

Healcerion Introductions

Smart Healthcare for all





About Us

INSIDE OF OUR COMPANY

ABOUT US

Executive Staffs

Heal (Health) + Ceri (Cerebrum – Brain) + on (People)
“Smart Healthcare for Human”



Benjamin Jeongwon Ryu
CEO/MD

BS, BE (Seoul National University)
MD (Gacheon University of Medicine)
Neuroscience Ph.D course (KAIST)

DigiGen Co. CEO/CTO
ITmagic Co. CTO
Emergency Dept. (Chunggoo Sungsim Hospital)

Member of KMA(Korean Medical Association)
Member of KACU(Korean Association of Clinical
Ultrasound)



Yoochan Choung
CSO



Suyeol Lee
Director of Lab.



Yongsung Lee
CTO



Seungryong Roh
CFO

Advisory



Jaeseung Yoon
IP & Patent



Dongwon Kim
Marketing



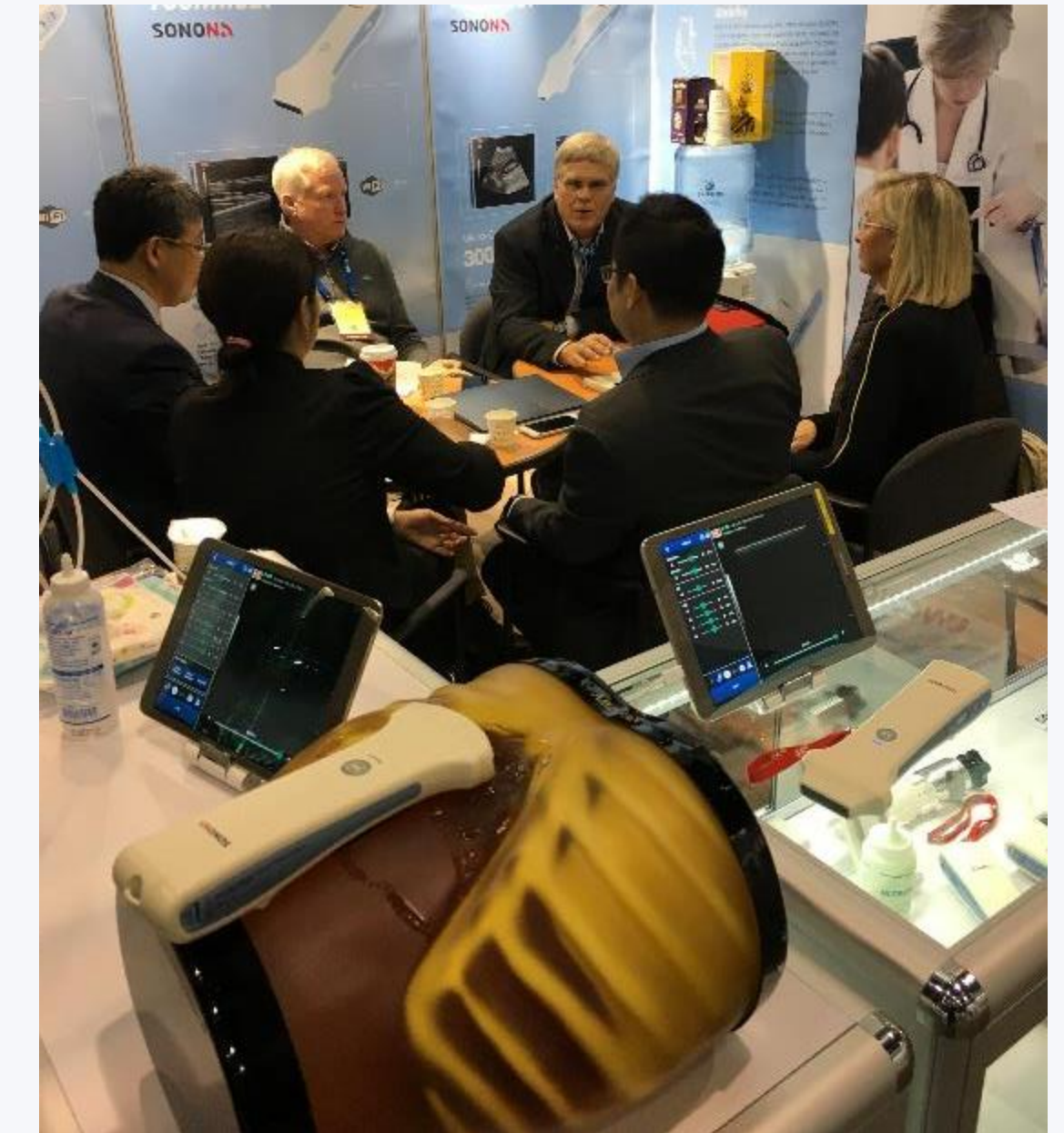
Donghoon Jung
Medical

ABOUT US

History

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- 2012. 02 Foundation of Healcerion Co.,Ltd
- 2012. 10 Approval of Certified Start-up Organization
- 2012. 11 Grand Prize Winner of All Start-up Tournaments in Korea
- 2013. 04 MOU with Gacheon University Gil Medical Center
- 2013. 06 Investment from Venture Capital
- 2014. 11 Medical Certificate Approval(KFDA, GMP)
- 2014. 12 mHealth Summit 2014(Washington DC) Participation
- 2015. 03 31st International Medical & Clinical Device Exhibition (KIMES) Participation
- 2015. 05 Medical Certificate Approval (CE Medical device)
- 2015. 10 Medical Certificate Approval (FDA Medical device)
- 2016. 03 32nd International Medical & Clinical Device Exhibition (KIMES) Participation
- 2016. 08 Linear Probe Product Release
- 2016. 11 Germany Medical Exhibition (MEDICA) Participation



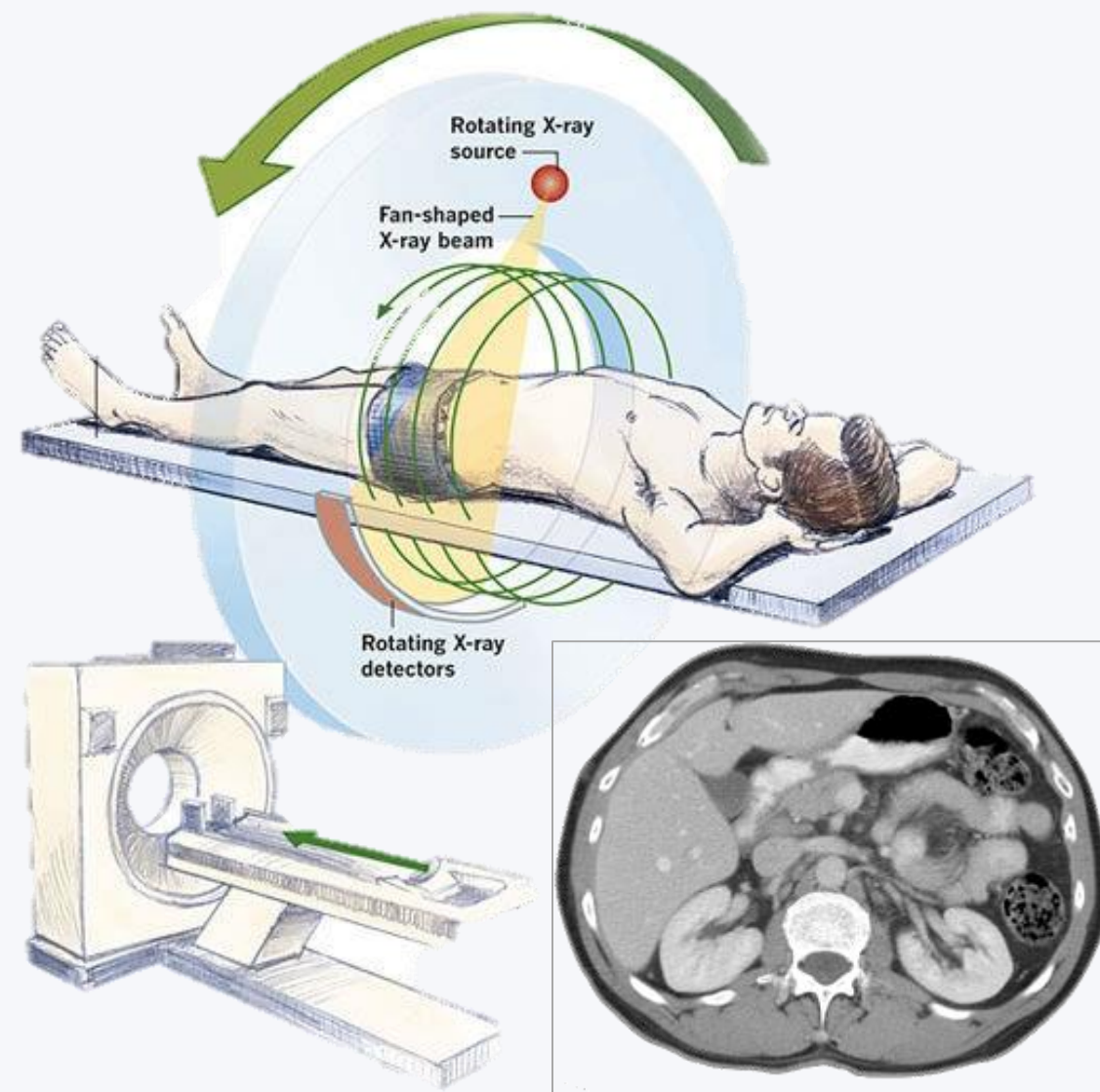


Tech & Product

Future of Point-of-Care

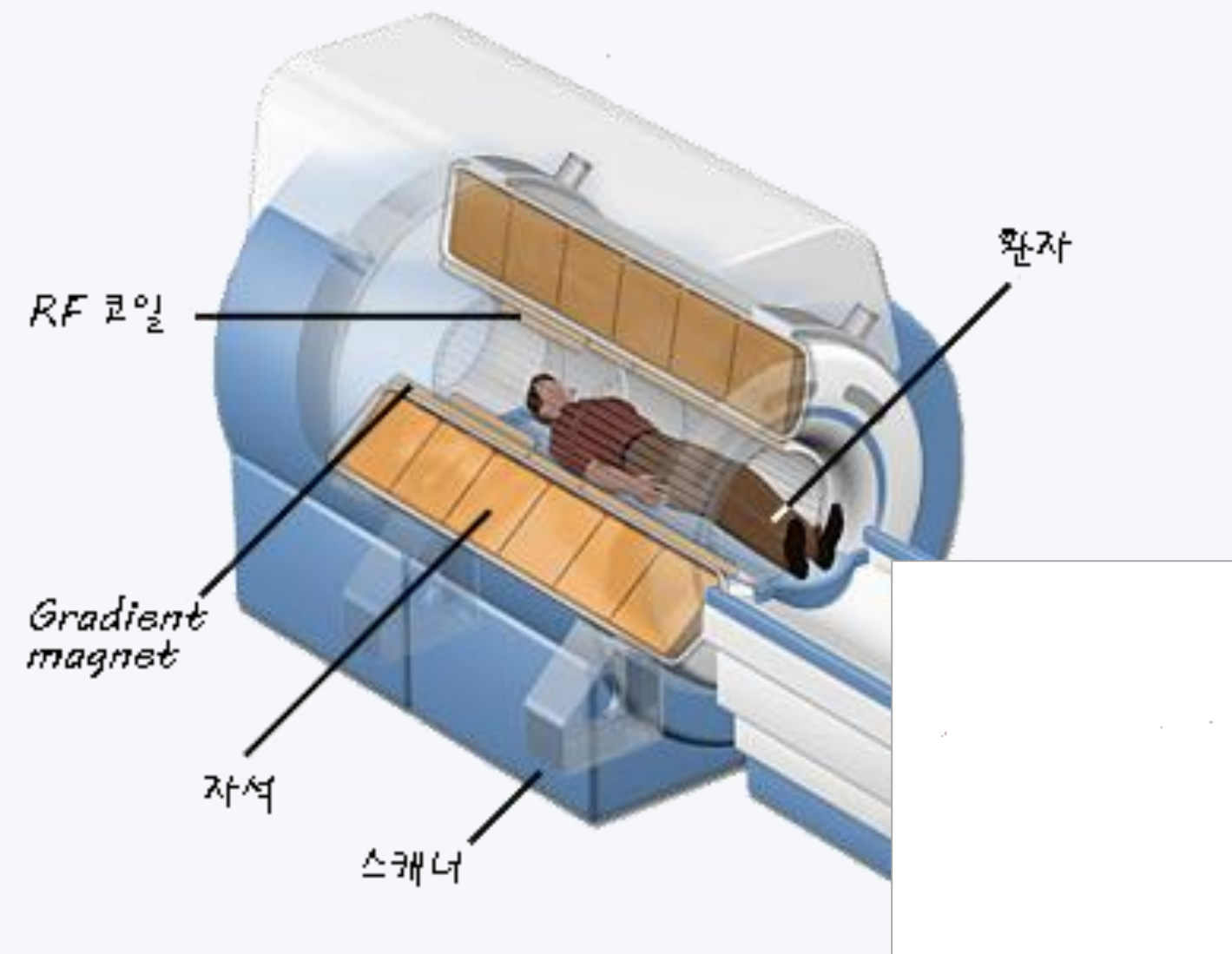
Tech & Product

Medical Imaging System



CT(Computed tomography)

- Enter into a large circular machine with an X-ray generator.
- Acquire cross-sectional image of the human body as a computer image
- Easily exposed to radiation. Using contrast agent can be dangerous to patients with kidney failures or drug hypersensitivity.



MRI(Magnetic Resonance Imaging)

- Generating high frequencies in the human body in the magnetic field to image the resonance signal of the hydrogen nucleus to the computer
- Unlike CT, it is harmless to the human body and can detect lesions that are not deformed.
- It takes a long time to diagnose, and patients who suffer from hearing problems due to noises



Ultrasound Imaging Device

- Ultrasonic signals are sent and reflected echo signals are analyzed and imaged
- Harmless to human body and possible to check real time images
- Image quality is lower than CT / MRI
- The only equipment available for examination for emergency patients, pregnant women, and fetuses

Tech & Product

Needs for Development



Tech & Product

Point-of-care(POC) Ultrasound



Conventional Ultrasound Device

Price: \$140,000
Weight : 135kg

VS.

