



## EXECUTIVE SUMMARY

GEST 2022 | May 19-22, 2022 | New York, USA



### Highlights from GEST 2022

From May 19 – May 22, 2022, GEST was attended in record numbers despite international travel challenges. Members of the Interventional Radiology and Interventional Oncology community packed conference rooms at the Sheraton New York Times Square to learn about the latest products, procedures, tools, tips, and tricks in this space.

Physicians repeatedly stated how this is “**THE**” conference they come to for learning from their peers, a place where they never fail to pick up ideas and tips that they can weave into their practice immediately.

Industry partners were thrilled with the quality of interactions the meeting facilitated. Physicians were engaged in demonstrations at their booths, attended product launches with innate curiosity, and came to sponsored lunches to learn about the various applications for their products and services.

We are so humbled by the feedback on this meeting and look forward to bringing many more educational opportunities in the upcoming year as we begin our countdown to seeing you all at MSK 2023 in Paris and GEST 2023 in NYC.



*“If I had to pick one conference to come to each year, it would be GEST. It is the place where the leaders in the field teach, the place where the quality of posters is so superb that even experts learn, and we get to nurture the next generation of physicians.”*

# EMBOLIZATION

To infinity and beyond: where we've been, where we're going, and how the evolution has transformed IR.

Mike Darcy, School of Medicine, Washington University - honorary guest lecture during the Vanguard session.

The first documented embolization procedure appeared in JAMA in 1904. Since then, the technical aspects have evolved, new applications have been developed and IRs themselves have evolved. The challenges in the early days of embolization were found in large delivery catheters, crude embolic materials and basic imaging - all of which have advanced to enable more precise and increasingly smaller delivery.

All of these technological advancements along with innovative IRs that are using them have allowed us to move into almost every organ system and disease indication including bleeding at other sites beyond GI, devascularizing tissue, oncologic agent delivery, blocking abnormal channels, treating pain or inflammation, and treating medical conditions such as hyperthyroidism, obesity, and fertility among others.

Of all the advancements in the last 30 years, perhaps the most significant is embolization as a therapeutics delivery mechanism. Personalized medicine is becoming more and more important for targeting specific tumor types at specific regions with specific types of therapies. This makes embolization well adapted to play a major role in personalized medicine.

These advancements have also helped our development as a clinical specialty. Often times IRs are the only physicians treating the patient. We've become a vital part of a number of service lines (ex. trauma, transplant etc). Embolization (IO) has become the 4th pillar in oncology and IR embolization is often the court of last resort (ex. HCC, pelvic trauma, massive GI bleeding, and AVS that are unresectable with no medical options). The advancements in embolization have helped solidify our role as a clinician.

Even such, there is a ways to go and challenges ahead such as a better understanding of the field, competition from other specialties (TURF), and lack of support for clinical practice. The key going forward is to continue to provide a better product and service, determine the best indications for existing techniques, continue innovating, and elevate training and education. For that reason, it is conferences and communities like GEST that continue to provide the education and support, thereby advancing embolotherapy in IR.

“

...the knowledge on the part of the patient that by this method he has one more chance, though all other plans have failed, and the growth beyond excision, restores his courage and cheerfulness and puts aside the imminence of despair. As a surgeon has phrased it, we substitute in such a case, instead of the certainty of death, once more the uncertainty of life." Dawburn (1904) JAMA 43:792.



**The way we see it...Embolization - to infinity and beyond!**



# You said it best....

During the 4 day event, you shared what you love most about the Annual GEST conference through surveys and social media (search and read it all using #GEST2022). The message of thanks, gratitude, and love came from physicians and industry alike. **That feeling is mutual!**

GEST has truly built a global network of the best and brightest Interventional Radiologists and Oncologists. The Annual Conference promotes a collaborative network of mentors, learners, and innovators.

