

THE SOCIETY FOR
VASCULAR TECHNOLOGY OF
GREAT BRITAIN AND IRELAND

SVT Introduction to Vascular Ultrasound

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Pre Course Learning

- Completed
 - Basic ultrasound physics
 - Doppler, probe selection and manipulation and common artefacts
- Course handouts
 - List of further e-learning modules and additional reading material



Introduction to Vascular Ultrasound

Timetable

11:00-11:30	Welcome introduction by session chairs
11:30–13:00	2 x Practical sessions
13:00-14:00	Lunch in the exhibition hall
14:00 - 16:30	4 x Practical sessions
16:30 – 17:00	Working with your vascular scientists



Introduction to Vascular Ultrasound

Aims

- To provide a basic background and theory for those performing vascular ultrasound
- To provide a hands-on practical demonstration and experience
- Tips, tricks and pitfalls
- Not designed to be a sign off or competency assessment



Introduction to Vascular Ultrasound

Station 1 - TBPI and Doppler Waveforms

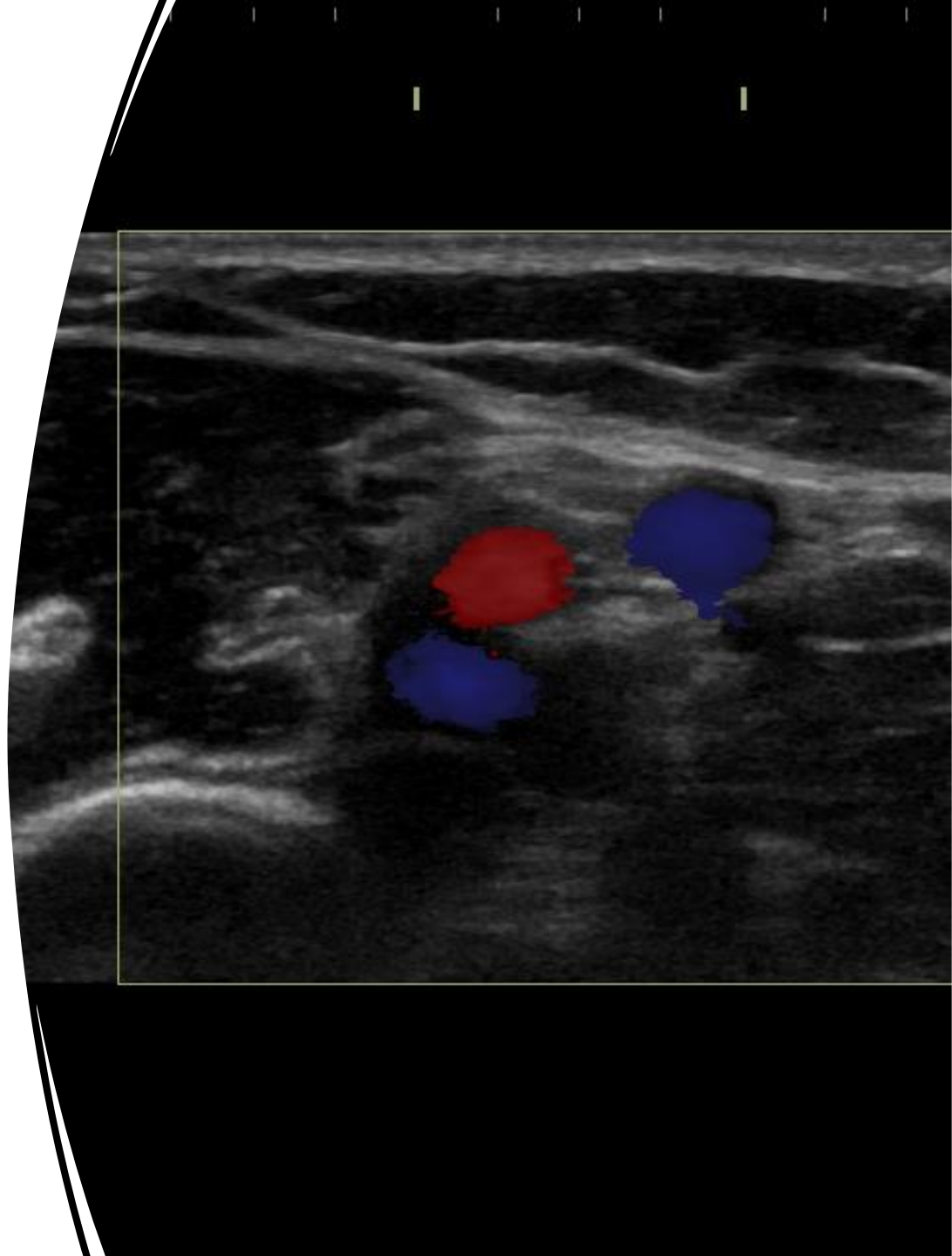
- Set up and equipment
- Patient positioning
- Toe pressures and calculating TBPI
- Obtaining doppler waveforms
- Determining phasicity



