



MASTER

Image Guided-Therapy

Surgical Science and innovation technology

Inspiring and Growing the Next Generation of Medical Innovators

Interventional radiology and percutaneous surgery are yet another minimally invasive field that uses the digital image to precisely and uniquely direct interventions. These interventions guided by various imaging modalities are truly minimally invasive and have become mainstays in the treatment of post-surgical complications and are assuming a greater and greater role in the treatment of digestive diseases and cancers.

As a result, in many cases, interventional procedures are becoming the treatment of choice as they offer a minimally invasive alternative to invasive surgery without the associated morbidity and mortality.

This 2-year Master program will stress the utility and importance of ultrasound in the workflow of the digestive surgeon and radiologist where it can become, along with CT and MRI, the eye of the practitioner to see and target the patient's disease. The program covers the entire spectrum of diagnostic surgical and interventional radiology.

The curriculum is designed for trainees (radiologists or surgeons) to acquire the principles and advanced techniques in abdominal interventions in adults. These include image guided biopsies, central venous catheter insertion, percutaneous and endoscopic hybrid biliary interventions, percutaneous gastrostomy and jejunostomy, percutaneous abscess drainage and biopsy, percutaneous tumor ablative therapies and chemoembolization.

As with all of the IHU Masters programs, didactic content will be presented on-line by world experts using the unique interactive web platform of the IHU. Hands on practice will take place on site utilizing the IHU's state of the art training platform and clinical experience will also be a part of the education and will be obtained either at the IHU or at the student's home institution.



The IGT program provides multidisciplinary training in all aspects of percutaneous surgery and interventional radiology.

This two-year curriculum is designed for surgeons, radiologists, gastroenterologists, and any practitioner involved in image-guided interventions and tumor ablation therapies.

The program is committed to encouraging trainees to gain expertise through a maximum of hands-on experience by performing complex procedures in our research training facilities and hybrid ORs.

Methods

On-line **24/7** educational platform Interactive theoretical and video sessions:

Clinical case discussions

Live and pre-recorded demonstrations

Hands-on sessions on live tissue, simulators and phantoms



Program Details



20 Students Accepted Annually

Who should Apply? Surgeons, Radiologists, Critical Care Physicians, Emergency Physicians, Internists, Primary Care Physicians.

Requirements: Only open as continuing training (no resident)

Logistics: 2-year program

Location: IHU in Strasbourg France.

Application Deadline: October 1st, 2023

Course Start: Fall 2022

Program Syllabus

Objectives

- To address the indications, techniques and results of the most common procedures in abdominal percutaneous intervention
- To provide the knowledge required for integrating percutaneous intervention in clinical practice
- To present the fundamental technical requirements of percutaneous intervention
- To describe potential pitfalls and complications of percutaneous surgical procedures
- To provide hands-on training to initiate participants into the practice of percutaneous surgery and interventions and/or enhance their expertise in this field
- To encourage successful interpersonal multidisciplinary working relationships as a measure and indicator of quality patient care

At the end of the program students will

- Acquire a general fund of knowledge about disorders amenable to diagnosis and/or treatment by percutaneous image-guided techniques
- Understand signs/symptoms, pathophysiology and natural history of diseases amenable to image guided therapy and be able to apply this knowledge to explain indications, contraindications and risks of a percutaneous procedure as well as medical and/or surgical alternative/adjunctive therapies
- Acquire/improve the knowledge required to form a foundation in the practice percutaneous image guided procedures in a structured way under the mentorship of world leaders in the field with access to the newest technologies, techniques and platforms

1st Semester

- Understand the physical principles of tissue/ sound wave interaction
- Understand the principles of scanning
- Knobology
- Recognize and manage common US artifacts
- Understand normal and pathological abdominal and pelvic ultrasound anatomy
- Understand normal and pathological liver and biliary ultrasound anatomy
- Understand normal and pathological neck ultrasound anatomy
- Ultrasound and Central venous catheter insertion
- Ultrasound for the surgical patient:
 - Bedside ultrasound evaluation: focused abdominal exam to identify common post-operative complication after visceral surgery de such as presence and location of abdominal and thoracic collections and abscess, venal thrombosis, intestinal obstruction
 - Intraoperative ultrasound
- Ultrasound in the ER and ICU: trauma fast-exam

2nd Semester

- Understand the basic principles of ultrasound guided interventions such as percutaneous biopsies, percutaneous gastrostomy and jejunostomy, percutaneous abscess drainage and biopsy, percutaneous tumor ablative therapies and chemoembolization.
- Understand basic principles and applications of diagnostic and therapeutic EUS
- Understand the indications technical aspects of EUS
- Understand rendezvous techniques and percutaneous and endoscopic hybrid biliary interventions such as: percutaneous transhepatic choledochal drainage (PTCD), endoscopic (ERCP) and intra-operative CBD exploration
- Understand the clinical use and indications of emerging technology in US such as: Contrast Enhanced Ultrasound, Fusion Imaging, three-Dimensional Ultrasound (3D), elastography
- Understand CT and MRI normal, pathological and surgically modified abdominal, biliary and pelvic anatomy
- General Principles of Radiation Protection and safety standard
- Safety guidelines for MRI scanning
- Understand pitfalls in Interpretation of Abdominal and Pelvic CT and MRI
- Understand the basic principles of CT- and MRI guided interventions
- Multimodality fusion imaging of abdominal and pelvic anatomy

3rd Semester

- Understand principles underlying the use of percutaneous tissue ablation with both thermal and non-thermal sources including the concept of complete treatment and achieving an ablative margin
- Acquire the knowledge required for selecting the best method of ablation
- for each organ and sector
- Understand indications and contraindication and identify risks associated with each ablation modality such as chemical ablation, cryoablation, high- temperature ablation (radiofrequency, microwave, laser, and ultrasound), and irreversible electroporation
- Understand combination therapies, tissue property modulation, and the role
- of computer modeling for treatment optimization
- Acquire/improve the skills required to practice percutaneous CT- guided procedures
- Understand the emerging role of navigation Systems and smart technologies applied to the field of percutaneous radiology and surgery

4th Semester

Research project and essay writing

Prices

Administrative Registration fees

for the year 2023-2024:

(amount established by ministerial decree)

To be paid to University of Strasbourg

243 €

And CVEC (Student and Campus Life Contribution):

100 €

Education fees:

To be paid to IHU Strasbourg

Only open as continuing training (no resident)

First year:

4000 €

Second year:

4500 €