

 ScanTrainer®
Learn faster, learn better





GENERAL
MEDICAL



GYNÆCOLOGY



OBSTETRICS



EMERGENCY
MEDICINE

- Over 10 million doctors in the world





TOSHIBA
Leading Innovation >>>



"Ultrasound is becoming the stethoscope of the 21st century"

Mount Sinai ED 2015



But it's a hard skill to teach

- *you need doctors to teach you; and*
- *patients to learn on*



Spin-out from Cardiff University Medical School to develop the only ultrasound training simulator that offers **teaching**, **learning** and **assessment** in a single package



TVS



TAS

The ScanTrainer learning screen



A real patient scan

Instruction panel

The screenshot displays the MedaPhor ScanTrainer interface. The main window shows a grayscale ultrasound image of a gestational sac. The top left corner features the MedaPhor logo and the text 'ScanTrainer'. Below this, a subtitle reads 'Optimal assessment and measurement of the cephalic gestation sac'. The top right corner shows 'Simulation Time: 00:02:49'. The bottom left corner contains a grid of icons for various functions: a row of colored buttons (red, yellow, green, blue, purple, pink, orange, brown, grey), a row of icons (crosshairs, ABC, CALIPER, CALC, and a waveform), and a row of icons (DEFAULT, a person, ABC, CALIPER, OBS, Scan Tutor, a camera, a magnifying glass, a document, ALL, and LMS). The bottom right corner shows 'Frames: [969]'. The right side of the screen is an instruction panel with a title '2. Examine the gestation sac that is closer to the cephalic end of the patient'. Below the title, it says 'Remaining in the sagittal plane:' followed by three bullet points: '• If necessary, adjust the depth of field then the zoom to ensure that the gestational sac is centralised and occupies between 20 and 40% of the field of view.', '• Fully examine the gestational sac from the patient's right to the patient's left.', and '• Ensure you do not apply too much pressure to the patient.' Below the instructions, it says 'When you have done this, click Next below.' and a 'Next' button is at the bottom right. The bottom of the screen features a control panel with sliders for 'Depth Of Field', 'Zoom', 'Focus', and 'Gain', and a section for 'Time Gain Compensation' with a 'Reset' button.

Generic machine controls

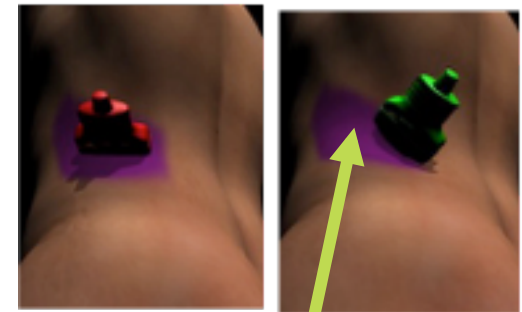
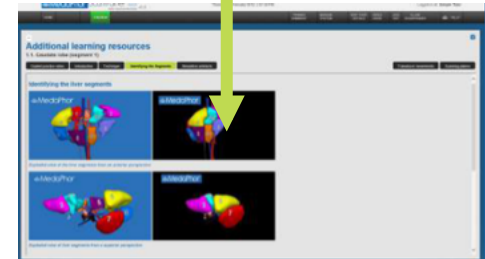
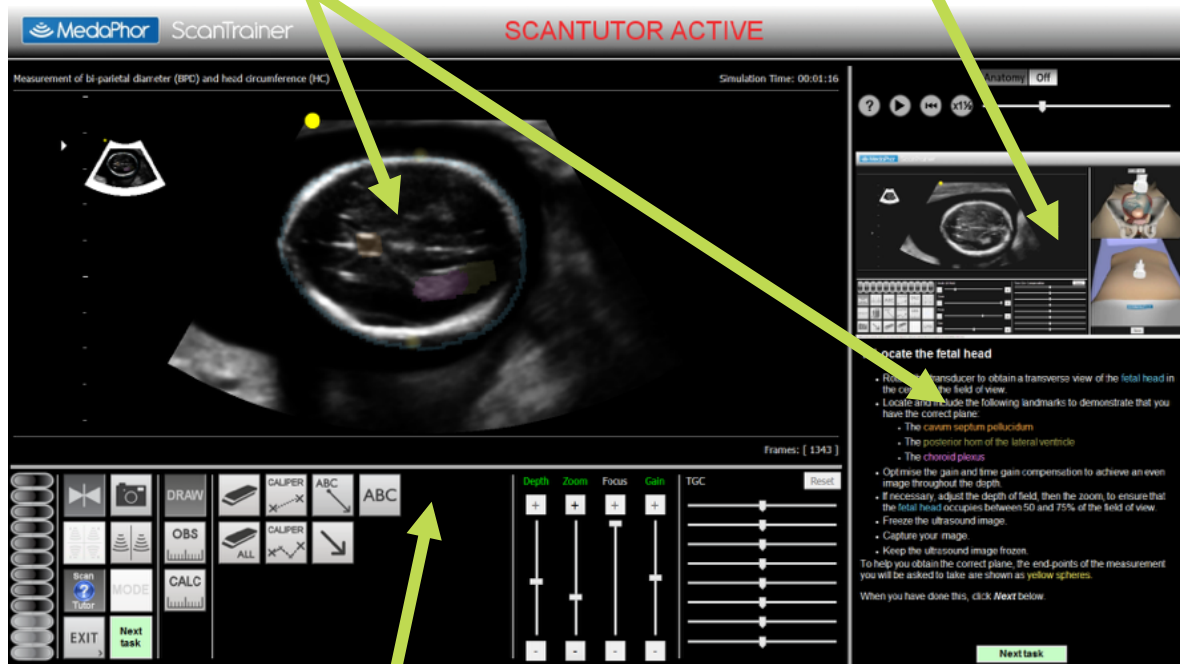
ScanTutor: real-time 1:1 expert guidance