SONON

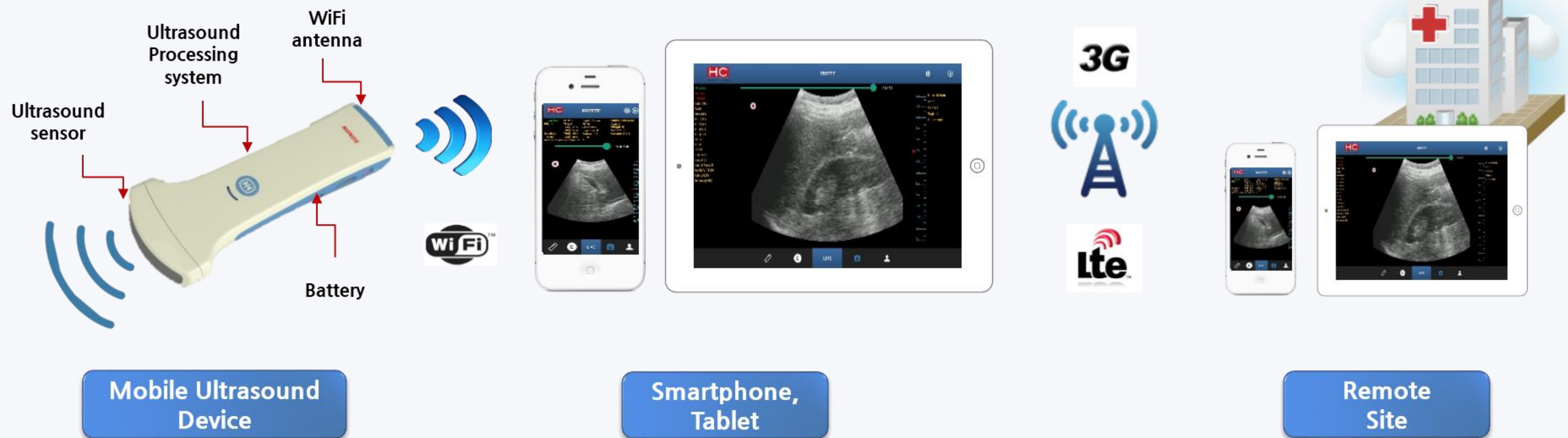


Healcerion Compact Ultrasound

Price: \$6,000
Weight : 390g

Tech & Product

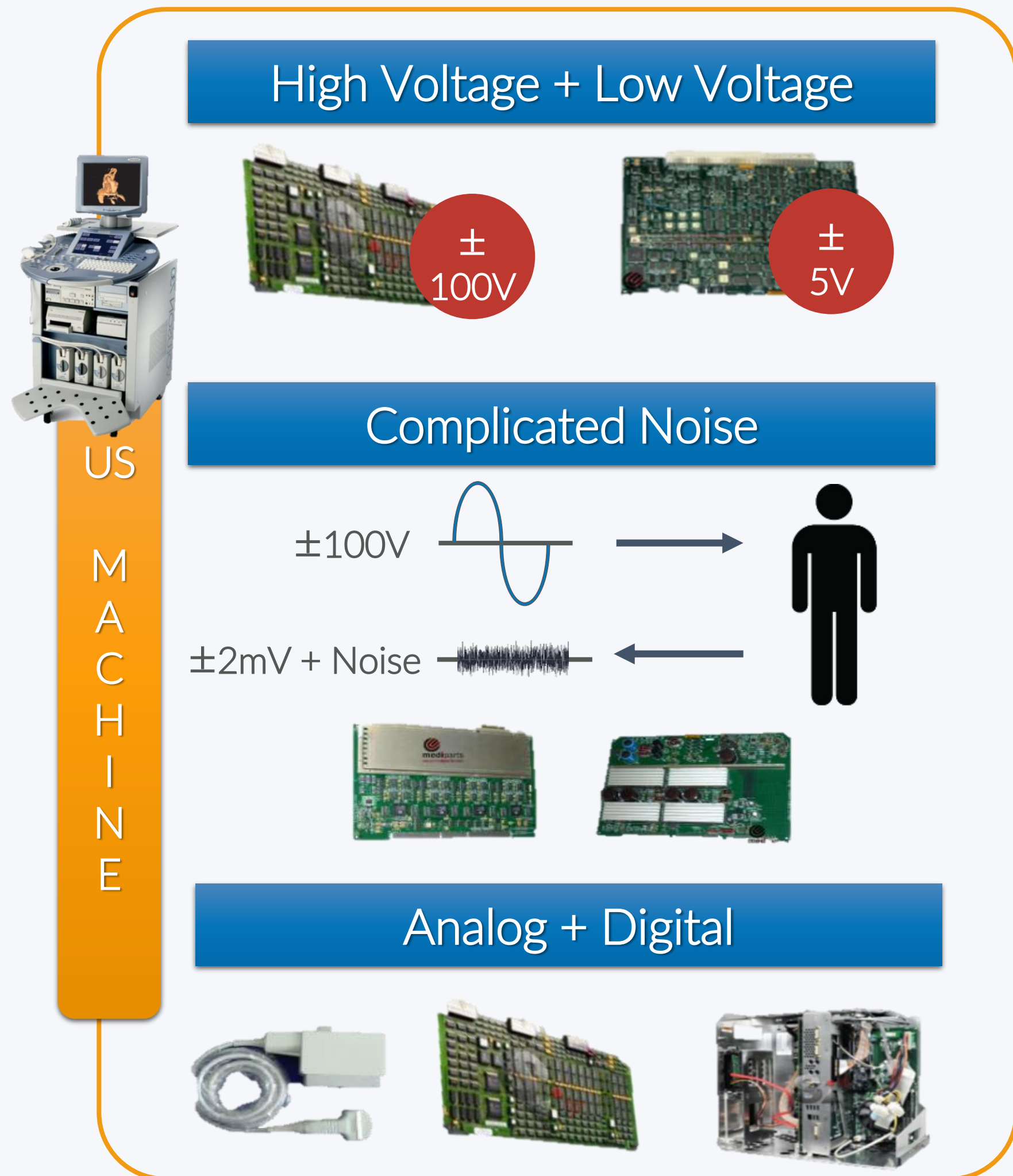
Technology Overview



Tech & Product

Technical Differentiation

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Miniaturization

Low Power Design

Precise Noise Control



One-chip Solution

Wireless Tech

Mobile Solution





SONON 300C

Field Examination(POC), OB/GYN, General Abdomen
Convex Module Frequency : 3.5MHz Only Depth : Maximum 20cm Soft AP 2.4GHz
Replaceable and Li-ion Rechargeable battery 2600mAh Charging Time: 3 hours(Full Charge) Duration: 3 hours(Scanning), 12 hours(Standby Mode)
390g(Battery Included)



SONON 300L

MSK, Anesthesia, Vascular, Sports Medicine
Linear Module Frequency: 5/7.5/10MHz Depth: Maximum 10cm Color Doppler(CF) Soft AP 2.4/5 GHz
370g(Battery Included)



Mobile App

iOS: Version 8.0 or later released/ Android: Version 5.0 or later released
Screen Size: 4 ~ 10.8 inch Resolution: 800x480 ~ 2048x1536
Focus, Depth, TGC Settings
Depth / Measurements , Auto-calculation of Fetus/Gestational age
Still Image Mode/Video Mode
Patient Information

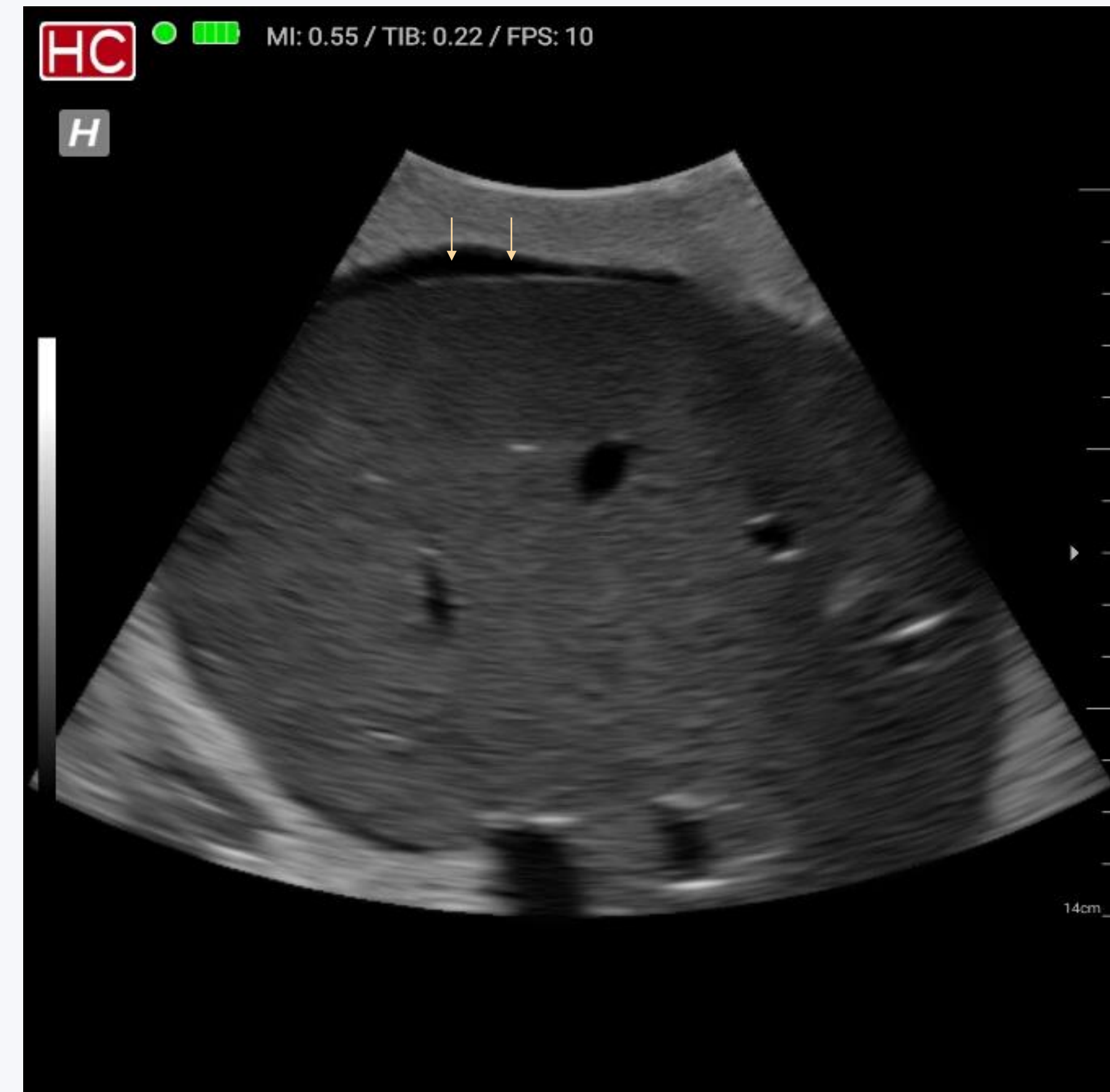
Tech & Product

Ultrasound Images

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Femoral Artery



Internal Bleeding

Tech & Product

Compact Ultrasound Device Comparison

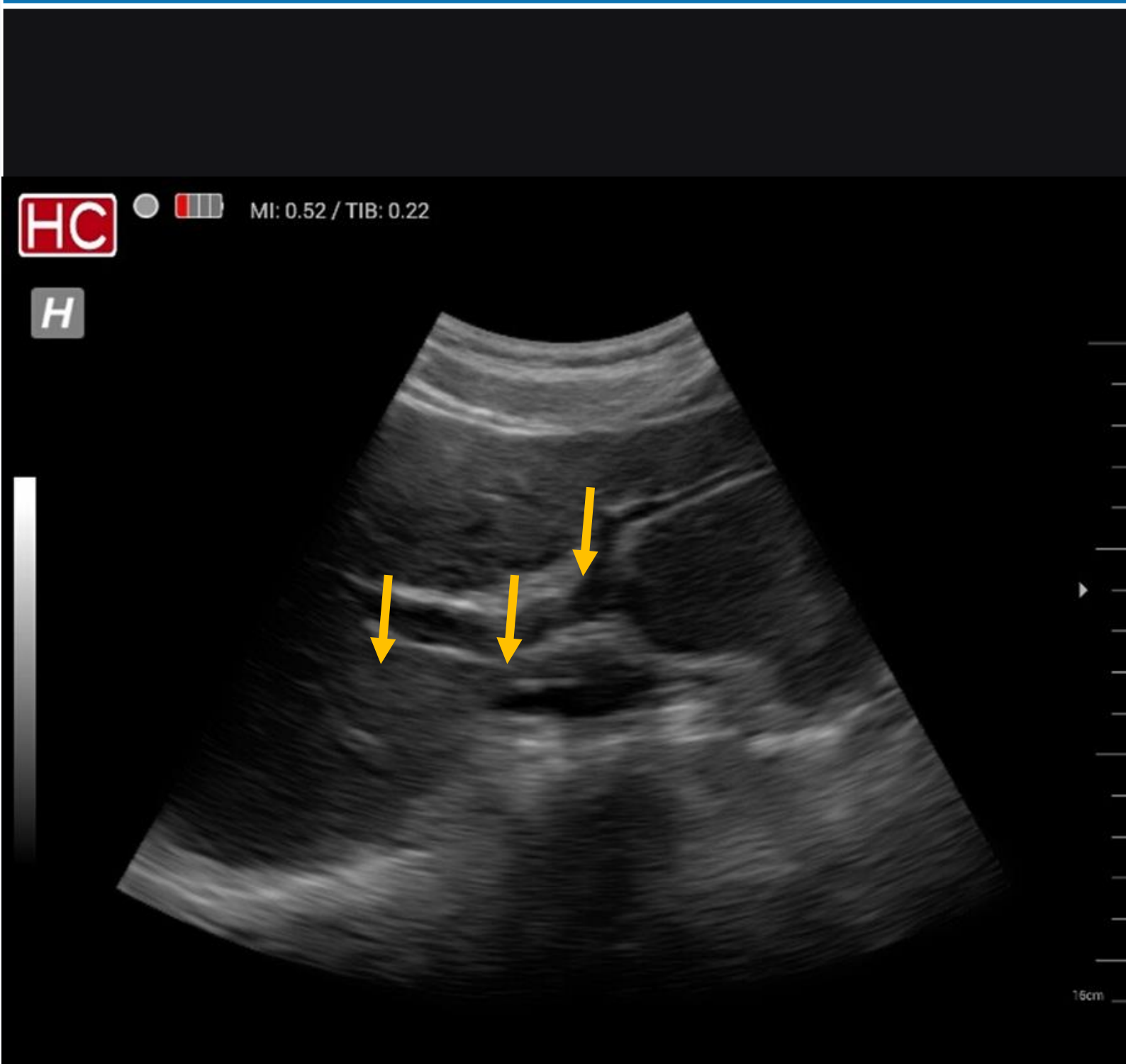


	Healcerion	GE Vscan	Philips Lumify	Sonosite iViz	Mobius	Clarius
Scan Type	Convex, Linear	Sector/Linear	Convex, Linear	Sector	Mechanical Sector	Convex, Linear
Connection	Wireless	Wire	Wire	Wire	Wire	Wireless
Usability						
Measurement						
Mobile device	iOS / Android		Android only*		Windows CE	iOS / Android
Network	3G/LTE		Wi Fi/Cellular	Wi Fi	Wi Fi	3G/LTE
weight	390g	436g	-	520g	340g	540g
Battery Operation	360min	60min	90 ~ 150min	60min	60min	45min
Color Doppler	(300L only)					
Price	\$ 6,000	\$ 12,000	\$ 15,000	\$ 20,000	\$ 8,000	\$ 10,000

