is probably beneficial.

- Each unit/centre should create a risk assessment flow chart based on capacity
- Ideally all preoperative patients should be tested if resources allow
- Where universal testing is not available, patients should be screened for symptoms based on the local guidelines for example the National Institute of Communicable Diseases [26]
- Symptomatic patients must be tested.
- Imaging of the chest should be performed if clinically indicated and not for screening.
- Patients who screen or test negative may have general anaesthesia and laparoscopic surgery while strict protocols of infection control are upheld.
- Surgery in screen-positive as well as SARS-CoV-2 positive patients should be undertaken with full Personal Protective Equipment (PPE).



### Resumption of elective surgery in the post-peak period

In countries where the peaks have been reached, there is ongoing uncertainty as to when elective surgeries can begin. This period should start with addressing the needs of the health care workers and an inventory of available capacity / resources. These need to be balanced against the backlog of the elective cases.

- Debriefing and mental health screening for staff is recommended.
- Psychological support should be provided as needed.
- Human inventory must be balanced with hospital capacity.
- Reconciliation of the burden of backlogged cases can be made on an individual case basis.

The SARS-CoV-2 pandemic should be considered a harbinger of new surgical practices. The long-term risk of viral epidemics / pandemics is uncertain but very real. Predictions of mutations, new strains and novel new viruses should make us change our practice.

- Even after the peak of the pandemic, strict screening should continue and all preoperative patients should be tested until vaccines or treatment have negated their need.
- If the patient screens/tests positive or there is uncertainty of the status of the patient this case should be postponed.
- If the patient screens or tests negative and if hospital capacity allows then elective surgery may commence with standard PPE.

### Operating theatre considerations during the peak.

- **All patients requiring surgery must be screened and ideally tested preoperatively for purposes of managing the patient and protecting staff.**
- **Irrespective of the result of the screen or the test, during the peak, all health workers should wear full PPE.**
- **With a high clinical suspicion pulmonary assessment with chest X-ray or CT scan preoperatively may be of benefit.**

### Approach to COVID positive patients

In addition to laparoscopically generated bioaerosols, SARS-CoV-2 is primarily a respiratory virus and the team involved in general anaesthesia and who perform endotracheal intubation and extubation, are at the highest risk of viral transmission [16,27,28].

### Anesthetic considerations:

- o The patient should wear a respirator mask at all times
- o The anesthetic staff should wear full PPE
- o In the event that a confirmed case of SARS-CoV-2 is

found, every attempt should be made to optimize medical management and defer surgery until the patient has recovered, and only emergency or life-threatening surgery should be performed in these cases.

- o Every attempt should be made to avoid intubation and if at all possible local or regional anesthesia should be utilized.
- o ISGE recommends the use of appropriate PPE for all surgical procedures - depending on the risk evaluation of the patient (refer to the flowchart).
- o Minimize the operating pressures where possible to reduce gas leaks whilst optimizing ventilation.
- o Avoid positive airway pressure (CPAP and BiPAP)
- o Trendelenburg optimization may facilitate ventilatory needs and this should be balanced between surgical and anesthetic requirements.

### Open vs laparoscopic surgery

A study by Li et al. concluded that the risk of aerosol spread may be lower during laparotomies [10], however this theoretical risk must be balanced with the advantages associated with laparoscopies, including: earlier discharge, reduced nosocomial infections, reduced rates of complications (and therefore re-admissions into hospital, thus increasing the potential risk of SARS-CoV-2 infection) [29]. These advantages are robustly supported in the literature [29,30,31,32,33,34,35,36] and provide much needed capacity in terms of bed space and critical staff for health care institutions during this time.

Brücher et al assessed the risk of open and laparoscopic surgery to be the same provided the gas/smoke was evacuated safely and water lock filters were used or if gasless laparoscopy was performed [23].

Mintz et al demonstrated the safety of ventilator machines with "standard electrostatic filters" for HBV and HCV which have a diameter of 42 nm and 30-60 nm respectively and it stands to reason that the SARS-CoV-2 virus which has a wider diameter of 70-90 nm would not pass through the filter [37]. This highlights the role of filters which may be used during laparoscopy after which these filters should be discarded according to local protocols.

