



# HIGHLAND ULTRASOUND RESEARCH SYMPOSIUM

Tuesday 10 February 2015, 9:30 – 15:30

*Centre for Health Science, Inverness*



Satellite Ultrasound  
for Rural Stroke



Highlands and Islands Enterprise  
Iomairt na Gàidhealtachd's nan Eilean



UNIVERSITY  
OF ABERDEEN

*Centre for Rural Health*

*Research   Evaluation   Innovation*



# Welcome | Highland Ultrasound Research Symposium



Welcome to the first Highland Ultrasound Research Symposium! We're delighted to have an audience drawn from a wide variety of research and clinical disciplines here, and particularly pleased that our afternoon audience will include young Highlanders who are aspiring to science, technology, engineering and health service careers.

The inspiration behind the meeting came from Dr Ashish Macaden who will be speaking here today. He had the idea that transcranial ultrasound might be a useful way to select stroke patients living in remote areas for life-saving and disability-preventing treatment before they reach hospital. We are still a long way from realising this aspiration but have made excellent progress that you will hear about today. We are particularly pleased to welcome our keynote speaker, Dr Thilo Hoelscher, who is the world leader in the innovative use of transcranial ultrasound in the assessment and treatment of stroke.

Others, including Dr Luke Regan, extended the original concept from use in strokes to encompass remotely-supported point-of-care ultrasound (RS-POCUS) in a range of time-critical medical and surgical emergencies.

Remotely supported point-of-care ultrasound has an enormous number of potential applications in remote and rural medicine, but the practical implementation will always depend on good communication bandwidth and on robust ultrasound technology configured for pre-hospital use. We are delighted to welcome Prof Sandy Cochrane, an international authority on micro-ultrasound applications, Prof George Corner, who has produced a huge body of work on novel clinical uses of ultrasound, and Dr Simon Everts and Dr Ashot Sargsyan, renowned experts in astronaut health and very remote ultrasonography, respectively.

We would like to thank our funders and other supporters of this programme of research work: Highlands and Islands Enterprise, the UK Space and Life Sciences Catapult, the RCUK dot.rural digital economy hub at the University of Aberdeen, Philips Electronics, BK Medical (Analogic), TAQA Bratani, Health Science Solutions and Tactical Wireless.

We at the University of Aberdeen Centre for Rural Health are proud to host this extraordinary meeting with such a wealth of distinguished visitors. Please take the opportunity both to learn and to expand your networks!

**Prof. Phil Wilson**  
**Director of the Centre for Rural Health**

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# Schedule of events

## Tuesday 10 February

09:30-10:00	Registration   Tea & Coffee
10:00-10:10	Welcome & Introduction <i>Angus Watson, NHS Highland RD&amp;I Director</i>
10:10-11:15	Keynote speaker: Dr Thilo Hoelscher Brain Ultrasound Research Laboratory, University of California in San Diego
11:15-11:40	Dr Ashish MacAden specialty Doctor in Stroke and Rehabilitation Medicine, NHS Highland
11:40-12:15	Prof Sandy Cochran School of Medicine, University of Dundee
12:15-12:30	Morning session summary <i>Prof Philip Wilson, Director of the Centre for Rural Health, University of Aberdeen</i>
12:30-13:30	Lunch   Demonstrations   Industry stands
13:30-13:40	Welcome back <i>Prof David Reid, Head of the School of Medicine and Dentistry, Applied Medicine, University of Aberdeen</i>
13:40-14:00	Dr Leila Eadie Centre for Rural Health, University of Aberdeen
14:00-14:20	Dr Luke Regan Highland Medical Education Centre, University of Aberdeen; NHS Highland
14:20-14:45	Dr Simon Evetts & Dr Ashot Sargsyan Wyle Corporation; Johnson Space Center
14:45-15:20	Prof George Corner University of Dundee
15:20-15:30	Closing address <i>Prof Philip Wilson, Director of the Centre for Rural Health, University of Aberdeen</i>



## Dr Thilo Hoelscher

University of California in San Diego, founder of the Brain Ultrasound Research Laboratory

Dr Thilo Hoelscher from the University of California in San Diego is founder of the Brain Ultrasound Research Laboratory and a certified neurologist with clinical expertise in stroke care. His special focus is on therapeutic ultrasound applications in the human brain, including sonothrombolysis, neuroprotection, blood-brain barrier opening, local drug delivery and neurodegenerative diseases; plus he also has expertise in focused ultrasound, prehospital ultrasound and microbubble related research.



## Prof Sandy Cochran

School of Medicine, University of Dundee

Sandy Cochran is Professor of Biophysical Science and Engineering and Head of the Division of Imaging and Technology in the Medical Research Institute, University of Dundee. His primary interests are in microultrasound imaging and some aspects of therapeutic ultrasound, including targeted drug delivery, with a particular focus on pathways from advanced ultrasound device research towards clinical applications. With Dr Christine Démoré, he leads a very active group comprising Clinical Research Fellows, Postdoctoral Research Assistants and PhD students addressing many relevant topics.