### When asked what the best attributes of the GEST Annual Conference are, 7 out of 10 Interventional Radiologists said:

- ✓ It is the place where I know I can pick up methods and techniques that I can use immediately
- ✓ It is the best place for physicians to learn from other leading physicians
- ✓ It is a great platform for new physicians to be trained

Throughout this newsletter, we will share your messages from social media and the surveys. Just look for the icon below.



*"GEST is a one-stop solution and platform for all interventional physicians who want to learn, share, and teach everything or anything within the sphere of embolization."*



Omair Ali @med\_omair · 22h

Had a great time at GEST 2022! Great sessions, great speakers, great mentors, great exhibits, great innovation, and also met some great people! Can't wait to be back! #GEST2022 #IRAD @drShakMD @dheller93



1 retweet 17 likes



Merve Ozen MD @ozenmerveMD · 19h

It was such a pleasure to present at #GEST2022 and spend time with the pioneers who elevate IR with their leadership, research, and innovation.



You 1 retweet 37 likes



Jon Davidson, MD, FSIR @jondavidsonmd · May 21

I was so impressed with the quality of abstracts at #GEST2022! For those who never attended this meeting, do yourself a favor and come next year! Fantastic meeting with fantastic faculty from around the world! @thegestgroup @SIRspecialists

**GEST -Global Embolization Symposium & ...** @thegestg... · May 20  
Great embo abstract session led by @jondavidsonmd this am!  
#GEST2022



Be sure to join in on the conversation on social media - @thegestgroup



# Masterclass Sessions



As always, the most popular sessions this year were the Masterclasses – sessions that were filled with hands on illustrations and opportunities to interact with the experts. Conversations spilled over to the hallways after the sessions, questions pouring in for the experts.

Masterclass sessions this year covered:

- Coils
- Plugs
- Liquids
- Particles, Resorbables, and Microcatheters
- Interventional oncology (IO)



"The masterclass sessions are a real bonus to GEST"



# Physicians in Training

The sessions dedicated to the Physicians in Training were priceless, with young trainees lapping up every bit of expertise passed on from their seniors. They felt the sessions were also eye opening in terms of the various career options available to them in this field.

Physicians in Training presented some riveting cases in the Case Competition rounds.

Winners of the Case Competitions were:

- Tushar Garg, MD at Johns Hopkins (1st)
- Abhi Jairam, IR Resident at UCSD (2nd)
- Antonio Arrichiello, Resident at Policlinico di Milano (3rd)



# Musculoskeletal (MSK) Sessions

Musculoskeletal pain is a leading cause of disability among aging patients in the U.S. Many with chronic pain are unable to get adequate relief from traditional pharmacologic therapies. Others may not be able to take them due to age or comorbidities. Attention has turned to embolotherapy as a safe and minimally invasive procedure to treat MSK pain.

MSK sessions at GEST 2022 were standing room only. Attendees were given an update on the research using embolotherapy for joint disease and MSK sports injuries.

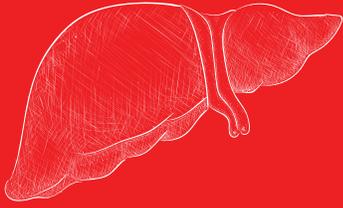
With most IRs lacking in depth experience in MSK, there was high interest in the educational sessions which covered an overview of embolization techniques for OA, frozen shoulder, and sports injuries. Attendees also learned about patient selection and what outcomes resulted from these procedures as well as what future studies would need to encompass to receive acceptance by referring physicians.

**Due to the popularity of these sessions and the need for IRs to understand how to examine and diagnose a patient to determine if they are a candidate for an interventional procedure, we are thrilled to announce our first focused Hot Topic Meeting on MSK.**



Hot Topic Meeting:  
Embolotherapy for Joint Disease  
and MSK Sports Injuries

Registration  
Now Open



## The role of Interventional Radiology (IR/IO) in the management of primary liver tumors, hepatocellular carcinoma, and liver mets.