It must be clearly stated that there is no robust evidence of increased risk of viral transmission during laparoscopy. The current evidence is purely extrapolated from work with other, above mentioned, pathogens. While recognizing these facts, all precautions must still be taken during this time until more evidence becomes available.



Aerosols are also produced during open and vaginal surgery [5,10,12]. Unlike during a laparoscopy there is no way to contain the aerosols by using filters and closed system smoke evacuators. This risk is increased with the use of any electrosurgery including monopolar, bipolar and advanced energy devices such as advanced bipolar, laser and ultrasonic devices [12,38].

- During open and vaginal procedures suction can be used to minimize droplet and bioaerosol spread.
- In a SARS-CoV-2 positive patient all attempts should be made to avoid intubation and ventilation.
- In a patient who screens low or tests negative, although carrier and false negatives cannot be excluded, laparoscopy should be strongly considered.

Currently we need to balance a hypothetical risk of aerosol spread in low risk patients to the vast array of evidence proving the benefits of laparoscopic surgery.

### Operating room considerations

The importance of infection, prevention and control (IPC) and adequate PPE cannot be over emphasized. Whilst prioritizing patients' needs first, it is imperative that the safety of healthcare workers is not compromised.

- Ensure that only essential personnel are exposed. For example, there is no need for the entire theatre staff to be present during intubation.
- Theatre staff including nursing staff, anaesthetic staff and surgical assistants require in-service training on the infection control protocols.

Negative pressure theatres are scarce and most operating theatres have a positive pressure environment. In contrast to negative pressure theatres, this prevents air from outside the theatre from entering the operating area. Although this principle is effective for standard procedures, it may be counter effective for theatres with patients who are SARS-CoV-2 positive.

- If available, negative pressure theatres should be used for patients who are positive or screen high risk.
- Clear routes of entry, exit, donning, doffing, handling of specimens and sterilization of instruments and theatres should be established, based on institutional infrastructure and resources. These arrangements should be documented in a clear **Standard Operating Procedure (SOP)** document.
- Practice donning and doffing sequence for sterile procedures.
- Although disposable instruments, tubing and filters are ideal, this should be tailored to resources within the unit.

### Strategies to reduce production of bioaerosols

There is no substitute for practicing sound surgical

principles to ensure seamless surgery and good patient outcome. Care should be employed when choosing advanced energy sources. The theoretical risk of increased smoke and particle dispersion is associated with the high frequency oscillating mechanism of ultrasonic devices [12,38].

- Consider potential particle dispersion when choosing energy devices.
- Employ sound principles of energy to optimize tissue effect.
- Employ basic surgical principles: minimize bleeding, careful handling of tissue, minimal use of energy at the lowest but effective settings and use of atraumatic instruments
- The most experienced, proficient and knowledgeable surgeon available should perform the procedure. This will ensure the implementation of SARS-CoV-2 protocols, shortest operating time and minimal exposure of the theatre staff to potential aerosols.

### Strategies to reduce leakage of smoke aerosols

Communication and meticulous planning will result in fewer human errors. Staff should be well briefed on the surgical plan. If needed standard operating procedures (SOP) and protocols can be simulated for intraoperative strategies such as avoiding leakage by not opening ports to release smoke, use of filters, smoke evacuators, disposable tubing, use of wall suction and removal of specimens to name a few.

- Provide in service training for theatre staff and detail the surgical plan preoperatively.
- Consideration should be given to the number of ports used and size of incisions.
- Minimize the operating pressures where possible to minimize gas leaks.
- Prudent preoperative planning helps reduce gas leaks which occur during instrument changes.

Where gas leaks are anticipated, such as with specimen retrieval and removal of the uterus at total laparoscopic hysterectomy, certain strategies may be employed:

- Use of retrieval devices may minimize gas leaks.
- Ensure all colpocleiators (vaginal cuff delineators with air seal) are checked preoperatively for gas leaks.
- Once the vault has been circumcised, all the gas should be removed by suction and/or closed system evacuators, before removing the specimen vaginally.
- If one is not able to maintain colpocleisis during colpotomy, then consider an alternative strategy such as vaginal colpotomy after removing all the gas, as performed at LAVH.



