Value of Physician Ultrasound Education and Certification in China
超声医师教育认证在中国的价值研讨会

Sponsored by/主办单位:
US Trade and Development Agency / 美国贸易发展署 (USTDA)
Inteleos

Organized by/组织单位:
American National Standards Institute / 美国国家标准协会 (ANSI)

Inteleos

June 10, 2017, Beijing
2017 年 6 月 10 日，北京
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Value of Physician Ultrasound Education and Certification in China

Sponsored by USTDA and Organized by ANSI and Inteleos
June 10, 2017

Beijing Friendship Hotel
#5 Conference Room, 1/F, Jiabing Building
1 Zhongguancun South St. Beijing 100873, P.R. China

8:30 AM – 7:30 PM

Agenda

Registration 8:30AM – 9:00AM

Welcome and Introductions 9:00 AM – 9:10AM
Dr. Thomas Shipp, RDMS, Chair, Inteleos Board of Directors
Mr. Dale R. Cyr, MBA, CAE, CEO and Executive Director, Inteleos

Opening Remarks from USTDA and ANSI 9:10 AM – 9:20 AM
Mr. Steven Winkates, Director, Program Management of East Asia Region
U.S. Trade and Development Agency (USTDA)
Ms. Lily LU – ANSI China

Remarks from Chinese Ultrasound Expert Committee 9:20 AM – 9:30 AM
Dr. Jinrui Wang, Director, Ultrasound Expert Committee

Ultrasound development and trend in China 9:30 AM – 9:45 AM
Dr. Yuxin Jiang, President, Chinese Ultrasound Society

Introduction to Certification 9:45 AM – 10:30AM

Certification Process (20 minutes)
Dr. Thomas Shipp, RDMS, Chair, Inteleos Board of Directors
Mr. Dale R. Cyr, MBA, CAE, CEO and Executive Director, Inteleos
- Value of Certification
- Inteleos Involvement in China
- Eligibility
- Test Development
- Intellectual Property Rights
- Ongoing Proficiency
- Technology / Simulation Preview
- Advancements in Certification
Assessment Delivery (15 minutes)
Mr. Charles Zhao, Vice President of Greater China, Pearson VUE
- Importance of secured and networked proctored sites
- Biometrics
- Online processing and scheduling
- Full alignment with certification body
- Highest professional environment

Review and Summary of PVI-China (10 minutes)
Dr. Jie Tang

Morning Tea Break             10:35AM – 11:00 AM

Education Showcase            11:00 AM – 12:30 PM

Importance of Operator Proficiency in Ultrasound Use (5 minutes)
Dr. Thomas Shipp, RDMS, Chair, Inteleos Board of Directors
- Ultrasound is the most operator-dependent modality

Overview of ultrasound continuing education program in China (15 min)
Dr. Jinrui Wang, Director, Chinese Ultrasound Expert Committee

Education as Part of a Comprehensive Certification Program in USA (20 min)
Current and future of ultrasound practice in North America
Dr. Laurence Needleman, FAIUM, Thomas Jefferson University

Overview of Jefferson China-American Ultrasound Scholarship Program (15 minutes)
Dr. Ji-Bin Liu, FAIUM, Thomas Jefferson University
- Summary of education and training as an integral part of a certification program
- Collaborations between TJJ and China in ultrasound
- How many people have they trained (snapshot)
- How is this program improving care and quality of ultrasound in China

Sonographer education program at TJJ (15 minutes)
Dr. Traci Fox, RT(R), RDMS, RVT, Thomas Jefferson University

Sonographer program and clinical practice at Huaxi (20 min)
Dr. Yan Luo
- Overview of initial collaboration of ARDMS certification with Huaxi
- Review of developing sonographer program in Huaxiina
- Snapshot of progress to-date
- Physician-sonographer work style at Huaxi
- Future developments (training, teleteaching, and ARDMS certification)
Lunch  
Buffet Restaurant, 1F, Youyi Gong  
12:30 PM – 1:30 PM

Simulation Showcase  
1:30 PM – 2:15 PM
Speakers: Respond to question: How does your simulation provide ongoing education and proficiency, leading to improved patient care? How does simulation improve access to education and strengthen provider proficiency? How is simulation the link between providers, education and technology?

- Mr. Cedrin Law, Senior Product Marketing Manager, CAE Healthcare
- Mr. Stuart Gall, CEO, MedaPhor
- Simulation for Ongoing Education and Proficiency

Technology Showcase  
2:15 PM – 3:00 PM
Speakers: 15 minutes to respond to the following: When combined with certification, how does your equipment improve patient care?

- Mr. Pengcheng Wang, Deputy General Manager, FUJIFILM SonoSite
- Mr. Xuetao Zhang, Point of Care Segment Manager, GE
- New Technology for Patient Care
- Increased Access and Portability

Afternoon Tea Break  
3:00 PM – 3:30 PM

Discussion on How to Use Certification to Improve Patient Care and Provider Proficiency in China  
3:30 PM – 4:30 PM

Capacity Building and Continuing Education Center, National Health and Family Planning Commission of China (15 minutes)

- Mr. Aiping Yang
  - An introduction for ultrasound capacity building in China

American Chamber of Commerce in China Healthcare Working Group (15 minutes)

- Mr. Jun Zhou
  - How training and certification can improve sales of equipment in China
  - How improved provider proficiency can benefit patient safety and commerce

Questions and Discussion (facilitated by Inteleos)  
4:30 PM – 4:45 PM

Closing Remarks  
4:45 PM – 5:00 PM

Inteleos, ANSI, Chinese Ultrasound Expert Committee

Dinner Reception  
5:30 PM – 7:30 PM
Juxiu Garden, 1F, Youyi Gong
超声医师教育认证在中国的价值研讨会

由美国贸易发展署主办，美国国家标准协会和 Inteleos 共同组织
2017 年 6 月 10 日

北京友谊宾馆，嘉宾楼一层 5 号会议室
北京海淀区中关村南大街 1 号

08:30 - 19:30

日程

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<th>时间</th>
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<tr>
<td>8:30 - 9:00</td>
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| 9:00 - 9:10 | 致欢迎辞
Thomas Shipp 博士、超声诊断注册技师、Inteleos 主席和董事会成员
Dale R. Cyr，工商管理硕士、注册协会执行证书、Inteleos 首席执行官及执行董事 |
| 9:10 - 9:20 | 开幕致辞
温凯时先生，美国贸易发展署东亚区项目主任
陆一女士，美国国家标准协会中国代表处项目协调员 |
| 9:20 - 9:30 | 中国超声专家委员会致辞
王金锐教授，中国超声专家委员会主任 |
| 9:30 - 9:45 | 中国超声现状和发展趋势
姜玉新教授，中华医学会超声分会主任委员 |
| 9:45 - 10:30 | 认证介绍
认证流程（20 分钟）
Thomas Shipp 博士、超声诊断注册技师、Inteleos 主席和董事会成员
Dale R. Cyr，工商管理硕士、注册协会执行证书、Inteleos 首席执行官及执行董事
- 认证价值
- Inteleos 在中国
- 资格
- 测试开发
- 知识产权
- 持续的能力
- 技术/模拟预演
- 认证进步 |
评估交付（15 分钟）
赵博，美国 Pearson VUE 考试公司大中国区副总裁
- 安全和网络监考点的重要性
- 生物鉴定学
- 在线处理预约
- 与认证机构完全符合
- 最高的职业环境

回顾和总结中国医师血管超声认证考试（10 分钟）
唐杰教授，中国医师血管超声认证委员会主任

教育展示
10:35 - 11:00

教育展示
11:00 - 12:30

超声应用中操作者熟练度的重要性（5 分钟）
Thomas Shipp 博士、超声诊断注册技师、Inteleos 主席和董事会成员
超声最依赖于操作者的熟练度

概述中国超声继续教育项目（25 分钟）
王金锐教授，中国超声专家委员会主任

教育是美国综合认证项目的一部分（20 分钟）
北美超声实践的现状与未来
Laurence Needleman 博士、FAIUM，托马斯杰斐逊大学

杰斐逊中美超声学者培训项目概况（15 分钟）
刘吉斌教授、FAIUM，托马斯杰斐逊大学
- 概述教育和培训是认证计划的组成部分
- 托马斯杰斐逊大学与中国的超声合作
- 接受培训的人数（截图）
- 该项目是如何在中国提高超声的护理质量

杰斐逊大学超声技师教育项目（15 分钟）
Traci Fox 博士、血管超声注册技师，超声诊断注册技师，托马斯杰斐逊大学

华西医院的超声检查程序和临床实践（20 分钟）
罗燕教授，华西医院超声科主任
- 概述华西医院与美国注册诊断超声技师协会的初始合作
- 回顾超声技师项目在华西医院的发展
- 迄今为止项目的进展
- 华西医院超声医师-技师的临床工作体系
- 未来发展（培训、电视教学、美国注册诊断超声技师认证）
午餐                       12:30 - 13:30
友谊宫一层，自助餐厅

模拟展示                       13:30 - 14:15
演讲人：解答问题：模拟如何提供继续教育和熟练度，从而改善患者护理？模拟如何提高教育机会和加强医师的熟练水平？模拟如何将医师、教育和技术联系起来？
Cedrin Law，CAE医疗高级产品市场经理
Stuart Gall，Medaphor首席执行官
- 继续教育和熟练程度的模拟

技术展示                       14:15 - 15:00
演讲人：每人用时15分钟解答：与认证结合时，设备是如何改善患者护理？
王鹏程，富士胶片中国索诺声超声事业部副总经理
张雪涛，GE医疗临床超声市场部经理
- 患者护理的新技术
- 增加访问和便携性

茶歇                        15:00 - 15:30

浅谈如何利用认证提高中国患者护理提供者的熟练度                       15:30 - 16:30

中国国家卫生和计划生育委员会能力建设和继续教育中心（15分钟）
杨爱平主任
- 中国超声医学专科能力建设探索

美国商会医疗保健中国工作组（15分钟）
周军，美国商会医疗卫生合作项目执行总监
- 如何通过培训和认证提高设备在中国的销售
- 超声提供者熟练度的提高如何有利于患者的安全和商业？

提问与讨论（Inteleos主持）                        16:30 - 16:45

致闭幕辞                       16:45 - 17:00
Inteleos、ANSI、中国超声专家委员会

招待晚宴                       17:35 - 19:30
友谊宫一层，聚秀园
Hosts and Supporting Agencies Overview

主办单位介绍
The U.S. Trade and Development Agency (USTDA) helps to promote U.S. technologies and expertise for priority development projects in emerging economies. USTDA links U.S. businesses to export opportunities by funding project planning activities, pilot projects, and reverse trade missions while creating sustainable infrastructure and economic growth in partner countries.

USTDA promotes economic growth in emerging economies by facilitating the participation of U.S. businesses in the planning and execution of priority development projects in host countries. The Agency's objectives are to help build the infrastructure for trade, match U.S. technological expertise with host country development needs, and help create lasting business partnerships between the United States and emerging economies.

**USTDA’s Program Activities**

*Project Development*

Project identification and investment analysis generally involves technical assistance, feasibility studies and pilot projects that support large investments in infrastructure that contribute to host country development. Key sectors in China include the transportation, energy, and healthcare sectors.

*Trade Capacity Building and Sector Development*

Trade capacity building and sector development assistance supports the establishment of industry standards, rules and regulations, market liberalization and other policy reform. In China, USTDA has supported activities to support increased protection of intellectual property rights, fair and transparent government procurement practices, science-based agricultural biotechnology regulations, and standards across a wide range of industry sectors.

*International Business Partnership Program*

Under the Agency's International Business Partnership Program, USTDA has increased its support for programs designed to bring procurement officials to the United States to witness U.S. technology and ingenuity firsthand and develop the relationships with U.S. companies necessary to spur increased commercial cooperation with emerging economies. These investments include reverse trade missions, technology demonstrations, training and specialized sector-specific workshops and conferences.

*Cooperation Programs*

The Agency's success in China is due in part to the public-private cooperative programs that USTDA supports in country. These programs provide a forum wherein government agencies and private companies from both the U.S. and China can share technical, policy, and commercial knowledge relevant to a specific field. USTDA has successfully established programs based on this model in the aviation, standards and conformity assessment, energy, and healthcare sectors.

By adapting to the evolving needs of China's market and closely coordinating with Chinese decision makers, these public-private partnerships have enjoyed long-term success, providing continued trade opportunities and enhancing the development of China's key industries.
美国贸易发展署 (USTDA)

美国贸易发展署 (USTDA) 致力于在新兴经济体推动经济发展和美国的商业利益。美国贸易发展署通过对项目前期，试点项目以及反向代表团赴美考察等形式的资金资助，达到在合作伙伴国家推动可持续性基础设施和经济增长的同时帮助美国企业寻找出口机会。

美国贸易发展署鼓励美国公司积极参与新兴经济体项目所在国重点发展领域里的项目规划和实施过程中的机会。目的是帮助美国有技术优势的公司配合项目所在国的发展寻求契机，并建立长期持久合作关系。

美国贸易发展署的项目活动

项目开发

美国贸易发展署支持的项目确认和投资分析通常为了支持项目所在国大型基础设施项目投资决策前以所需要的技术援助，可行性研究分析和试点项目等。在中国的项目集中在交通，能源和医疗卫生领域。

能力建设和行业发展

能力建设和行业发展是为了帮助推动建立行业标准，法规等相关政策需求的活动。在中国，美国贸易发展署支持过的项目内容涉及知识产权，公平透明政府采购，以科学为基础的农业生物技术规范，以及涉及其他更宽泛领域涉及行业标准的内容。

国际商业伙伴关系项目

通过国际商业伙伴关系项目，美国贸易发展署加大资金投入力度，组织更多灵活多样的赴美考察团，技术交流/研讨会和培训等，选择特定的一些行业，帮助中方人员了解美国技术，掌握第一手资料，加深对美国企业的了解并能推动潜在的商务合作。

政府企业合作平台

美国贸易发展署在中国取得成功的部分原因是与其他相关机构共同支持了政府企业合作项目的平台。在这个平台上，美国和中国的政府机构和私营企业均可以共享在特定领域的技术，政策和商业知识。美国贸易发展署已经成功地在航空、标准合格评定、能源和医疗保健等行业推动了该模式。

通过适应中国市场变化的需求，和中国决策者的密切配合，这些公私伙伴关系企业积累了一些长期合作的成功经验，提供持续的贸易机会，并推动中国支柱产业的发展。
U.S.-China Standards and Conformance Cooperation Program

Sponsored by the U.S. Trade Development Agency (USTDA) and coordinated by the American National Standards Institute (ANSI), the U.S.-China Standards and Conformance Cooperation Program (SCCP) provides a forum through which U.S. and Chinese industry and government representatives can:

- Cooperate on issues relating to standards, conformity assessment, and technical regulations;
- Foster the relationships necessary to facilitate U.S.-China technical exchange on standards, conformity assessment, and technical regulations; and
- Exchange up-to-date information on the latest issues and developments relating to standards, conformity assessment, and technical regulations.

Beginning in 2013, ANSI will coordinate 20 workshops over a 3-year period in China under the SCCP. The workshops will cover a wide range of sectors, as proposed by interested U.S. private-sector organizations. Workshop topics will be chosen in coordination with relevant industry associations, ANSI, and USTDA.

To learn more about the U.S.-China SCCP or to express interest in sponsoring or participating in a workshop, please visit our website at:

www.standardsporal.org/us-chinasccp
美中标准与合格评定合作项目

由美国贸易发展署 (USTDA) 提供资助，美国国家标准协会 (ANSI) 负责协调的美中标准与合格评定合作项目 (SCCP)。在以下几个方面为美国和中国相关行业和政府代表提供了一个论坛：

- 在标准、合格评定以及技术法规等领域的合作；
- 为促进美中在标准、合格评定以及技术法规等领域的技术交流建立必要的联系；
- 及时交流关于标准、合格评定以及技术法规等领域的最新议题和发展情况的相关信息。

根据 SCCP 项目规定，从 2013 年开始的三年内，ANSI 将在中国协调举办 20 场研讨会。根据美国私营业界相关组织的建议，研讨会内容将覆盖不同的行业和领域。研讨会的主题将由相关行业组织、ANSI 以及 USTDA 协调选定。

欲了解该项目的更多情况或有意赞助或参与该项目，请访问下列网站：

www.standardsportal.org/us-chinasccp
American National Standards Institute (ANSI)

As the voice of the U.S. standards and conformity assessment system, the American National Standards Institute (ANSI) empowers its members and constituents to strengthen the U.S. marketplace position in the global economy while helping to assure the safety and health of consumers and the protection of the environment.