Help locating structures with specific colour guidance

"Watch the expert"
ScanTutor videos

Text book based
learning resources



Traffic light guidance for
ultrasound machine controls

ScanTutor guides probe placement and
probe orientation

Metrics - a practical assessment of scanning skills

ScanTrainer automatically assesses the trainee's scanning skills using the following metrics:

- **transducer positioning:**
 - location
 - orientation
- **image optimization:**
 - gain
 - zoom
- **image positioning**
- **sweep assessment:**
 - % of organ viewed
- **organ identification**
- **biometry:**
 - BPD, HC, AC, FL
 - amniotic fluid index
- **measurements:**
 - accuracy
 - position
- **Doppler**

MedaPhor ScanTrainer™		Friday October 19th 2012, 11:51:53 AM			
HOME					
Home > Review					
Core skills: Obstetrics		19 Oct 11:45	19 Oct 11:44	17 Aug 16:15	15 Aug 12:30
4.2. Optimal assessment of the uterine cavity		✓	✗	✗	✗
Additional notes					
Uterus correctly imaged		✓	✓	✓	✗
Probe remained in the sagittal plane whilst examining the uterus		✓	✓	✓	✓
Appropriate pressure applied		✓	✓	✓	✗
Task 4. Measure the endometrial thickness					
Additional notes		🔍	🔍	🔍	🔍
Endometrial thickness		✓	✗	✓	
Endometrial thickness measured in the correct position		✓	✓	✗	
Endometrial thickness measured perpendicular to the endometrium		✓	✓	✓	
Endometrium correctly positioned		✓	✓	✓	✗
Probe remained in the sagittal plane		✓	✓	✓	✓
Endometrium correctly magnified		✓	✓	✓	✗
Appropriate pressure applied		✓	✓	✓	✗
Task 5. Withdraw the probe					
Additional notes					



Pass



Just passed



Fail



GENERAL
MEDICAL



GYNAECOLOGY



OBSTETRICS



EMERGENCY
MEDICINE

Providing centralised training and examination

New ScanTrainer Cloud enables a true practical assessment of a trainee's image acquisition skills utilising ScanTrainer exam modules and the cloud



1

Using simulators in any ScanTrainer equipped hospital or any examination centres



2

Trainee logs on and accesses examination module, examines patient, captures relevant images and answers multiple choice questions

 ScanTrainer® 
with cloud connectivity

3

Examiner accesses results images through cloud and passes/fails images



4



Results and pre-approval sent to student



create your own volumes

a simulation revolution



2



Uploads data file into NEW Volume

Generation Engine in the cloud



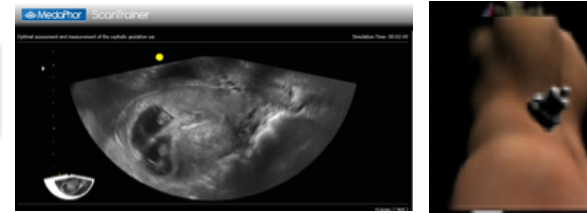
1



Doctor scans 3D single sweep pathology
(currently GE only)