## Strategies to promote safe elimination of smoke

- o It is advisable to use closed smoke evacuation systems intra-operatively when available.
- o Filters should be used and tailored to what is available to the centre.
- o Wall suction connected to a central system is preferable to mobile suctioning devices.
- o Suction should be generously utilized to remove the plumes of smoke generated during surgery.
- o Suction should be used at the end of the procedure to remove all the gas from the abdominal cavity prior to removing the ports.
- o Use closed system smoke evacuators to safely remove surgical gas at the end of the procedure.
- o The trough of the pandemic should not herald old practices. This must be done for two reasons: We are uncertain of repeated waves of infection [39,40,41] and even in a post SARS-CoV-2 world, this practice will continue to keep staff from unknown toxins and bioaerosols.

***Even after the peak of the disease the practice of safe elimination of smoke should continue. Where possible central suction should be used in all cases.***

## Port closure

The recent article by Mallick et al. discusses the conflict between the traditional practice of port removal under vision before desufflation and the newly adopted practice of desufflating prior to removing the ports to prevent bioaerosol infection [12]. This deviation in practice marginally increases the risk of port site herniation and unrecognized port site bleeding but supports the reasoning and applied practice. Port site herniation is more likely to occur if all the gas has not been removed and the ports are not removed under direct vision. This occurs because the positive pressure in the abdomen can push structures such as omentum and small bowel through the port while the gas is trying to escape.

- ISGE supports the interim practice of desufflation prior to the removal of ports for purposes of reducing bioaerosol spread.
- Remove all ports only after all the gas has been removed to reduce port site herniation.
- At the end of the procedure, the sheath at port-sites  $\geq 10$  mm must be closed using a J needle.
- Avoid using commercial endoscopic port closure devices as they may allow for gas leaks.

Considerations after the epidemic

The new practice of safe removal of gas to avoid bioaerosols should be evaluated in studies that compare the risks of unidentified port site complications such as inadvertent

bleeding and herniation against and the risk of bioaerosols. Studies have found more than 600 compounds and gasses in surgical smoke including SARS-CoV-2, HIV, HBV and HPV to name a few. An elegant study by Li et al demonstrated that the cumulative particles numbers of 0.3  $\mu\text{m}$  and 0.5  $\mu\text{m}$  were higher after laparoscopic surgery when compared to open surgery supporting the need for safe smoke evacuation and well-fitting face masks [10]. The overwhelming evidence of known toxins and the fear of unknown risks of the smoke should compel us to continue safe evacuation of smoke.

- Consider the routine use of gas filters
- Remove ports only after all the gas is removed
- If ports are removed before gas is removed, this must be done under vision.
- The use of a protective fitting face mask is recommended

## Considerations during hysteroscopy

As with laparoscopy the evidence on hysteroscopic bioaerosol production is sparse. Electrosurgery during hysteroscopy seems to produce less smoke than laparoscopy, although there are no comparative studies to support this. In this regard mechanical hysteroscopic morcellators pose an advantage [20,33]. In the absence of evidence, we are unable to adequately quantify the risk of bioaerosol production at hysteroscopy but the risk appears low.

- All elective cases should be postponed.
- It is plausible that hysteroscopic tissue removal systems reduce bioaerosol exposure.
- Suction device should be connected to an outflow sheath.
- Standard PPE is recommended unless SARS-CoV-2 positive/screens high risk at which time full PPE is recommended.
- ISGE recommends no anesthesia or if indicated conscious sedation, local or regional anesthesia for hysteroscopy.
- Hysteroscopic morcellators may pose an advantage over hysteroscopic electrosurgical devices.
- Hysteroscopy is preferentially performed on a day case/ outpatient basis to relieve the pressure on main theatre resources.

## Post-operative strategies

The literature supports laparoscopy in allowing for same-day or early discharge [28,42]. This reduces patient exposure and enhances capacity at hospitals during this resource constrained era. Although screened, patients may not have been symptomatic at the time of surgery but may have been infected. It would be prudent to identify false negatives, their contacts (at home and at the hospital) need to be identified and appropriately managed.



- Attempt same-day or early discharge where possible to avoid nosocomial infections.
- Employing ERAS (early recovery after surgery) principles will help facilitate quicker discharge.
- It may be prudent to telephonically contact the post operative patient to screen for symptoms after the surgery.
- A log should be kept of all staff involved in the care of any specific patient in order to aid contact tracing should a patient test positive at a later stage.