The Institute oversees the creation, promulgation and use of thousands of norms and guidelines that directly impact businesses in nearly every sector: from acoustical devices to construction equipment, from dairy and livestock production to energy distribution, and many more. ANSI is also actively engaged in accrediting programs that assess conformance to standards – including globally-recognized cross-sector programs such as the ISO 9000 (quality) and ISO 14000 (environmental) management systems.

ANSI has served in its capacity as administrator and coordinator of the United States private sector voluntary standardization system for more than 90 years. Founded in 1918 by five engineering societies and three government agencies, the Institute remains a private, nonprofit membership organization supported by a diverse constituency of private and public sector organizations.

Throughout its history, ANSI has maintained as its primary goal the enhancement of global competitiveness of U.S. business and the American quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems and promoting their integrity. The Institute represents the interests of its nearly 1,000 companies, organization, government agency, institutional and international members through its office in New York City, and its headquarters in Washington, D.C.
American National Standards Institute（ANSI——美国国家标准协会）是由公司、政府和其他成员组成的自愿组织，负责协商与标准有关的活动，审议美国国家标准，并努力提高美国在国际标准化组织中的地位。ANSI 是 IEC 和 ISO 的 5 个常任理事成员之一，也是 4 个理事局成员之一，参加 79% 的 ISO/TC 的活动，参加 89% 的 IEC/TC 活动。ANSI 是泛美技术标准委员会（COPANT）和太平洋地区标准会议（PASC）的成员。

美国国家标准学会（American National Standards Institute: ANSI）成立于 1918 年。当时，美国的许多企业和专业技术团体，已开始了标准化工作，但因彼此间没有协调，存在不少矛盾和问题。为了进一步提高效率，数百个科技学会、协会组织和团体，均认为有必要成立一个专门的标准化机构，并制订统一的通用标准。1918 年，美国材料试验协会（ASTM）、与美国机械工程师协会（ASME）、美国矿业与冶金工程师协会（ASME）、美国土木工程师协会（ASCE）、美国电气工程师协会（AIEE）等组织，共同成立了美国工程标准委员会（AESC）。美国政府的三个部（商务部、陆军部、海军部）也参与了该委员会的筹备工作。1928 年，美国工程标准委员会改组为美国标准学会（ASA）。为致力于国际标准化事业和消费品方面的标准化，1966 年 8 月，又改组为美利坚合众国标准学会（USASI）。1969 年 10 月 6 日改成现名：美国国家标准学会（ANSI）。

美国国家标准学会是非赢利性质的民间标准化组织，是美国国家标准活动的中心，许多美国标准化协会的标准制修订都同它进行联合，ANSI 批准标准成为美国国家标准，但它本身不制定标准，标准是由相应的标准化团体和技术团体及行业协会和自愿将标准送交 ANSI 批准的组织来制定，同时 ANSI 起到了联邦政府和民间的标准系统之间的协调作用，指导全国标准化活动，ANSI 遵循自愿性、公开性、透明性、协商一致性的原则，采用 3 种方式制定、审批 ANSI 标准。

ANSI 现有工业学、协会等团体会员约 200 个，公司（企业）会员约 1400 个。领导机构是由主席、副主席及 50 名高级业务代表组成的董事会，行使领导权。董事会闭会期间，由执行委员会行使职权，执行委员会下设标准评审委员会，由 15 人组成。总部设在纽约，卫星办公室设在华盛顿。
Inteleos is a non-profit certification organization that delivers rigorous assessments and cultivates a global community of professionals dedicated to the highest standards in healthcare and patient safety. Inteleos is the management and governance organization to the American Registry for Diagnostic Medical Sonography® (ARDMS®) and the Alliance for Physician Certification &Advancement™ (APCA™).

Governed by a volunteer Board of Directors, Inteleos sets the strategic directions, holds fiduciary responsibilities, provides psychometric consulting services, manages all intellectual property and oversees the development of future assessment programs for medical professionals such as nurse midwives, nurse anesthetists, nurse practitioners, physician assistants and many others.

Inteleos has over 112,000 certified health providers:
- 90,000 sonographers
- 22,000 physicians

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<tr>
<th>Inteleos currently offers the following assessments (italicized are physician-only):</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Sonography Principles and Instrumentation</td>
</tr>
<tr>
<td>□ Abdomen</td>
</tr>
<tr>
<td>□ Adult Echocardiography</td>
</tr>
<tr>
<td>□ Breast</td>
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<tr>
<td>□ Cardiac Computed Tomography</td>
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<tr>
<td>□ Fetal Echocardiography</td>
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<tr>
<td>□ Musculoskeletal Sonography</td>
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<tr>
<td>□ Musculoskeletal Sonographer Examination</td>
</tr>
<tr>
<td>□ Nuclear Cardiology</td>
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<tr>
<td>□ Obstetrics and Gynecology</td>
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<tr>
<td>□ Pediatric Sonography</td>
</tr>
<tr>
<td>□ Pediatric Echocardiography</td>
</tr>
<tr>
<td>□ Physicians’ Vascular Interpretation</td>
</tr>
<tr>
<td>□ Vascular Technology</td>
</tr>
</tbody>
</table>

**International Assessment Programs:**
- Abdomen – Latin America
- Obstetrics and Gynecology – Latin America
- Physicians Vascular Interpretation – China

**In-Progress Certification Programs:**
- Midwife Sonography Certificate
- Accredited Vascular Scientist (AVS)

**Future Assessments:**
- Advanced Care Provider Ultrasound Assessment

**International Experience**

Inteleos has extensive experience providing healthcare certification assessments globally. Inteleos has two Latin American assessments, developed and delivered in Spanish, the Vascular Scientist written assessment in Great Britain and Ireland; as well as the Registered Physician in Vascular Interpretation (RPVI) Exam in China. The RPVI-China assessment has been delivered in China since 2006 and was developed in close partnership with the Chinese Ultrasound Doctors Association (CUDA), as well as other physician subject matter experts in China. The RPVI-China certification exam assesses competency in the skills, knowledge and abilities of vascular ultrasound, for the sole purpose of further improving patient care and safety in China. Through a growing network of strategic partnerships, Inteleos hopes to create a global standard of proficiency for ultrasound certification.
Inteleos是一家非营利性的认证机构，提供严格的评估，致力于建立一个医疗和患者安全最高标准的专业人士的全球社区。Inteleos是一家整体性治理和管理美国注册诊断医疗超声医师协会（ARDMS）和医师认证和进步联盟（APCA）的机构。

由志愿董事会管理，Inteleos决定战略方向，承担委托责任，提供心理咨询服务，管理所有的知识产权和监督医疗专业人士如助产师、麻醉师、执业护士、医生助理和其他人员未来评估项目的发展。

Inteleos拥有超过112000名认证的医疗服务提供者：
• 90000名超声技师
• 22000名医生

**Inteleos 目前提供以下评估（斜体仅限医生）：**
- 超声原理与仪器
- 腹部超声
- 成人超声心动图
- 超声检查
- 心脏计算机断层扫描医师考试
- 胎儿超声心动图
- 肌肉骨骼超音波医师考试
- 肌肉骨骼超声检查
- 核心脏病学医师考试
- 妇产科
- 小儿超声
- 小儿超声心动图

- 血管超声医生
- 血管技术

**全球评估项目：**
- 腹部-拉丁美洲
- 妇产科-拉丁美洲
- 血管超声医生-中国

**正在进行的认证项目：**
- 助产师超声证书
- 认可血管科学家（AVS）

**未来评估：**
- 先进保健提供者超声评估

**国际经验**

Inteleos 在提供医疗保健全球认证评估方面有着丰富的经验。Inteleos在拉丁美洲有两个以西班牙语开发并交付的评估项目：在大不列颠和爱尔兰的血管科学家笔试；以及在中国的血管超声注册医生（RPVI）考试。RPVI评估自2006年在中国交付以来，一直与中国超声医师协会（CUDA）以及相关医师专家密切合作开发。RPVI认证考试评估血管超声的技能、知识和能力，以进一步提高中国的患者护理和安全为唯一目的。通过与越来越多的战略合作伙伴的沟通互动，Inteleos希望创造一个超声认证能力的全球标准。
THE MISSION OF SONOWORLD

SonoWorld’s mission is to improve patient care globally by removing barriers to education for healthcare professionals who wish to deliver quality ultrasound services. This mission is accomplished by providing free access to video lectures, cases, articles, textbook chapters, news and information about ultrasound – all authored and presented by globally-recognized experts. These resources are free to everyone, anywhere in the world via the Internet.

SONOWORLD CONTENT

☐ Video lectures by luminary speakers – new lectures released every week
☐ Biweekly clinical challenge case – so you can test your diagnostic skills
☐ Weekly e-newsletter featuring what’s new on SonoWorld
☐ Free and low-cost CMEs for both physicians and sonographers
☐ Top ultrasound-related news stories from around the world
☐ Access to white papers and journal articles
☐ A Virtual Exhibit Hall with ultrasound industry and product information

SONOWORLD MEMBERSHIP

To gain full access to the resources, join the SonoWorld community by registering for a free membership. It only takes a few minutes to become part of the world’s largest ultrasound community. Visit www.SONOWORLD.com to register.

Visit: www.SONOWORLD.com to register for a FREE membership today!
GATEWAY TO THE GLOBAL ULTRASOUND COMMUNITY

www.SONOWORLD.com

TESTIMONIALS

“This is an excellent free ultrasonography website... The images are of good quality and ultrasonographic signs as well as how to perform the scan are explained. Topics on the abdomen, pelvis, vascular system and even obstetrics are covered in great detail and clarity. Another good feature is that the normal anatomy is shown.”
- Mushtaq Shah, MD

“SonoWorld...is incredibly relevant for point-of-care clinicians... free super-fast registration and some really exceptional quality content.”
- Ultrasound Podcast (Matt Dawson, MD; Mike Mallin, MD; and Mike Stone, MD)

“SonoWorld is fortunate to feature lecturers of expert stature and in-depth experience who are also experts in disseminating their knowledge in these didactic sessions.”
- Christopher R. B. Merritt, MD

“[SonoWorld] is a wonderful site which provides free ultrasound training.”
- Tom Wade, MD

Visit: www.SONOWORLD.com to register for a FREE membership today!
全球超声社区门户网站

www.SONOWORLD.com

SONOWORLD 使命

Sonoworld 的使命是通过提供全球公认的专家所撰写或提出的免费超声视频讲座、案例、文章、教科书章节、新闻和信息消除希望提供高质量超声服务的医疗保健专业人士的教育障碍来改善全球的患者护理。这些资源任何人在世界上任何地方都可以通过互联网免费获取。

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- 双周的临床挑战案例 - 你可以测试你的诊断技能
- 每周电子通讯介绍新视点
- 为超声医生或技师提供免费和低廉的 CME
- 来自世界各地的超声相关新闻故事
- 获得白皮书和期刊文章
- 虚拟展览厅与超声行业和产品信息

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注册免费会员加入 Sonoworld 社区，便可充分利用资源。只需几分钟就可以成为世界上最大的超声社区的一份子。访问 www.sonoworld.com 登录。

Visit: www.SONOWORLD.com to register for a FREE membership today!
global ultrasound community website

www.SONOWORLD.com

推奨信

“这是一个很好的免费超声网站，图像质量好，超声检查以及如何执行扫描都有解释。关于腹部、骨盆、血管系统，甚至产科的主题都非常详细和清晰。另一个特点是显示正常的解剖结构。”
- Mushtaq Shah, MD

“SonoWorld…现场护理医疗息息相关…免费快速注册和真正卓越的质量内容。”
- Ultrasound Podcast (Matt Dawson, MD; Mike Mallin, MD; and Mike Stone, MD)

“SonoWorld, 一个非常好的网站，提供免费的超声培训。”
- Tom Wade, MD
中国医师血管超声认证考试（RPVI-China）

中国医师血管超声认证考试（RPVI-China）代表了目前中国血管超声诊断的最高标准。
更多信息，请访问www.APCA.org/RPVI-China

RPVI-China认证证书的优势：

• 持有业界公认的证书，享受更多的就业机会。
• 持有全球认可的证书，赢得雇主和同行的关注。
• 履行您为“优质医疗与患者安全”而不断努力的承诺。
• 加入拥有107,000名专业人士的全球社区，专注实现“优质医疗与患者安全”的最高标准。

86% 的RPVI-China认证持有者会向他们的同事推荐此考试。

由于RPVI-China认证能为持有者带来更多就业和晋升的机会，58% 的调查访问者持有该认证。

APCA™ is part of the non-profit Inteleos™ family of certification alliances.
申请资格及要求
参加RPVI-China考试，您需符合以下要求：
- 持有中国医师执照
- 持有医学学士学位
- 过去的36个月中，在中国执行完成了超过500例血管超声诊断。这些诊断必须面向真实的病人，并在医院、诊所或私人诊所等环境中完成。APCA不接受志愿者、模拟、教学、免费、交换或兽医等形式的诊断经验

考试形式、时长及价格
- RPVI-China的考试语言为中文，共包含110道选择题，每题有四个选项。
- 考生可通过点击选项左侧的按钮做答。
- 考试时长为2个小时。
- 考试费150美金，需要在报名阶段交纳，交费完成后方可预约考位。

考试大纲及学习资料
- RPVI-China认证考试大纲，英文，中文
- 更多有关学习资料的信息，请查询中国医师协会超声医师分会（CUDA）网站。

RPVI-China认证考试申请及考试时间
RPVI-China认证考试的报名时间为2017年4月13日-8月3日。考试时间为2017年8月1日-8月28日。更多信息请访问www.APCA.org/RPVI-China

考试费
考试申请于2017年4月13日开放注册，申请期间必须支付150美金的考试费。考生必须完成付款以便继续预约。
只能使用Visa，Mastercard，American Express或Discover信用卡支付考试费。成功付费后，您将会收到一封包含预约考位详细指导的电子邮件确认函。

PVI-China认证考试预约时间
所有预约必须在2017年8月15日之前完成，交纳考试费后，您会收到一封考试确认邮件，其中包含有关预约考试的详细指导。

医师认证和进步联盟（APCA）
- 医师认证和进步联盟（APCA）与中国医师协会超声医师分会（CUDA）合作开发了’中国医师血管超声认证考试（RPVI-China）’。
- APCA专注于医师的认证需求，并协助他们持续履行对‘优质护理与患者安全’的承诺。

其它问题
若您对RPVI-China认证有任何疑问，请联系以下信息或发送电子邮件至PVICHINA@APCA.org。

更多信息，请访问www.APCA.org/RPVI-China。

ARDMS认证项目（RDMS, RDCS, RVT, and RPVI）经由美国国家标准学（ANSI）鉴定确认，并通过了国际标准化组织（ISO）17024号标准认证。

Family of Certification Alliances

APCA
American Physicians Certification & Advancement
www.APCA.org

Inteleos

ARDMS
American Registry for Diagnostic Medical Sonography
www.ARDMS.org
“APCA was created for physicians, is led by physicians and represents the global physician community whose goal is to improve standards of care and patient safety through certification.”

Luciana Young, MD
Pediatric Cardiologist
Chair, APCA Council

“APCA certifications are respected, globally recognized and represent the highest standards of care.”

Marnix Van Holbeek, MD
Radiologist with Musculoskeletal Radiology interest
Vice Chair, APCA Council
Mission Statement

APCA recognizes physicians' enduring commitment to the highest quality patient care through rigorous assessments and continual learning.

Discover APCA Certifications

APCA meets the certification needs of physicians around the world in the rapidly expanding field of medical imaging. Launched in mid-2016, APCA represents 20,000 physicians dedicated to continual learning and providing high-quality and compassionate patient care through certification.

APCA is pleased to offer the following certifications to the physician community. For additional information, please visit APCA.org.

- CBCCT™ Certification Board of Cardiovascular Computed Tomography
- CBNC™ Certification Board of Nuclear Cardiology
- Latin American Ultrasound Certificate Program
- Point-of-Care Ultrasound (POCUS) Academy
- RPVI® Registered Physician in Vascular Interpretation®
- RPVI-China™ Registered Physician in Vascular Interpretation in China™
- RMSK® Registered in Musculoskeletal® Sonography

Benefits of Certification

Physicians who hold APCA certifications:

- Represent the highest standard in their field
- Demonstrate a commitment to patient care and safety
- Increase their career opportunities
- Gain visibility and credibility in the field
- Reassure patients and employers that they are committed to excellence in medical imaging
- Volunteer to develop certification examinations in a collaborative setting with colleagues from around the world

Volunteer

Volunteer with APCA to develop certification examinations in a collaborative setting with colleagues from around the world. For details and to apply, visit APCA.org/Volunteer.