## Prof George A Corner

Hon Professor, University of Dundee

A Dundee graduate, Geo worked in the National Engineering Laboratory before joining the Glasgow Dept of Clinical Physics and Bioengineering. In 2005 Geo returned to Dundee as Head of Instrumentation and led research in the Medical Physics Dept. He is an Honorary Professor of Bio-engineering at Dundee, lecturing there and at several Chinese universities; also visiting Professor to the University of Strathclyde and a Fellow of the IoP and IET.

Interests include ultrasound for imaging and therapy, focussing on clinical applications, quality assurance and regulation. He is co-investigator on significant research grants, inventor on several patents and has published extensively on medical ultrasound, sono-elastography and interventional guidance. Before retiring from the NHS in 2014, he led varied projects for clinicians and to develop devices for translation to market. He has consulted on device testing and accreditation. Continuing work is related to the quality of surgical instruments and the establishment of a national reference centre.

# Speakers

## Prof Angus J M Watson

Consultant general and colorectal surgeon, Raigmore Hospital, NHS Highland, Inverness

Professor Angus Watson is Director of Research and Development for NHS Highland and Honorary Chair of Colorectal Surgery at the University of Stirling. He trained in Manchester, Scotland and New Zealand before being appointed a Consultant Colorectal Surgeon at Manchester Royal Infirmary in 2005. Prof Watson moved to Inverness in 2009. His main clinical interests are cancer, and inflammatory bowel disease. His research interests are diverse. He is Chief investigator for the HTA sponsored eTHoS trial, a £1.3M UK wide multi-centre surgical study. He is co-applicant and principal investigator for a large range of national and international studies. Prof Watson, along with commercial partners, has invented a smart phone app which is funded by Crohn's and Colitis UK. This is an innovative system of care that transfers patient reported data across the NHS firewall so it can be interrogated by the clinical research team. Winner of Scottish Enterprise 2014 award.

## Prof David M Reid

Head of the School of Medicine & Dentistry, University of Aberdeen

Professor David Reid, MD, FRCPEdin, FRCPLon is Head of the School of Medicine & Dentistry and has also held the post of NHS Grampian Director of Research & Development.

A world recognised expert in the field of osteoporosis, his special research interests are in the field of assessment of bone mass, risk identification for fractures, corticosteroid induced osteoporosis and clinical study design. His work has been built around deriving extensively phenotyped normal and disease population databases both in metabolic bone disease and rheumatoid arthritis.

Externally he has extensive collaborations with international pharmaceutical companies and has been heavily involved in the production of national and international guidelines especially for the management of corticosteroid induced osteoporosis.

## Dr Ashish MacAden

Specialty Doctor in Stroke and Rehabilitation Medicine at Raigmore Hospital, NHS Highland, Inverness

Dr Ashish Stephen MacAden trained in Christian Medical College Vellore, India (MBBS and MD, DNB in Physical Medicine and Rehabilitation), Hunters Moor Regional Neuro-rehabilitation Centre and Northumbria University, Newcastle-upon-Tyne. He worked in CMC Vellore helping set up services for Haemophilia Arthropathy, a clinical gait laboratory for Cerebral Palsy and one of the first Indian Brain Injury rehabilitation centres as professor and head of a unit till he moved to Inverness.

## Dr Leila Eadie

Research Fellow, Centre for Rural Health, University of Aberdeen

Leila received her PhD from University College London and her research interests include e-health and telemedicine, data mining and intelligent systems analysis, image processing and computer-assisted diagnosis. Her recent projects include the SURS and EU Implementing Transnational Telemedicine Solutions projects at the University of Aberdeen and the Current Risk breast cancer screening survey at University College London.

# Speakers

## Dr Luke Regan

Highland Medical Education Centre, University of Aberdeen; Emergency Physician, Raigmore Hospital, NHS Highland, Inverness

Luke Regan is an Australian-born doctor who has trained in emergency medicine and advanced prehospital care in both Australia and Scotland. He has previously worked with Sydney Helicopter Emergency Medical Service and currently works in NHS Highland's Raigmore Hospital A&E Department and with BASICS Scotland, as well as lecturing for the University of Aberdeen.

## Dr Simon Evetts

International Collaborations Development Manager, Wyle Corporation

Until recently Dr Simon Evetts was contracted by his parent company, Wyle, to run the Medical Projects & Technology Unit of the Space Medicine Office at the European Astronaut Centre, Cologne, Germany. His responsibilities spanned medical projects, astronaut fitness and the support of astronaut health in general. Simon is now the International Collaborations Development Manager for Wyle GmbH, a Visiting Senior Lecturer at King's College London, a Visiting Professor at Northumbria University and the Coordinator of the UK Space Life and Biomedical Sciences Association.