### Conclusion

The position of international societies such as the ACOG, AAGL, ESGE, SASGE and BSGE [20,21,22,43,44] recommend the use of laparoscopic procedures over open

procedures when appropriately evaluated. ISGE acknowledges the dynamic times we are in and based on current evidence ISGE largely supports the current international stance favoring laparoscopy over laparotomy on a case by case risk evaluation basis. ISGE also recognizes the different levels of skill and access to minimally invasive procedures across various countries, and supports individual clinical decision making during this time with regards to surgical access.

This document will be revised as more data becomes available.

The full article along with its references can be found at our website: [www.isge.org](http://www.isge.org)

## Evolution of cameras in endoscopy



**Dr. Meenu Agarwal**

National Director-Clinical Board, Morpheus IVF  
Elected Board Member- International Society of  
Gynaecological Endoscopy



**Prof. Liselotte Mettler**

Prof Emeritus UKSH, Kiel, Germany  
Honorary Patron Kiel School of Gynecological  
Endoscopy

The concept of the “camera obscura phenomenon” was recorded in China as early as 2674 BC.

Philip Bozzini in 1805 and Antoine Jean Desormeaux in 1853 were the initial scientists and physicians to try and look into the living human body directly through their own designed instruments.

The era of photo documentation started with Johann Czermak, who in 1858, was the very first to take a photograph endoscopically.” Theodor Sigmund Stein was recognized for “scientific photography in 1874”. Stein built an “automatic endo camera” also known as a “photo endoscope”.

20th century saw the development of better camera technology simultaneous with better optics taking the future of endoscopy to another level.

Carl Schroeder, in 1934, procured the first photographic image of the uterus by attaching his own camera design to a hysteroscope.

Spectacularly there was advancement of camera technology as mirror reflex cameras were introduced to take photographs “during an endoscopic procedure”. By the 1960s cameras were being used in the operating room to transmit images of the interior body to a

television monitor. However, they were extremely bulky and the whole system weighed over 80 kgs. Berci crossed this hurdle by designing his own miniaturised camera, that was much smaller and far lighter, weighing 0.35 kgs. Although the image was only recorded in black and white, it was magnified further and could be stored on a movie film.

There was a real shift in surgical technique from open surgery to endoscopic route by 1970s but working with camera together with endoscope was tiring as it altered the balance and made precision work very difficult.

In 1980s electronic minicamera brought the breakthrough. A combination of optic trocar and video camera opened the Pandora box for surgeons. Now with both hands free, they could operate ambidextrously and the entire team could simultaneously follow on the monitor.

By the end of 1980 there was a change from 1-chip computer components to a 3-chip design. Three colour sensors had a higher spatial and colour resolution along with greater sensitivity.

An HD 3-Chip Endoscopic Camera was a ground breaking new development due to its ability to allow highest resolution when associated with HD monitor.

The Camera CCU connects the HD imaging chain, capturing and processing video signals from the camera head for display about the monitor and for transfer to the recording devices. The surgeon additionally could command to control the sunshine source settings from the camera head.

Monocular camera and laparoscopes provided a 2D viewing with reduced depth perception and an extended learning curve. The attention turned to producing a three-dimensional endoscopic view for surgeons, utilising different technologies for image

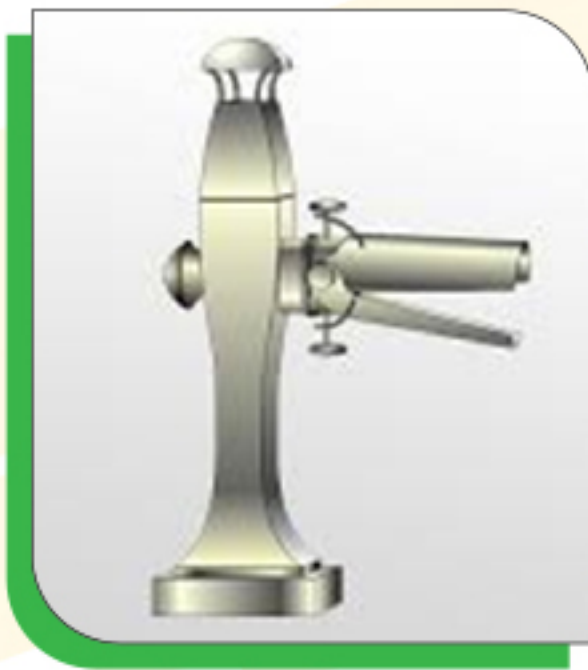
capture and projection.