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Station 2 – AVF Mapping

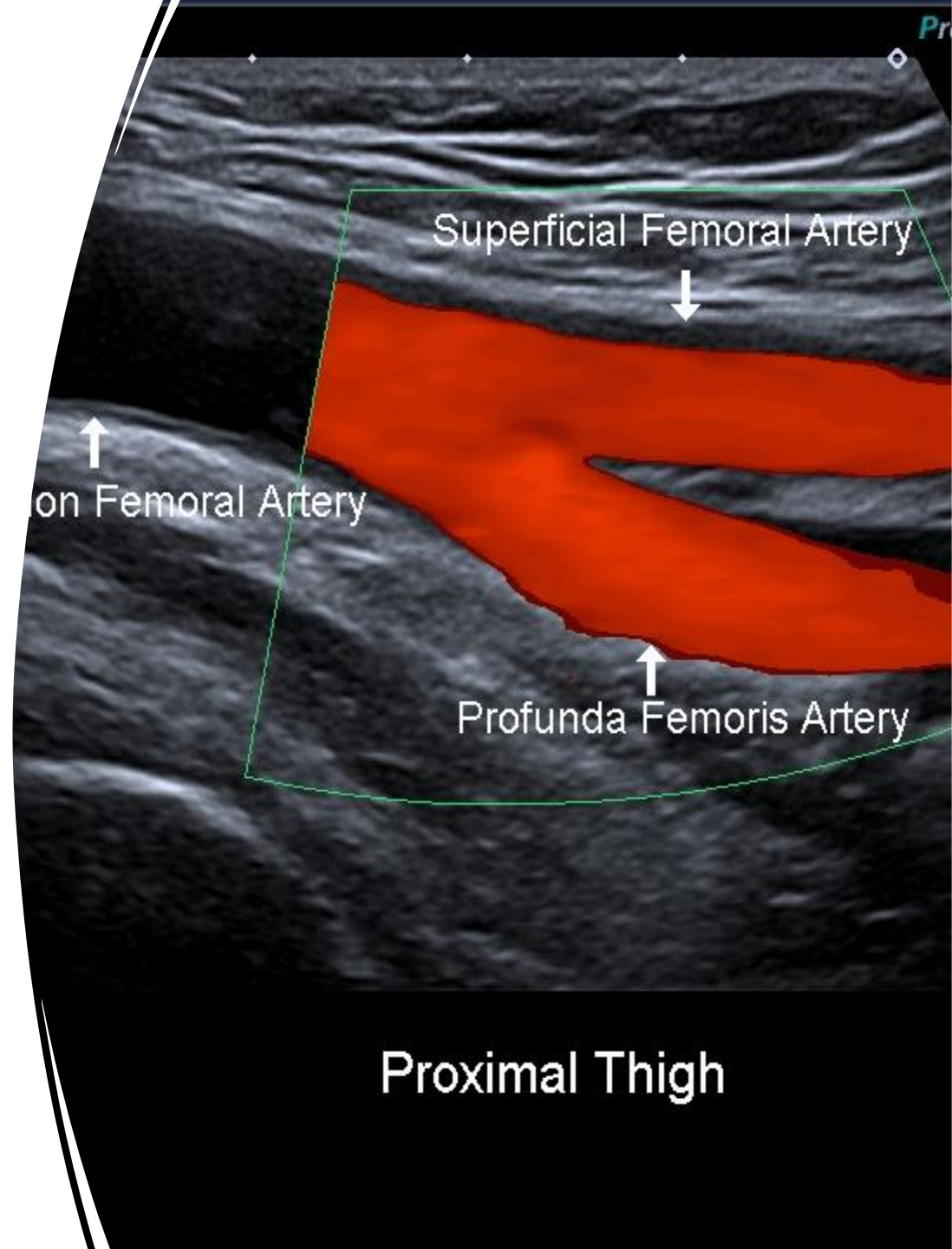
- Probe selection
- Patient positioning
- Probe handling and manipulation
- Anatomy and vessel identification
- Measurements



