

Intensive Course on 3D Echocardiography

*May 25-29th, 2020
Milan, Italy*



Course Directors:

Prof. Luigi P. Badano

MD, PhD, FESC, FACC, Hon. FASE

Dr. Denisa Muraru

MD, PhD, FESC, FACC, FASE

SCIENTIFIC PROGRAM



Main Course & Learning Labs



Intensive Course on 3D Echocardiography



We look forward to welcoming you to the 2020 first edition of the **Intensive Course on 3D Echocardiography**, which will be held at the Istituto Auxologico Italiano, IRCCS – San Luca Hospital in Milan, Italy, on 23-27 March.

This is a **4-day course** entirely dedicated to 3D TTE and TEE, including learning labs (morning) and theoretical lectures (afternoon). The course has been designed for cardiologists with advanced training (level 3) in conventional echocardiography and limited experience with 3D echo, aiming to adopt this technique in their daily routine practice. This course is geared also to other practitioners (sonographers, cardiac surgeons, interventional cardiologists, anesthesiologists, pediatricians etc) who want to improve their knowledge and practical skills in 3D echo and keep up to date with the ever-expanding technological advancements in the field.

This **intensive course** will include many clinical cases and unique examples illustrated by 2D/3D TTE and TEE from our personal collection, and interactive discussions on hot topics, pitfalls of 2D vs 3D echo and controversial issues.

We have run this course 3 times per year between **2012-2019** in Padua, and the feedback has been very positive. The course is small enough to be friendly, effective and interactive, and has attracted so far **over 400 colleagues from all over the world**. The scientific content of the lectures is updated every year to reflect the latest guidelines, research and software developments.

Two practical learning labs using **GE and Philips/TomTec** latest technology and software packages will be run in parallel, allowing you to learn the specific knobology and practice with the equipment you are using daily in your own lab. Places for the learning labs are limited to **max 8 participants/group**, each participant having a dedicated workstation with prerecorded cases including both 3D TTE and TEE data sets of different pathologies.

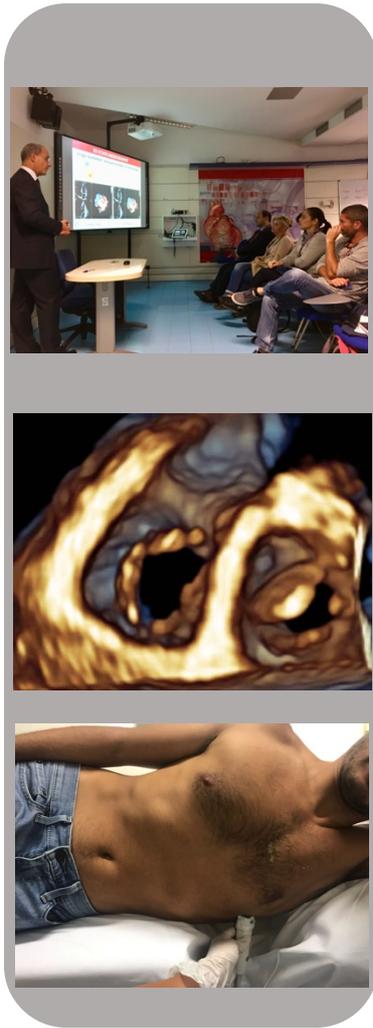
To support your training, a **complimentary print-out** of the most relevant guidelines, as well as clinical reviews and research papers on 3D echo (including reference values for each cardiac structure) from our publication record, will be included into the registration package.

We look forward to meeting you in Milan and welcoming you in our rapidly expanding and friendly community of 3D echo addicts!!

Luigi Badano

Denisa Muraru

Learning Objectives



- Understand the added value of 3D echocardiography over conventional 2D and Doppler techniques
- Recognize the main clinical indications for a 3D echo study
- Learn the functional 3D echo anatomy of cardiac structures
- Assess valvular and ventricular function using 3D TTE and TEE
- Optimize 3D TTE acquisition technique, and image display, analysis and interpretation
- Acquire practical skills in 3D TTE and 3D TEE image postprocessing (cropping, slicing, thresholding, navigation) and interpretation
- Integrate information from 2D and 3D echo for patient selection and guidance for interventional procedures for structural heart disease

Course Highlights

- *Comprehensive, up to date, and interactive lectures*
- *Engaging, enthusing and motivating learning atmosphere*
- *Total of 12 hours guided hands-on practice in small groups*
- *Presentation of most common clinical pathologies*
- *Illustration of rare findings and pitfalls of 3D echo*
- *Scientific content in line with most recent EACVI and ASE guidelines*
- *Dedicated hands-on sessions for GE and Philips users*

This course is supported by GE Vingmed, Philips Medical Imaging and TomTec Imaging Systems in the form of educational equipment grants.