Hepatocellular carcinoma (HCC) is the fifth most common cancer worldwide and the third most common cause of cancer related death. Resection, ablative therapies, transarterial chemoembolization (TACE), radioembolization, systemic, and immune therapies are all treatment options available and selection is dependent on tumor burden, location, and comorbidities.

Immunotherapy is an increasingly popular approach to cancer treatment. Data shows that the objective response rate in a multitude of cancers is low (between 20-30%). Why is this, what can be done about it, and why should IR/IO care?

A review of many exciting and potential immunotherapies show that while there is promise in preclinical and phase I and II clinical trials, there is a high failure rate in phase III, indicating the importance of effective delivery. If the drug works perfectly but can't get into the tumor, it's still not going to do anything. There is where IR comes in!

IR is the key stakeholder in any intratumoral immunotherapy program. The job of IR/IO is to get the therapy where it needs to be. Of course, it's not as simple as that. There are many physical barriers to delivery. But there are many tools in the toolkit and many tricks up the IR sleeve.



*"The abscopal effect is real and image-guided cancer therapies may be the key to unlocking an immunotherapy's potential. IR/IO plays a key role in how, what, and where these are delivered. But as with any intervention, technique matters! Getting it right can make a positive difference, getting it wrong can have a negative influence on the immuno environment."*

*- Dr. Rahul Sheth, MD Anderson Cancer Center*



*"I love the GEST meeting because the content and speakers are always top notch. The hands-on and masterclasses are great for incorporating into clinical practice."*

# Innovation and the Entrepreneurial IR

Some of the most challenging clinical scenarios have paved the way for some of the landmark IR procedures. Recognizing a clinical unmet need is often where ideas start. So you have an idea - what are you going to do with it? What are the opportunities and what are the challenges in going from idea to implementing a new procedure, developing a new product, starting a new company, or commercializing a concept? How do you go from idea to equipment to proof to patients to payment to regulation?

GEST Innovation sessions focused on thinking outside the box when it comes to the Entrepreneurial IR. Guidance for who to collaborate with and when, the initial studies needed, developing a plan, finding the funding, taking the necessary steps to move it forward, getting new devices into humans, and protecting your IP. Of course, no session on innovation and entrepreneurship would be complete without covering hard lessons learned from the pioneers that have gone before us.



*"Truly a world class conference, leaving with immense knowledge and lifelong memories. Couldn't have asked for anything better!!"*