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Station 3 - CFA scanning

- Probe handling
- Identification of landmarks
- Colour flow and patency
- Spectral doppler and waveforms
- Calcification



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Station 4 - Aorta screening measurement

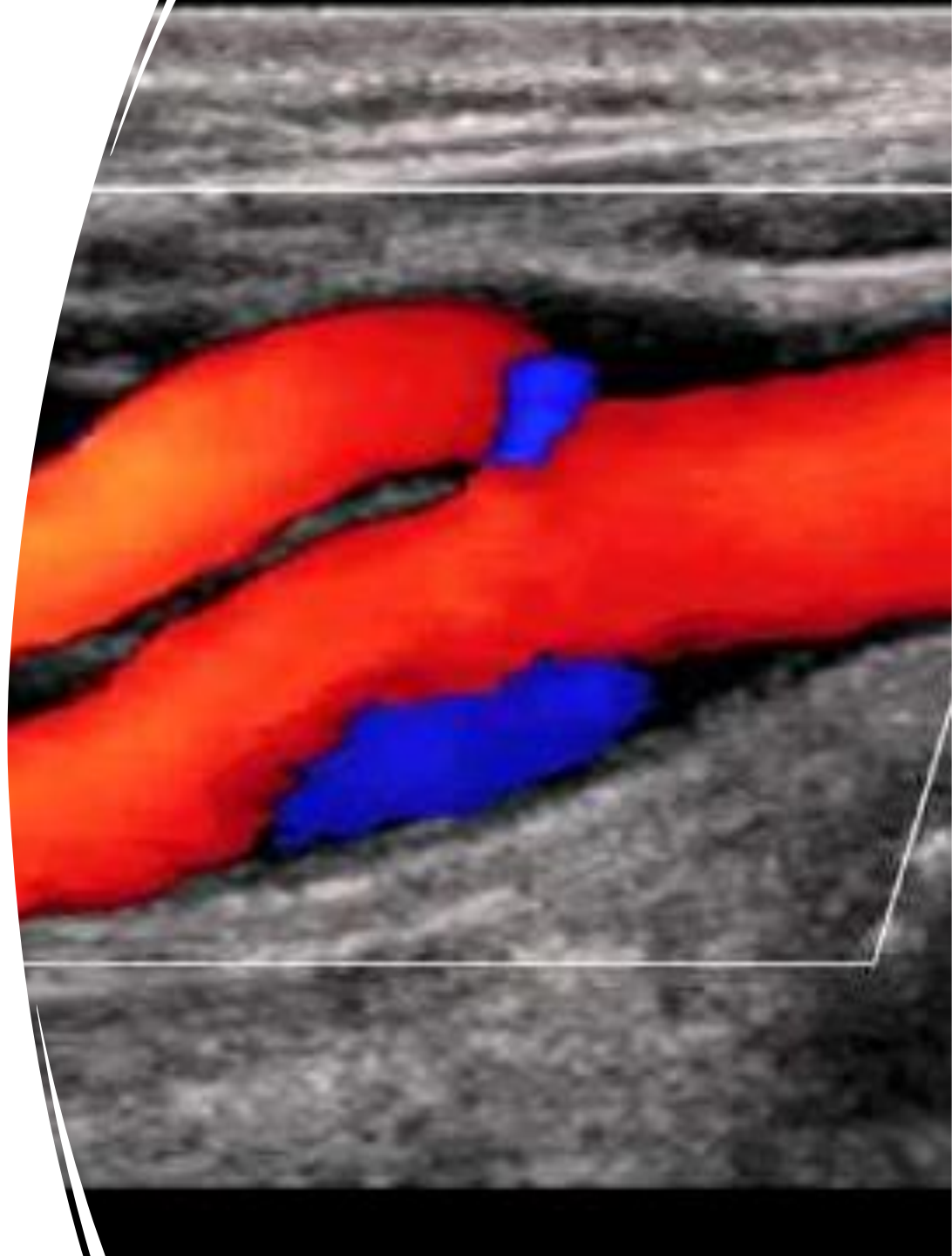
- Anatomy and landmarks
- Iliac bifurcation
- ITI vs OTO
- Taking reliable measurements
- Limitations and pitfalls