Today the 4K-3D technology with 4U camera system allows the operating surgeon to get the highest image quality, brightness, impressive colours, fine detail and a significantly improved depth effect.

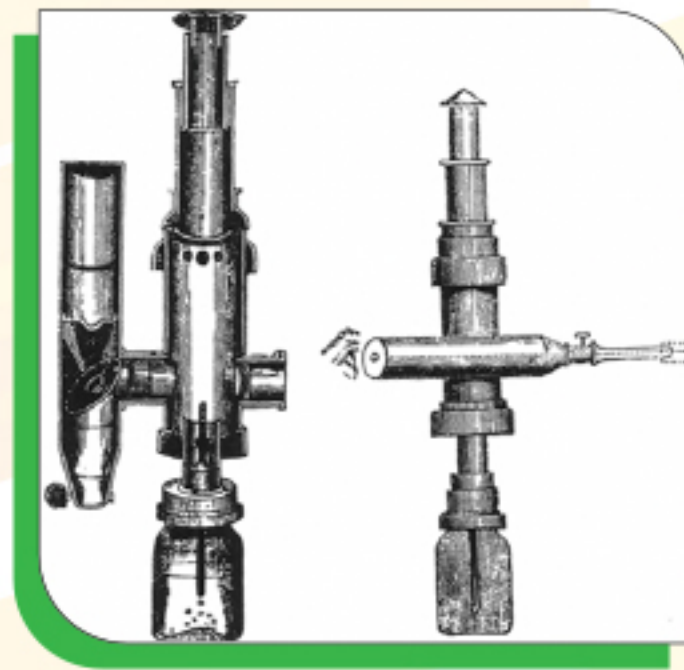
Robotic precision in tumour excision, easier intracorporeal suturing and favourable ergonomics for the surgeon make the robot particularly suitable for performing complex laparoscopic surgeries in gynaecological oncology.

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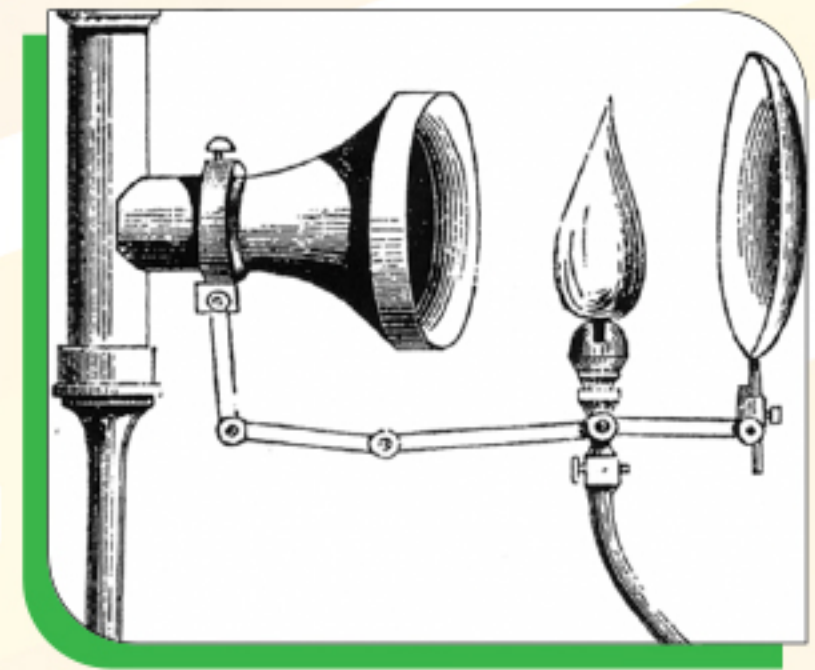
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**Bozzini's  
Lichtleiter**



**Portable endoscope  
by Desormeaux**



**Photoendoscope  
by Stein**



**Da Vinci Surgical system**

**Coronavirus Prevention**



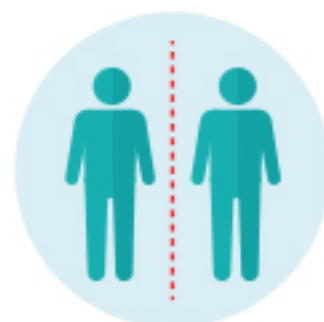
Wash hands with soap/sterilizer



Cover your nose and mouth when sneezing



Put tissues in the trash bin



Keep social distance



Wear mask



Don't touch your face

# Where To Go In 2021

## Back to Basics in MIGS

Vision without action is a Daydream Action  
without a vision is a Nightmare.