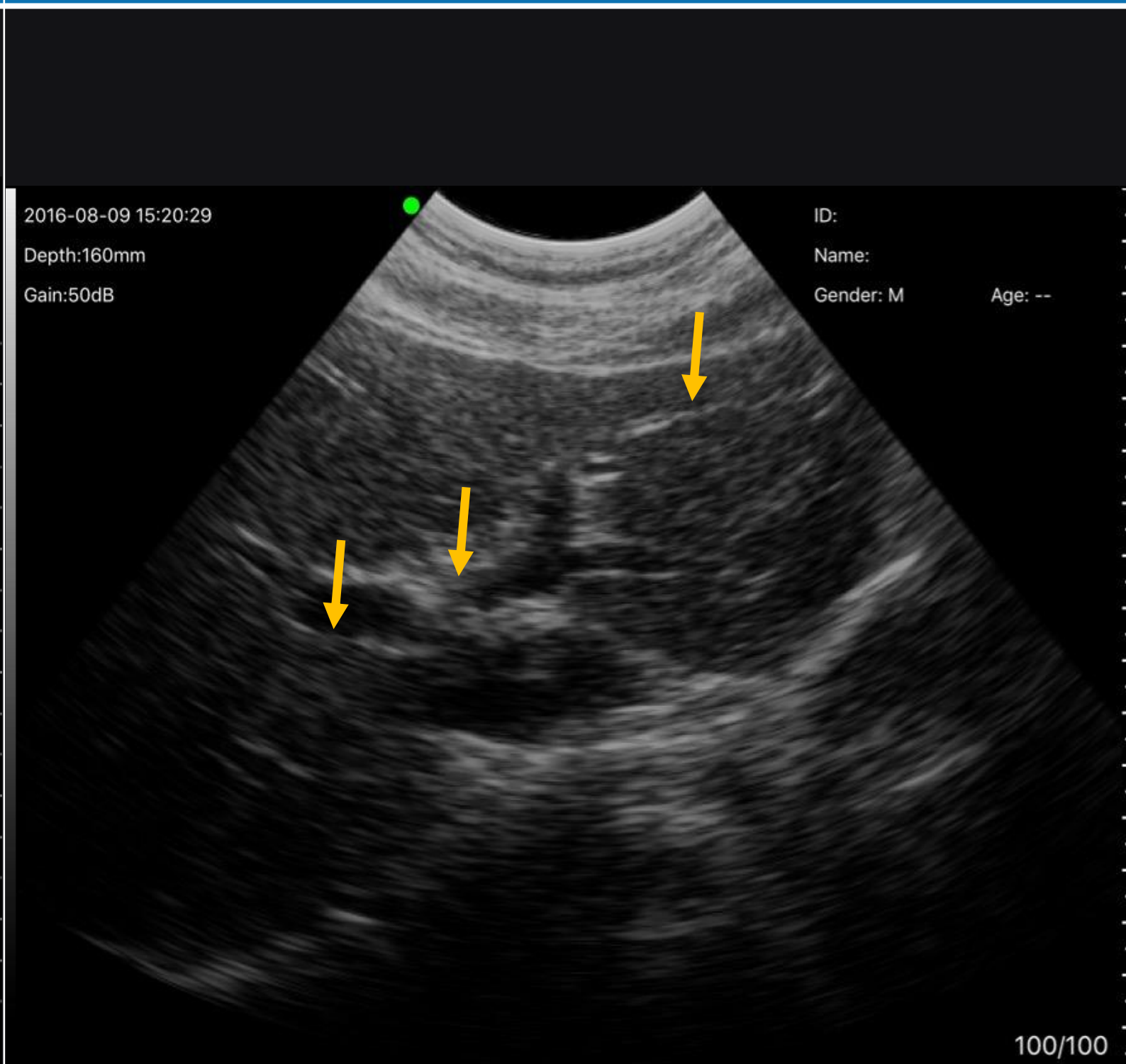
Image Comparison

Abdomen (Portal Vein)

Healcerion



S



G

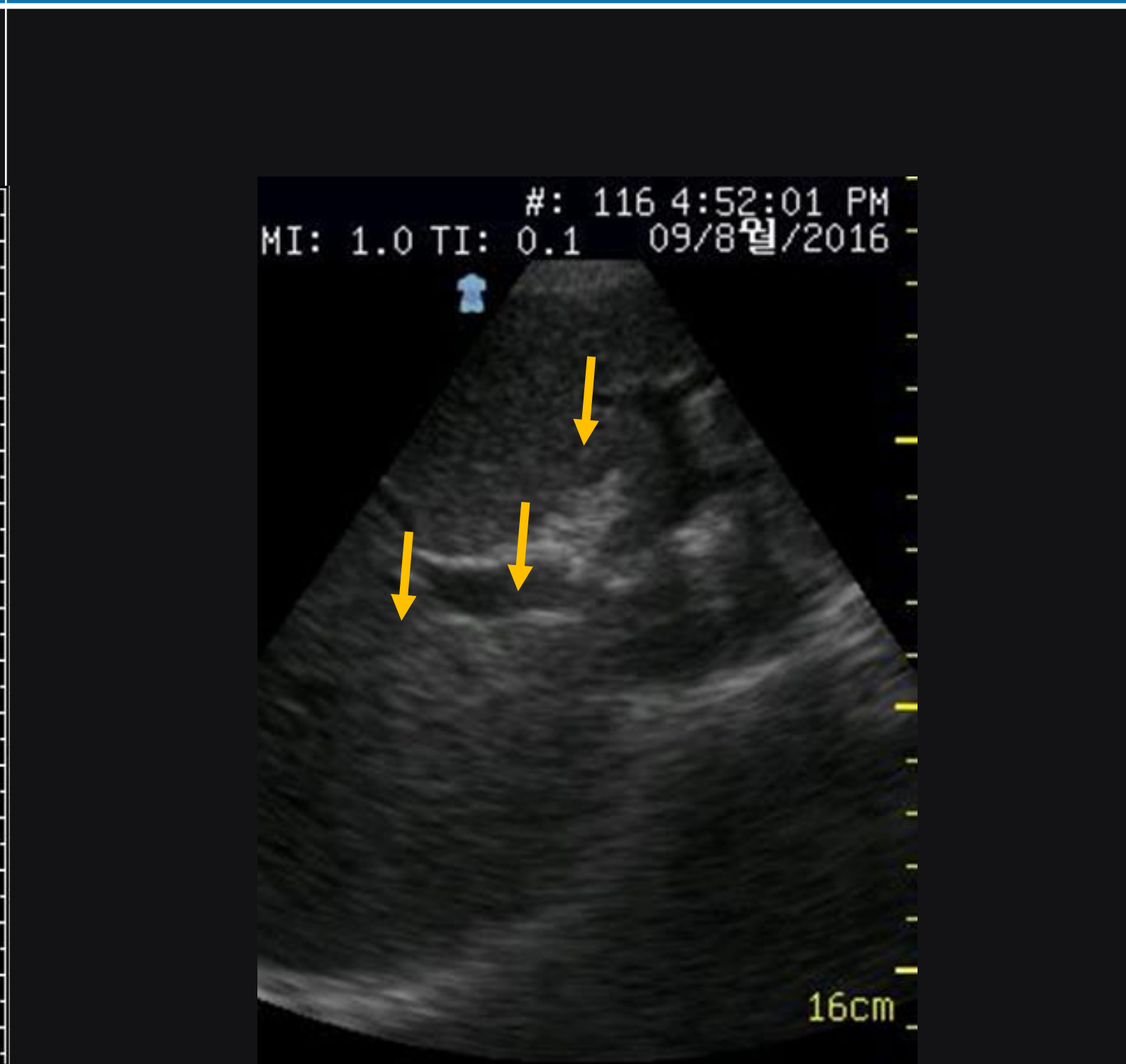
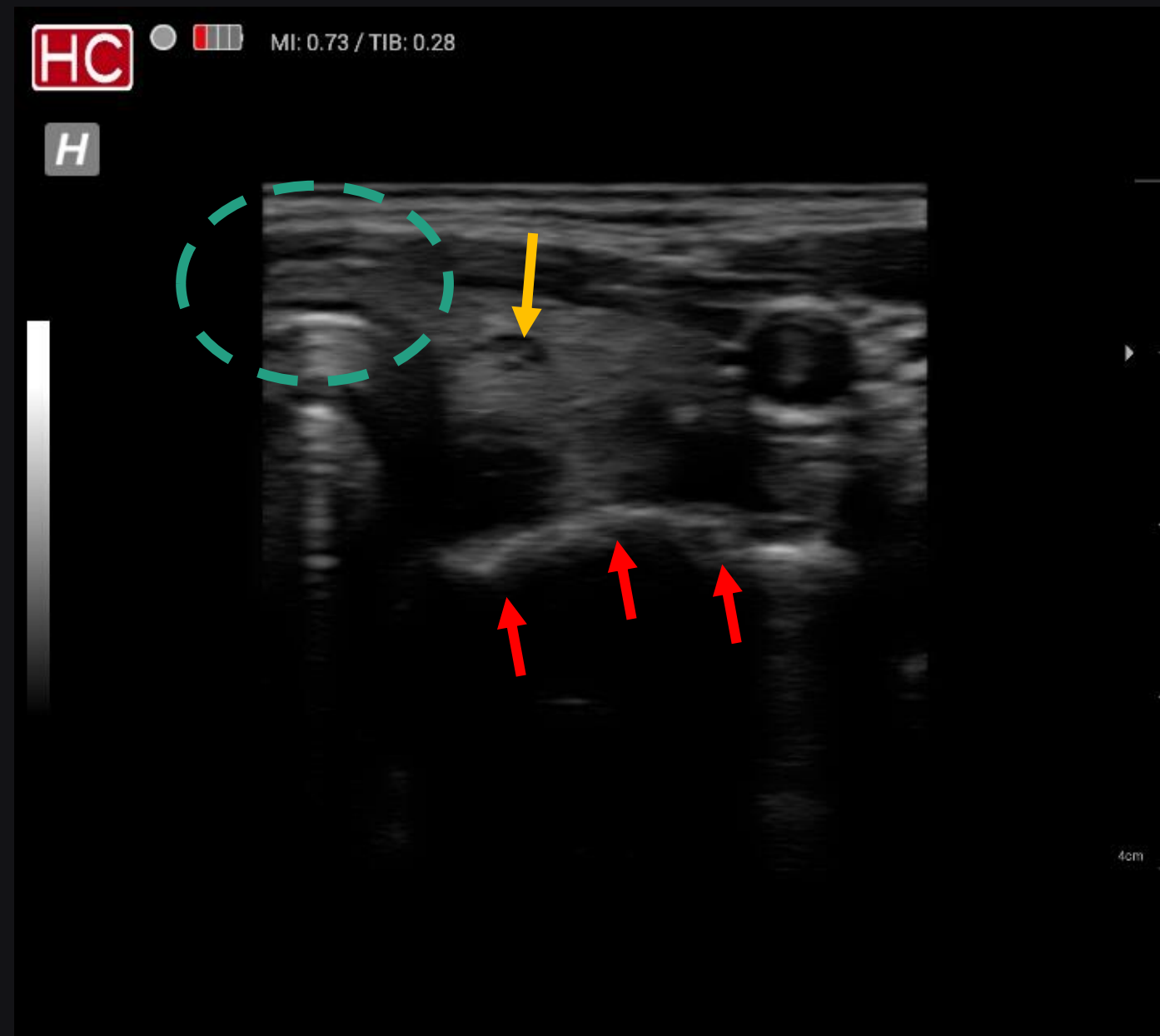


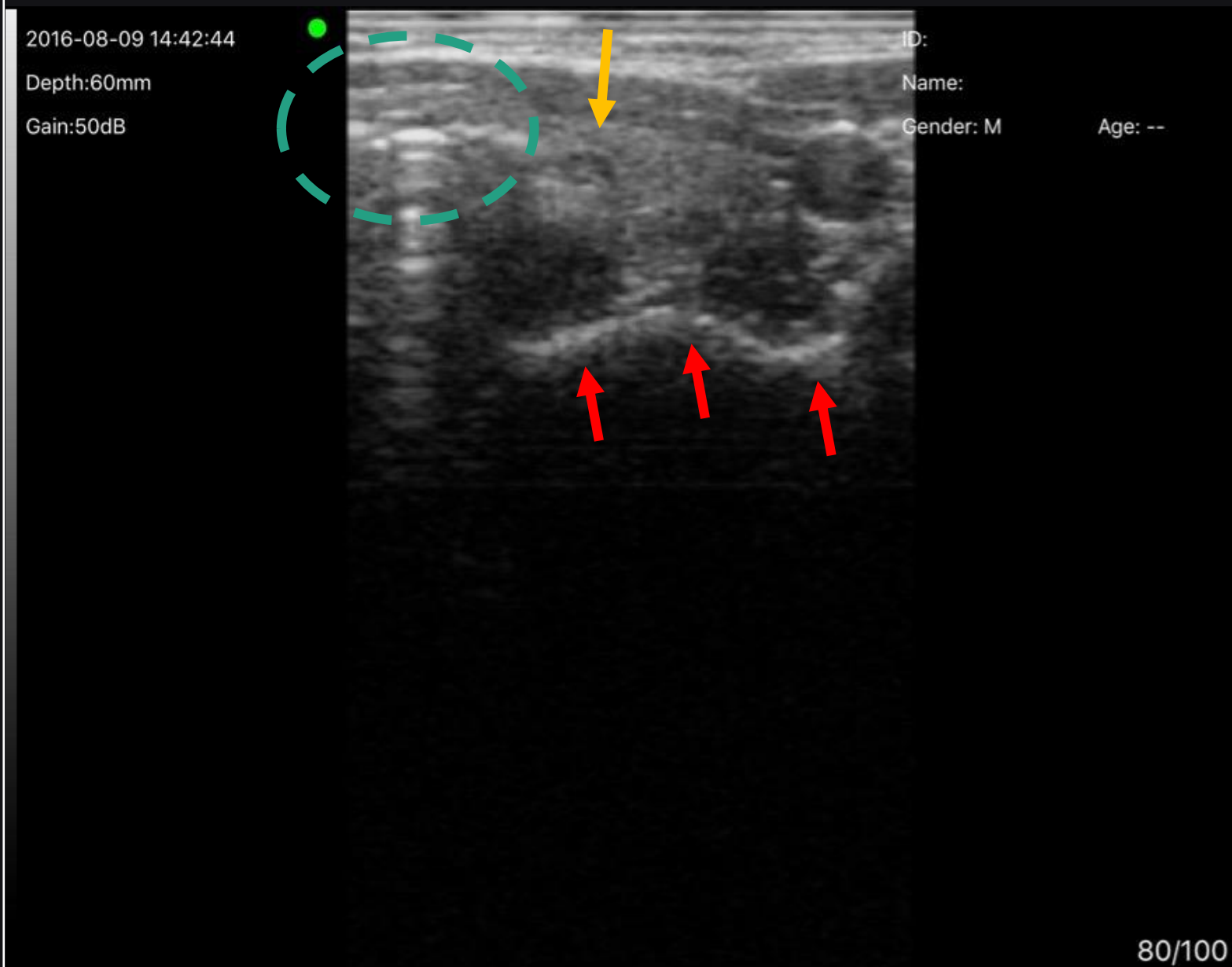
Image Comparison Thyroid (Cyst)