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Station 5 – Carotids

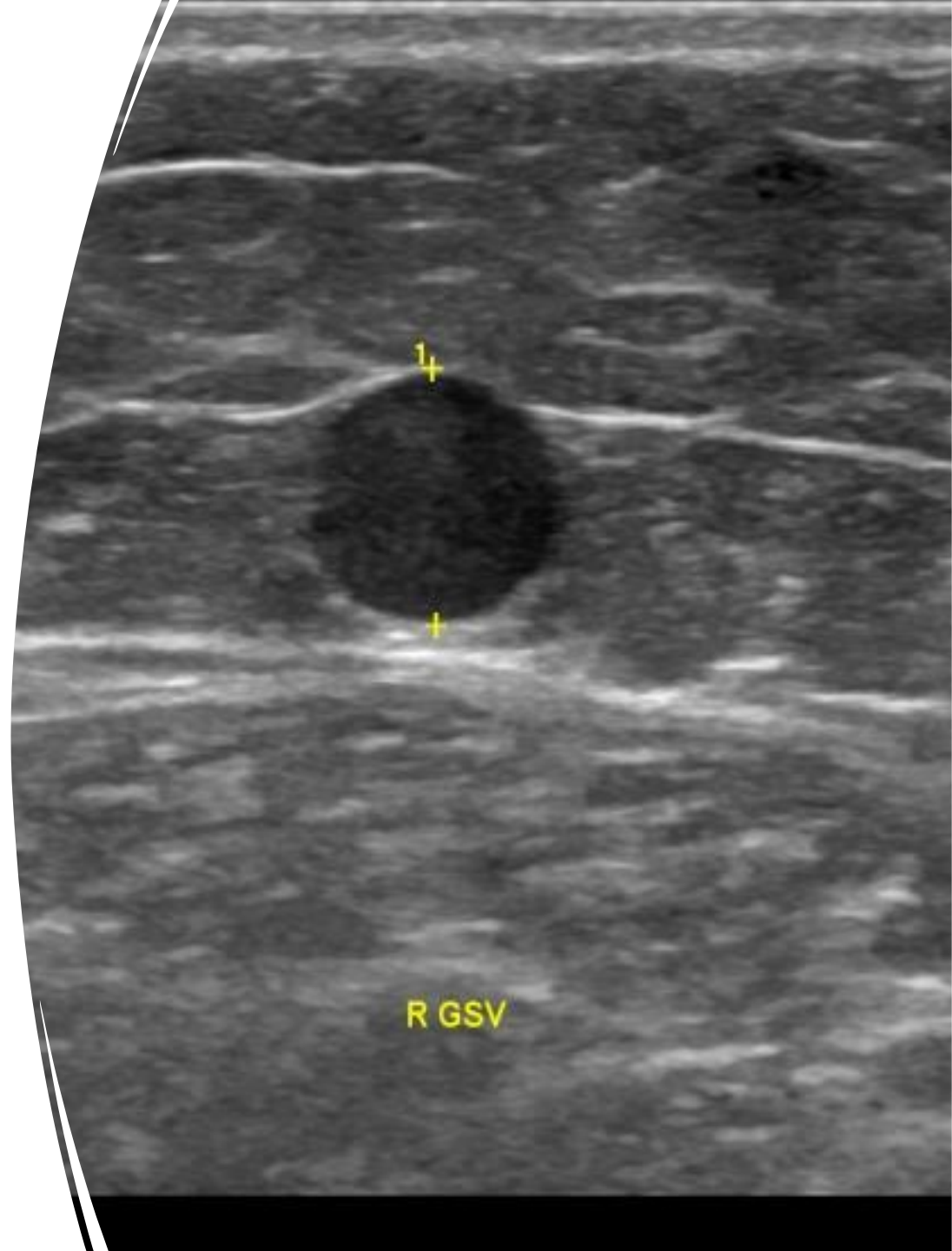
- Probe handling and selection
- Identification of bifurcation
- ICA vs ECA
- Colour box
- Spectral waveforms
- Velocity measurement

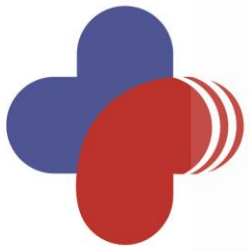


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Station 6 – Venous scanning

- Probe handling and manipulation
- LSV identification
- Patency checking
- Depth and calibre measurements
- Image optimisation