Join ISGE at its Annual Meeting in Split  
2021 June 6 - 9



## JOIN ISGE AT ITS MEETINGS IN 2021

FOR MORE INFORMATION  
WWW.ISGE.ORG & SECRETARIAT@ISGE.ORG



## Call for Articles

To all readers of the OPUS, you are cordially invited to contribute to this newsletter with any MIG subject such as case report, instrumentation, short reviews and others. just send it to [secretariat@isge.org](mailto:secretariat@isge.org)

## ISGE Sponsors



# Welcome to ISGE

## Members enrolled between November 2019 and March 2020

NAME	SURNAME	COUNTRY
Miroslav	Popovic	 Bosnia
Nicholas	Pairaudeau	 Canada
Wang	Qianqing	 China
Junjie	Wang	 China
Shouhua	Yang	 China
Mate	Milas	 Croatia
Karlo	Tomicic	 Croatia
Mrsic	Ante	 Croatia
Doris	Praprotnik	 Croatia
Tuzilova	Klara	 Czech Rep.
Christine	Marques	 Germany
Nayanika	Gaur	 India
Meenakshi	Sharma	 India
Ramadugu	Lavanya	 India
Shanmugavadivu	K	 India
Anubha	Singh	 India
Pamit	Tiwary	 India
Grace	Valentine	 Indonesia
Arifin	Benediktus	 Indonesia
Gorginzadeh	Mansoureh	 Iran
Pirastehfar	Zanbagh	 Iran
Zohreh	Basirat	 Iran
Istvan	Kund Kapus	 Norway
Darko	Juric	 Norway
Kristin	Toerressen	 Norway
Mariel	Vazquez	 Paraguay
Rafael Adorno	Garayo	 Paraguay
Maria De Los Angeles	Nuñez Alonso	 Philippines
Justin	Mboloko	 RDCongo
Cristina	Goga	 Romania
Jozef	Adam	 Slovakia
Patiei	Petro	 Ukraine
Tara	DeYampert	 UAE
Sami	Renga	 USA
Hazem	Elshoreya	 USA

# HISHAM ARAB PRIZE

This prize was established in 2016 to be awarded to the best YES presenter once a year at any of the ISGE annual or regional meetings. The prize is composed of 1000 USD in cash and a plaque which should be presented at the closing ceremony of the congress.

2019



THE WINNER FOR 2019 AT ISGE ANNUAL MEETING THAT WAS HELD IN CAPE TOWN, SOUTH AFRICA DURING 13-17 APRIL 2019 WAS **DR. ANNELIZE BARNARD**, FROM SOUTH AFRICA.



If you missed submission for this year, you still have a chance to win it next year at the Annual ISGE meeting in Split, Croatia: June 6-9, 2021.

## Behind The Scenes

### Mr. Hendrik Mondelaers

I'm honored to be the person in 'Behind the scene' in the new OPUS.

Over the past 5 years I have focussed on the technical aspects of the ISGE-webapplication.

It evolved from a website to a gateway of information that it is today, and actually I think it offers multiple opportunities for the ISGE to come.

For the ISGE I'm a webmaster, but besides webapplication development I mainly operate in larger industrial corporations as a user experience design expert. There I see to it that applications are efficiently and effective to use within the business processes they need to support.

I try to bring all of my expertise to any projects, ranging from UXD to webdev, so that everyone benefits. I'm proud to be a part of the ISGE.

Next to the ISGE I have a family with 3 kids that keep me young and make me feel old at the same time. Maybe a bit more than usual during these corona-times.



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On-line textbook of Gynaecological Endoscopy

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Contact the secretariat for more information:  
[secretariat@isge.org](mailto:secretariat@isge.org)

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