3



Creates new ScanTrainer patient case

With virtual anatomy and haptic feel

4

Creates new ScanTrainer patient case

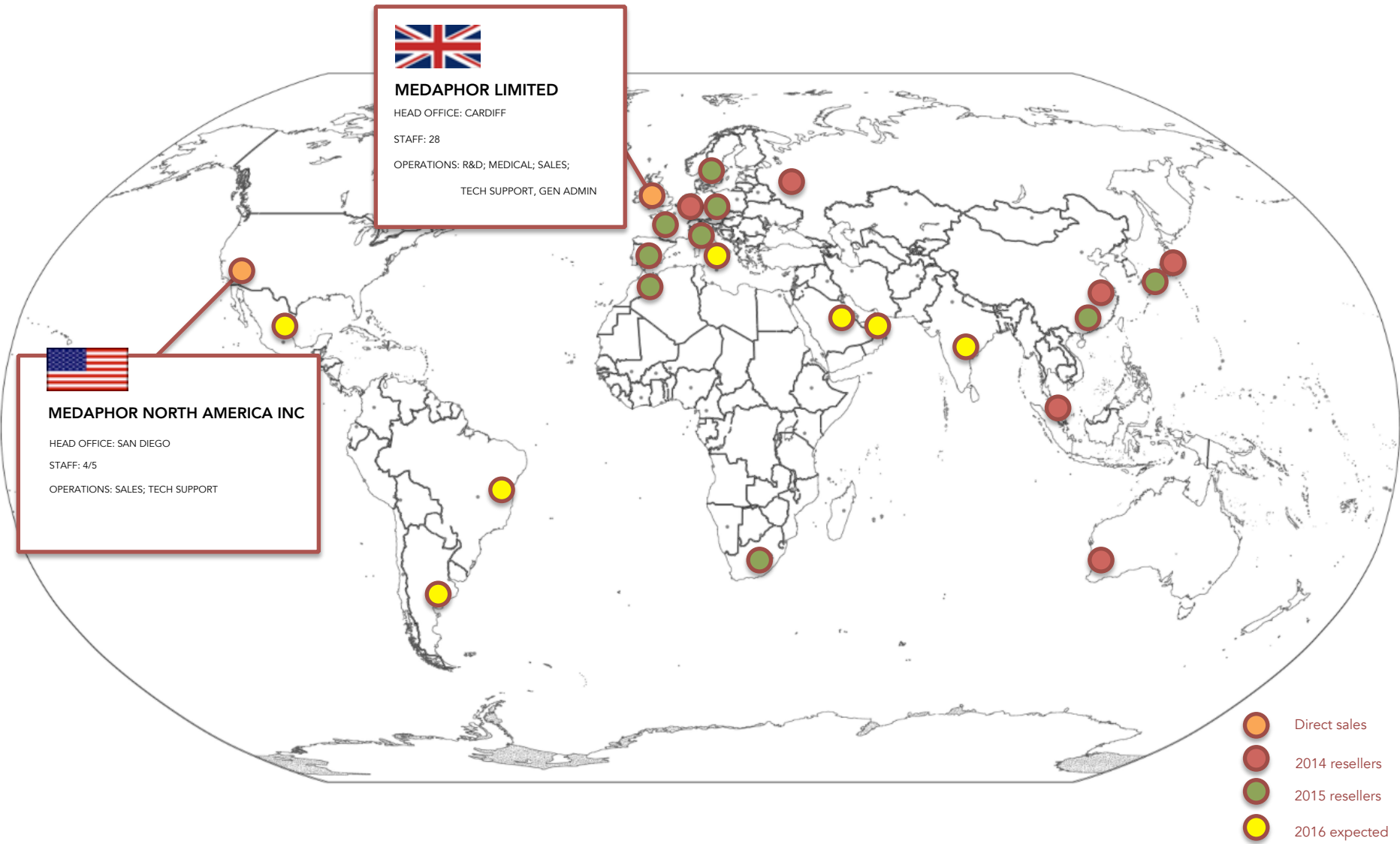
With virtual anatomy and haptic feel



5

PUBLISH
Locally or
Globally
in the NEW
ScanTrainer Cloud
Case Library

Launched in 2005 and now selling in 16 countries



How did we manage this?

1

Great commercialisation team at Cardiff University and positive academics

2

Private funding from IP Group when it mattered at the high risk stage

3

Matched by regional funding from Finance Wales

4

SMART money from Welsh Government to build the prototype simulator

5

Great location in the Medicentre - flexible rent with access to key doctors