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Any questions from the pre
course-learning

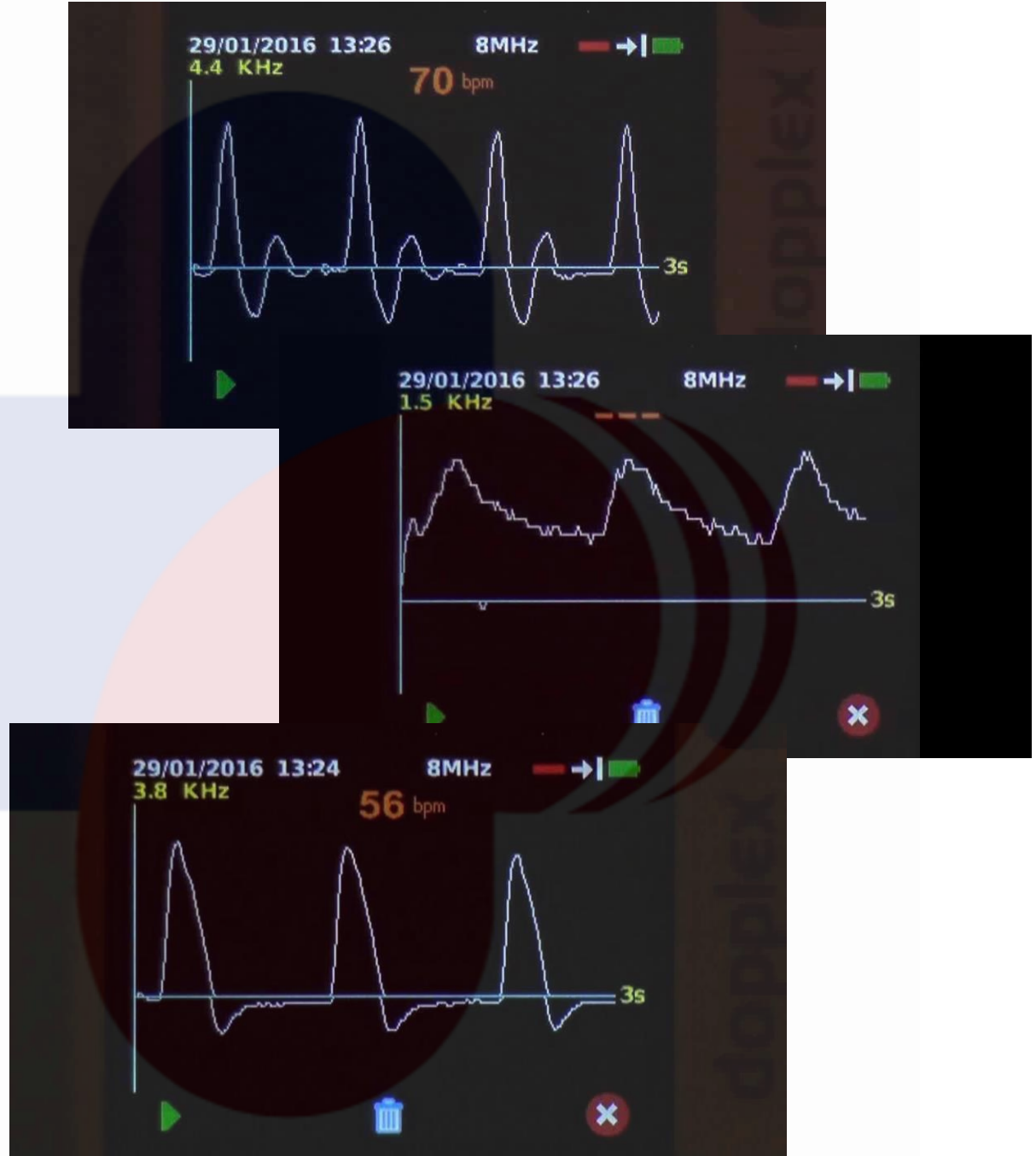
Introduction to Vascular Ultrasound

Performing a Basic QA

- All ultrasound machines are normally on a regular extensive QA schedule coordinated by the hospital medical physics team but you should perform these basic checks before beginning to ensure yours and the patients safety.
- Check all power cables are in tact with no exposed wires or cable trapped inside cart wheels.
- Check all transducer cables are in tact by running your hand along the cable from the transducer to the connection point.
- Run your finger gently across the transducer probe head to ensure there are no scratches or cuts to the lens face or cracks in the transducer casing.