Learn more at APCA.org!
Pearson VUE 公司

Pearson VUE 公司是一家全球最大的计算机化考试和测评公司。本公司与各种规模的机构联手，打造灵活多样、量身定制的测评系统，并在安全可靠的考试环境中提供考试服务。本公司在澳大利亚、美国、英国、迪拜、印度、中国和日本设有办事处，考试中心网络包括 5,500 多个考试中心，遍及 180 个国家。2016 年，本公司代表众多市场中的 450 家客户发送了 1,490 万场考试，涵盖政府、学术/招生、保健和医药、金融服务、信息技术、人力资源和交通运输等行业。

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  - **任何地点监控考试发送** - 支持在客户管理场地（例如会场和活动现场）及客户运营场所发送高风险考试。
  - **在线监控考试发送** - Pearson VUE 近期收购了 ProctorCam，一家领先的在线监考公司，以帮助客户采用基于网络摄像机的先进技术，在常规“现场监考”环境之外对考生的考试实施监督。
- **mindhub™**: 一家为客户定制的、致力于促进现有或全新认证及学习产品销售的网络商店平台。
- **学习平台**: 本公司的学习管理系统提供 eLearning 课程及测试考试，帮助考生为高风险考试做好准备。
- **Provusion™**: 一款亮眼的新服务，旨在利用现有培生网络，协助本公司客户开展认证产品营销和销售。

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CAE Healthcare

CAE Healthcare delivers educational tools that help healthcare professionals provide safe, high quality patient care. Our end-to-end spectrum of simulation solutions includes patient, interventional and imaging simulation, audiovisual solutions and learning applications.

With a broad array of products, CAE Healthcare is able to offer targeted training to hospitals, medical schools, emergency response teams, military branches and nursing, respiratory and allied health programs. Each CAE Healthcare product is developed in collaboration with clinicians and clinical educators whose aim is to ensure physiological accuracy and educational relevance.

CAE Healthcare’s Ultrasound portfolio consists of Vimedix, a high-fidelity ultrasound simulator; Blue Phantom, a line of realistic ultrasound task trainers; and ICCU, an E-Learning platform with numerous self-directed courses about ultrasound. Its strong partnerships with the medical community have led to the development of key initiatives including, but not limited to, the International Nursing Association for Clinical Simulation and Learning (INACSL) fellowship as well as the Anesthesia SimSTAT screen-based simulation platform with the American Society of Anesthesiology (ASA). With a commitment to quality of care and patient safety CAE Healthcare strives to be your partner of choice in healthcare education.

CAE Healthcare is one of the three core businesses of CAE (NYSE: CAE; TSX: CAE), a global leader in the delivery of training for the civil aviation, defence and security, and healthcare markets.

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E-mail :caehealthcare@cae.com
MedaPhor

Listed on the London Stock Exchange AIM market (AIM: MED), MedaPhor is a global developer of advanced ultrasound skills training simulators for medical professionals. Founded in 2004, the Company is headquartered in Cardiff, UK and Atlanta, USA, with customers in over 30 countries across the world.

Medaphor owns three of the world’s leading ultrasound training and examination simulators – ScanTrainer, ScanTrainer Examine and HeartWorks:

ScanTrainer is an ultrasound scanning skills training simulator and CPD education platform offering an immersive, 24/7 self-directed learning experience. Features include real feel haptic feedback, real full-anatomy scans, ScanTutor real-time expert guidance, structured curriculum learning, metric-based assessment and a range of cloud-based features including the unique ability for a doctor to upload their own patient cases onto the simulator. ScanTrainer enables faster and better skills and knowledge acquisition at any stage of a trainee’s ultrasound learning pathway.

ScanTrainer Examine is a cloud-based ultrasound diagnostic skills training simulator. It offers a library of over 500 pathologies and normal patient scans to help medical practitioners learn key diagnostic skills. ScanTrainer Examine also enables ultrasound educationalists to use the simulator as a virtual patient skills assessment tool for examination and certification.

HeartWorks is recognized globally as the leading simulation solution for education in echocardiography, cardiac anatomy and lung ultrasound. Developed by Consultant Cardiac Anesthetists at University College London Hospital, it is unrivalled for quality, accuracy, and realism in the teaching of transthoracic and transoesophageal echocardiography. From the development of the most anatomically correct and realistic 3D heart to a range of fully interactive mannequin based simulators, HeartWorks remains at the cutting edge of simulation technology with a growing portfolio of simulation products for clinical skills acquisition and assessment that help prepare clinicians to deliver quality care to the patients.
FUJIFILM SonoSite

From behind-the-scenes experimental work for the U.S. Department of Defense to today’s highly advanced ultrasound systems used around the globe, SonoSite has been defining and redefining next-generation point-of-care (POC) ultrasound as its recognized market leader. Since the company’s early pioneering days in the 1980s, SonoSite has continued to enjoy remarkable growth while earning worldwide recognition for its progressive product line, educational programs, and advocacy for a broader understanding of ultrasound’s multiple benefits.

SonoSite began originally when the D.O.D awarded a DARPA (Defense Advanced Research Projects Agency) grant to SonoSite’s parent company ATL Ultrasound, Inc., to create a portable ultrasound system that weighed less than 10 pounds and was durable enough to withstand the severe, unpredictable conditions of the battlefield. It took the leveraging of over a decade of expertise in digital ultrasound and customized ASIC (application-specific integrated circuit design) technology to meet the project goals, but the result was SonoSite’s first point-of-care (POC) ultrasound machine—the SonoSite 180™ system. The 180 represented both a major step forward in technology and a revolutionary approach to bringing ultrasound to the patient, wherever the patient’s point of care might be.

In April 1998, ATL spun off SonoSite as a separate, public company with a large-company IP portfolio. Between 1998 and 2012, SonoSite created five more ultrasound systems and numerous accessories while advancing its industry-leading technology. By 2012, 70,000 systems had been installed worldwide and the company was represented by 14 subsidiaries and a global distribution network in over 100 countries. SonoSite expanded into the preclinical research market when, in late June 2010, it acquired Canadian company VisualSonics and its ultra high-frequency micro-ultrasound technology. In March 2012, SonoSite became a wholly owned subsidiary of FujiFilm.

Currently, SonoSite has in excess of 145 patents and holds a number of prestigious design awards. It continues to be the world leader in point-of-care ultrasound.
从幕后为美国军方进行医学超声技术的前沿研究，到今天在全球各地拥有众多超声系统的装机，索诺声公司作为全球 Point-of-Care 超声的引领者，一直致力于对 Point-of-Care 超声解决方案的推广和定义。自 20 世纪 80 年代公司初创至今，索诺声公司快速成长，因其不断提升的产品线，临床教育培训项目和对 Point-of-Care 可视化超声理念的推广，获得了全球市场的普遍认可。

索诺声成立之初（母公司为 ATL 超声）获得美国国防部国防高级研究项目署（DARPA）资助，设计研发重量小于 5kg 的便携式超声系统。DARPA 要求这一系统可以坚固耐用，以适应战场上的各种严酷和未知的情况。正式基于这一要求，索诺声利用其积累十余年的数字超声技术和可定制化的专用集成电路芯片（ASIC）技术出色的完成了这个项目，研制出索诺声的第一代 Point-of-Care 超声系统 - 索诺声 180 系统。索诺声 180 系统不仅代表了技术上的一次伟大飞跃，同时革命性的推出 Point-of-Care 超声理念，将床旁超声带给全球各个角落的患者。

1998 年 4 月，索诺声从 ATL 分离，成为一家独立运营的上市公司。在 1998 年和 2012 年之间，技术提升和不断进步的推动下，索诺声公司又相继推出了 5 款超声产品和一些列配件。截至 2012 年，索诺声产品已在全球拥有超过 70,000 台装机，在 14 个国家和地区建立海外分公司，销售网络遍布全球 100 多个国家。2010 年 6 月下旬，索诺声公司并购了总部设在加拿大，致力于提供高频微超声成像解决方案的 VisualSonics 公司，使得索诺声的市场扩大到临床前研究领域。2012 年 3 月，索诺声成为富士胶片全资子公司。

自成立以来，索诺声的轻巧、坚固的产品一直引领者 Point-of-Care 超声市场。从大型医院的急诊科到偏远的村庄，索诺声的产品被超过 21 种医学学科门类所应用，索诺声向全球临床专业人士，提供了一种经济高效安全的解决方案。2012 年 7 月召开的第 50 届西雅图国际博览会，华盛顿州全球健康联盟推选索诺声 NanoMaxx 超声系统作为华盛顿州为全球医疗保健事业所作的创新贡献，从而表彰索诺声品牌对全球医疗事业的贡献和影响力。

截至目前，索诺声已拥有超过 145 项专利并获得了诸多著名的设计奖项，并将继续引领全球 Point-of-Care 超声可视化的发展。
GE Healthcare

GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter - great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

GE 医疗

GE 医疗集团提供革新性的医疗技术和服务，以满足需求，使全世界更多的人能够以更可负担的成本获得更好的医疗服务。GE（纽约证交所：GE）专注于世界至关重要的问题，以优秀人才和领先技术致力于应对行业重大挑战。GE 医疗集团在医学成像、软件和信息技术、患者监护和诊断、药物研发、生物制药技术、卓越运营解决方案等多个领域，助力专业医务人员为患者提供优质的医疗服务。
Speaker Biographies

演讲人介绍
Dr. Thomas D. Shipp, RDMS
Inteleos / Brigham & Women's Hospital

Tom is the Chair of the Board for Inteleos, the umbrella governance and management organization for the American Registry for Diagnostic Medical Sonography (ARDMS) and the Alliance for Physician Certification and Advancement (APCA). Tom began his tenure with ARDMS in the early 2000’s with the initial development of the fetal echocardiography examination. He subsequently was elected to serve on the Board of Directors, and also served as Treasurer and Vice-Chair prior to becoming Chair of the ARDMS Board and then the inaugural Chair of the Inteleos Board. Inteleos is a dedicated ANSI-ISO 17024 accredited organization with 115,000 active certificants across 70 countries and delivers computer-based examinations in 28 countries. Inteleos global expansion includes customized examinations in China and is presently developing a Latin American physician-based ultrasound certification program for a diverse physician practice population.

Dr. Shipp is a perinatologist who specializes in the use of ultrasound in Obstetrics and Gynecology. He completed his residency in Obstetrics and Gynecology at the University of Chicago, Chicago, IL and his fellowship in Maternal-Fetal Medicine at Brigham & Women's Hospital, Boston, MA. Dr. Shipp is currently the Vice President of Diagnostic Ultrasound Associates, PC, Brookline, MA, an academic private ultrasound practice specializing in high-risk obstetrics and gynecology and is also a perinatologist in the Obstetrical High Risk Ultrasound Unit at Brigham & Women’s Hospital, Boston, MA.

Dr. Thomas D. Shipp
超声诊断注册技师
Inteleos / 布列根和妇女医院

Tom 是 Inteleos 董事会主席，Inteleos 是一家整体性治理和管理美国注册诊断医疗超声医师协会（ARDMS）和医师认证和进步联盟（APCA）的机构。Tom 于 2000 年就任 ARDMS，因首次开发胎儿超声心动图检查而被选入董事会，任财务主管和副主席，随后被任命为 ARDMS 董事会主席及 Inteleos 董事会荣誉主席。Inteleos 是美国国家标准协会 ANSI-ISO 17024 认证及国际标准化组织（ISO）认可的组织，拥有活跃在 70 个国家的 115000 名持证者，并在 28 个国家提供在线考试项目。Inteleos 全球扩张包括在中国定制考试，目前正在开发一个建立在拉丁美洲医生基础上的针对不同的医生执业群的超声认证项目。

Shipp 博士是围产期医生，专攻妇产科超声的使用。他在芝加哥大学妇产科完成了住院实习，并在马萨诸塞州波士顿布列根和妇女医院母胎医学任研究员。Shipp 博士目前任布鲁克林诊断超声协会任副主席一职，专门从事高危妇产学术私人超声实践，也是马萨诸塞州波士顿布列根和妇女医院产科高危超声室的围产期医生。
Dale R. Cyr
Inteleos

Dale is the Chief Executive Officer and Executive Director for Inteleos, the umbrella governance and management organization for the American Registry for Diagnostic Medical Sonography (ARDMS) and the Alliance for Physician Certification and Advancement (APCA). Dale has been an executive within the certification community for 17 years. Inteleos is a dedicated ANSI-ISO 17024 accredited organization with 115,000 active certificants across 70 countries and delivers computer-based examinations in 28 countries. Inteleos global expansion includes customized examinations in China and is presently developing a Latin American physician-based ultrasound certification program for a diverse physician practice population.

Dale has given numerous lectures and workshops in areas of business and certification throughout the world and presently sits on the Board of Directors for the American National Standards Institute (ANSI) and is the Chair of the Association of Talent Development (ATD) Credentialing Institute. Dale is also a co-inventor of patent for a new type of test question and measurement.

Dale has an MBA in finance from the Albers School of Business and Economics, Seattle, WA and also holds the Certified Association Executive (CAE) credential from the American Society of Association Executives (ASAE).

Dale R. Cyr
Inteleos

Dale 是 Inteleos 的首席执行官和执行董事,Inteleos 是一家整体性治理和管理美国注册诊断医疗超声医师协会（ARDMS）和医师认证和进步联盟（APCA）的机构。Dale 在认证中心担任主管已有 17 年。Inteleos 是美国国家标准协会 ANSI-ISO 17024 认证及国际标准化组织（ISO）认可的组织，拥有活跃在 70 个国家的 115000 名持证者，并在 28 个国家提供在线考试项目。Inteleos 全球扩张包括在中国定制考试，目前正在开发一个建立在拉丁美洲医生基础上的针对不同的医生执业群的超声认证项目。

Dale 在全球就商业及认证领域作过多次讲座和研讨会的报告，现任职美国国家标准协会（ANSI）董事会，同时还是人才发展协会（ATD）认证机构的主席。Dale 也是一项新型测试问题和测量专利的共同开发者。

Dale 拥有华盛顿州西雅图阿尔伯斯商业与经济学院金融硕士学位, 还持有美国经营者协会（ASAE）的注册协会执行证书（CAE）。
Steven Winkates
Director of Program Management, East Asia Region
U.S. Trade and Development Agency (USTDA)

Steven Winkates is the Director of Program Management for the East Asia Region at USTDA, based at the U.S. Embassy in Beijing, China. He is responsible for managing USTDA’s activities in China and Mongolia, directing business development efforts, coordinating with relevant stakeholders in both the region and the United States, and marketing USTDA services to potential partners in both countries.

Prior to this position, Mr. Winkates worked in Beijing for a consulting firm which specializes in developing transportation infrastructure projects. He also previously served as a Country Manager at USTDA, covering China and Southeast Asia during his tenure, and as a Policy Analyst at the U.S. Department of Commerce.

Mr. Winkates holds a Master of Public Policy from Georgetown University and a Bachelor of Arts from Rhodes College.