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Healcerion



S



G

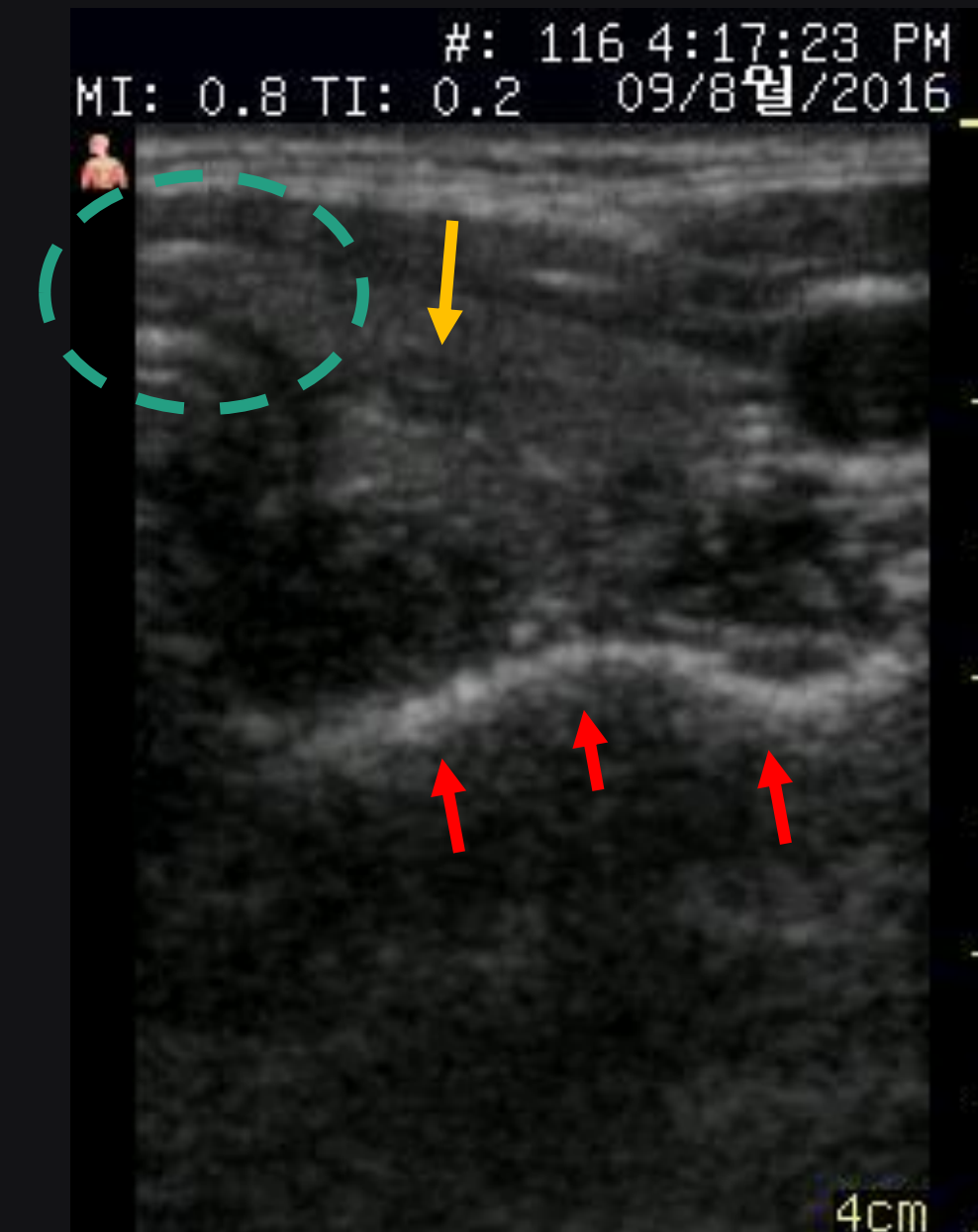


Image Comparison MSK (Osteoarthritis)

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Healcerion

S

G

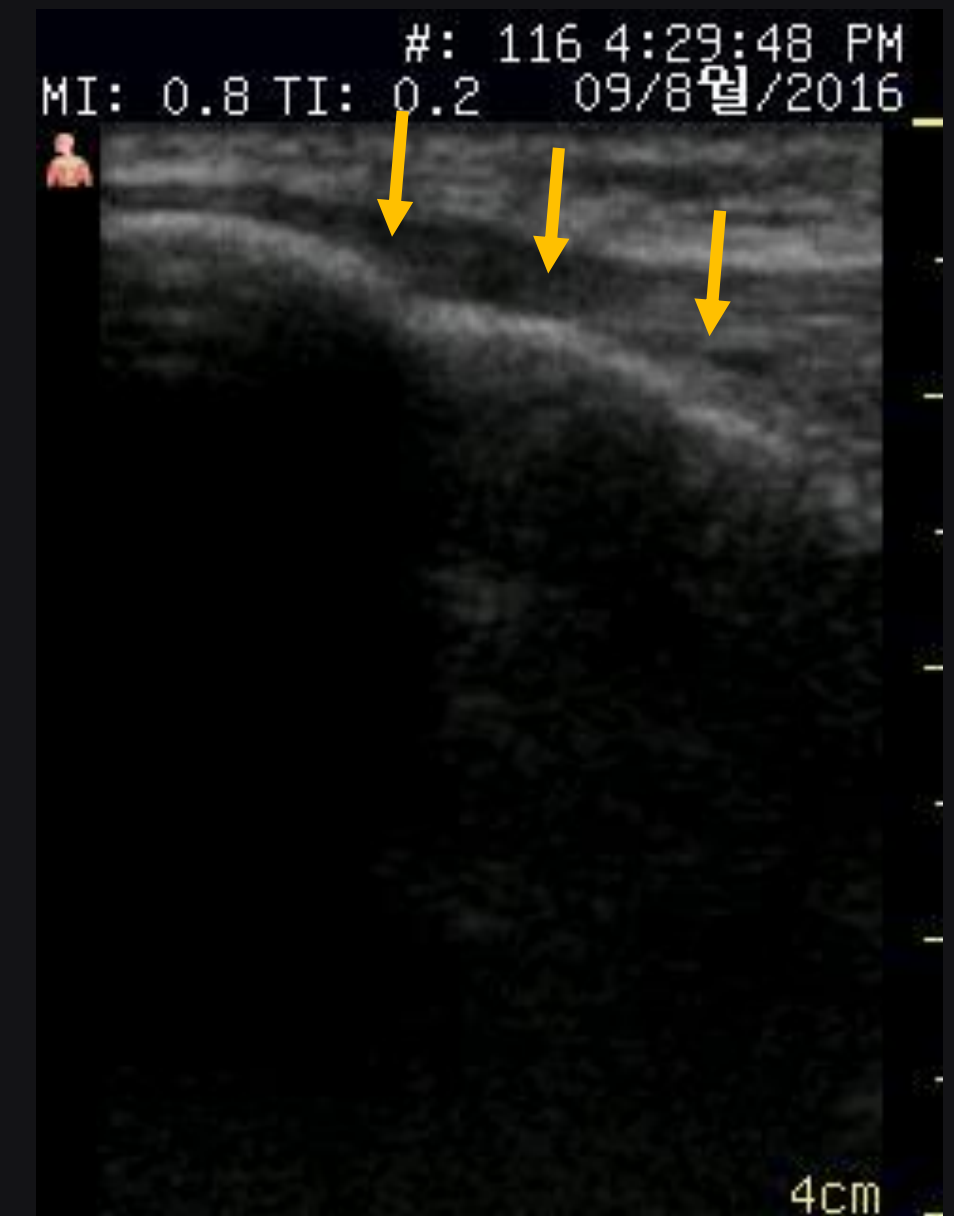
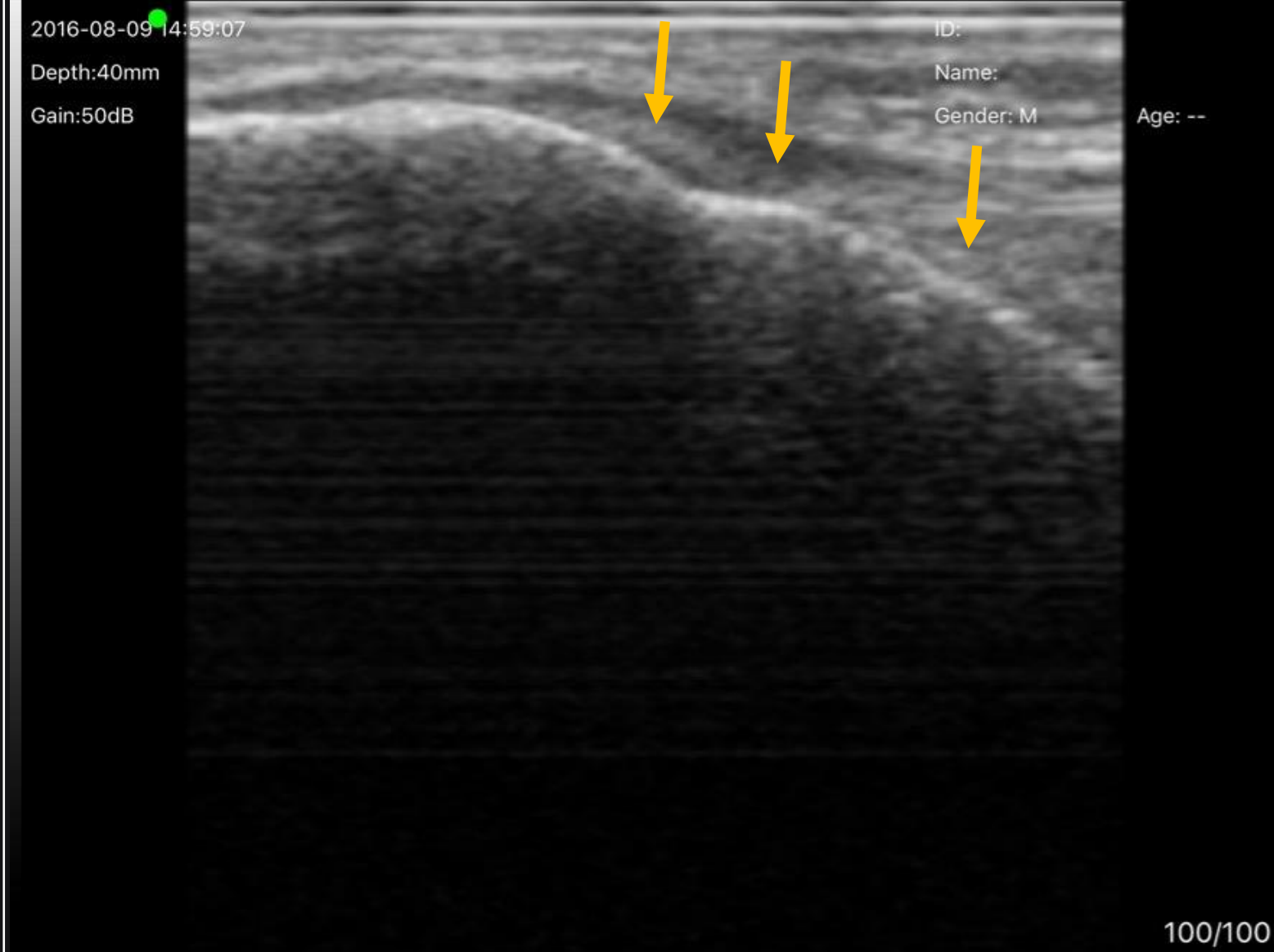
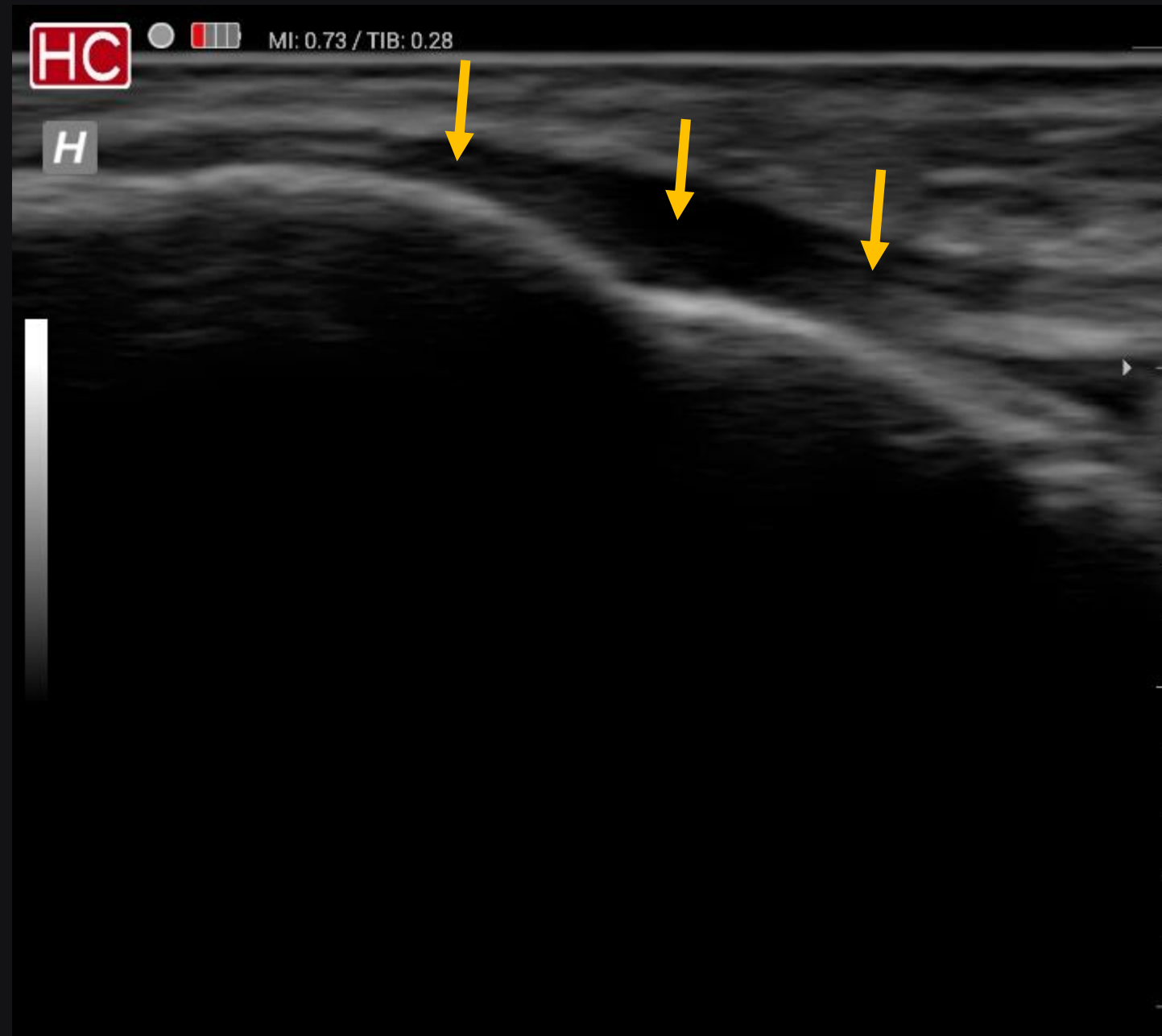