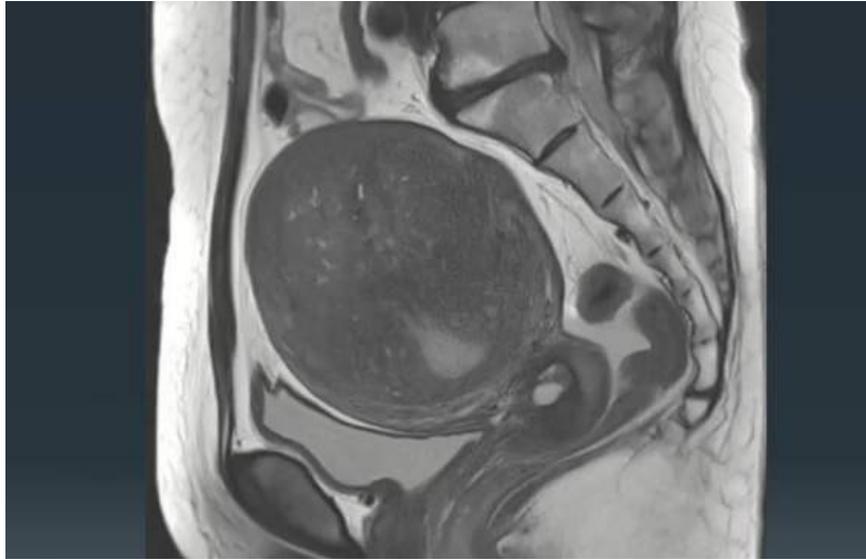


By Dr Lindsay Machan,  
University of British Columbia

## 12 Rules for Physician Entrepreneurs

1. Know what you know...know what you don't know
2. Appropriately value the other skill sets needed to get across the goal line.
3. Only do what only you know how to do.
4. Bring on board members with knowledge and experience that the company needs and you don't have.
5. Hire for attitude and team-fit first and experience second
6. Appropriately value the impact of timing on success.
7. Bootstrap as long as you can.
8. Know your critical path... always have a plan B.
9. Everything takes twice as long and costs twice as much as you think it will.
10. Be reasonable about your valuation... leave money on the table for all investment rounds.
11. You have to be a salesman 24/7.
12. No jerks.... ever! 🙄

# Women's Health



More than 70% of women are estimated to develop uterine fibroids by the age of 50. While not cancerous, they negatively impact a women's quality of life for millions of women and are the leading cause of hysterectomy. Cost to the US healthcare system alone is estimated to be over \$30 billion per year, not including the indirect costs incurred by women due to lost days of work, utilization of sick and paid time off, or uncompensated absences from work.

For those impacted enough to seek treatment, embolization presents a non-invasive alternative with less pain and faster recovery than surgery. During the women's health session at GEST, Nicole Keefe provided an update on current research while John Demeritt presented on UFE and cervical fibroids. Other topics covered were adenomyosis, post-partum hemorrhage, and oncological embolization.



# Women in IR

GEST recognizes and celebrates the many women and their contributions to the field of interventional radiology. We are committed to supporting and inspiring the women who add incredible value and perspective to this field!





# BEST OF GEST COMPETITION AWARD WINNERS

GEST 2022 had over 200 scientific abstracts and more than 60 trainee competition cases. We are proud to present the BEST of GEST competition award winners for the following categories:

- Best Case Presentation (Physicians in training)
- Best Scientific Abstract
- Best Scientific Presentation

## Scientific Abstracts

Award	Physician/Primary Author	Title of Presentation/Abstract/Case
1st Place	Marc Sapoval, MD, PhD Université de Paris / Hopital Européen Georges Pompidou	1 year results of a prospective multicentric cohort study on PAE
2nd Place	Chen Guo, PhD University of Minnesota	In vitro evaluation of novel protein hydrogel microspheres for transcatheter embolization
3rd Place	Charles Querub, MD Hôpitaux de Paris, Hôpital Européen Georges Pompidou	Musculoskeletal embolization : preclinical results using Lipiodol Emulsion

## Poster Presentation

Award	Physician/Primary Author	Title of Presentation/Abstract/Case
1st Place	Gerard Goh	Two-Part Aqueous Liquid Embolic Embolization Efficiency; Benchtop, Preclinical to First-in-Human Clinical Evaluation
2nd Place	Stephanie Wallace	Role of Serum Cr as independent predictor of survival in patients who underwent TIPS with elevated MELD Scores
3rd Place	Pooya Torkian University of Minnesota	Osteoarthritis-Related Knee Pain Treated with Genicular Artery Embolization: A Systematic Review and Meta-analysis

## Physicians in Training Case Competition

Award	Physician/Primary Author	Title of Presentation/Abstract/Case
1st Place	Tushar Garg, MD Johns Hopkins	Transhepatic Lymphangiogram with Embolization in a Patient with Complex Central Lymphatic Leak
2nd Place	Abhi Jairam, IR Resident UCSD	A Case of "Frozen Shoulder" : Palliative Two-Stage Transradial Embolization and Cryoablation of HCC Shoulder Metastasis
3rd Place	Antonio Arrichiello, Resident Policlinico di Milano	Management of Liver Ablation Complicated by Unintentional Aortic Injury