The scientific program has not been influenced in any way by its sponsors.

Day 1, Monday May 25th, 2020

13:30 Registration - Hall area, Sala Convegni (8th floor), S. Luca Hospital

14:00 Welcome and Introduction to the Course *Luigi BADANO, Denisa MURARU*

14:15 The benefits of the third dimension *Luigi BADANO*

14:30 The 3D echo transducer: where the magic happens *Luigi BADANO*

14:45 Which acquisition modality to choose and when? *Denisa MURARU*

15:00 How to acquire high-quality 3D data sets? *Denisa MURARU*

15:15 Coffee break

15:30 3D data set postprocessing in simple steps *Denisa MURARU*

15:45 Artifacts and pitfalls of 3D echo image interpretation *Denisa MURARU*

16:00 The added value of the third dimension *Luigi BADANO*

16:15 How to implement 3D echo in the echo lab? *Luigi BADANO*

16:30 Q&A *Luigi BADANO, Denisa MURARU*

Day 2, Tuesday May 26th, 2020

14:00 Added value of 3D LV volumes and EF *Luigi BADANO*

14:15 Assessment of LV regional function by 3D echo *Luigi BADANO*

14:30 Principles of 3D strain versus 2D strain *Denisa MURARU*

14:45 Clinical applications and limitations of 3D strain *Denisa MURARU*

15:00 Assessment of LV mass, shape and dyssynchrony *Luigi BADANO*

15:15 Coffee break

15:30 Why do we need 3D RV volumes and EF?	Denisa MURARU
15:45 Examples where RV 3D echo study made a difference	Denisa MURARU
16:00 RA anatomy, volumes and function by 3D echo	Luigi BADANO
16:15 LA anatomy, volumes and function by 3D echo	Denisa MURARU
16:30 Examples where LA/RA 3D study made a difference	Denisa MURARU
16:45 Q&A	Luigi BADANO, Denisa MURARU

Day 3, Wednesday May 27th, 2020

14:00 Functional anatomy and pathology of MV	Luigi BADANO
14:15 Examples where MV 3D echo study made a difference	Luigi BADANO
14:30 Added value of 3D echo for MV prostheses	Luigi BADANO
14:45 Functional anatomy and pathology of AV	Denisa MURARU
15:00 Examples where AV 3D echo study made a difference	Denisa MURARU

15:15 Coffee break

15:30 3D echo for patient selection for MitraClip	Luigi BADANO
15:45 3D echo for monitoring MitraClip procedure	Luigi BADANO
16:00 Why we need 3D echo for assessing the TV?	Denisa MURARU
16:15 Examples where TV 3D echo study made a difference	Denisa MURARU
16:30 Interventional procedures on the TV	Luigi BADANO
16:45 Q&A	Luigi BADANO, Denisa MURARU

Day 4, Thursday May 28th, 2020

14:00 3D anatomy and pathology of interatrial septum	<i>Denisa MURARU</i>
14:15 3D echo for selection and guidance of ASD closure	<i>Denisa MURARU</i>
14:30 3D echo for patient selection for TAVR	<i>Luigi BADANO</i>
14:45 3D anatomy and pathology of LAA	<i>Denisa MURARU</i>
15:00 3D echo for monitoring LAA closure	<i>Denisa MURARU</i>

15:15 Coffee break

15:30 Clinical cases (masses)	<i>Denisa MURARU</i>
15:45 Added value of 3D during stress echo protocols	<i>Luigi BADANO</i>
16:00 Clinical cases (congenital heart diseases)	<i>Denisa MURARU</i>
16:15 New display techniques (3D printing, augmented reality)	<i>Luigi BADANO</i>
16:30 How to include 3D echo findings in the echo report?	<i>Luigi BADANO</i>
16:45 Q&A	<i>Luigi BADANO, Denisa MURARU</i>

17:30-19:00 All attendees are invited to join the Course Directors for a typical Italian Aperitivo in a nice location in Milan (details will be provided onsite). Complimentary snacks and drinks will be offered. Sharing personal background and experience, impressions on the course, and group photos are welcome.