温凯时
美国贸易发展署东亚区项目主任

温凯时的职务是美国贸易发展署东亚区项目主任，就任于美国驻华使馆。他负责美国贸易发展署在中国和蒙古的项目，指导业务拓展，协调项目所在国相关方与美方的关系，并推动美国贸易发展署与两国潜在合作伙伴的合作。

在就任之前，温凯时在北京一家从事交通基础设施项目的美国咨询公司工作。在此之前，他担任过美国贸易发展署负责中国，东南亚项目的项目经理。还有过在美国商务部从事政策分析的经历。温凯时拥有罗德大学文学学士和乔治城大学公共政策硕士学位。

Dr. Yuxin Jiang / 姜玉新
北京协和医院超声诊断科主任医师、教授、博士生导师，北京协和医院书记，副院长
中华医学会超声医学分会主任委员
北京协和—美国杰斐逊超声教育中心主任
中国医师协会超声医师分会副会长
亚洲超声医学与生物学联合会理事

医疗与临床研究工作主要方向：超声造影、乳腺癌早期诊断、甲状腺结节超声诊断、血管与妇产科超声。承担了国家“九五”、“863 科技攻关”、“十一五”国家科技支撑计划、国家自然科学基金、教育部博士点基金等多项课题。科研成果多次获得中华医学科技进步奖。发表论文及合作发表论文 100 余篇。主编多部超声诊断学专著及教材。曾获中华医学科技一等奖 1 项，二等奖 1 项、三等奖 2 项，教育部科技进步二等奖 1 项。
Dr. Jinrui Wang / 王金锐
北京大学第三医院超声科主任医师，教授，博士生导师
中美超声学者培训项目中方主任
内蒙古鄂尔多斯—美国杰斐逊超声教育中心主任
是中国超声医学领域的领军人物之一，尤其在介入超声和声学造影方面，在国内具有很大影响力。科研建树成果斐然，完成科研课题21项，9项成果获省部级科技进步奖，其中8项被广泛应用于临床。主编著作5部，其中《实用腹部超声诊断学》获第九届中国图书奖和北京市科技进步二等奖。主译著作3部，副主编著作5部，参编著作27部，SCI及核心期刊发表论文100余篇。中华医学会超声分会第六、七届常务委员，中国医学影像技术研究会超声分会常务副主任委员，中国生物医学工程学会超声分会副主任委员，中华医学会“中华医学超声杂志（电子版）”副总编辑，“中国医学影像技术”副主编，“中国医学影像学杂志”副主编，“医学参考报超声医学频道”常务副主编。

Charles Zhao
Vice President, Pearson VUE Greater China

Mr. Charles Zhao joined Pearson VUE with an in-depth insight in service industry and in integration of local market demands with international developing trends. Since 2005, Mr. Zhao led different teams in Pearson VUE China office including channel sale and business development, and has taken the role of country manager to oversee all Pearson VUE's business in the Greater China market since Jul 2012. During his 12 year tenure at Pearson VUE, Mr. Zhao has grown with the company’s APAC penetration with his rich and valuable experience in testing and assessment industry from strengthening channel presence, boosting testing volume to exploring new markets.

赵博
Pearson VUE 大中华区副总裁

赵博先生将其在服务行业的丰富经验以及在跨国环境的工作经历带入了Pearson VUE，自2005年加入Pearson VUE后，先后担任中国区渠道发展部经理，业务拓展部经理并于2012年7月开始全面负责Pearson VUE中国区业务；在长期与客户密切合作的过程中，积累了在各种复杂环境下扩充考试渠道、提高考试量及本地业务拓展的宝贵经验。
**Dr. Jie Tang**  
Director of PVI-China  
The honorary director, chief physician and doctor tutor, department of ultrasound, PLA general hospital  
Chairman, Association of ultrasound in medicine of PLA  
Chairman, Ultrasound branch, China International Exchange and Promotive Association for Medical and Health Care  
Former chairman, Chinese Ultrasound Doctor Association  
Chinese, Beijing Institute of Ultrasound Medicine  
Chief Editor, Chinese Journal of Medical Ultrasound (Electronic Edition)  
There were a total of 19 research funds, included 7 of which were National Natural Science Foundation of China.

**Laurence Needleman**  
MD is Associate Professor of Radiology and Director, Division of Ultrasound and Division of Body CT at Department of Radiology, and also the Medical Director, Non-Invasive Vascular Laboratory, Departments of Radiology and Surgery, Thomas Jefferson University Hospital, Philadelphia, USA. He is the President, Board of Directors, Intersocietal Accreditation Commission – Vascular Testing since 2011 and has been on the board for many years. He has chaired various committees for ACR-AIUM-SRU Practice Guidelines for vascular examinations.  
He is a fellow of American College of Radiology, American Institute of Ultrasound in Medicine, and Society of Radiologists in Ultrasound. His clinical and research interests are on vascular ultrasound and imaging-guided therapy. He published over 125 papers in peer reviewed journals and more than 180 conference proceedings and abstracts.
Laurence Needleman is an adventurer in medicine, having served as Professor of Radiology and Chair of Ultrasound and Vascular Laboratory at Jefferson Ultrasound and Radiology Education Institute, Department of Radiology, Thomas Jefferson University, Philadelphia, USA. He is a fellow member of the American Institute of Ultrasound in Medicine and a member of the Radiological Society of North America. His main research interests are in contrast-enhanced ultrasound imaging, intraoperative ultrasound, and ultrasound-guided therapy. He has published over 160 peer reviewed articles and over 300 meeting abstracts. His research accomplishments have earned him numerous scientific awards and research grants over the years. Currently, he serves as a grant reviewer of National Natural Science Foundation of China and manuscript reviewer for ultrasound journals.

Ji-Bin Liu
MD, is Professor of Radiology and Director of Special Training Projects at Jefferson Ultrasound and Radiology Education Institute, Department of Radiology, Thomas Jefferson University, Philadelphia, USA. He is a fellow member of the American Institute of Ultrasound in Medicine and a member of the Radiological Society of North America. His main research interests are in contrast-enhanced ultrasound imaging, intraoperative ultrasound, and ultrasound-guided therapy. He has published over 160 peer reviewed articles and over 300 meeting abstracts. His research accomplishments have earned him numerous scientific awards and research grants over the years. Currently, he serves as a grant reviewer of National Natural Science Foundation of China and manuscript reviewer for ultrasound journals.

刘吉斌
美国托马斯•杰斐逊大学放射科教授,现任杰斐逊超声和放射学教育研究所培训项目主任。他是美国超声医学会及北美放射学会资深会员。他的主要研究领域是超声造影成像、术中超声和超声引导下的治疗。曾在各种影像期刊发表160余篇论文及300余篇会议摘要。多年来，他的研究获得了多项基金的支持，他的研究成果为他赢得了许多科学奖项。目前担任中国国家自然科学基金及多个超声影像杂志的评审专家。

Traci B. Fox, EdD, RT(R), RDMS, RVT
Assistant Professor and Clinical Coordinator, DMS Program
Department of Radiologic Sciences, Jefferson College of Health Professions
Research Assistant Professor, Dept. of Radiology
Sidney Kimmel Medical College at Thomas Jefferson University

Traci B. Fox, EdD, RT(R), RDMS, RVT, is Assistant Professor in the Department of Radiologic Sciences at Thomas Jefferson University and a Research Assistant Professor in the Department of Radiology at the Sidney Kimmel Medical College at Thomas Jefferson University. Dr. Fox has been a sonographer for over 24 years and an educator since 2005. She holds ARDMS certifications in abdomen, obstetrics & gynecology, breast, and vascular. In 2014, Traci earned her Doctorate in Education from Drexel University. Dr. Fox has co-authored or contributed to five textbooks, and is author/co-author of 18 peer-reviewed publications. Traci has spoken at local, national, and international conferences, and in 2015 was an invited lecturer at the University Immersion Program at Sichuan University in Chengdu, China.
Traci B. Fox, 教育学博士, 放射科注册技师, 血管超声注册技师, 注册诊断超声技师
助理教授和临床协调员, DMS 项目
放射科学科, 杰斐逊健康专业学院
研究助理教授, 放射科
托马斯杰斐逊大学 Sidney Kimmel 医学院

Traci B. Fox, 教育学博士, 放射科注册技师, 血管超声注册技师, 注册诊断超声技师, 是托马斯杰斐逊大学放射科学科的助理教授, 也是托马斯杰斐逊大学 Sidney Kimmel 医学院的研究助理教授。Fox 博士从事超声医师工作已有 24 年, 并于 2005 年成为一名教育者。她拥有美国注册诊断医疗超声医师协会腹部、妇产科、胸腔、血管的证书。2014 年 Traci 获得德雷塞尔大学教育博士学位。Fox 博士参与合著 5 本著作, 也是 18 本同行评审刊物的著者/合著者。Traci 在当地的、全国的以及国际性的大会上发表演讲。2015 年她受邀成为中国成都四川大学大学沉浸计划的讲师。

Yan Luo / 罗燕

教授, 博士生导师, 四川省学术技术带头人。专业为超声影像医学与核医学。华西医科大学临床医学院医学系本科及硕士研究生。1999 年及 2004 年分别赴美国 Loma Linda 大学及 Tomas Jefferson 大学学习超声教育及超声。主要从事腹部和血管疾病的超声诊断，在肝脏疾病的超声诊治方面有一定造诣。作为负责人承担各级科研课题 10 余项, 包括国家自然科学基金面上项目 4 项。发表各类学术论文 200 余篇; 主编专著一部, 副主编专著 2 部, 参编专著 6 部。获得中华医学会科技进步奖二等奖 1 项。

现为四川大学华西医院超声科主任, 华西-Thomas Jefferson 超声教育分中心主任。担任四川省超声医学工程学会会长, 四川省医学会超声分会候任主委。四川省超声医师协会副会长、中国医师协会超声分会常务理事、中国超声医学工程学会常务理事等多项职务。担任中华超声影像学杂志 (电子版)、中国超声医学杂志、中国医学影像学技术、临床超声医学杂志等杂志编委。

Cedrin Law
CAE Healthcare

Cedrin Law is the Senior Product Marketing Manager for Ultrasound Training Solutions at CAE Healthcare. With an academic background in pharmacology and business, Cedrin has years of business experience in the healthcare industry. In his role with CAE Healthcare, Cedrin is responsible for management of the Ultrasound Simulation Product Roadmap. This includes working with medical societies and subject matter experts to ensure that new functionalities and content meet the current ultrasound training needs of healthcare professionals.

Cedrin Law 先生是 CAE 医疗超声培训方案高级产品经理。有着药物学和商学背景的 Cedrin 在医疗行业已有多年的工作经历。在 CAE 医疗 Cedrin 主要负责超声模拟产品路线管理。包括与医疗团体和相关专家紧密合作，以确保新功能和内容符合当前医疗专业人员对超声培训的需求。
Stuart Gall
MedaPhor

Stuart was appointed Chief Executive Officer of MedaPhor in 2009. He was previously a joint founder and executive director of Fusion IP plc, an AIM listed university IP commercialisation company that specialised in creating and investing in university technology start-ups. Fusion was the main shareholder in MedaPhor before its purchase by IP Group plc for £103 million in 2014. Stuart has over 25 years’ experience in both med-tech start-ups and technology led public companies. He previously worked at British Airways plc, The Promotions Partnership Limited and 21st Century Technology plc.

Pengcheng Wang
Deputy General Manager
SonoSite Ultrasound Business Unit, FUJIFILM China

As Deputy GM of SonoSite Ultrasound BU, Mr. Pengcheng WANG oversees the entire business of FUJIFILM ultrasound in China, and also he serves as the Sales Director of SonoSite and VisualSonics business, the role he took over in early 2014. Prior to his position in FUJIFILM SonoSite, Mr. WANG had served various sales management positions in the medical division of FUJIFILM China, including Deputy National Director of PACS, Regional Sales Manager (Northern China), Provincial Sales Manager and Sales Supervisor since 2006. Before he joined FUJIFILM, Mr. WANG worked as Sales Representative for Kodak China Medical (Carestream) from 2003 to 2006. Mr. WANG holds a master degree in Finance from China Renmin University and bachelor degree from University of International Business and Economics in Beijing.
Xuetao Zhang
GE Healthcare
Point of Care segment manager

10 years ultrasound commercial experience in China, including sales, marketing, product management. Working with physician luminaries to promote the ultrasound learning for 5 years.

张雪涛
GE 医疗，临床超声市场部经理
10年超声商业经验，包括销售、市场营销、产品管理。与知名医生一起促进超声学习5年。

Aiping Yang / 杨爱平
国家卫生计生委能力建设和继续教育中心主任

1988年毕业于大学新闻系，长期从事新闻传媒、报刊出版、教育培训等工作，后专业从事医疗健康领域人才队伍建设，专注于公立医院院长职业化建设和医疗卫生专业技术人员继续教育工作，具有良好的政策素养和业务功底。

Jun Zhou
Executive Director of the US-China Healthcare Cooperation Program
AmCham

Jun is the current Executive Director of the US-China Healthcare Cooperation Program (HCP) at AmCham China since September 1, 2011. The program is a bilateral public-private partnership initiative that focuses on healthcare capacity building and exploring future business opportunities for the US healthcare industry in China.

Before joining AmCham, Jun worked with Novartis AG and led its China Rural Initiative, developing national business model for non-urban China market, and leading the company’s healthcare education programs in rural China. He has successfully established a model for growth that combines all different types of products from Novartis Group, supported by the educational programs, and leveraging company’s strong local commercial capacity.

Jun has over 15 years experience in healthcare industry. He was a physician by training, and worked as a Urologist in Beijing Friendship Hospital. Prior to Novartis, Jun worked as senior consultant and engagement manager with IMS Health in APAC region for 5 years, developed and managed over fifty projects, focusing on Growth Strategy, Industry Positioning, M&A, and Market Access. Jun also worked with SAI Healthcare, a strategic consulting firm in the US, as the country manager for China; and with Zuellig Pharma China as Regional Commercial Head.
Jun has strong leadership experience and extensive exposure to different markets. During his career with consulting firms, Jun has led different multinational teams to provide consulting services in the US, China, ASEAN countries and Taiwan. He has helped to develop the strategic consulting business for IMS in China and Southeast Asia from scratch, and devised and implement new multi-business-line model for Novartis that covers innovative drugs, generic, OTC, and vaccine products.

Jun holds a Bachelor’s Degree in Clinical Medicine from the Capital University of Medical Sciences in China, and a MBA degree from Thunderbird School of Global Management in Phoenix, Arizona.

周军
中国美国商会医疗卫生合作项目执行总监

周军于2011年9月加入中国美国商会并担任美中医疗卫生合作项目执行总监。这一项目是作为美中在医疗卫生领域的公立医院合作的主要平台。

在加入美国商会之前，周军就职于诺华制药公司并领导诺华公司在中国的非城镇市场发展战略，带领多个团队在中国广大市场设计并实施可持续的发展模式，同时领导公司在相关地区开展的卫生教育项目，培训了近千名县乡级医生，成功建立了诺华公司的健康快车项目，并充分利用当地卫生和教育资源推动健康教育。

周军在医疗卫生行业有15年以上的工作经验。他毕业于首都医科大学临床专业，曾工作于北京友谊医院泌尿外科。之后主要从事医药产品销售和医疗药卫生咨询等工作。周军有丰富的医疗相关的咨询服务经验，在美国SAI公司和IMS Health亚太地区和中国工作8年，并任亚太地区战略咨询部门的项目主管，组织并实施超过50个项目，主要在企业发展战略，政府间合作，并购和市场策略等多个领域。

周军具有跨文化的，丰富的领导经验和能力。作为部门领导和项目主管，周军在中国，美国以及新加坡等国家工作多年，带领多国家的咨询团队执行项目，并协助IMS公司建立了中国和东南亚策略咨询业务。在诺华制药开发创新的市场模式过程中，带领多部门的团队提出了涵盖包括创新药、仿制药、OTC、疫苗等多种产品线的营销模式，并得到相关部门积极配合。毕业于首都医科大学临床专业，并就读于美国亚利桑那州雷鸟商学院，拥有其工商管理学硕士学位。
一、国际超声医学教育与认证

- 中美合作成立了多家超声教育中心，开展了系列超声医学教育与认证项目，1995年在北京成立了“北京协和-美国杰斐逊超声教育中心”。
- 协和一个中心二十多年来，举办彩色多普勒超声培训班五十多期。

二、组织系列教育与考试认证项目

- ICEAF 颁证仪式
  2004年3月杭州

三、产前超声筛查、诊断资格考试

- 目前，我国已经初步建立了产前筛查和产前诊断网络，全国有600多家医疗机构开展了产前筛查和产前诊断服务。
- 北京市产前超声筛查医疗机构有120余家，诊断中心8家。
- 北京市实行了产前超声诊断与筛查证书考试制度。这项工作已连续做了十年，每年培训人数约两百人，通过率约40%，考核合格颁发1032人。
近十年来，超声医学会组织学术活动最多的学组是妇产学组，每年组织开展产前超声规范化筛查及妇科新技术全国巡讲活动。2016年组织全国知名妇产超声专家在全国各地进行了9站巡讲，每场参加人数在260-340名，共计近3000人次。组织各省开展“走基层及手把手带教活动”，共计9次，培训基层人员共计4000余人次。

2010年ISUOG连续三届主席出席北京产科超声研讨会。ISUOG 2012妇产科超声研讨会在北京举办。ISUOG 第十届妇产科超声研讨会在北京举办。

国家“十一五”课题主要目标

- 制定标准化的产前超声筛查和专业化的产前影像学诊断规范
- 建立中国人群胎儿生物学参数正常值范围
- 建立胎儿严重畸形产前影像学诊断的技术平台

北京协和医院联合13家省级产前诊断中心

北京大学第一医院、北京大学第三医院、上海华山医院、复旦大学附属妇产科医院、上海交通大学附属仁济医院、南京大学医学院附属鼓楼医院、中山大学附属第一医院、四川大学华西医院、首都医科大学附属北京妇产医院、中国医科大学盛京医院、上海交通大学附属新华医院、哈尔滨医科大学附属第一医院、中山大学附属第一医院、四川大学华西第二医院
出版中国胎儿产前超声检查规范
发表了中国胎儿生长发育参数

国家“十二五”科技支撑计划课题
--基于基层医院的胎儿产早中期超声筛查方案的评价研究

- 评价不同地区、不同等级基层医院胎儿产早中期超声筛查现状和存在的问题
- 构建胎儿严重畸形产前影像学筛查与诊断的转诊网络与技术平台
- 不断提高我国基层医院筛查出胎儿异常的能力和水平
三 农村妇女乳腺癌超声筛查培训

- 国家重大公共卫生服务项目
  - “2009-2011年全国农村妇女乳腺癌检查”
    - 未经培训的医生超声检查阳性预测值低
    - 专家组成员亲自授课+上机操作+考核，36期培训，共计培训筛查医生3000余人，31个省市及西藏、新疆生产建设兵团
    - 完成146万农村妇女筛查早诊率69.7%

三 农村妇女乳腺癌超声筛查培训

- 配合国家“两癌”筛查，2016年在全国各地举办农村妇女乳腺癌超声筛查培训班共6期，培训来自全国各地1000余名学员，2017年5月在山西太原举办了今年第一期乳腺癌超声筛查培训班。

四 中、高级卫生专业技术资格考试

- 中华医学会超声医学分会承担了组织专家编写考试大纲、考试指导用书、命题与题库建设等工作。

谢谢！
Inteleos, through ARDMS and APCA, has been working with Chinese physicians to establish standards of proficiency in ultrasound since 2005.