## Prostate Artery Embolization (PAE)

### **New Evidence and Direction, lecture by Mark Little, FRCR, Interventional Radiology Consultant**

Having performed PAE in his practice since 2013, Dr. Little set out to answer 5 important questions in the debate on the safety and efficacy of PAE procedures:

#### Is bigger better - should we only be treating prostates of greater than 50ml?

The majority of the studies will report that PAE has better outcomes in gland sizes greater than 50ml. There is a lot of heterogeneity in the literature and in Dr. Little's experience there are some great results in cases where the gland size is 20-40ml and the patient responds very well. In his institution, they have drawn the 50ml volume for PAE because it enables a clear pathway for referral from urologists.

#### Can PAE really treat the median lobe?

Yes. The evidence is there and in Dr. Little's practice, there have been good results. Sometimes you will get patients to whereby the median lobe does cause a problem and then it's about having a discussion with urologists about doing just a small localized resection of the medium lobe.

#### Should we be performing pre-procedure MRI on all patients and looking for specific factors within the gland to maximize clinical benefit?

It's very useful to counsel the patients on clinical success.

#### Does PAE improve sexual function?

PAE is positive in terms of maintaining men's sexual function. But what about the 20% that do not get a good clinical outcome? The research should focus on reducing the 20% recurrence rate not the retreatment rate.

#### The 20% - to coil or not to coil?

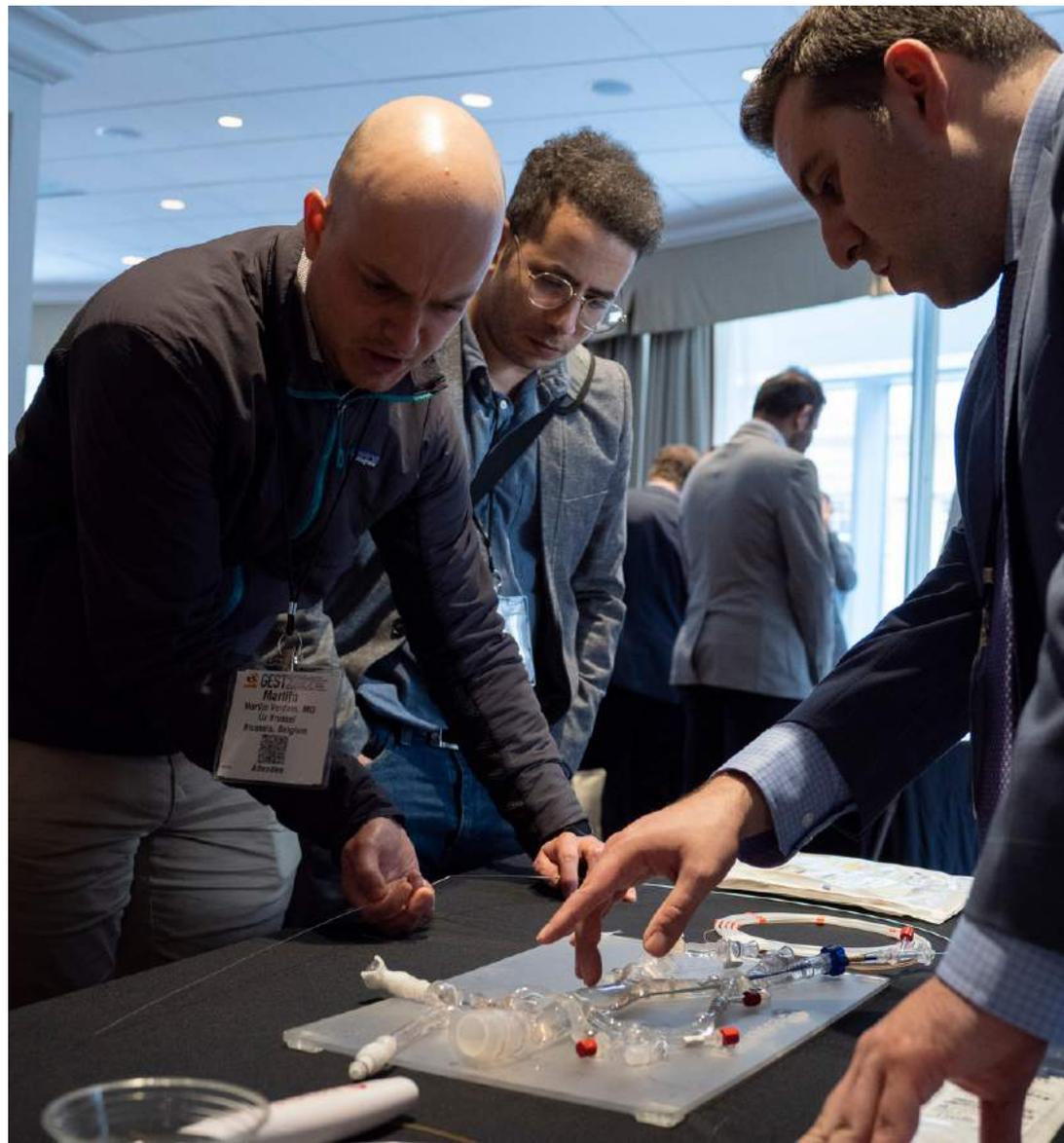
Perhaps one of the hottest topics in PAE is the 20% of patients that do not get a good clinical outcome or the benefit they were hoping for. Coil? Gel foam? Glue? Ultimately more research is needed.