Day 2, Tuesday May 26th, 2020

09:00 - 12:00 3D TTE hands on

- Knobology, scanning, guided 3D acquisitions (multiplane, live 3D, full volume, 3D zoom, color 3D), navigation, image display and postprocessing on the scanner

Day 3, Wednesday May 27th, 2020

09:00 - 12:00 3D Analysis of cardiac chambers (LV, RV and LA)

- Measurement of LV and RV volumes and EF, analysis of ventricular regional function and mechanics, quantification of LA volume and phasic functions etc. using dedicated software packages

Day 4, Thursday May 28th, 2020

09:00 - 12:00 3D Analysis of heart valves (MV, AV and TV)

- Conventional 3D image display and navigation, interpretation of mechanism of valve disease from 3D rendered images, evaluation of prolapse localization and extent, measurement of valve annulus size and shape, leaflet tethering, planimetry of stenotic valve area

Day 5, Friday May 29th, 2020

09:00 - 12:00 3D Analysis of complex cases (interventional procedures, congenital, masses and tumors) and final recap of software workflow steps (on demand)

Useful Information

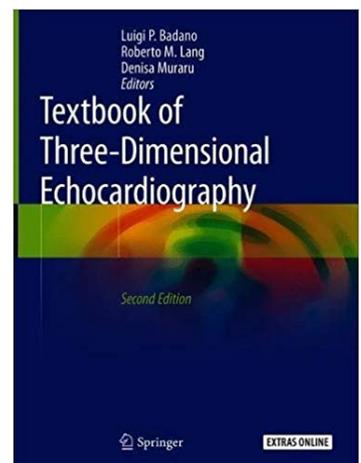
- **Course fees:**
2500 € (Main Course + 4 Learning Labs)
1000 € (Main Course)
Fees include lunch and coffee breaks
- **Course language:** English
- **Course registration:** Details can be found at: (copy and paste)
<https://www.auxologico.it/ricerca-formazione/ecm-convegni>
- **Contacts:** Sara Vaghi, Organising Secretariat, Milano
Tel. +39 02 619112458 – Email: s.vaghi@auxologico.it

IMPORTANT: Due to local regulations, scanning patients will not be allowed to be performed by the attendees. Participants will scan only healthy volunteers

The practical sessions will be run using GE E95 and Philips EPIC7 echo scanners, and EchoPac and QLab workstations only.

- **Recommended reading:**

Badano LP, Lang RM, Muraru D. Textbook of Three-Dimensional Echocardiography 2nd Edition Springer 2019



- **Transportation:**

BY PLANE

From Malpensa

Option 1: get Malpensa Express to Centrale Station (45 mins, ticket 13€). Then Green line tube (M2), stop at Porta Garibaldi and get Red

Line (M1 - direction Rho), stop at Amendola Fiera, 5 mins walk to reach the Hospital.

Option 2: get Malpensa Express to Cadorna Station (end of the line), then use Red Line tube (direction Rho) and get off at Amendola Metro - tickets available underground.

From LINATE

Catch bus line 73 get off after 17 stops at Piazza Velasca, go to stop Missori, get on tram line 16 (direction M.te Velino - S. Siro), get off after 13 stops at Piazzale Brescia - San Luca Hospital.

BY TRAIN

From Central Station and/or Cadorna Station, please follow same directions as above using metro lines.

- **Hotels:**

Hotel Domenichino 3 stars (290 m) www.hoteldomenichino.com

Hotel Astoria 3 stars (100 m) www.astoriahotelmilano.com

Hotel Champion 3 stars (650m) www.hotelchampion.com

Residence studio Inn 4 stars (1.0 km) www.studioinnmilano.it

Hotel Nasco 4 stars (2.2 km) www.hotelnascomilano.it

About Milan:

Milan (Milano in Italian) is the second most populous city in Italy, after Rome, and is located in Northern Italy. In terms of GDP, Milan has the third-largest economy among European cities after Paris and London, but the fastest in growth among the three. Milan is the wealthiest among European non-capital cities. Its strengths are in the field of the art, commerce, design, education entertainment, fashion, finance, healthcare, media, services, research and tourism.

Milan has been recognized as one of the 4 fashion capitals. It hosted the Universal Exposition in 1906 and 2015. The city hosts numerous cultural Institutions, academies and universities with 11%

of the total Italian enrolled students. The city is the destination of >8 million overseas visitors every year attracted by endless shopping possibilities, its museums, and art galleries, that includes some of the most important collections of the world, including masterpieces by Leonardo da Vinci.

The city is served by many luxury hotels and internationally renowned restaurants, and is ranked as the 5th most starred in the world by Michelin guide.

The city is home to two of the most successful football teams, A.C Milan, and F.C. Internazionale, and the city of Italy's main basketball team, Olympia Milano.

Milan, along with the ski resort of Cortina D'Ampezzo, will be hosting the 2026 winter Olympic Games.

Sites for travel information and tips:

www.yesmilano.it

www.milanoguida.com

www.atm.it/en