Determining Doppler Waveforms



Doppler waveforms taken from Arjo Huntleigh Vascular Academy Masterclass



Key controls

- FOCUS
- TGC
- OVERALL GAIN
- DEPTH

Superficial
structures

Higher resolution –
better for
intricate/detailed
work

Which probe is best?

Lower frequency
meaning greater
penetration with less
scattering/absorption
resulting in better
image quality at
depth.

Wide sector
width for
wider viewing
angle

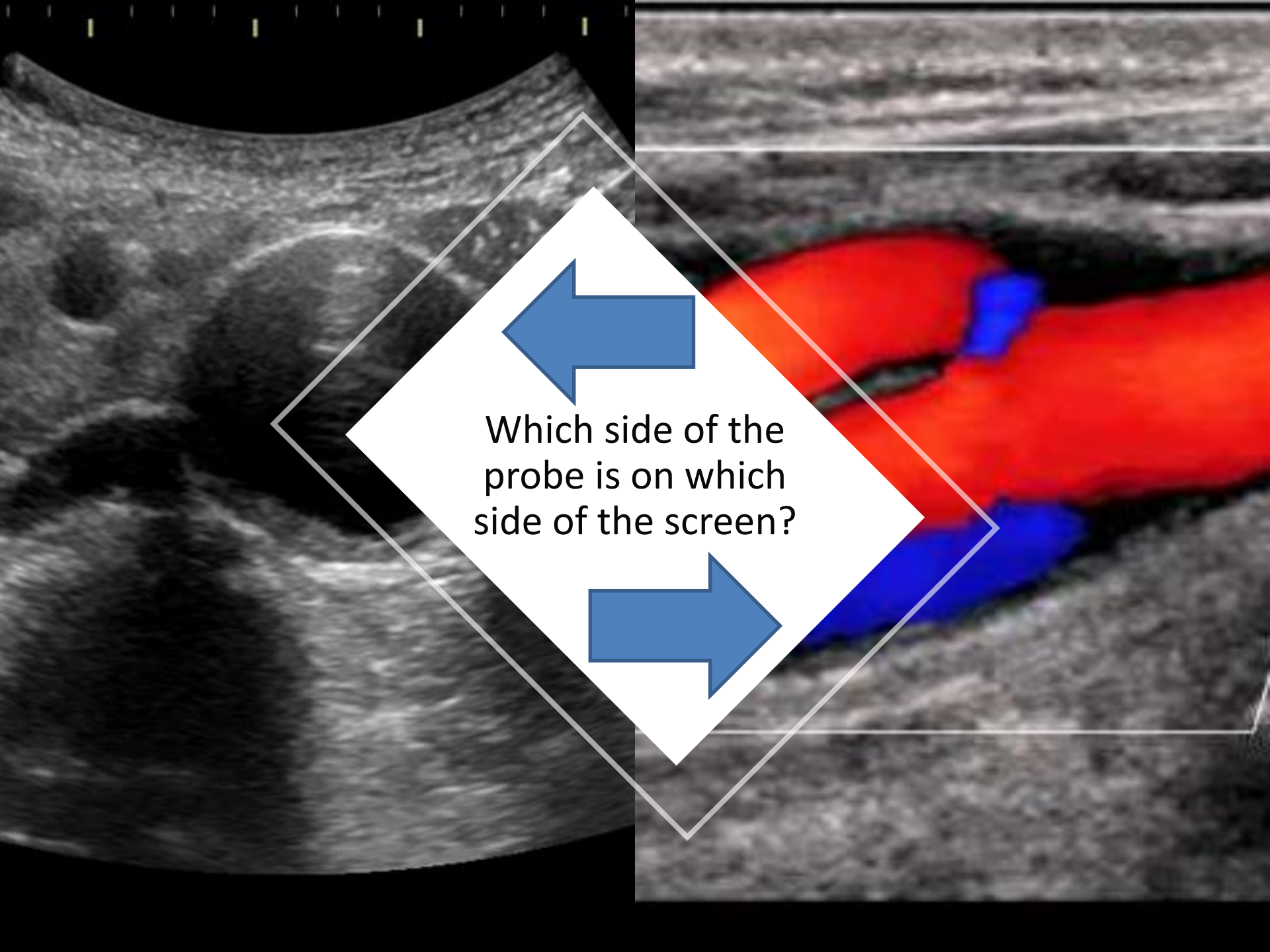
Deeper structures
and abdominal
work /High BMI



Linear



Curvilinear



Which side of the probe is on which side of the screen?

