

Imaging Institute of Southern Switzerland (IIMSI)

Prof. Dr. Luca Giovannella

Medical and scientific director

IIMSI includes many of the imaging specialisations within the EOC. It is organised in a single medical and administrative structure meeting patients needs transversally through the multisite hospital of Ticino Canton. It is composed by the EOC Clinic of Radiology (4 diagnostic and 2 interventional radiology units), the EOC Clinic of Nuclear Medicine and Thyroid Centre (2 diagnostic NM units, 2 thyroidology outpatients clinics and 1 in-hospital therapy unit) and the EOC Medical Physics Unit.

EOC Clinic of Nuclear Medicine and Thyroid Centre

- Positron-emission tomography radiomics of lymphoproliferative diseases (Lead: PD Dr. L. Ceriani). New quantitative PET parameters are developed to improve treatment strategies and to early predict treatment effectiveness. Moreover, integrated models to describe tumour lesions are developed by combining PET metrics with biological and genomic features and applying new Artificial Intelligence tools (partnership with IELSG, SAKK, IOR, IOSI, Amsterdam University Medical Centre, Federazione Italiana Linfomi, United Kingdom Cancer Research Institute).
- Theragnostics and biomarkers of thyroid cancer (Lead: Prof. Dr. L. Giovannella). New molecular imaging and circulating biomarkers are developed and integrated to improve radioiodine treatment and follow-up strategies in patients with thyroid carcinoma. In addition, new imaging tracers and circulating markers of medullary thyroid cancer and related syndromes are developed and assessed (partnership with Universities of Marburg (D), Essen (D), Leipzig (D), Paris Descartes (F), Zurich (CH), Udine (I), European School of Multimodal Imaging and Therapy and European Association of Nuclear Medicine, Vienna (A).

- Thyroid ultrasound and mini-invasive treatments. The role of thyroid ultrasound in detect/exclude malignant nodules is assessed and, currently, the Centre is coordinating the multicenter study on the validation of the European ultrasound system for risk stratification of thyroid nodule (EU-TIRADS) in cooperation with Sorbonne University, Paris (F) and the St. Thomas Hospital, London (UK). Additionally, studies on ultrasound texture analysis and HIFU energy-modulation are ongoing in cooperation with Universities "La Sapienza", Rome (I) and "Vita e Salute" San Raffaele Hospital, Milan (I).
- Evidence-Based Nuclear Medicine (Lead: PD Dr. G. Treglia). Production of evidence-based documents (systematic reviews and meta-analyses) and guidelines on PET/CT in cooperation with several international institutions.

EOC Clinic of Radiology

- Validation of work in progress MRI sequences for different musculoskeletal diseases (Lead: PD Dr. F. Del Grande). New musculoskeletal MRI sequences are validated to accelerate MRI examinations maintaining high diagnostic image quality (partnership with the Johns Hopkins Hospital in Baltimore, US).
- Role and feasibility of medical hypnosis for claustrophobic patients undergoing MRI examinations (Lead: Dr. N. Ferrera). Observational study on the role of medical hypnosis as an alternative to pharmacologic sedation for claustrophobic patients during MRI examinations.
- Establishing ultrasound references for vascular structures in pediatric populations (Lead: Dr. M. Cristallo).

EOC Medical Physics Unit

Lead: Stefano Presilla, PhD

This Unit provides technical support to IIMSI researchers and is developing a research line on absorbed dose estimations and optimization of dose-image quality ratio.

The Imaging Institute of Southern Switzerland was established in January 2019.