- RPVI-China:
  - Delivered in Chinese
  - Formally launched in 2013
  - Developed in close collaboration with Chinese ultrasound doctors
  - In 2016, nearly 400 Chinese ultrasound doctors took the RPVI-China exam

- Partnership with China is essential to Inteleos – making a worldwide impact on improving patient care and safety through standards.
## Building a Global Community for Sonographers

**Examinations:**
- Sonography Principles and Instrumentation
- Abdominal Ultrasound
- Adult Echocardiography
- Breast Ultrasound
- Fetal Echocardiography
- Gastrointestinal Ultrasound
- Obstetrics and Gynecology
- Pediatric Sonography
- Vascular Technology

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## Who We Are

- Inteleos holds accreditation from the [International Organization for Standardization (ISO)](https://www.iso.org) in personnel credentialing for test development and delivery (ISO 17024 Standards)
- Founded in 1975 (as ARDMS), Inteleos has over 112,000 actively certified healthcare providers
- Inteleos, through ARDMS and APCA, delivers approximately 30,000 tests every year via Pearson VUE testing centers
- Inteleos delivers assessments in 28 countries and has certificants in 70 countries

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## Value of Standards

- APCA- and ARDMS-certified healthcare professionals demonstrate an ongoing commitment to high-quality patient care
- Globally-accredited assessments help establish a universal standard of proficiency in ultrasound
- Continual education is integral to certification
  - Documenting Proficiency Standards is More than an Examination!
    - Eligibility and Application
    - Assessment / Examination
    - Continued Competency / Learning Requirements

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## Eligibility

- Eligibility criteria to demonstrate ultrasound proficiency standards are established by local subject matter experts and local medical communities for each examination
- Eligibility is associated with education and training
  - Specific clinical case requirements in the content area
- Eligibility documented through the application process
- Each application is reviewed by trained staff
- If an applicant meets eligibility criteria, they are able to sit for the exam

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## Standards Development Through Examination

- Inteleos’ Councils assure that examination subject matter experts conduct all phases of ISO-approved test development for each examination
  - All test questions are authored by subject matter experts who practice in the content area
  - Each examination is directly linked to the Job/Practice Task Survey (documenting a provider’s knowledge, skills and abilities)
- Experts and Inteleos’ professional testing staff assure all examinations meet rigorous psychometric standards of fairness, validity and reliability

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## Ongoing Proficiency

- Inteleos believes it is necessary for all certificants to maintain life-long proficiency / competency in the areas for which they have demonstrated proficiencies
- Continuing competency requirements are customized to the essential needs of a particular community and are developed in close alliance with relevant professional communities
Requirements of Proficiency Standards

• Education and training from local professional communities
• Assessment (testing of proficiency standards)
• Continued proficiency in established standards

Technology & Simulation Contributions

Proficient individuals need appropriate equipment to perform ultrasound and to receive proper training.

Technology:
- Rapid advances in technology make ultrasound equipment more affordable, portable and applicable in many clinical situations
- Proper use of ultrasound technology can improve quality and efficiency of patient care

Technology & Simulation Contributions

Proficient individuals need appropriate equipment to perform ultrasound and to receive proper training.

Simulation can:
- Help train healthcare providers in remote or low-resource areas
- Provide state-of-the-art ultrasound hands-on experience, separate from formal medical training
- Educate providers on important or unusual clinical presentations

Developing Global Community of Standards Through Alliances

• China and Inteleos (American non-profit healthcare organization) have had a strong ultrasound alliance since 2005
• Alliances with local subject matter experts are critical to program success
• Examination programs must be supported by robust psychometrics to ensure reliability and validity of standards testing
• Continual evolution of the Job Task Analysis and Test Development contributes to a sustainable, quality program for proficiency standards

Goals and Next Steps

• Chinese ultrasound community and APCA develop a sustainable alliance to integrate education, training and proficiency standards for ultrasound careers
• Expand to more areas of ultrasound use to include sonographers
• Continue to build and expand China-APCA alliances with Chinese ultrasound doctor experts
• Have all Chinese ultrasound examinations accredited by ISO
• Continual evolution of the Job Task Analysis and Test Development contributes to a sustainable, quality program for proficiency standards

Questions and Next Steps
Inteleos Examinations and Programs

Existing Assessments (Examinations):
- Sonography: Principles and Instrumentation
- Abdominal Ultrasound
- Adult Echocardiography
- Breast Ultrasound
- Cardiac Computed Tomography Physician Examination
- Fetal Echocardiography
- Musculoskeletal Sonography Physician Examination
- Musculoskeletal Sonographer Examination
- Nuclear Cardiology Physician Examination
- Obstetrics and Gynecology
- Pediatric Sonography
- Pediatric Echocardiography
- Physicians’ Vascular Interpretation
- Vascular Technology

Globally Based Physician Assessment Programs:
- Abdomen – Latin America
- Obstetrics and Gynecology – Latin America
- Physician Vascular Interpretation – China
- Point-Of-Care Ultrasound (POCUS) Academy
- Multi-disciplinary certificate assessments
- Launched April 2017

In-Progress Certification Programs:
- Midwife Sonography Certificate – United States
- Accredited Vascular Scientist (AVS) – Great Britain

Future Councils:
- Advanced Care Provider Ultrasound Assessment
Inteleos 组织结构

Inteleos 是一个非营利性的认证机构，提供严格的评估，致力于建立一个医疗保健和病人安全最高标准的专业人士的全球社区。

- Inteleos 树立医疗成像能力的标准，如超声、心脏和心脏计算
- 与全球医疗成像行业领导者建立广泛的合作伙伴关系
- 与医疗成像行业的领导者建立广泛的合作伙伴关系
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RPVI-中国概览

自2005年以来，Inteleos 通过ardms 和 apca，一直与中国医师合作建立超声能力标准。

- RPVI-中国
  - 终于发布
  - 与中国超声医生密切合作开发
  - 2016年近400名中国超声医生参加了RPVI-中国考试

与中国的伙伴关系对 Inteleos 来说是必不可少的——通过标准提高病人护理、安全的全球影响。
建立全球超声专家社区

考试:
- 超声原理与仪器
- 腹部超声
- 成人超声心动图
- 乳腺超声检查
- 新生儿超声心动图
- 妇产科
- 小儿科
- 血管超声

我们是谁?
- Inteleos具有国际标准化组织（ISO）认可，从事人员资格认证的测试开发与交付（ISO 17024标准）
- 成立于1975年（与ARDMS同期），Inteleos拥有超过112,000家活跃的认证医疗机构
- Inteleos通过ARDMS和APCA，每年在Pearson VUE考试中心提供约30000次考试
- Inteleos在28个国家提供评估，持证者遍布70个国家。

资格
- 证明超声能力标准的资格标准是由当地的学科专家和当地的医疗社区为每个考试设立的
- 资格与教育和培训有关
  - 特定临床病例有内容上的要求
- 通过申请程序的资格证明文件
- 每个申请由训练有素的人员审查
- 如果申请人符合资格标准，他们就可以参加考试

通过考试发展标准
- Inteleos理事会保证考试领域专家每次考试均符合ISO批准的测试开发
  - 所有测试问题都由实践内容相关领域的专家撰写
  - 每次考试都直接与工作/实践任务相关联（记录提供者的知识、技能和能力）
- 专家和Inteleos专业测试人员确保所有考试符合严格心理测量标准的公平性、有效性和可靠性

标准的价值
- APCA和ARDMS认证的医疗服务提供者持续承诺高质量的病人护理
- 全球认可的评估有助于建立超声的通用标准
- 继续教育是认证的组成部分
- 记录能力标准“维持考试”
  - 资格及申请
  - 评估/考试
  - 持续能力/学习要求

能力持续性
- Inteleos认为所有被认证人员有必要在其所认证的领域保持终生的水平/能力
- 持续能力的要求根据特定社区的基本需要，并与相关专业团体紧密合作情况而定制
能力标准的要求

- 当地专业团体的教育和培训
- 评估（能力标准测试）
- 对既定标准的持续熟练

技术与模拟贡献

熟练的个人需要在合适的设备上进行超声操作和接受适当的培训

技术:
- 技术上的快速进步使超声设备更实惠、更便携和适用于更多临床情况
- 正确使用超声技术可提高患者护理质量和效率

模拟:
- 帮助在偏远或资源稀缺地区培训医疗保健提供者
- 与正规的医学培训分开，提供最先进的超声实践操作经验
- 提供重要或不寻常的临床教育案例

通过联盟发展全球标准共同体

- 中国和Inteleos（美国非营利医疗机构）自2005年以来就有强大的超声合作
- 与当地相关领域专家的合作是项目成功的关键
- 考试程序必须由强大的心理支持，以确保标准测试的可靠性和有效性
- 工作任务分析和测试开发的持续发展，有助于实现可持续的、高质量的能力标准

目标和下一步

- 中国超声社区与中国APCA共同建立可持续联盟，致力于超声整合教育、职业培训和能力标准
- 扩大超声使用领域，包括超声检查
- 与中国超声医生、专家共同持续建立和扩大中国APCA联盟
- 让ISO认可所有在中国的超声考试
- 工作任务分析和测试开发的持续发展，有助于实现可持续的、高质量的能力标准

提问及下一步

- 中国超声社区与APCA共同建立可持续联盟，致力于超声整合教育、职业培训和能力标准
- 扩大超声使用领域，包括超声检查
- 与中国超声医生、专家共同持续建立和扩大中国APCA联盟
- 让ISO认可所有在中国的超声考试
- 工作任务分析和测试开发的持续发展，有助于实现可持续的、高质量的能力标准
## Inteleos 考试项目

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<td>• 妇产科</td>
<td>未来成员:</td>
</tr>
<tr>
<td>• 小儿超声</td>
<td>• 先进保健提供者超声评估</td>
</tr>
</tbody>
</table>

全球医师评估方案:

- 腹部‐拉丁美洲
- 妇产科‐拉丁美国
- 血管解释医师–中国
- 超声护理 (POCUS) 学院
- 多学科证书评估

正在进行的认证计划:

- 助产士超声证书–美国
- 认可血管科学家 (AVS)–大不列颠

未来成员:

- 先进保健提供者超声评估
超声波教育及认证对中国医务工作者的价值

赵博生
Pearson VUE大中华区副总裁

关于Pearson

• 年销售额超过40亿美元
• 针对不同的群体市场提供最广泛、最多样化的教育服务
• 全球最大的教育/测评企业

培生VUE
• 年发送考试超过1400万门次
• 全球超过600家自营专业考试中心
• 全球超过5000家授权考试中心，覆盖超过130个国家
• 为超过4500家客户提供全球考试服务，覆盖学术、金融、医疗、国防、考试等众多领域
• 始终保持锐意进取，持续创新，保持市场领先地位

关于考试中心

Pearson VUE考试中心（中国大陆）
- PPC（Pearson Professional Test Center）4个
- PVTC（Pearson VUE Authorized Test Center）284个
- 覆盖30个省级行政区域，65个城市

授权中国血管超声医生认证考试（RPVI-China）的考试中心
- PPC 3个
- PVTC 15个
- 覆盖16个省级行政区域，17个城市，19个考场
- 145门考量并发发送能力，435门单日考试发送能力

Inteleos & 培生VUE – 解决方案

合作共羸！

Inteleos
- 开发考题
- 考生身份验证
- 考生预约考试
- 考试在Pearson考试中心举办
- 考试成绩公布给考生
- 考生收到电子证徽（可选服务）

Inteleos PVI-China 2016年考量分析

四川、北京、上海及浙江考量较大
考量高峰期在8月出现，最高考量达到67门
25天发送50门考试（Delivered, No-show）

Committed to your test, your team & your candidates’ future
Pearson 专业考试中心（PPC）

考试安全 - 试题安全管理

- 高度可靠的数据库集群
- 传输过程加密及数字签名技术
- 考试系统复杂的安全措施
- 全球安全网络中设置专门负责安全的产品经理

Pearson VUE 授权考试中心（PVTC）

考试安全 - 防替考技术

- Pearson VUE 安全解决方案实现了全球统一的身份管理功能，确保只有经过授权和身份验证的考生才能参加考试，并发现和防止替考行为。

- 自动化的签到流程 - 业内率先采用自动化的签到流程
- 严格的授权和身份验证要求 - 客户可定制特殊要求，如身份证件要求、注册限制（如禁考的考生）、重考政策和考试间隔周期等
- 电子签名和数码拍照 - 全球唯一在全部考试中心部署生物检测设备的考试公司

考试安全 - 防考试作弊技术

全球负责考试安全的专业团队，在中国有3人专门负责考试安全管理

Pearson VUE 安全考试框架 (Secure Testing FrameworkTM) - 该框架为试题开发、考试发布、考试预约、考试管理和成绩评分提供了多层次的保护

数字审核记录 - 每个考生的电子签名和数码照片被标记时间，并与考试结果和考生击键记录一起打包回传。这些数据提供了可核查信息，包括考生在考试过程中的数字签名数据。所有签名和数据记录作为不可逆的证据，记录在考生的考试记录中。

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我们的服务

On-Demand 考试方式 - 灵活性

- 在线注册预约考试
- 在指定时间随时注册
- 注册步骤简单

本土化服务

- 注册页面中文化
- 7 * 24 小时考生服务热线，以及中文考生服务热线
医学、护理、医药及健康领域合作伙伴（全球84家）

Thank you!
**Review and Summary of PVI-China**

Jie Tang, MD  
Director of PVI-China  
Former chair, Chinese Ultrasound Doctors Association  
Professor, Depart. of ultrasound, PLA General Hospital

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**Contents**

- Background
- What would we do
- What was our goal
- Results

---

**Background**

- Most of the ultrasound in China is independent of the radiologic department.
- The ultrasound doctors in China perform examinations besides offer diagnosis.
- Lack of different systems professional certification, such as vascular ultrasound, musculoskeletal ultrasound, cardiac ultrasound.

---

... sent the same patient to 10 vascular laboratories. The validating laboratory showed a 30% stenosis of left ICA origin. Significant variation was found at other laboratories, from no mention of the lesion to an 80% stenosis.


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**Background**

Dr. David Rogers  
visited our hospital in May, 2005.

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Conclusion

- Whatever tool used, the zealot will achieve good results
- If you could choose any tool for general arterial surveillance, doppler ultrasound would not be your first choice
- Doppler Ultrasound is very useful in many clinical situations with regard to the lower limbs
- With the advent of CTA/MRA doppler ultrasound may be used more frequently as a problem solving and surveillance tool

Contents

Background
What would we do
What was our goal
Results

During that trip, Professor Jibin-Liu and we discussed the need for standardized examination and qualification of vascular ultrasound in our country.
Professor Liu gave us an introduction to the ARDMS, he said that it is an authoritative examination organization, and has ultrasound vascular certification examination in the North American, This test is specifically for vascular ultrasound doctors.
By understanding, we are encouraged very much and decided to cooperate with ARDMS to establish a Chinese vascular ultrasound certification test.