Get Yourself Comfy

**Adjust the chair
or choose to
stand**



**Adjust the patient
and/or the couch**



**Familiarise yourself
with the probe in
your hand. Ensure
cable is supported**

**Find the
KEY
controls**



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- Groups

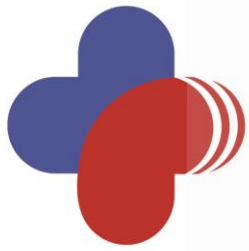
	TBPI	Fistula	CFA	AAA	Carotids	Venous
Session 1	A	B	C	D	E	F
Session 2	F	A	B	C	D	E
Session 3	E	F	A	B	C	D
Session 4	D	E	F	A	B	C
Session 5	C	D	E	F	A	B
Session 6	B	C	D	E	F	A



Introduction to Vascular Ultrasound

- Health and safety
 - Follow usual infection control procedures
 - Please wear appropriate PPE
 - Hand hygiene
 - Apply gel to the probe not the patient
 - Clean probe, cable and console after every use
 - Clean couches and replace couch roll





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Working With Your Clinical Vascular Scientists

Hannah Lines
Chair of SVT Education Committee

Felicity Woodgate
Surgical Training Day Organiser

Welcome to Vascular Studies Unit

Clinical Vascular Scientists

- Most hospitals will have a dedicated Vascular Lab or Vascular Studies Unit
- Perform vast quantities of investigations
- Clinical Vascular Scientists are highly specialised
 - Typically minimum 3-5 years postgraduate training



Clinical Vascular Scientists

SVT Accredited Vascular Scientist

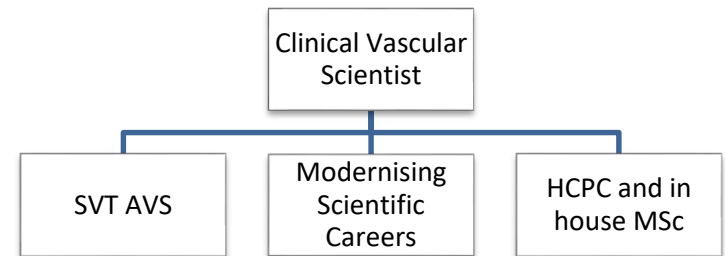
- Candidates must have an undergraduate scientific degree and majority postgraduate
- 2 x theory exams (physics and technology)
- Externally assessed practical exam and *viva voce*
- Completion of a **minimum 2000** scans
- Range of complex vascular modalities including aorto-iliac arteries, recurrent VVs etc.
- Currently approx. 270 AVS vascular scientists in the UK



Clinical Vascular Scientists

Scientist Training Programme (STP)

- Undergraduate scientific degree
- MSc Clinical Science (distance learning)
- Work based practical training over the three main imaging modalities
- Completion of a research project.
- Completion of a work based portfolio and OSCE style practical exam



State registration through HCPC as Clinical Scientist (equivalence for AVS)



Working with your Vascular Scientists

Good requests = good results

- What exactly do you want to know?
- Focused scan of one area only?
 - i.e. groin for ?pseudo vs whole leg arterial
- Relevant symptoms, previous interventions, dressings, infection status, mobility...
- Discuss it with us
- No such thing as a “quick scan”

The image shows a close-up of a medical request form. The form has several sections with headings. The first section is labeled 'Type of Scan / Test' and has the word 'Duplex' handwritten in blue ink. The second section is labeled 'Relevant Clinical Details' and has the text '(Please include previous history, interventions and clinical question to)' printed below it. The third section is labeled '? PVD' handwritten in blue ink. The form is tilted and the background is slightly blurred.