Image Comparison

Carotid (Color Doppler mode)


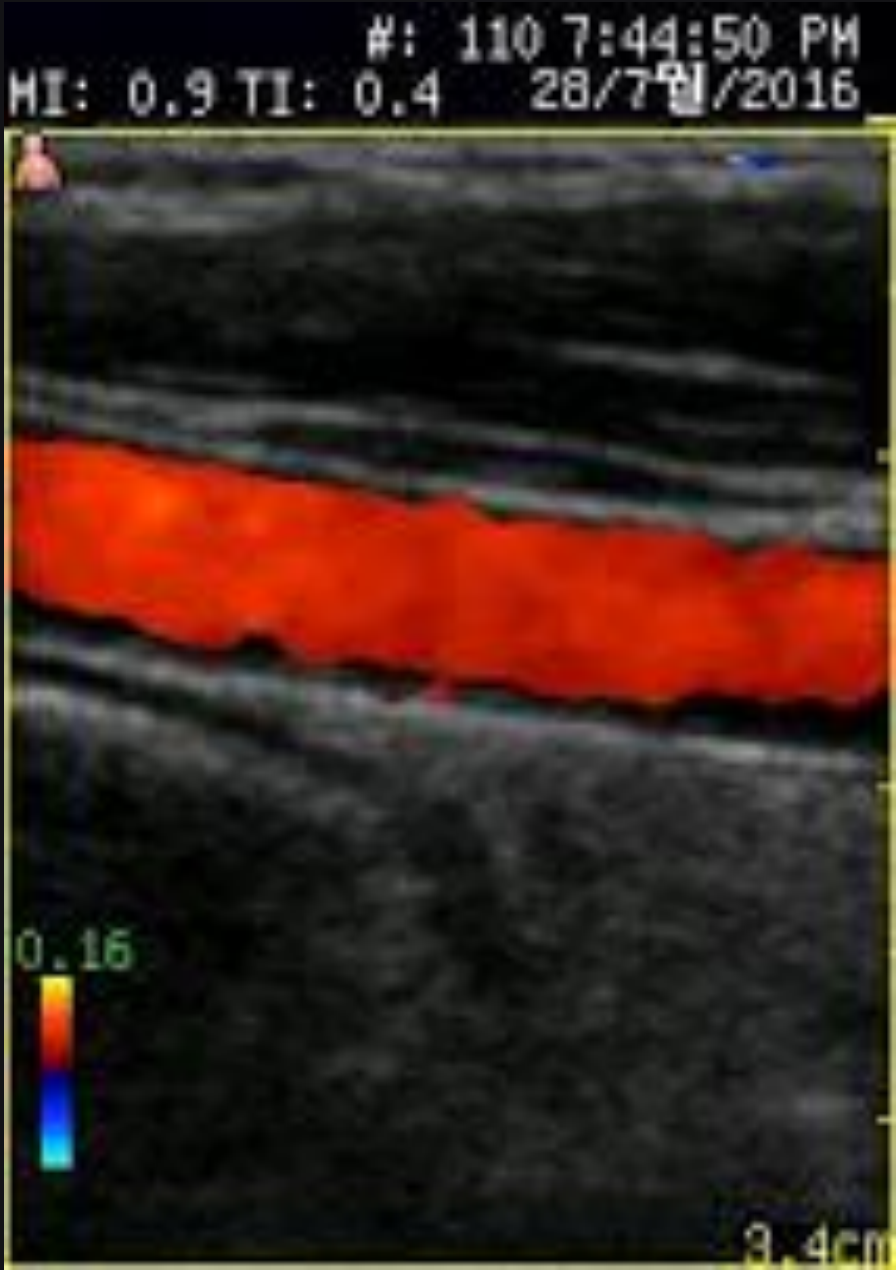
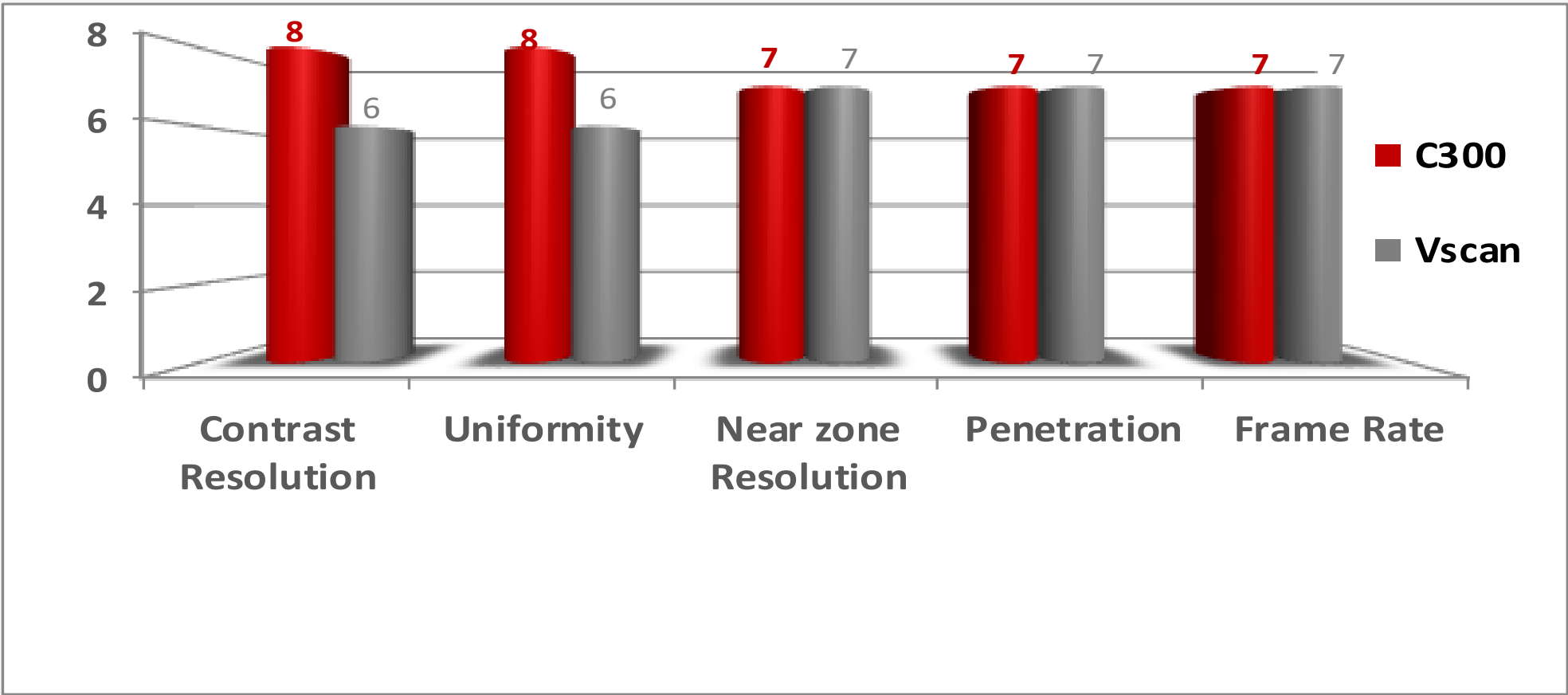
Healcerion	S	G
	N/A	

Image comparison: Convex (SONON vs. V****)



- ★ **Convex Type**
- Better Contrast resolution
 - Better Uniformity
 - Better Field of view for abdominal scan

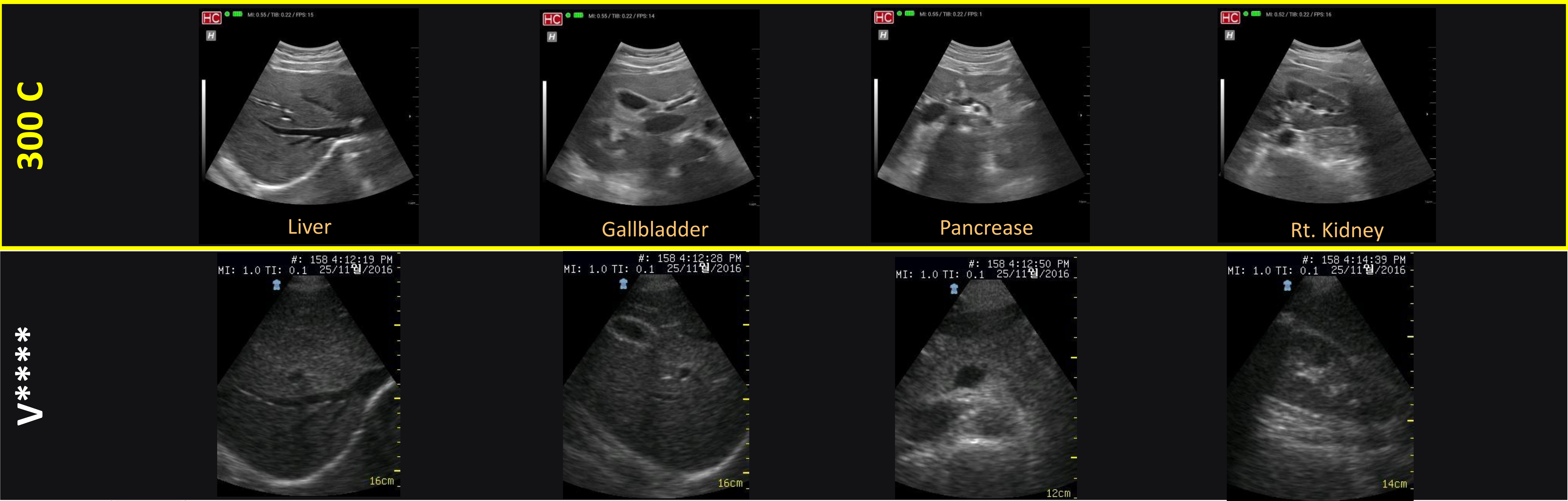
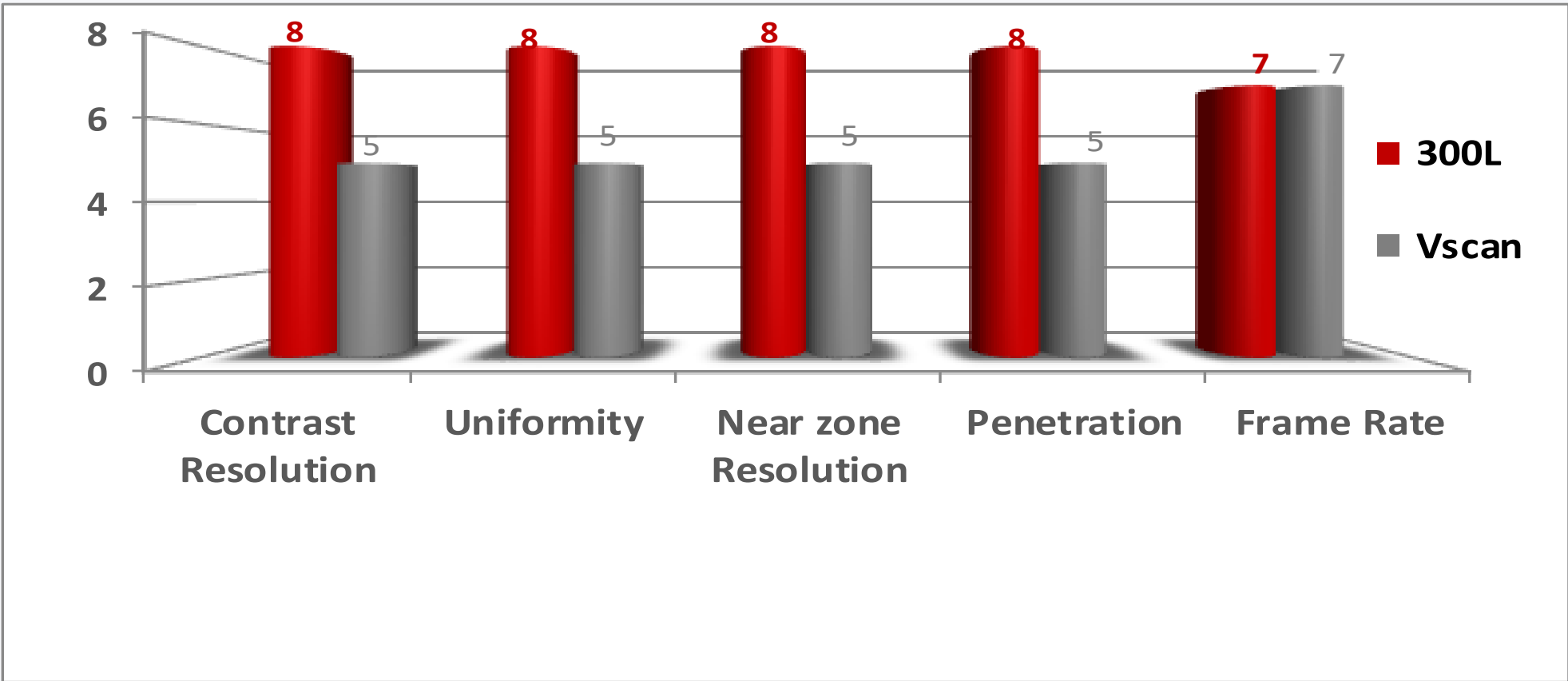
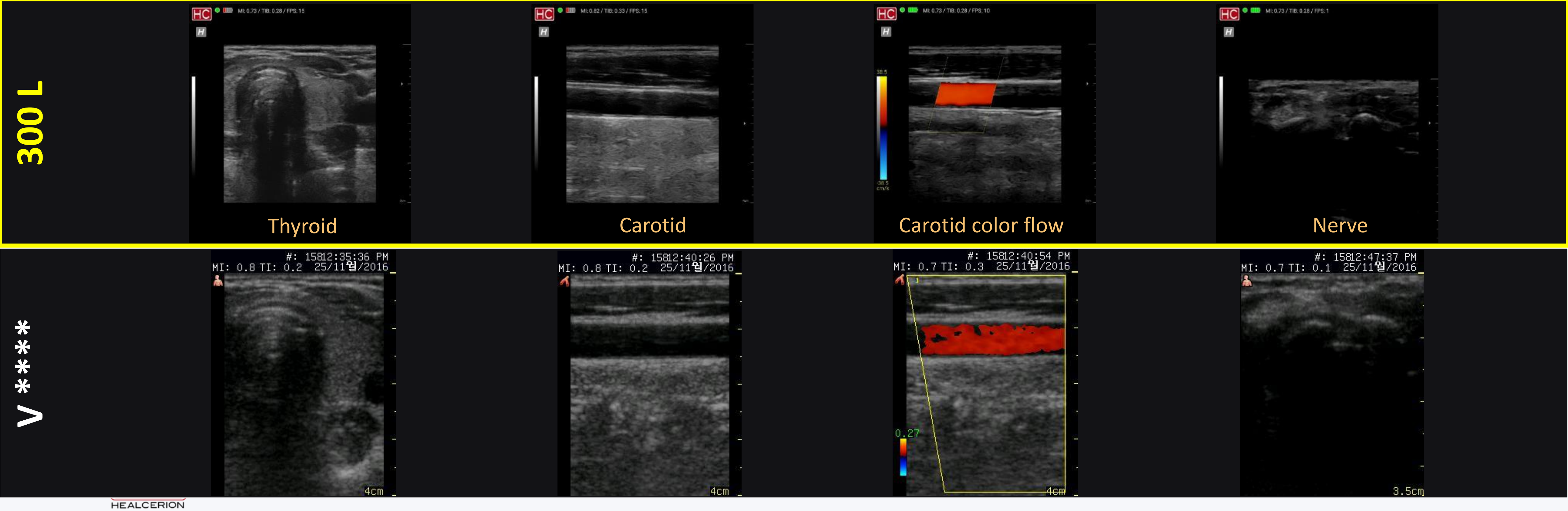