In May 2007, Professor Jinrui Wang and I visited Thomas Jefferson University and Education Institute.

We also attended the Leading Edge in Diagnostic Ultrasound.

In November 2008, Professor Leer, former Chair of ARDM, Mr. Cyr Dale, CEO of ARDMS, Professor Zierler and Jibin Liu visited our hospital.

A symposium on China-US vascular ultrasound certification was held in Beijing in November 1, 2008, more than 500 delegates attended the meeting.

Professor Leer introduced to ARDMS ultrasound vascular certification exam.
Pilot of American Registry for Diagnostic Medical Sonography (ARDMS)® PVI® Examination in China

From October 31, 2008 to November 2, the first American vascular ultrasound doctors certification exam (Registered Physician in Vascular Interpretation, RPVI) held in Beijing.

**Contents**

*Background*

*What would we do*

*What was our goal*

*Results*

---

### What was our goal?

**First stage**
- Establish cooperative relationship with ARDMS
- A good English doctor takes a test directly

**Second stage**
- Set up RPVI-China
- According to the requirements of ARDMS established Chinese test question bank
- More Chinese vascular ultrasound doctors can take the exam

---

**What was our goal?**

**First stage**
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## Contents

### Background
What would we do
What was our goal

### Results

---

**PVI in China Results**

**Performance of China and US Examinees on PVI**

<table>
<thead>
<tr>
<th>Examinee Performance</th>
<th>Required to Pass</th>
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<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Examinees</td>
<td>Lowest</td>
</tr>
<tr>
<td><strong>China</strong></td>
<td>57</td>
</tr>
<tr>
<td><strong>US</strong></td>
<td>60</td>
</tr>
</tbody>
</table>

*Scaled scores range from 300 to 700. The scale is designed so that 555 is always required to pass.*

---

**PVI in China**

<table>
<thead>
<tr>
<th>Year/Fare</th>
<th>Failed</th>
<th>Passed</th>
<th>Total</th>
<th>Pass %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>21</td>
<td>39</td>
<td>60</td>
<td>65.00%</td>
</tr>
</tbody>
</table>

---

Thank you for your attention!
The importance of Operator Proficiency in Ultrasound

- Individual healthcare provider proficiency is critically important in ultrasound as compared to other imaging modalities.
  - Ultrasound is handheld – the provider must use good scanning technique to obtain clear and useful images.
  - Ultrasound images are operator-dependent. Failure to obtain all relevant images may lead to a false diagnosis.
- Ultrasound in medical education has not been standardized.
- Many healthcare providers begin using ultrasound after graduation from medical school, so additional education and training are needed.

Proficiency in Ultrasound

Education is a Critical Component of Proficiency

- Presentations from Thomas Jefferson University will highlight successful models of ultrasound education.
- After the education presentations, there will be two presentations by simulation companies that will explain how simulation complements education by:
  - Broadening clinical exposure
  - Reaching users in remote locations
  - Providing unusual (and important) cases as part of training
- Finally, equipment manufacturers will present on the value of high-quality ultrasound equipment in providing the best patient care in China.

Certification Continuum

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Introduction of Dr. Jinrui Wang
## Operationist Proficiency in Ultrasound

• Compared to other imaging modalities, operator proficiency is particularly important in ultrasound – ultrasound is handheld – providers must possess excellent scanning technique to obtain clear and useful images – ultrasound images depend entirely on the operator. Failure to obtain relevant images can lead to incorrect diagnosis.

• Ultrasound education is not standardized.
• Many medical practitioners start performing ultrasound after medical school, therefore they require additional education and training.

Education is critical for proficiency.

### Education, Certification, Continuous Education

- A Thomas Jefferson University presentation will focus on the successful model for ultrasound education.
- Following the educational presentation, two sessions from the simulation company will explain how simulation complements education:
  - Expanded clinical contact
  - Remote users
  - Providing rare (and important) cases as part of training.

- Finally, device manufacturers will demonstrate the value of high-quality ultrasound equipment for patient care.

### Dr. Wang Jinchun

Dr. Wang Jinchun will introduce the importance of education and proficiency in ultrasound.
Sonographer Workflow: Implications for China

Laurence Needleman, MD
Director of Ultrasound
Thomas Jefferson University

Diagnostic criteria

- Used by all members of the department
  - Sonographers and Physicians
- In writing
- Common nomenclature
- Easy to understand criteria
- Easy to understand exceptions

Workflow

Easy to understand criteria

Uniformity of language

Overview of workflow

- Patient history and symptoms - Sonographer
- Acquisition of images per protocol – Sonographer
- Evaluation of images – Sonographer preliminary
- Review of images – Physician
  - Additional imaging – Specialized sonographer or physician
- Preliminary – to be determined, likely Physician
- Report – Physician
Protocols are acquisition checklists

**Scanning Protocols**

- **In writing**
- **For each organ to assure completeness**
  - Some machines set up the order of the scan to assure a uniform acquisition order
    - Out of order images are invariable due to presence of abnormalities, appearance of difficult anatomy to "get it while one can"
    - Future direction: reordering images in uniform order via PACS

**Recording Protocols**

- **In writing**
- **For each organ to summarize findings**
  - Sampling issue – enough to insure physician comfortable issuing report
  - Optimize signal to noise
  - Image versus video versus combination
    - Rules for what to video including, e.g. abnormals, questionable areas, perhaps normal
- **Normal has a certain set of images**
- **Abnormal must have more images to document the location, size (extent), and type of abnormality**

**Protocols**

- **Acquisition is described in general way**
  - Variation is common, e.g. liver may be few to many images in any order
- **Modern workflow**
  - Machines have built in workflows and protocols
    - US machine automatically changes labels on scan, changes mode to/from gray to Doppler, etc.
    - Images are presented in consistent manner
      - Very effective for normal studies
      - e.g. Segment 1 transverse, segment 2 transverse, segment 2 sagittal, and so on
- **Future directions for US machines and/or PACS**
  - Images arranged so complicated studies are presented in a standard format

**Evaluation of Images**

- Sonographer creates worksheet
- A check on completeness and consistency

**Electronic worksheets**
Worksheet and summary

Review of images and preliminary

- Sonographer presents case to physician
  - All cases presented?
  - Can some sonographers discharge patient and doctor reviews image off line after patient leaves?
  - Telesonography - Is off site review reasonable?
- Sonographer questions should lead to a dialog between sonographer and physician
  - More scanning
    - By sonographer and/or physician
    - To be solved by physician

Is there an advantage to having sonographers?

- Sonographers can spend more time with patient than physician
  - High demand for physician time
  - Physician can do more with less time
- Sonographer needs skill set to be eyes and ears of physician
- Physician interaction with patient lessened
- Best practice is to have physician available to scan
  - Physicians scan all patients may not be realistic
  - Physicians scan some, but not all, patients based on indication for examination OR initial findings by sonographer OR discrepant history/preliminary findings

Report

- In USA scope of practice is to describe findings, not diagnoses
- Is sonographer capable of rendering part of a report to be finalized by physician?
- Does sonographer identification appear on images? On report? Neither?

Sonographer learning

- Sonographers should be constantly learning as their experience grows
- Sonographer-physician interaction
  - Teaches sonographers deeper understanding of sonography
  - Sonographer skill is more easily pulled up than pushed or entirely self directed
  - Sonographer can also learn from senior sonographers as the profession becomes more mature
  - Sonographers grow an understanding of medicine
    - e.g. most relevant components of the test, therapeutic implications of their findings

Feedback

- Sonography is hard – mistakes will happen and can be an important source of learning
- System should allow an open discussion of problems.
  - Sonographers should be free to discuss the shortcomings of their scans
- Case conferences, Quality improvement conferences
- Feedback MUST include acknowledgement of good work and shortcomings
Feedback

- Feedback MUST include acknowledgement of good work and shortcomings
  - “Ideal” proportion is two good reviews for each bad
    - All bad reviews leads to sense of hopelessness
    - Mixture implies improvement is possible

How to certify ultrasound staff?

- Sonographer certification: an estimated 90% of hospitals require at least one certification for employment
- Physician
  - No national standard although some specialty organizations do have well defined requirements
  - Physicians are given privileges at local hospital privilege committees
    - Some accept or require external certification
      - Accreditation from outside agencies: intersocietal accreditation commission, American College of Radiology, joint commission
      - Certification, e.g. RPVI for medical staff reading vascular studies

Workflow

- Scanning defined by protocol
- Reporting defined by protocol
- Report based on clinical information, sonographic and criteria
  - Diagnostic criteria
超声检查流程：
对中国的启示
Laurence Needleman, 医学博士
超声科主任
托马斯杰斐逊大学

诊断标准

- 供全科室使用
  - 超声技师和医师
- 以书面形式
- 通用术语
- 标准易于理解
- 例外易于理解

工作流程

工作流程概述

- 患者病史和症状 – 超声技师
- 根据指南获取图像 – 超声技师
- 图像评估 – 超声技师初步
- 图像审查 – 医师
  - 附加图像 – 专科超声技师或医师
- 初步 – 待定，可能是医师
- 报告 – 医师
指南是采集清单

扫描指南

- 以书面形式
- 保持每个脏器的完整性
  - 有些机器设置扫描顺序以保证统一的采集顺序
  - 由于出现异常，失序图像总是存在，对于困难解答的出现则“能获得就获得”
- 未来方向: 通过PACS统一顺序重新排序图像

记录指南

- 以书面形式
- 对每个脏器进行总结
  - 抽样问题 - 足以确保医师能够发布报告
  - 优化信噪比
  - 图像与视频组合
    - 视频记录的规则，如：异常，可疑区域，疑似正常
    - 正常有特定一组图像
    - 异常须有更多图像来记录位置，大小（范围）及异常的类型

指南

- 用常规方法描述获取
  - 变化是常见的，例如：肝脏可能在任何顺序中有几个或多个图像
- 现代工作流程
  - 机器已经内置工作流程和指南
  - 美国设备自动改变标签扫描，改变模式到/从灰色到多普勒等等
  - 图像呈现一致
    - 对于正常学习十分有效
    - 例证：横断1横向，横断2径向
- 美国设备及/PACS的未来方向
  - 图像排列十分复杂，研究呈现标准格式

图像评估

- 超声技师创建工作表
- 对完整性及一致性进行检查

电子工作表
工作表及摘要

有了超声技师就有了优势？

- 超声技师可以比医师花更多的时间在患者身上
  - 对医师时间的需求高
  - 医师可用更少的时间做更多的事情
- 超声技师所需的技术是可作为医师的耳目
  - 医师与患者的互动减少
  - 最好的做法是让医师可以扫描
    - 医师要扫描所有患者不现实
    - 医师基于检查指示扫描一些，但并非全部患者
- 超声技师向医师介绍病例
  - 介绍所有病例
  - 超声技师能否放患者出院，医师是否可以在患者出院后在线下审查图像?
- 远程超声诊断-线下审查合理吗?
- 超声技师的问题应引起超声技师和医师之间的对话
  - 更多扫描
  - 由超声技师或/或医师操作
  - 由医师解决

图像审查及准备工作

- 超声技师学习
  - 超声技师随着其经验的增长应不断地学习
  - 超声技师-医师相互影响
    - 教授超声技师加深对超声的理解
      - 超声技师技能相比施压或完全自我指导更容易提升
      - 超声技师亦可以向专业日渐成熟的高级超声技师求教
    - 超声技师增长了对药物的了解
      - 例如：大多常规测试组件，他们的发现带来的治疗影响

报告

- 美国的实践范围描述的是结果而不是诊断
- 最终由医师完成的报告中超声技师是否参与部分?
  - 超声技师鉴定是否会出现图像上? 报告中?
  - 还是两者都不会?

超声技师鉴定是否会出现在图像上? 报告中?
- 超声检查术很难 – 错误会发生并且可能是学习的一个重要来源
- 系统应允许公开探讨问题
  - 超声技师应可以自由讨论他们扫描的不足
- 案例会议，质量促进会议
- 反馈必须包括肯定工作中的成绩以及承认当中的不足

反馈

- 超声技师学习
  - 超声技师随着其经验的增长应不断地学习
  - 超声技师-医师相互影响
    - 教授超声技师加深对超声的理解
      - 超声技师技能相比施压或完全自我指导更容易提升
      - 超声技师亦可以向专业日渐成熟的高级超声技师求教
    - 超声技师增长了对药物的了解
      - 例如：大多常规测试组件，他们的发现带来的治疗影响
反馈

- 反馈必须包括肯定工作中的成绩以及承认当中的不足
  - “理想”比例是两个好评对一个差评
  - 全是差评将导致毫无希望的绝望感
  - 好差混合意味着仍有改进的空间

工作流程

如何认证超声工作人员？

- 超声技师认证: 估计90%的医院需要至少一个职业证书
- 医师
  - 虽然没有国家标准，但一些专业组织有明确的要求
  - 医师在地方医院特权委员会享有特权
    - 有些接受或要求外部认证
      - 外部机构认可：社会间认可委员会，美国放射学会，联合委员会
      - 认证，例如：美国血管超声医师认证(UPVW)
Overview of Jefferson China-American Ultrasound Scholarship Program

Ji-Bin Liu, MD, FAIM
Director, Special Training Programs
Professor of Radiology
Department of Radiology
Jefferson Ultrasound and Radiology Education Institute

Jefferson Ultrasound Institute
Affiliate Centers (n=73*)

Europe / Eurasia
Albania
Armenia
Austria
Bosnia & Herzegovina
Bulgaria
Croatia
Estonia
Hungary
Ireland
Italy (2)
Latvia
Lithuania
Macedonia
Poland (2)
Romania
Slovenia
Sweden
Switzerland
Turkey
Ukraine (2)

Asia
Afghanistan
Bangladesh
China (5)
Georgia
India (6)
Indonesia
Kazakhstan
Kyrgyzstan
Malaysia
Mongolia
Nepal
Pakistan (2)
Russia
Uzbekistan

South America
Argentina
Brazil (2)
Venezuela

Africa
Egypt
Nigeria (3)
South Africa (3)
Uganda
Kenya
Ghana
Sierra Leone
Middle East
Israel

Jefferson Ultrasound Education Research Institute

托马斯杰斐逊大学简介

- 托马斯杰斐逊大学(私立医学院，医院)
  建于1824年，位于费城市中心
- 2014全美医院排名第17位
- 永久960张，员工7223, 医生1200, 护士1800

杰斐逊超声研究所

（Jefferson Ultrasound Research and Education Institute）

- 由WHO批准建立的世界超声医学中心
- 由前任世界超声主席Goldberg教授创办并任所长，现任所长Nezarian教授
- 临床、科研、教学三位一体，共有职工92名，其中专职科研人员50余名
- 在全世界有70多个国家培训中心
- 国内有北京协和、北京三院、北京友谊、西安西京、四川华西、上海中山、
  内蒙古赤峰等合作教育中心
- 2013年成立中美超声交流学者项目

杰斐逊超声研究所

Jefferson超声教育研究所

- 每年培训各类超声医务人员
- 课程设置、教员水平和教学设施均为世界一流
- 该超声学院有教室、声像控制室、照相室、图书资料室、视听室等
- 每月定期给美国和世界各地的医生授课，全年大约40-50期
- 每年在大西洋城主办超声前沿研讨会（Leading Edge in Diagnostic Ultrasound）大约800-1500人参加，已经连续37年

杰斐逊超声研究所在中国的附属中心

- Beijing Peking Union Hospital in 1995
  Director: Dr. Yu-Xin Jiang
- Shanghai Zhong Shan Hospital in 1996
  Director: Dr. Zhi-Zhang XU
Jefferson Ultrasound and Radiology Education Institute (JUREI) has collaborated with Beijing Medical Ultrasound Association (BMUA) to establish China-American ultrasound scholar training program (CAUSTP)

Current Program Overview

- The purpose of the program is to establish an international exchanging and training platform for Chinese ultrasound doctors and scholars and to facilitate academic exchange activities between American and China in the field of medical ultrasound.