## Dr Ashot Sargsyan

NASA Johnson Space Centre, Wyle Corporation

Dr. Ashot Ernest Sargsyan is an internist by initial training who later specialized in diagnostic radiology with emphasis on ultrasonography. He practiced and taught radiology in Armenia until joining the U.S. space program in 1996. He works at the NASA Johnson Space Center in Houston as part of the Wyle Bioastronautics contract, which provides both medical support and research on the International Space Station. He applies his extensive radiology expertise to develop and implement advanced diagnostic imaging techniques, including real-time remote guidance of minimally trained operators, for human space flight and health care at large. He is an active author, presenter, and investigator in the areas of diagnostic imaging, telemedicine, and space physiology and medicine.

## Prof Philip Wilson

Director of the Centre for Rural Health, University of Aberdeen

Phil Wilson completed doctoral studies in neurochemistry before clinical training. He worked as a GP partner for 23 years while building a wide-ranging list of research publications as a sessional researcher at the University of Glasgow. Since 2012 Phil has worked as professor of primary care and rural health at the University of Aberdeen, and he holds visiting professorships at the Universities of Gothenburg and Glasgow. His main research interests lie in the development and evaluation of complex interventions to improve health in the community. He continues to work as a sessional GP.

# Exhibitors



## Tactical Wireless

Tactical Wireless Ltd has developed Omni-Hub™, a secure, open-architecture, network agnostic audio, video, & sensor IP comms solution.

Omni-Hub™ combines onboard intelligence, data management, GPS and bonded routers to manage bandwidth availability & demand.

Working with Aberdeen University, TWL used Omni-Hub to transmit diagnostic quality ultrasound images from remote locations in the Highlands to the Centre for Rural Health at Raigmore Hospital in Inverness.



## Philips

This year Philips Research is celebrating 100 years at the forefront of medical care. Inventions including the x-ray tube in 1918, the first digital radiography system and the first 1.5T and 3.0T compact MRI systems have been ground-breaking.

At Philips, we look to the experiences of patients, providers and caregivers across the health continuum. By understanding their needs we unlock insights to develop solutions for the most meaningful moments of care, whether in the hospital or the home.

Philips ultrasound solutions provide premium technologies that bring a new level of image quality. Our compact Ultrasound solutions are designed for critical study requirements and big system performance wherever you need it. Performance isn't sacrificed for portability.



## Health Science Solutions

Health Science Solutions (HSS) is a UK life science company based in Inverness providing training, plus quality care and repair of medical ultrasound transducers, in particular transeophageal transducers.



## About the Highland Ultrasound Research Symposium

The Highland Ultrasound Research Symposium aims to gather together researchers, clinicians, experts and interested parties of all sorts to discuss novel and innovative work ongoing in the field of ultrasonography.

In this first meeting, we offer a focus on transcranial ultrasound, but discourse about technology and techniques relating to all areas of the body is welcome.

## About the Centre for Rural Health

The Centre for Rural Health at the University of Aberdeen has three main research themes: Development & evaluation of complex interventions; Use of technology; Child health and development. We aim to achieve an international reputation for academic rigour in these fields through substantial grant funding, postgraduate studentships and excellent publications.

For further information about the work of the Centre please visit our website:

[www.crh.ac.uk](http://www.crh.ac.uk)

You can also keep up to date with all our latest activity via social media:



[Follow us on Twitter | @crhInverness](#)



[Like us on Facebook | centreforralhealth](#)

## About the Centre for Health Science

The Centre for Health Science was developed through a collaborative partnership lead by Highlands and Islands Enterprise to provide a state of the art facility for the burgeoning health science community in the Highlands and Islands.

The Centre has 9 organisations and 18 departments located in the building with over 280 staff employed in the Centre and over 600 students studying here. For further information about the Centre for Health Science please visit our website:

[www.centreforhealthscience.com](http://www.centreforhealthscience.com)

or like us on Facebook: [Centre-for-Health-Science](#)



## About Highlands and Islands Enterprise

Highlands and Islands Enterprise (HIE) is an ambitious organisation with a unique remit that integrates economic and community development. We work in a diverse region which extends from Shetland to Argyll, and from the Outer Hebrides to Moray, covering more than half of Scotland's land mass.

We are the Scottish Government's economic and community development agency for the north and west of Scotland. HIE's purpose is to generate sustainable economic growth across the Highlands and Islands. We want the Highlands and Islands to be a highly successful and competitive region in which increasing numbers of people choose to live, work, study and invest.



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[www.hie.co.uk](http://www.hie.co.uk)

# Notes...



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