Image comparison: Linear (SONON vs. V****)



- ★ *Linear Type*
- Better Contrast resolution
 - Better Uniformity
 - Better penetration
 - Better Field of view for small part and vascular scan



Tech & Product

In Gachon Univ. Gil Medical Center

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Dr. Helicopter



Intensive Care Unit



Education



Ambulance



Rounding



Doctor's Office



제외 14-0817 호			
의료기기 제조 허가증			
영의기번호 제 4293호			
구분	제호	종목/품목명	품목
제출명 (상품명, 품목명, 모델명)	SINER 02-3040000 1046795 5130000 이동형 초음파박막산란장치, SIDER 2006	초음파(누출)	429390 02(3)
모양 및 구조	별첨		
원료	별첨		
제조방법	별첨		
사용 목적	사용목적 : 열침, 침술기 열침		
사용방법	별첨		
사용 시 주의사항	별첨		
포장단위	별첨		
적용방법 및 사용기한	적용방법 : 열침, 침술기(초음파)기법 - 열침		
시험규격	제 외 기 관 10-01-2001-10540-01054-0254, 11141 한국산업기술시험원		
제조(수입)업자 정보	제외(수입업자) : (주)원세라, 서울특별시 구로구 이차원로58길 22, 303호, 2104(구로동, 서울소상공인지원센터)		
허가조건	제외된 일정		
비고	없음		

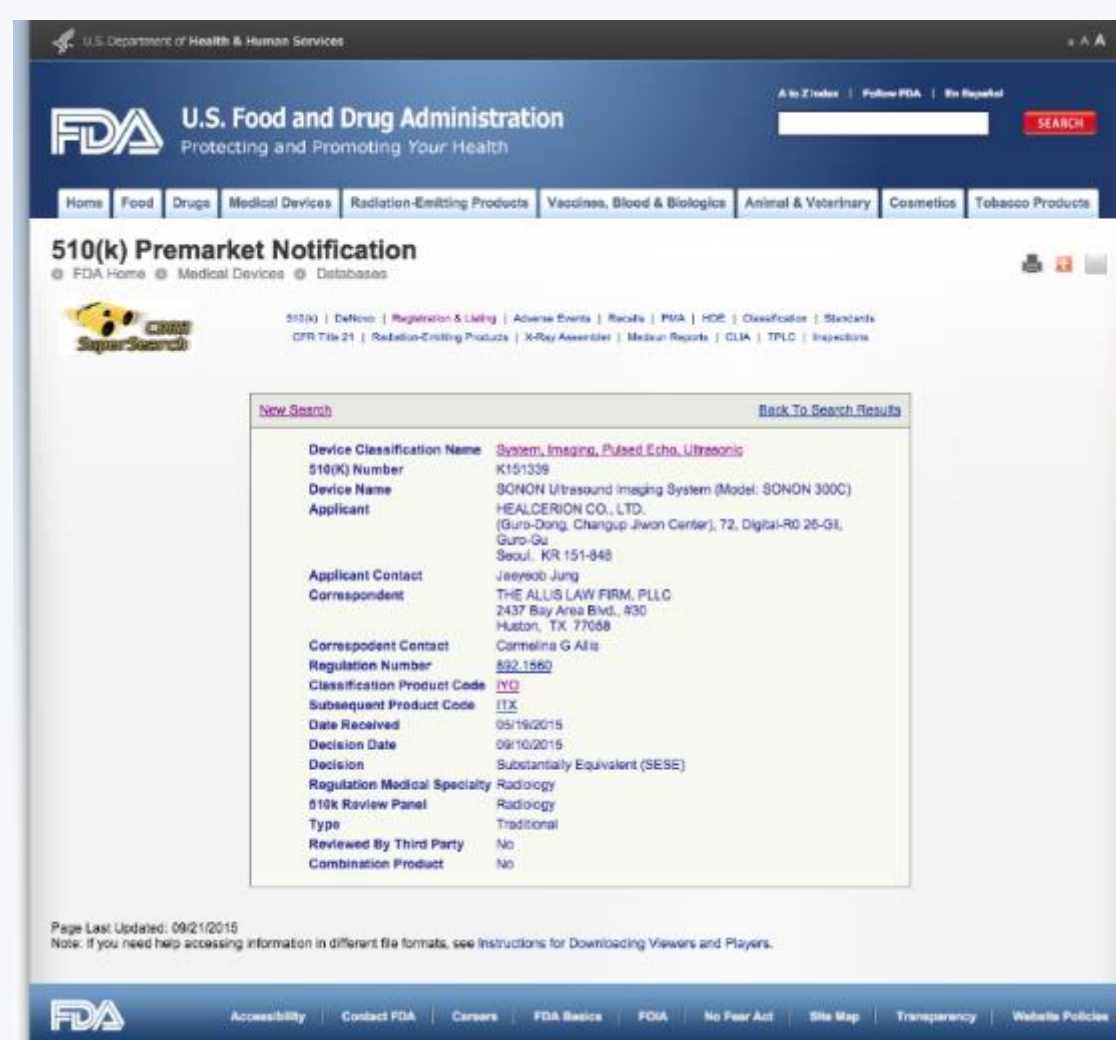
「의료기기법」 제6조 및 같은 법 시행규칙 제5조 제3항의 제하와 같이 허가됩니다.

2014년 11월 24일

서울지방식품의약품안전청장 (인)



<h1>우수제품지정증서</h1>	
지정번호 <u>2015177</u>	
제 품 명 :	초음파영상진단장치
업 체 명 :	주식회사 힐세리온
대표자명 :	류 정 원
지정기간 :	2015. 12. 24 ~ 2018. 12. 23
지정범위 :	SONON 300C
<p>위 제품을 조달사업에관한법률 제9조의2 및 동법시행령 제18조에 따라 위와 같이 우수제품으로 지정합니다</p> <p>2015년 12월 24일</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: center;"> <h2>조 달 청 장</h2>  </div> </div>	



Tech & Product

Developing Product

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Color Doppler Supported Convex Transducer Type (Sonon310C)

- Adding Color Doppler Mode from the Original model of 300C
 - WiFi 5GHz Supported
- Certification Registration to be later dates of 2017



Micro-convex Transducer Type (Sonon300MC)

Pet scan(dogs, cats)
Infant scan



Tech & Product Intellectual Property

Securing IP for Self-Developed Core Technologies

Similar Patent Avoidance Strategy

Patent	Local Patent Registration	Local Patent Pending	International Patent Pending	International Patent Registration
	4	8	15	2
Design	Local Patent Registration	Local Patent Pending	International Patent Pending	International Patent Registration
	-	10	-	6
Brand	Local Patent Registration	Local Patent Pending	International Patent Pending	International Patent Registration
	6	8	7	5

- 2013/2014 - IP Strategy Support Program proceeding project IP-R&D (Patent Office)
- 2014 - International IPR Dispute Prevention Consulting (Korean Intellectual Property Protection Association)
- 2015 - IP consulting for disputes (Korea Electronics Information&Telecommunication Industry Promotion Association)

Simultaneous IP acquisition and similar patent avoidance strategies for core technologies

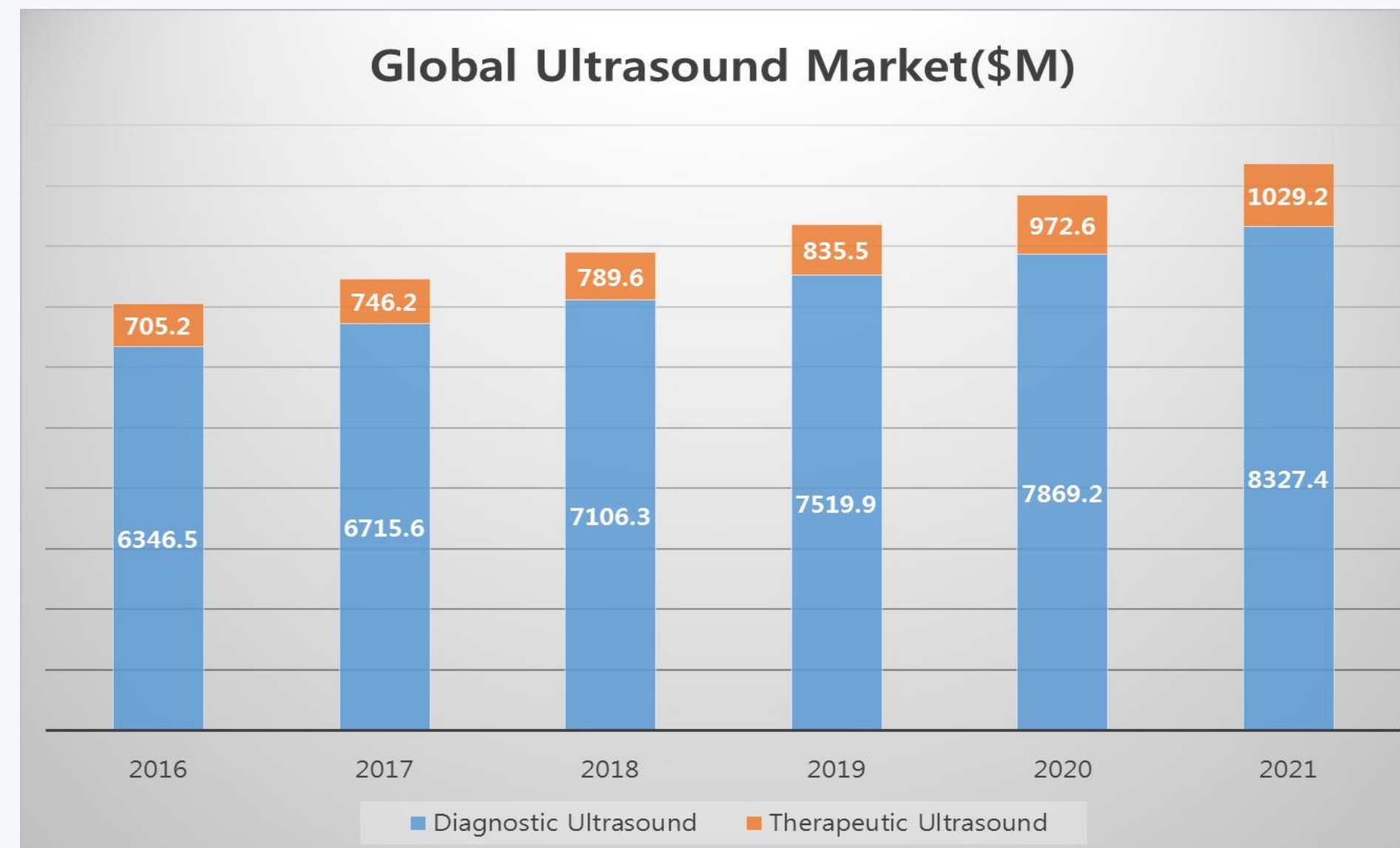


Market & Sales
Rising New Market

Market & Sales Market Analysis

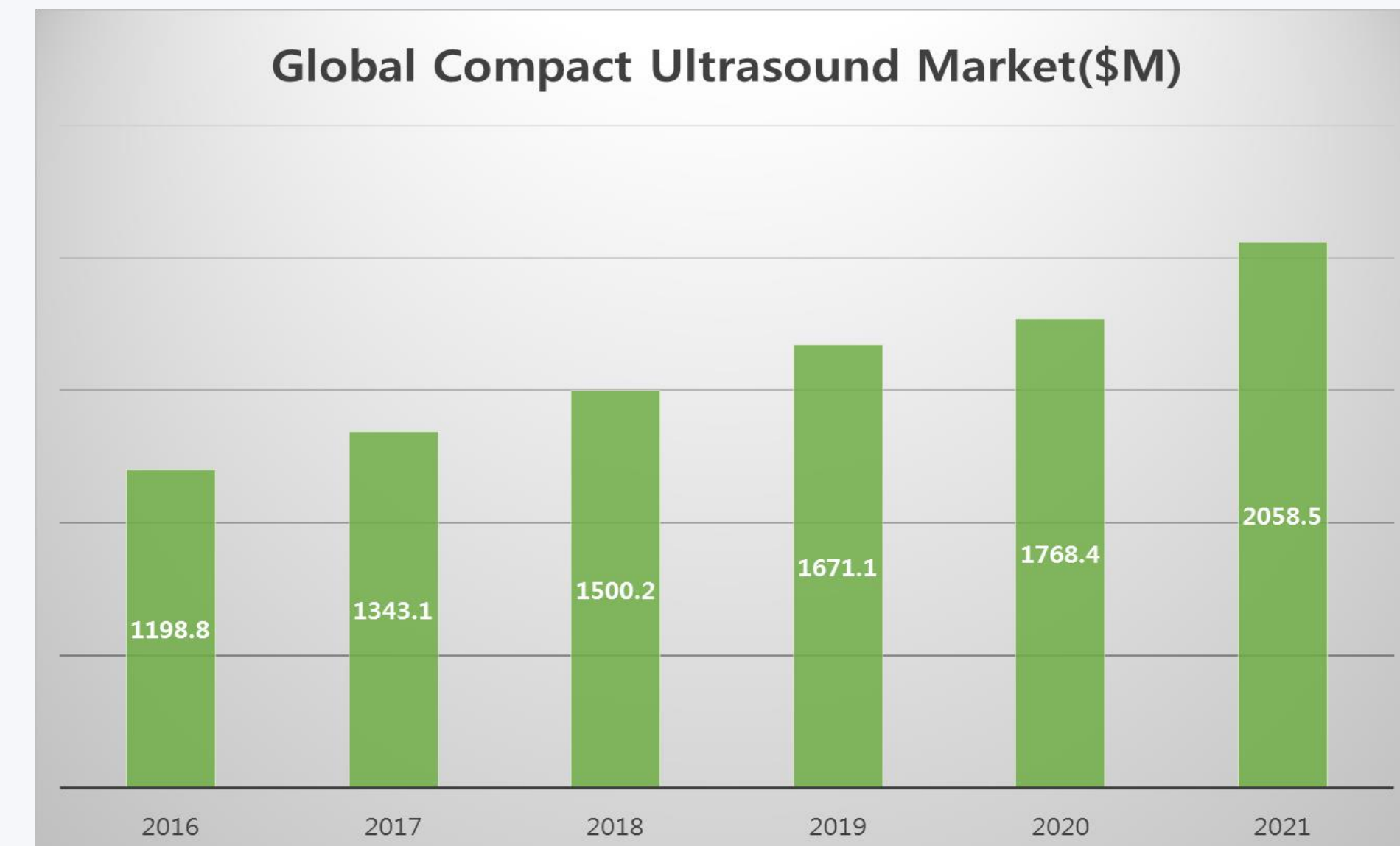
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Global Ultrasound Market