Program Management

- The program is managed by a bilateral program committee
- Directors: Dr. Ji-Bin Liu (USA) and Dr. Jinrui Wang (CN)
- Deputy Directors: Dr. Yuxin Jiang and Dr. Jie Tang
- Secretary-Generals: Dr. Linxue Qian and Dr. Junlai Li
- Secretary: Dr. Xiangdong Hu

Program Establishment

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Program Contents

- The program include:
  - A. short-term scholarship program (1-3 months)
  - B. mid-term scholarship program (6 months)
  - C. long-term scholarship program (12 months)
  - D. Advanced Ultrasound Symposium (14 days)

Program Activities

- The program allows the visiting scholars to attend JUREI regular education courses and specially designed lectures, to observe clinical practice and to participate in research activities.

- Over the past 3 years, 60 Chinese ultrasound visiting scholars participated in the program from 1 to 12 months.
Jefferson Ultrasound and Radiology Education Institute, Sidney Kimmel Medical College at Thomas Jefferson University presented Outstanding Contribution Awards to Dr. Jinrui Wang, Dr. Xing Yu and Mr. Aiping Yang.


• To work with Department of Radiologic Sciences and Jefferson School of Health Professions for establishing newly-initiated sonographer program at West China Medical School
  – To send Jefferson teacher to provide summer courses at West China Medical School (sponsored by Sichuan University)
  – To assist in development of curriculum for sonographer program
  – To host senior student from West China Medical Imaging Technology program
  – To work with ARDMS for certification and credentialing of West China sonographer
Visiting scholars from West China Hospital

Traci Fox, ARDMS, PhD attending the international exchange teacher program at West China Medical School

- To attend West China summer immersion program:
- To provide two courses (2 weeks with 32 hours):
  1. Principles and Instrumentation of Medical Ultrasound
  2. Hemodynamics and Doppler Ultrasound

专家委员会主任 姜玉新，常务主任 王金锐

建立系统、规范、权威的专科能力培训、测评、认证体系

组织专家队伍，建立培训基地，建设继教网络

统一培训大纲，规范教学内容，建立测评标准

五年内10万超声医生接受培训

专家委员会主任 姜玉新，常务主任 王金锐

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五年内10万超声医生接受培训
Sonography Program Structure

Thomas Jefferson University

Jefferson Faculty

Traci B. Fox, EdD, RT(R), RDMS, RVT
- Assistant Professor, Jefferson College of Health Professions
- Assistant Research Professor of Radiology, Sidney Kimmel Medical College of Thomas Jefferson University
- Clinical Coordinator of Diagnostic Medical Sonography Program

Thomas Jefferson University

- Department of Radiologic Sciences
- Jefferson College of Health Professions (JCHP)
- Established in early 1980s as hospital-based program
- Became University-based in late 1980s
- Concentrations (tracks) - Each one year long:
  - General sonography
  - Vascular sonography
  - Cardiac sonography

Jefferson Sonography Program

- One year program
  - Students already have BS degree or higher
  - Students pick one concentration
  - Need to have 50 pre-requisite credits before starting
- Two year program
  - Students pick two concentrations
  - Students need 50 pre-requisite credits before starting

Program Goals and Student Learning Outcomes

- Goal # 1: Clinical Performance and Clinical Competence
- Goal # 2: Problem Solving Skills and Critical Thinking
- Goal # 3: Communication Skills
- Goal # 4: Professional Development and Growth:

Basic Courses For Sonography Programs
Basic Courses

- Pre-requisites (Bachelor of Science degree)
  - Math
  - English
  - Physics
  - Chemistry
  - Anatomy & Physiology
  - Medical terminology

Sonography Courses

- Courses are designed to help students learn principles and instrumentation of ultrasound
  - Physics
  - Lab
  - Principles
  - Patient Care
  - 880 hours of clinical time at more than 40 possible clinical sites

- National Board exams (ARDMS)
  - Physics exam + specialty exam (abdomen, vascular, etc.)

National Accreditation

- Commission on Accreditation of Allied Health Education Programs (CAAHEP)
  - Reviews and accredits sonography programs

- Joint Review Committee on Education in Diagnostic Medical Sonography Programs (JRC-DMS)
  - Sets the curriculum and standards for accredited ultrasound programs

- Jefferson’s program is CAAHEP accredited and TJU is accredited nationally by Middlestates

Physics

- Physics is very important part of ultrasound
- Image quality depends on knowledge of physical principles of sound waves and how to obtain best pictures
- Doppler physics is important in order to optimize for different types of flow

Lab Instruction

The student ultrasound lab, Jefferson College of Health Professions at Thomas Jefferson University.
The Ultrasound Lab at Thomas Jefferson University

- Five Toshiba Aplios
- One Parks Flo-lab
- One Philips HD-11
- One Siemens X-300
- One MedaPhor abdomen/ob/gyn ScanTrainer
- One MedaPhor transvaginal ScanTrainer

Anatomy

- Knowledge of detailed anatomy crucial to the sonographer
- It is not possible to know what is “abnormal” looks like if normal anatomy is not known
- Must known cross-sectional and relational anatomy and what it looks like on ultrasound

Patient Care

- Students learn basic patient care including vital signs, body mechanics, and sterile technique
- Students also learn about generational differences (i.e., how to treat children, vs. elderly), ethics, and legal issues in medicine

Clinical

- We have over 40 clinical sites
- 3 states
Clinical

- Students spend at least 848 hours in clinical
  - Fall 3 days per week after “boot camp”
  - Spring 3 days per week
  - Summer 4 days per week
- Students usually rotate to 2 or 3 hospitals as part of training
- Challenge: not all hospitals scan obstetrics

Simulation

- We have two MedaPhor ScanTrainers for abdomen, obstetrics, gynecology, and transvaginal scanning
- We have four anthropomorphic phantoms for fetal, breast, male pelvis, and transvaginal

Distance Teaching

- Students off-campus can learn remotely with camera and audio setup in classroom
- If taught synchronously, students can interact via chat, voice, and on-the-spot quizzes to ensure learning
- If taught asynchronously, students can interact with faculty and students via discussion board posts and other assignments
- This is in development
超声医技一体及分级诊疗初探
罗燕
四川大学华西医院超声科
2017.4

中国超声科&超声人：独特

- 中国超声科技立三级学科
- 独立住院医规培
- 复旦专科排名
- 中国超声人
- 医师资格证书&医师执业证书（彩超上岗证）
- 从业者：14万注册医师，
  有医师无技师，不同于国外，也与国内其他医技科室不同

超声的需求体量巨多

<table>
<thead>
<tr>
<th>项目</th>
<th>从业人数</th>
<th>需求（人次，2015）</th>
<th>对象</th>
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<tbody>
<tr>
<td>传统超声</td>
<td>20万</td>
<td>3-4亿</td>
<td>医护</td>
</tr>
<tr>
<td>体检</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>腹部</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>心脏</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>妇产科</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>浅表</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>心脏</td>
<td></td>
<td>7-8亿</td>
<td>医护</td>
</tr>
<tr>
<td>腹部</td>
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<tr>
<td>妇产科</td>
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<td>浅表</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>外科</td>
<td></td>
<td>如火如荼</td>
<td>医护</td>
</tr>
<tr>
<td>POC超声 (新兴市场)</td>
<td></td>
<td>数据不详</td>
<td>医护</td>
</tr>
<tr>
<td>麻醉、急诊、ICU、呼吸等</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PICC</td>
<td></td>
<td>医护</td>
<td></td>
</tr>
<tr>
<td>产程监测助产士</td>
<td></td>
<td>医护</td>
<td></td>
</tr>
</tbody>
</table>

其实超声科越来越已经只是超声的一部分了

- 传统超声：
  - 腹部：超声老区，优势微弱
  - 心脏：价值明显，归属不一
  - 妇产科：传统优势，觊觎已久
  - 浅表：新兴领域，分一杯羹
- POC超声 (Point of care)
  - 麻醉超声：纳入规培要求
  - 急诊及ICU超声：进入指南
  - 肺超声：BLUE&FALL
  - PICC：遍地开花
- 智能超声：也来敲门
华西超声医技一体&分级诊断模式的尝试

确定超声需求的“分级”

- POC (point of care)：床旁特定目的，迅速排查。
- 体检及筛查：发现有无问题，初步诊断，快速。
- 专科需求：精准、个体化，围绕专病，较慢速。
- 介入诊治：微创，包括引导、评估、治疗，慢速。

尝试超声的“分级供应”

- 岗位：体检、普检、急诊、会诊、二线、专科、介入
- 人员分级：医师&技师，初、中、高级
- 设备分级：配备
- 空间：普检、专科区域
- 流程：改造与配合

超声科各级超声准入资格

<table>
<thead>
<tr>
<th>检查种类</th>
<th>内容</th>
<th>准入人员</th>
<th>工作模式</th>
</tr>
</thead>
<tbody>
<tr>
<td>体检超声</td>
<td>体检</td>
<td>技师、低年资医师及以</td>
<td>检查+会诊</td>
</tr>
<tr>
<td>普通超声</td>
<td>门诊，住院病人超声筛查及检查</td>
<td>技师、低年资医师及以</td>
<td>检查+会诊</td>
</tr>
<tr>
<td>急诊及床旁</td>
<td>急诊、床旁及术中</td>
<td>住院总及副</td>
<td>独立/会诊</td>
</tr>
<tr>
<td>普通会诊</td>
<td>超声诊断及会诊</td>
<td>中级及以上</td>
<td>独立/会诊</td>
</tr>
<tr>
<td>二线</td>
<td>规范、会诊，考核</td>
<td>医疗组长</td>
<td>医疗组长</td>
</tr>
<tr>
<td>专科超声</td>
<td>专科疾病诊断及评估</td>
<td>医疗组长</td>
<td>独立/会诊</td>
</tr>
<tr>
<td>介入超声</td>
<td>超声引导下诊断和治疗</td>
<td>中级及以上</td>
<td>独立/会诊</td>
</tr>
</tbody>
</table>

超声设备的分级

- 普通超声：重实用及性能，性价比
- 专科超声：重临床所需功能
- 床旁及POC超声：基本功能即可，重便捷
超声科空间“分区”

- 普通检查区
- 专科检查区
- 科外检查区：方便病人及科室
- 介入诊治区
- 绿色通道：二线、其他

超声分层教学

- 基本超声：重点是检查规范，技师及初级医师
- 系统超声：常见疾病诊断与鉴别诊断
- 专科超声：发展亚专业及MDT
- 介入超声：与临床及大影像
- POC超声：还不知道怎么办？

超声分层教学（目前）

- 四川大学华西医院超声科住院技师规范化培训计划
  - 按医院统一程序进行
  - 培训时间两年
  - 始于2007年
  - 教学内容为第一层次

超声分层教学（下一步）

- 医学影像技术系超声技术方向四年本科生：
  - （2016年起四川大学开始招生）
- 课程的设置：参照托马斯杰斐逊大学
- 下一步：申请国际认证与ARDMS考试
### 2017双创项目“多模态影像技术创新训练中心”
之“超声可视化模拟训练平台”

包括：
- 传统超声：腹部、心脏、妇产、浅表、血管
- POC超声：麻醉、急诊、ICU
- 超声教学与培训体系构建：中国特色与国际化

谢谢！
OBJECTIVES

► Illustrate the role of CAE Healthcare’s Ultrasound Simulation solutions in improving healthcare education and quality of patient care

► Show how simulation improves access to education

► The increasing role of technology in healthcare education and the impact on providers

CAE IS A WORLD LEADER IN TRAINING AND SIMULATION

CAE IS A WORLD LEADER IN TRAINING AND SIMULATION

STRIVING FOR AVIATION SAFETY RATES IN HEALTHCARE

Patient safety vs aviation safety (all years)

1 death every million miles

1 death every billion miles

440,000 deaths per year in the United States

93

LEVEL OF FIDELITY IN AVIATION

1 hour in a CAE Flight Simulator = 1 hour of flight time on an actual airplane

This is what we strive for in healthcare simulation!
OUR PRODUCT OFFERING

CAE Healthcare collaborates with global experts in healthcare and education.

Recent Advances in Technology

OBJECTIVE METRICS FOR ASSESSMENT OF PROFICIENCY

Matyal et al. (2014) Anesthesiology, v121, 389-99

AUGMENTED REALITY: INNOVATION IN EDUCATION

SCREEN-BASED SIMULATION FOR MAINTENANCE OF CERTIFICATION
ACCELERATING PATH TO PROFICIENCY

Anesthesia/Cardiology
- 4-week TEE curriculum with E-Learning and Simulation
- Demonstrated development of proficiency
- Translation into clinical proficiency

Emergency Medicine
- 4-hour TEE Workshop
- Most trainees able to obtain basic views after workshop
- 95.8% retained ability to obtain views 6 weeks after workshop

METRICS TO ASSESS COMPETENCY

Screen-based simulation for maintenance of certification

CAE simulation used for assessment and certification

How simulation improves accessibility
E-LEARNING: FLEXIBLE LEARNING WITH YOUR OWN PACE

SELF-DIRECTED MODULES TO SAVE INSTRUCTORS TIME

EXPOSURE TO RARE OR URGENT PATHOLOGIES

Linking Providers with Education and Technology

TECHNOLOGY AS A VEHICLE FOR EDUCATION AND PROFICIENCY

PARTNER OF CHOICE FOR SIMULATION IN EDUCATION/ASSESSMENT
目标
► CAE医疗超声波模拟解决方案的作用，在于改善医疗教育和患者护理质量
► 展示模拟如何提高教育机会
► 技术在医疗教育中的作用及对供应商的影响

CAE是世界模拟技术的领先者

医疗保健力争达到航空安全率

病人安全与航空安全（40年）

美国每年有440000人死亡
9个死亡原因
医
疗
事
故
/ 十万就诊
3个死亡原因

飞行逼真度水平

CAE飞行模拟器中的1小时
实际飞机上的1小时飞行时间

这就是我们在医疗模拟中所追求的！
对教育和能力程度影响的证据

对教育和能力程度影响的证据

加快通往熟练

麻醉/心脏病

- 4周的TEE在线学习和模拟课程
- 麻醉课程展示
- 转变为临床熟练

急救医学

- 4.5小时的TEE研习班
- 大多数学员在研习班后能获得基础认识
- 研习班结束6周后仍有95.8%的学员能保持基础认识的能力

经食管超声心动图 (TEE)


Simulator-based transesophageal echocardiographic training with motion analysis: a curriculum-based approach.


Focused transesophageal echocardiography for emergency physicians—description and results from simulation training of a structured four-view examination.

用于评估和认证的CAE模拟设备

用于评估和认证的CAE模拟设备

模拟如何提高可访问性
在线学习：灵活的学习时间

自我导向模块节省教师时间

公共展示罕见或紧急病症

关联供应商与教育和技术

技术作为教育和能力的载体

教育/评估和选择合作伙伴

技术

教育专业

与医学社团的合作

飞行安全的

改善患者

评估认证

经验

改善患者

经验

技术
非常感谢！
Simulation for Ongoing Education and Proficiency

Presentation by: Stuart Bell
CEO

Simulation for Ongoing Education and Proficiency

THE ULTRASOUND LEARNING PATHWAY

- This is the ideal ultrasound learning pathway for both education and proficiency
- It needs:
  - experts to teach and supervise (at the right time)
  - patients to learn on (at the right time)
- And none of these provide a standardized learning or objective assessment
- Simulation provides all of the above and dramatically improves access to structured education within a medical institution

IMPROVING ACCESS TO EDUCATION

Flexible ultrasound skills learning for all medical practitioners

SIMULATION TRAINING AND EXAMINATION:

THEORY

Clinical training On-going
Pre-clinical training

Continuous Professional Development

Pre-clinical training
Clinical training
On-going

Certification
Diagnose

Hands-on skill repetition
Skills assessment
Clinical practice
Diagnostic assessment
Theory

www.bodyworks.com
www.scantrainer.com
www.hearthworks.com
www.medaphor.com

Self-learning
Study groups
Examination
Simulation for Ongoing Education and Proficiency

THEORY
Comprehensive Anatomy

THE ULTRASOUND LEARNING PATHWAY

HANDS ON SKILLS REPETITION
Probe manipulation – learning the key psychomotor skills using 3D shapes

HANDS ON SKILLS REPETITION
Real patient scan

HANDS ON SKILLS REPETITION
Core and Advanced ultrasound scanning skills by speciality

HANDS ON SKILLS REPETITION
With built-in expert guidance - SCANTUTOR

ScanTutor activates full expert guidance for trainees

ScanTutor activates full expert guidance for trainees

Real-time colour guidance to highlight clinical structures
**Hands on Skills Repetition**

Real-time caliper placement guidance e.g. BPD

**Curriculum and Assessment**

Structured curriculum and REAL-TIME assessment in all specialities

**Clinical Practice**

Cases
- TV OBGYN 198
- TA OBGYN 120
- GM 149
- EM 40
- OTHER 31
- TOTAL 532

Launched with ~200 cases in 2015, including pathologies, normal and abnormalities. Now has over 500 cases.