**PAE is a safe, effective and fantastic procedure. We need to refine our technique and think about not just the physical aspects of PAE, but the patient work up and how we counsel these patients and ultimately go forward to maximize the clinical benefit.**



# Networking & Hands-on Learning

A highly valued aspect of GEST is the opportunity for networking and live learning through the masterclasses and hands-on workshops.



# GEST 2022 NOW AVAILABLE ON-DEMAND



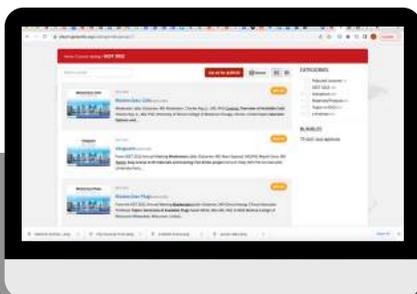
## GEST 2022 On-Demand

Did you attend GEST and had to choose between many excellent sessions because you couldn't be in two places at one time? We heard from so many that they really wanted to attend more sessions that happened simultaneously. Now, registered attendees can access GEST 2022 on-demand in our eLibrary for ongoing education and training.

If you did not attend GEST, you can purchase individual sessions for \$99 or purchase all 24 tracks (36 hours of content) in the GEST 2022 bundle for one low price of \$299.

## TRACKS INCLUDED:

- 5 Masterclass sessions covering coils, plugs, liquid, particles, resorbables, microcatheters, and interventional oncology
- MSK
- Vanguard
- 3 sessions covering Innovation
- Thoracic
- Latrogenic bleeding
- Lymphatic interventions
- HCC
- Women's Health
- Prostate Artery Embolization (PAE)
- Primary Liver Cancer
- Gastrointestinal (GI) Bleed
- Vascular Malformations
- Visceral Aneurysms and Endoleaks
- Vasular Malformations
- Liver Mets
- Portal Interventions
- Pelvic Venous Interventions
- Renal (IO and Non-IO)



# GEST 2022

# ON-DEMAND

# \$299



**SAVE THE DATE**



**GEST 2023**

GLOBAL  
EMBOIZATION  
ONCOLOGY  
SYMPOSIUM  
TECHNOLOGIES

**Sheraton New York Times Square Hotel**  
**May 18-21, 2023**

[www.thegestgroup.com](http://www.thegestgroup.com)