- It is worth about \$7 billion as of 2016 and will grow about \$9.3 billion in 2021
- North America market holds 30% of total world market
- Expected CAGR : 5.8%

Target Market(Compact Ultrasound)



- The portable ultrasound market is expected to reach \$1.1 billion in 2016
- Estimated to grow to 11.6%, which is twice the growth rate of general ultrasonic diagnostics
- Expected to reach \$ 2 billion by 2021

Market & Sales

Market for Compact US



Market & Sales
Market Segment

Customers

Private Sector

Public Sector



Hospitals

Governments

International Organization & NGOs

clinics, ICU, ER, rounding

military service, public health, developing countries

Users



Doctors

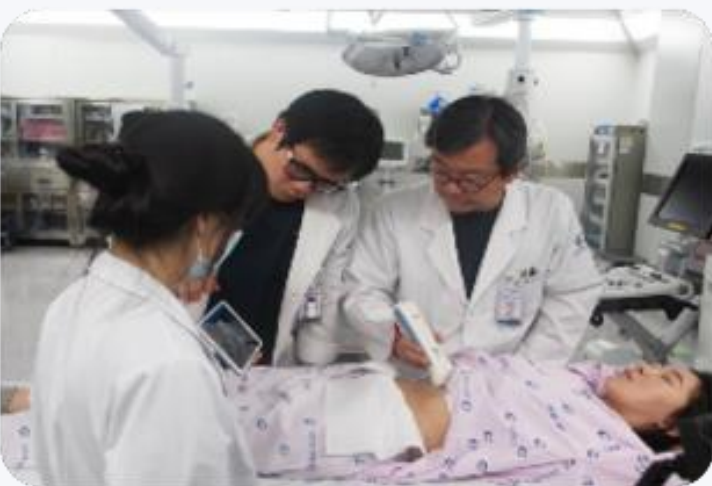
Sonographers

Nurses

Midwives

Paramedics

Applications



Market & Sales

Legacy Market Strategy

Master Distributor Construction Plans

- Domestic: To secure exclusive distributor by segmentations such as region, hospital, education, etc
- Colloquium : Group purchase promotion in Professional Ultrasound Device User group or colloquium
- Overseas : Master distributor construction with medical device sales experience and network by exclusive rights

Reference Site Utilization



Portable Ultrasound Exhibition

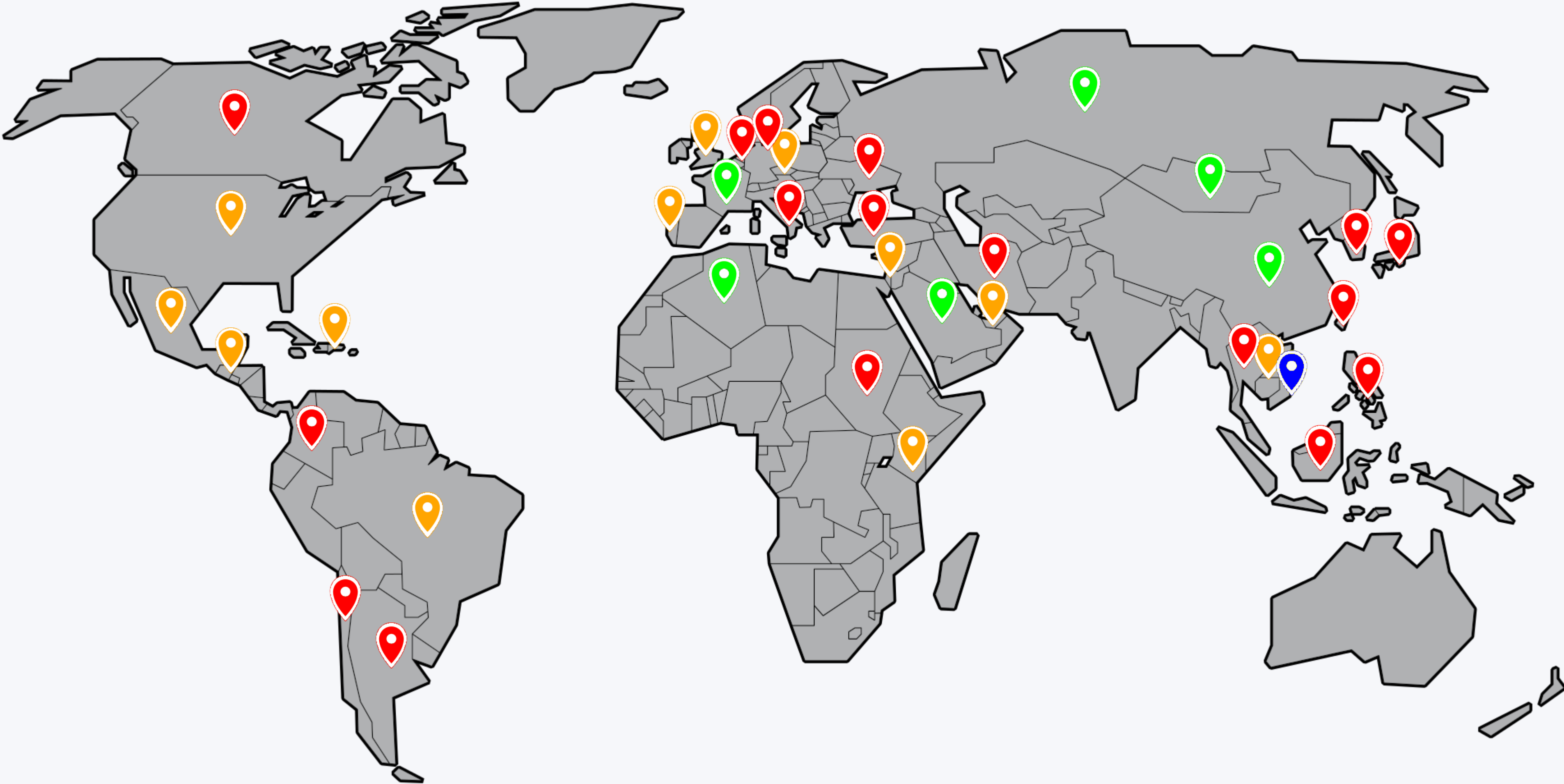


Participation of Healthcare Improvement Project for Developing Country



Market & Sales

Marketing Status



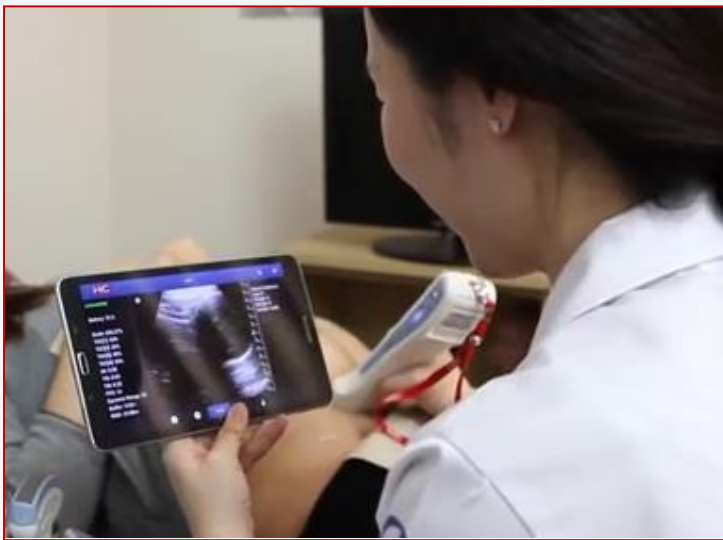
Market & Sales

POCUS(Point-of-care US) Trend

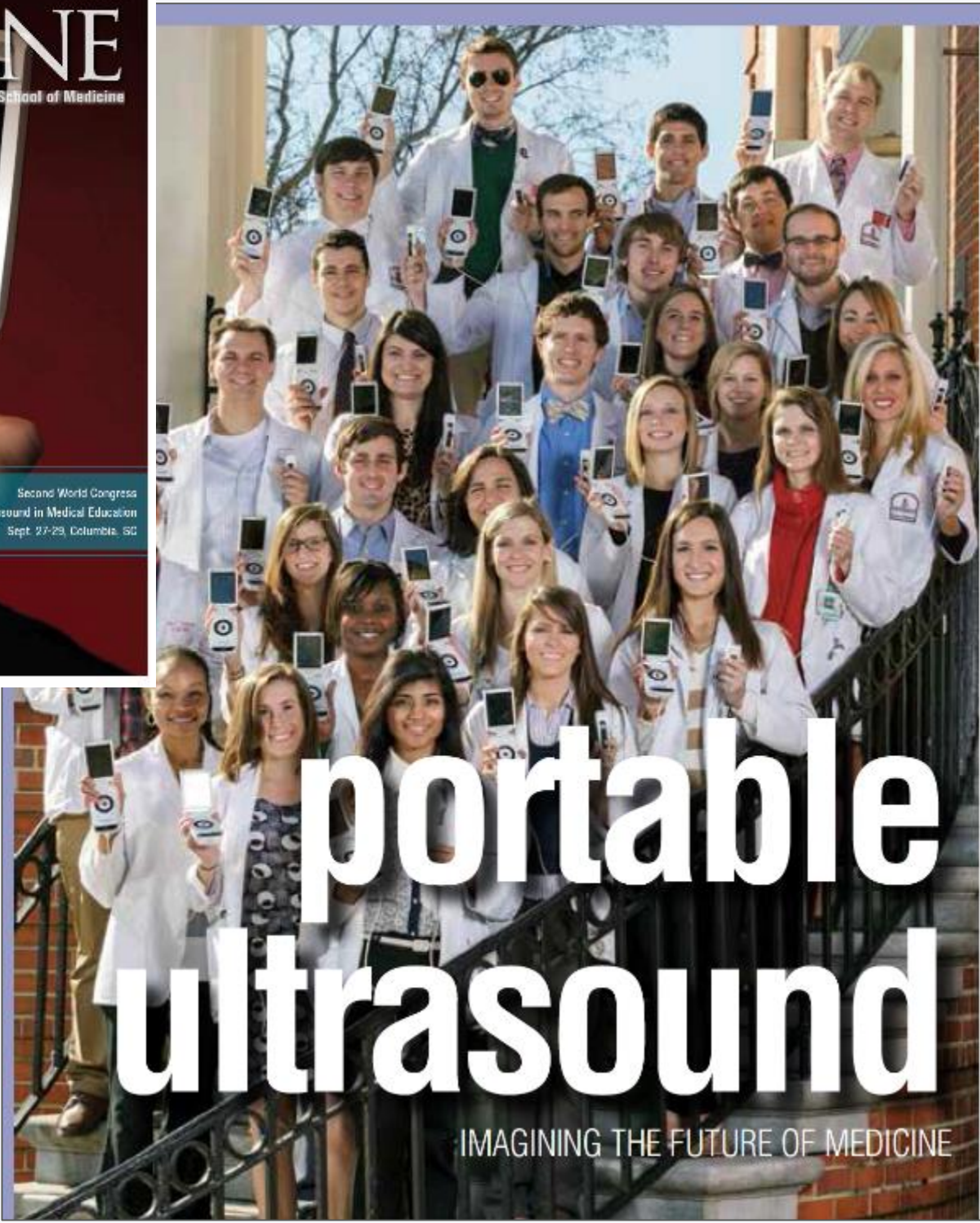
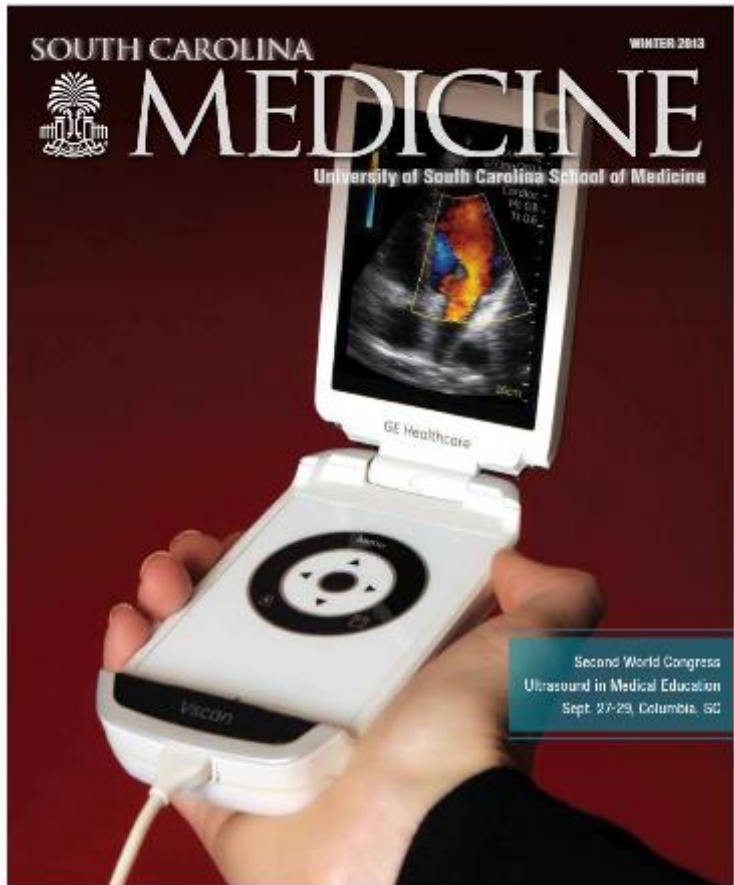


The Korean Society of Ultrasound in Obstetrics and Gynecology Autumn 2015-Winners Works

“To assess cervical dilatation and station of fetal head during labor using wireless mobile ultrasound device”



Harvard Medical School Students Using a Handheld Ultrasound Machine in a Teaching Exercise.