**The Ultrasound Learning Pathway**

- Theory
- Hands-on practice
- Skills repetition
- Certification
- Continuous Professional Development

**Doppler**

- In practice mode the trainee receives detailed feedback on every task to aid learning.
Simulation for Ongoing Education and Proficiency

**Clinical Practice**

Over 300 structured cases across a wide range of anomalies and pathologies, specially selected by learning category:

**Cases**

- **Obstetrics** 214
- **Gynaecology** 63
- **Emergency** 33

**Total** 310

---

**THE ULTRASOUND LEARNING PATHWAY**

**Diagnostic Assessment**

Case Exams are selected cases by specialty with in-built multiple choice questions to test a user's diagnostic skills.

**Examination**

- Create standardised examinations:
  - Local, regional or national
- Tutor marks and passes

**Ongoing Professional Development and Education**
Simulation for Ongoing Education and Proficiency

DOES SIMULATION LEAD TO IMPROVED PATIENT CARE?

Authors: Martin G. Tolsgaard, Charlotte Ringsted, Eva Dreisler, Lone N. Nørgaard, Jørgen H. Petersen, Mette E. Madsen, Nina L.C. Freiesleben, Jette L. Sørensen, Ann Tabor

Sustained effect of simulation-based ultrasound training on clinical performance: A randomized trial

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模拟继续教育和能力

演讲人：Stuart Gall
首席执行官

Simulation for Ongoing Education and Proficiency

理论
操作技巧
重复
技能评估
临床实践
诊断评估
认证
持续专业发展

临床前培训 临床培训 继续培训

超声学习途径

改善教育机会

为所有医生提供灵活的超声技能学习

模拟训练与考核：

理论
超声物理 学习资源 专家视频

基于云的在线学习

模拟训练与考核：

理论

超声物理 学习资源 专家视频

基于云的在线学习
Simulation for Ongoing Education and Proficiency

理论
全面解剖

操作技巧
重复

技能评估
临床实践
诊断评估
认证

持续专业
发展

超声学习途径

操作技巧重复

内置专家指导
- SCANTUTOR
  
  • 屏幕上的专家视频
  • 颜色标识指导
  • 结构
  • 测量
  • 图像优化
  • 探头放置

ScanTutor 为实习生提供完整
的专家指导

真正的病人扫描
触摸控制 课程
内部解剖
病人和探头

核心和先进超声扫描技能专业

超声图像
3D 心脏模型
Simulation for Ongoing Education and Proficiency

- SCANTRAINER

实时测圆器放置指导
如 BPD

传感器定位:
• 位置
• 方向

图像优化:
• 获取
• 变焦

图像定位

扫描评估:
• % of organ viewed

器官识别

生物统计学:
• BPD, HC, AC, FL

羊水指数

测量:
• 精确
• 位置

多普勒

在实践模式中，受训者在每个任务上收到详细的反馈以增强学习效果

Replay function

所有图像记录并与专家对比

各专业的结构化课程与实时评估

Cases
TV OBGYN 198
TA OBGYN 120
GM 149
EM 40
OTHER 31
TOTAL 532

2015年推出近200例，包括病理、正常和异常，目前已超过500例。

500多病人案例—临床前环境的临床实践
Simulation for Ongoing Education and Proficiency

Clinical Practice

Structured Cases

- Over 300 structured cases covering a wide range of anomalies, which can be selected according to learning categories.

Cases

- OB/GYN: 214
- GM: 65
- EM: 35
- TOTAL: 310

Simulation for Ongoing Education and Proficiency

diagnostic assessment

Cases exam questions are chosen based on profession, with multiple-choice questions testing diagnostic skills.

EXAMINATION

- Creation of standardized exams - regional, regional, or national
- Participants take the exam on the scanner
- To judge scores and effect

Simulation for Ongoing Education and Proficiency

Ongoing professional development and education

CPD/CME

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Simulation for Ongoing Education and Proficiency

模拟能改善病人护理吗?

Authors: Martin G. Tolsgaard, Charlotte Ringsted, Eva Dreisler, Lone N. Nørgaard, Jørgen H. Petersen, Mette E. Madsen, Nina L.C. Freiesleben, Jette L. Sørensen, Ann Tabor

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• Xincheng Scientific (上海)
• ZTL Technologies (北京)
Value of Certification

How FUJIFILM Sonosite Ultrasound Improving Patient Care, when Combined with Certification

Pengcheng WANG

Deputy General Manager
Sonosite Ultrasound Business Unit
FUJIFILM China

2017.06 Beijing, China

1. 富士胶片索诺声超声简介 About FUJIFILM Sonosite Ultrasound

索诺声SonoSite品牌前身为ATL Inc.便携超声,成立伊始获得美国国防部先进技术研究局(DARPA)资金支持,为美军研发适应严苛战地环境的便携式彩超;

2010年,索诺声超声收购全球超高频超声领导品牌VisualSonics,丰富了索诺声超声产品线;

2012年,索诺声超声成为富士胶片FUJIFILM全资子公司,加入富士胶片医疗解决方案大家庭。

富士胶片超声产品

索诺声超声产品

VSI超高频超声产品

全球便携式彩超领导品牌;

专注床旁POC超声应用;

军用级产品品质,适应各种严苛环境;

全球超高频超声(20-70MHz)领导品牌;

专注实验室、科研超声应用;

首台FDA许可超高频电子超声,开拓全新应用;

2. 认证提升病人关护 Certification Improving Patient Care

如今超声使用者遇到的挑战之一: Anytime, Anywhere, Any patient.

由于各种不确定性,超声使用者更需要统一的标准化的培训及认证,使诊断结果更准确统一;
2. 认证提升病人关护 Certification Improving Patient Care

如今超声使用者遇到的挑战之二：技术和知识的飞速发展

新技术、新知识催生新的应用领域，培训与认证使新技术、新知识有效推广
I find out what the world needs, then I proceed to invent it.

— Thomas Edison

Point of Care Market Segments

GE Healthcare Point of Care

提供全面的临床超声解决方案
We used to focus on making simple, fast & precise devices.

But now we focus on enabling simple, fast & precise patient care.

GE Ultrasound Academy

Professional Ultrasound Application Team

Application team

- Through comprehensive training and certification programs
- Provide ultrasound education and support

Multiple learning, online and offline seminars

- Online live streaming seminar
- Practical workshops and hands-on training
- Application support system
- Online training and certification programs

GE

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An introduction for ultrasound capacity building in China

中国超声专业能力建设情况介绍

Background 背景

1. Ultrasound capacity building is the need of deepening medical reform and health care.
   (一) 超声专业能力建设是深化医药卫生事业改革的需要。

   The planning outline of “healthy China 2030” will give priority to the development of people's health. Medical professionals are the most important support and guarantee for the construction of healthy China.
   ( “健康中国2030”规划纲要）将人民健康放在优先发展的战略地位。卫生技术人才是健康中国建设的最重要支撑和保障。

2. Ultrasound capacity building is the need of national health professionals development.
   (二) 超声专业能力建设是落实全国卫生人才发展的需要。

   The basic principles of “The 13th Five-Year national health professionals development plan” are service demands, innovating mechanism, optimizing structure and improving quality.
   ( “十三五”全国卫生计生人才发展规划》基本原则是：服务需求、创新机制、优化结构、提升质量。)
(1) Pay attention to basic-level personnel training
注重基层人才培养
(2) Pay attention to the cultivation of innovative talents
注重创新人才培养

Among them, service demands are to focus on outstanding issues and obvious short board. Pay more attention to talent team construction of basic level, public health, badly needed and health service. Pay more attention to the cultivation of top-ranking innovative talents, the improvement of medical innovation ability and the adaptation of the new health demands.
其中，服务需求就是要“聚焦突出问题和明显短板，更加注重基层、公共卫生、急需紧缺和健康服务人才队伍建设，更加注重一流创新人才培养，提高医学科技创新能力，适应新的健康服务需求”；

Improving quality is to deepen comprehensive reform for medical education, enhance the quality of personnel training, strengthen the on-the-job training for various types of talents and improve the level of technology and service capabilities in order to meet the rapidly growing demands for health services.
提升质量就是要“深化医学教育综合改革，提高人才培养质量，强化各类卫生计生人才在岗培训，提高技术水平和服务能力，满足快速增长的医疗卫生服务需求”。

3. Ultrasound medicine is a very emerging discipline, and talent team construction has been highly valued.
（三）超声医学作为非常年轻的新兴学科，人才队伍能力建设得到高度重视。

1. The rapid development of ultrasound medicine
（一）超声医学发展迅猛
It has been developed into one of the most remarkable subjects in modern medicine.
已经成为现代医学发展中最令人瞩目的学科之一。

Present situation 现状
(1) The application of ultrasound medicine is becoming more and more widespread.
    应用越来越广泛。
(2) New knowledge, new technology and new methods are emerging.
    新知识，新技术，新方法不断涌现。

2. The practitioners of ultrasound medicine are in complicated conditions.
    （二）超声医学执业人员情况复杂
(1) At present, the number of ultrasound practitioners who have registered in China has been more than one hundred thousand.
    目前注册的超声执业人员已超过十万。
(2) Geographical distribution and medical institutions exist obvious difference.
    地域分布及所在医疗机构差别明显。
(3) Most of the basic-level practitioners have not undergone systematic standardized training.
    大部分基层执业人员未经过系统规范培训。
(4) Some advanced fields keep the pace with the international standards.
    先进领域与国际接轨
    They have been keeping up with international development, and playing an more important role in the world stage.
    已经跟上国际发展，并在超声世界舞台发挥越来越大的作用。

3. There are high requirements and difficult training for practitioners in ultrasound medicine.
    （三）超声医学对执业人员的要求高，培训难度大。
(1) The high requirements for operation
    技术操作水平要求高
(2) Correct diagnosis needs encyclopedical medical professional basis
正确诊断需要广博的医学专业基础
(3) Update knowledge in time has been needed because of the rapid development in ultrasound medicine
行业发展迅速需要及时更新知识
(4) High requirements for independent diagnostic ability
对独立诊断能力要求高
Ultrasound diagnosis relies largely on real-time dynamic imaging. Consultants and clinicians have difficulties in reading images.
超声诊断很大程度上依靠实时动态成像,会诊和临床医师读图困难。

**Measures** 措施

In face of so many ultrasound practitioners who have different professional levels, it is necessary to not only solve current outstanding problems and filled basic-level short board, but also improve comprehensive ability of ultrasound practitioners in China.
面对如此众多水平悬殊的超声执业人员,既要解决事关当前的突出问题,补齐基层短板,又要兼顾未来,以需求为导向,以提升岗位胜任能力为核心,全面提升中国超声专业执业人员综合能力。

The discussions from experts in ultrasound medicine in China were organized by National Health and Family Planing Commission Capacity Building and Continuing Education Center. Finally, the book “Chinese Continuing Medical Education Ultrasound Guideline” has been made.
国家卫生计生委能力建设和继续教育中心组织中国超声医学各专业的专家们经过反复讨论制定了《中国继续医学教育超声专科指南》。

The purpose is to improve medical education system of the professional medical practitioners. So, we can realize standardization, normalization and homogenization of continuing medical education in ultrasound medicine.
旨在通过健全分级分专业的在岗卫生计生专业技术人员医学教育体系，实现超声医学继续医学教育的标准化、规范化和同质化。
1. The development of Chinese Continuing Medical Education Ultrasound Guideline. To establish the national standards for continuing medical education in the primary, intermediate and advanced levels.

(一) 制定《中国继续医学教育超声专科指南》。分初级、中级、高级制定国家级继续医学教育标准。

(1) Primary training standards: 相当于国外执业医师前培训

focus on basic skills and basic knowledge training, cultivate the ability to deal with the common problems independently and correctly and standardize the performance of practice behaviors.

着重加强基本实践技能和相关基本知识培训, 培养独立正确处理本专业常见问题的能力, 规范履职行为。

In fact, the shortage of basic technical personnel and the low service ability have become the severe bottleneck of deepening medical system reform and implementing the classified medical treatment in China. Ultrasound medicine is particularly prominent.

事实上, 基层卫生技术人员的短缺和服务能力的低下, 已经成为我国制约深化医疗体制改革、实施分级医疗的最严重瓶颈。超声医学表现的尤为突出。

Therefore, strengthening on-the-job training and continuing education for medical workers in our country, and improving the ability of basic-level medical service have become the most urgent and difficult task for the implement of "healthy China Construction". It is also the focus of medical education in China in the near future.

因此，强化对我国医务工作者的岗位培训和继续教育, 提升基层医疗服务能力已经成为落实“健康中国建设”的迫切和艰巨任务，也是我国近期医学教育工作重点。

(2) Intermediate training standards: 中级培训标准

from practicing physician to specialist training

着重加强新理论、新知识、新技术、新方法的学习, 加强教学科研相关知识技能培训

focus on the learning of new theory, new knowledge, new technologies and new methods, and strengthen knowledge and skills training about teaching and research

着重加强新理论、新知识、新技术、新方法的学习, 加强教学科研相关知识技能培训

Therefore, strengthening on-the-job training and continuing education for medical workers in our country, and improving the ability of basic-level medical service have become the most urgent and difficult task for the implement of "healthy China Construction". It is also the focus of medical education in China in the near future.

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2017/6/5

Consolidate and improve the professional technical ability to deal with complex and difficult problems, and strengthen the targeted training of the potential innovative talents and discipline leading talents.

巩固和提高正确处理复杂疑难问题的专业技术能力,对其中的潜在创新人才和潜在学科领军人才强化针对性培养培训。

Emphasis on precision learning, what short of what make up for.

强调精准供给侧学习，缺什么补什么。

1. Advanced training standards
   (3) 高级培训标准
   Specialist above 专科以上
   Focus on the training for forefront and development trend of professional field. Promoting interdisciplinary integration and cultivation of compound talents. To be in line with international standards.
   重点培训本专业前沿动态和发展趋势。推进学科交叉融合和复合型人才培养。要与国际接轨。

2. The production for high quality training programs
   (二) 组织生产优质培训内容：
   According to the guideline, call on the national authoritative experts to produce high-quality continuing medical education programs.
   根据《指南》要求号召全国权威专家生产高质量的继续医学教育内容。

3. Make full use of modern training pattern:
   (三) 充分利用现代化培训形式：
   On the basis of the original training, explore the continuing medical education pattern actively by the way of the online and offline organic combination, the project and the base combination.
   在原有培训的基础上利用线上、线下有机结合、项目和基地相辅相成的继续医学教育模式。

4. Standardized management and examination mechanism
   (四) 规范管理、考核机制
   The establishment of a reasonable regulatory mechanism, scientific assessment methods and certification system can ensure the effectiveness and homogeneity of training.
   建立合理的监管机制、科学的考核方法和认证制度，充分保证培训的有效性和同质性。
5. Implementation of "Construction of ultrasound medical specialty ability" project.

(五) 实施“超声医学专科能力建设”工程

One hundred thousand of qualified ultrasound technicians will be cultured for basic level especially in the midwest poverty regions in China with 5 years.

力争用5年左右的时间，为基层特别是中国中西部贫困地区培养10万名合格的超声技术人员。

6. Keep up with the development trend of the big data in the ultrasound medicine.

(六) 跟上超声医疗大数据发展趋势

To make full use of China's abundant ultrasound medical data resources for medical education, deep learning and assisted diagnosis.

充分利用中国丰富的超声医学大数据资源，用于医学教育，深度学习及辅助诊断。

Adhering to forge ahead and keep the innovative spirit, through the practical construction of the professional ability of ultrasound, we will strive to improve the professional capacity of the national ultrasound practitioners.

秉承锐意进取、开拓创新的精神，通过扎实务实的超声专业能力建设工作，努力提高全国超声执业人员的岗位胜任能力。

Through the ways of “going out, bringing in” and learning advanced international experience actively, we keep up with the international level of ultrasound medicine.

通过“走出去，引进来”等多种方式,积极学习国际先进经验,跟上国际超声医学水平。

At the same time we will take the opportunity to invite experts and scholars in the ultrasound field to China and teach advanced medical knowledge. I hope we can jointly contribute to human health career.

同时借此机会邀请超声领域的专家学者们到中国传授先进的医学知识，共同为人类健康贡献力量。

Thanks!