Working with your Vascular Scientists

- Scanning in a purpose built environment is **always preferable**
 - Reduces risk of injury
 - **>80%** of healthcare professionals using ultrasound equipment develop MSDs
 - Height adjustable couches, specialist scanning chairs, ergonomically designed machines, lighting control – **all make a big difference**



Working with your Vascular Scientists

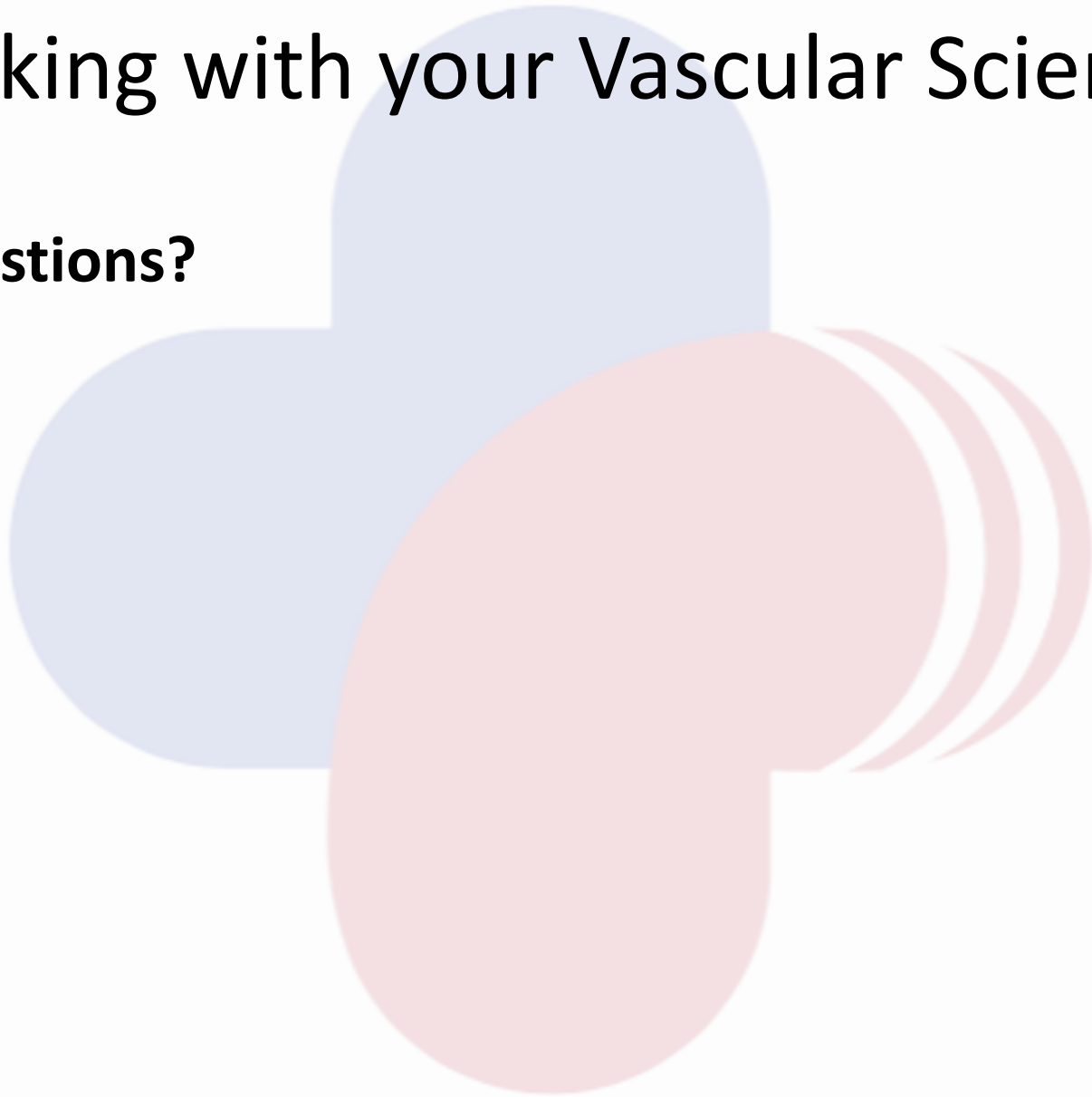
Knowing your limitations

- Ultrasound is operator dependant
 - Hugely dependant on experience
- Settings make a massive difference
 - Is that graft occluded or is your PRF too high?
- A good duplex scan is the combination of B-mode, colour flow and spectral – a quick snapshot can be misleading
- Seeking a second opinion is normal!



Working with your Vascular Scientists

Questions?



Introduction to Vascular Ultrasound

Information pack

- Slides
- FCRS curricula
- Additional e-learning links
- Basic Information Guides
- Recommended reading lists
- Reducing injury and MSD



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Feedback

Please can you complete the feedback forms
online