“Let’s take a look at my carotid artery.” Richard Hoppmann, M.D., presses a small transducer against a thin smear of translucent gel on the side of his own neck.

A remarkably clear image of the artery in question appears on the screen of the laptop-sized ultrasound unit. He makes a small adjustment. “This time we will turn on the color flow. See that? You can see it pulsating. When I give this demonstration no one expects to see such a clear image from a small portable machine like this,” Hoppmann adds as he wipes the gel from his neck and retightens his tie.

“They say, ‘Gosh, I could have used this machine this morning with one of my patients.’ Then when we look at the heart with the even smaller pocket-sized device, they can hardly believe their eyes.

Though the dean of the University of South Carolina School of Medicine does occasionally give himself an ultrasound examination, he is not presently conducting any tests on himself. He’s simply showing off some of the technology his students regularly use in their ultrasound curriculum — technology that has made ultrasound one of the biggest buzzwords in the medical profession today and the USC School of Medicine is an acknowledged leader in ultrasound education worldwide.

Medical ultrasonography is hardly a new technology. Cost-effective and radiation free,

Market & Sales

POC US Hands-on Course



Market & Sales

MOU & Contract

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MOU with Korean Surgical Society (2016.5.7)



- Agreement of promoting ultrasound education and medical related majors

Contract with MENA Region(2016.04.19)



- Entrance into MENA market
- Pharmed Eltiam Co. exclusive distributorship (About 2M USD for 3 years)

Market & Sales

Association Support

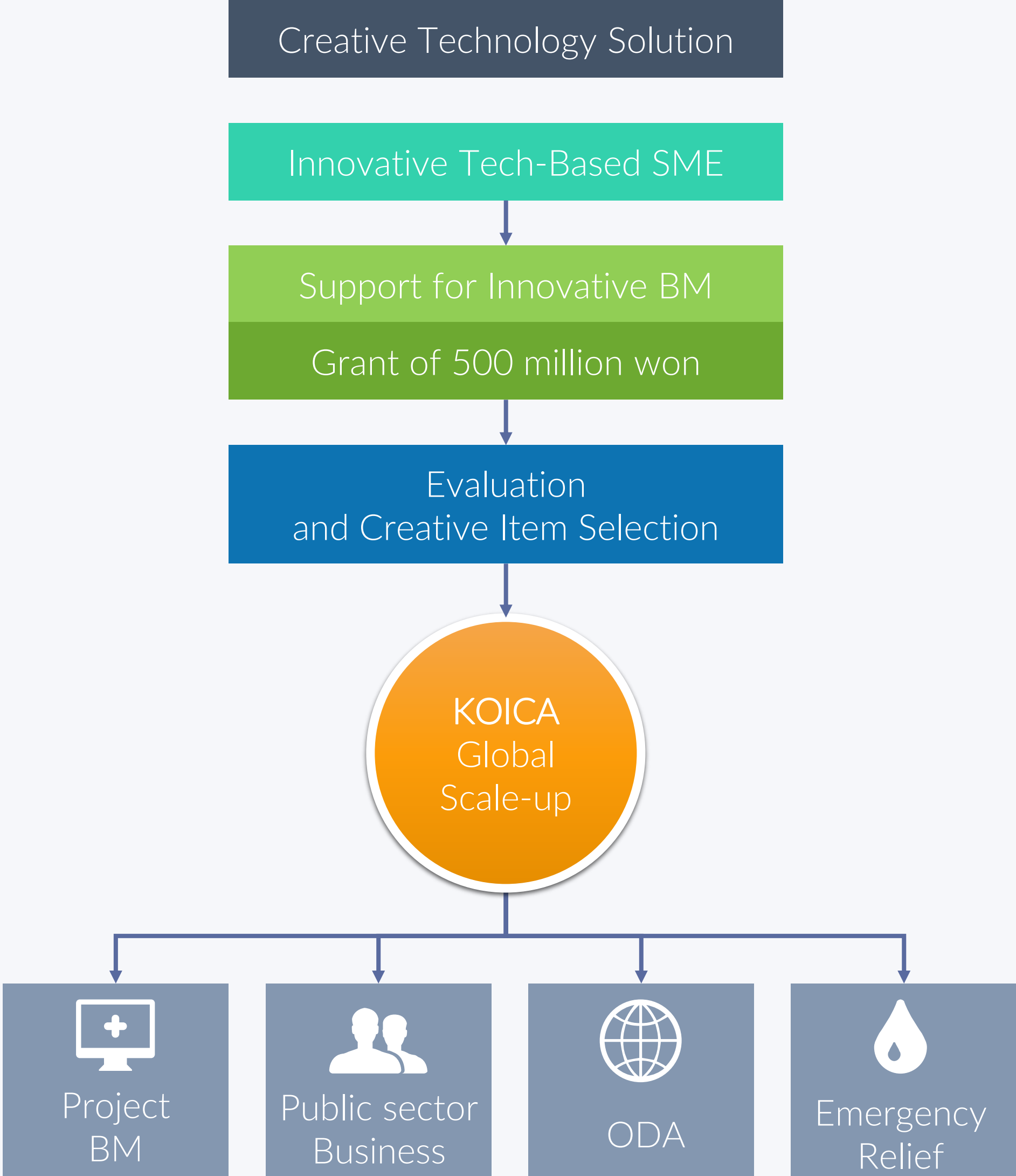
Cooperation with domestic associations

Support for “Center for Disaster Relief Training and Research” (2016.7)



Market & Sales

KOICA CTS Program for POCUS



Final winner of 2015 KOICA CTS (2015.11 ~ 2016.11)



Public Health Enhancement Business in Vietnam (20 units to 20 community health centers)



Public Health Enhancement in Military Service (10 units to 10 community health centers belong to 108 Military Hospital)



Expanding business model to other cities (Ho Chi Minh, Hanoi)



Plan to supply SONON Model to all community health centers in Vietnam(around 7,000)



- Actively promoting our products to overseas aid business (USAID, UN, Unicef, Gates Foundation)
- Preparation of SONON products for GANA health center improvement project

Market & Sales

CTS Progress in Vietnam

35

QuangTri PPC MOU Agreement(2016.4.15)



- Cooperation with KOICA CTS program and supply of ultrasound diagnostic system in Vietnam

Targeted local health education and product distribution



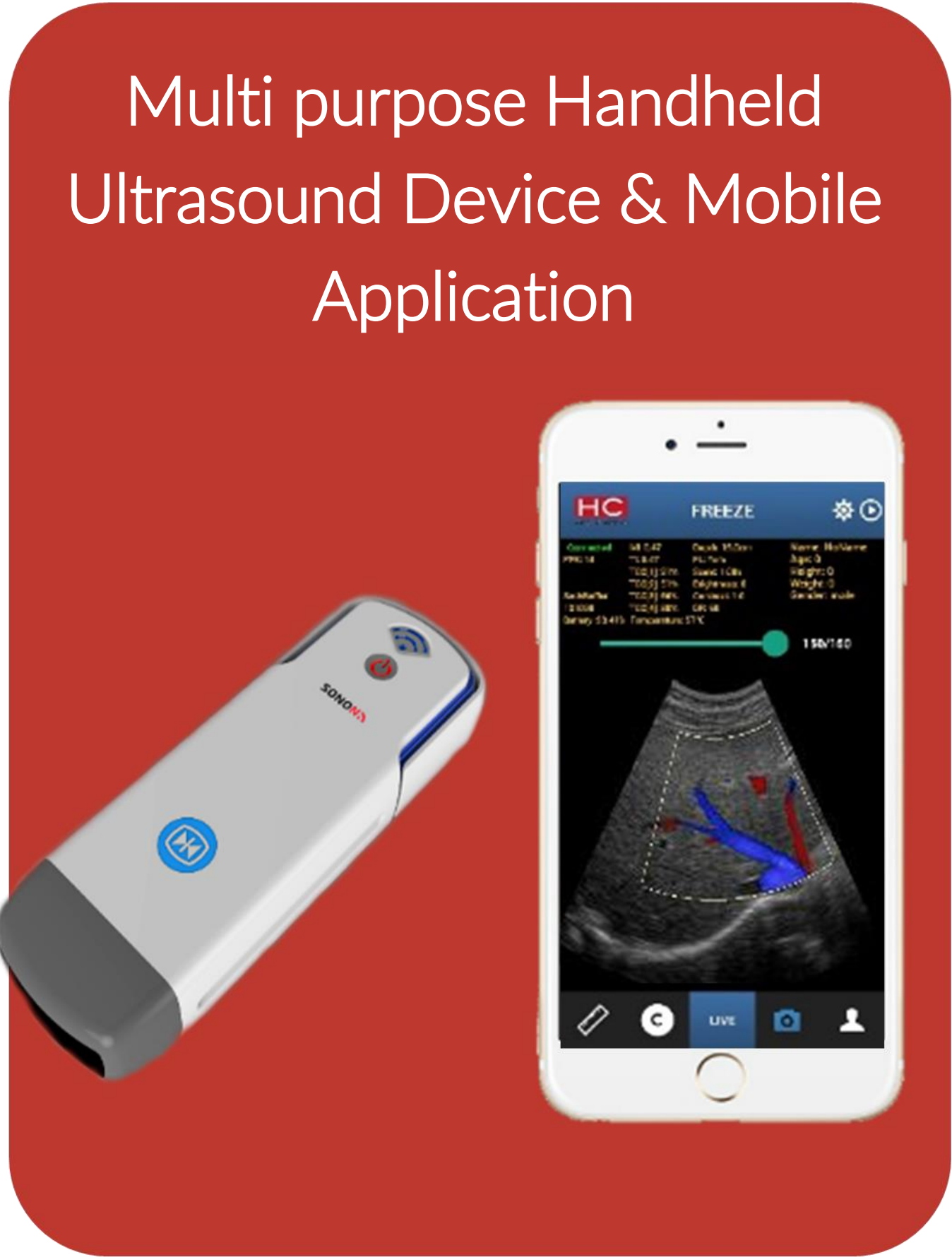


To The Future
Pioneering Mega Trend

To The Future

Hybrid ultrasound project

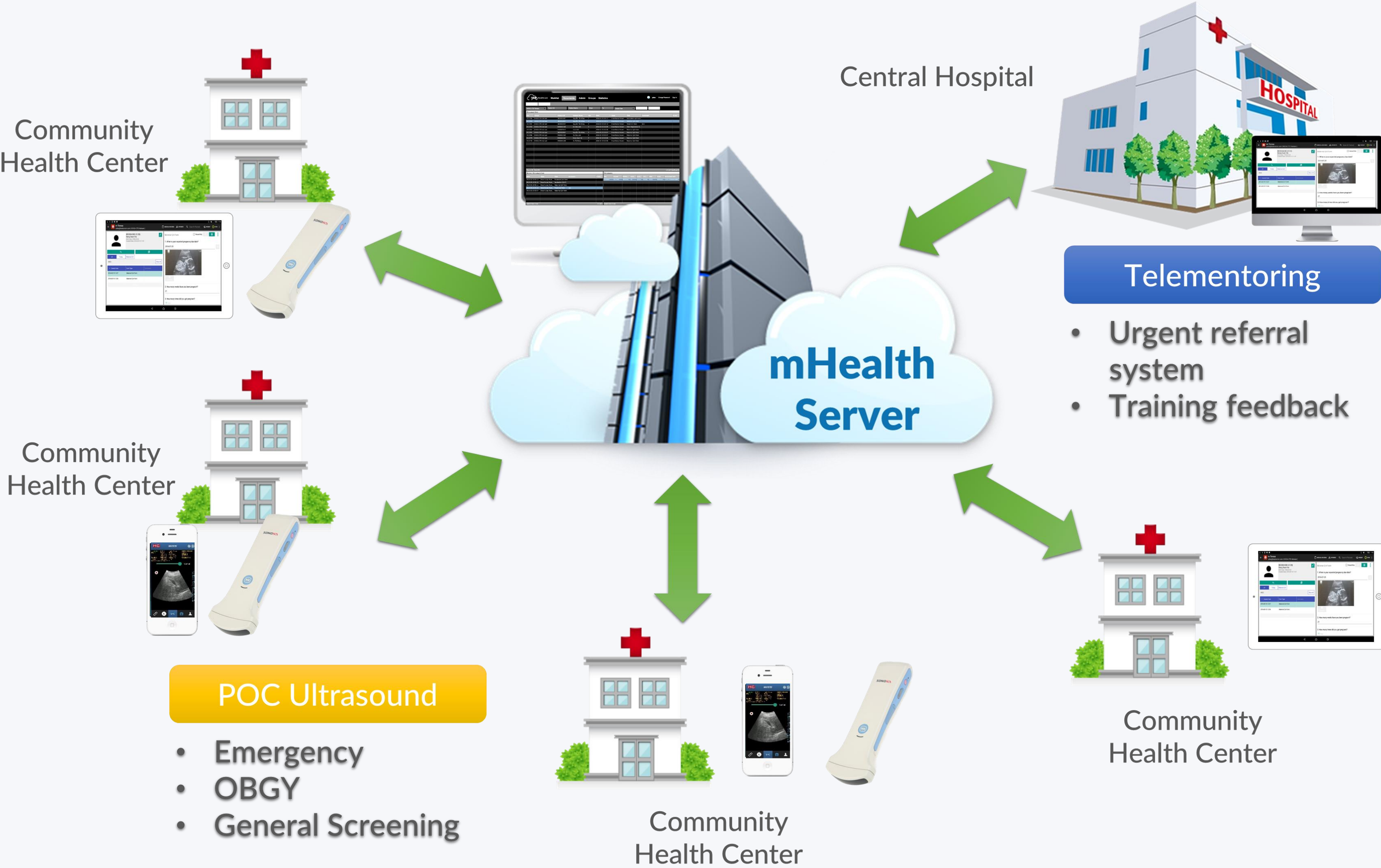
- Multi Scan Technology
 - Linear/Convex/Sector Scan Support
- Hybrid-Beamforming Technology
 - Multi-scan Support / ACIS chip development
- Low-voltage Hybrid Ultrasound Module
 - Perylene Coating Technology to improve circuit durability
- Low Noise/ Compact High-voltage circuit
- Low Noise AFE circuit



- Image Quality improvement
Technology for Mobile App
- Optimization Technology
for Mobile Device
- Doppler Mode Support for Mobile App
 - Spectral / Color Doppler
- Functional Diagnostic Mode support
/ Diagnosis Guide Technology
- PACS connection Support
for mobile App

To The Future

mHealth Platform with Sonon



Mission Statement

Mission

To provide healthcare professionals with innovative mobile technology that enhances the quality of medical care available around the world.



HUMANISM: HEALTHCARE FOR ALL

Strive to bring healthcare access to all with technology.



INNOVATION

Discover, challenge and implement creative ideas with passion.



TRUST & PARTNERSHIP

Operate in the spirit of partnership and trust in all relationships to achieve mutual respect and success.





Thank You