

Medibio collaborates with Emory University on PTSD research

Sydney, Australia – 25 January 2017: Medibio Limited (MEB or the Company) has entered into an Agreement with Emory University to expand the use of its proprietary circadian heart-rate (CHR) technology beyond depression to classifying post-traumatic stress disorder (PTSD).

PTSD is a chronic disabling psychiatric condition, with prevalence rates of 3.5% in the general US population ⁽²⁾ and 11-30% amongst returning US service members ⁽¹⁾. The disorder represents a significant and costly illness to veterans, their families, and society. The US Congressional Budget Office has reported that the annual cost of treating a veteran with PTSD is US\$8300. There are 18.8 million veterans in the US including 2.3 million troops deployed in Iraq and Afghanistan over the past 10 years.

The agreement with Emory is a significant opportunity for Medibio as it has the potential to open a large market for its CHR technology. Medibio will partner with Emory to test and develop its algorithms for the diagnosis of PTSD using data from an ongoing Emory study.

The underlying study will include both archival data and prospective data from a study of military veterans being conducted at Emory University. Data already collected includes 562 sets of twins (one with PTSD and one without PTSD) which have undergone systematic evaluation of psychological, cardiovascular (including recording of 24-hour heart rate data), and other tests. Prospective data is being collected from the twins at a follow-up visit. ***The collection of prospective data from the first 48 participants (23 with current or remitted PTSD, and 25 controls with no history of PTSD) has been completed with initial findings submitted for peer review.***

Medibio will participate in the study to evaluate the influence of depression and PTSD on the circadian pattern of heart rate, skin conductance, and actigraphy. This will allow Emory and Medibio to better examine the role of autonomic function, physical activity, and sleep quality/duration as mediators of progression in depression and PTSD. The study will also incorporate a wrist based wearable which collects actigraphy, skin conductance, photoplethysmography data for heart rate, and temperature.

Principal researchers

Dr Gari Clifford, DPhil, MSc, MA, has an international reputation in mHealth and critical care data analysis and the application of signal processing and machine learning to medicine. He joined the faculty at Emory and Georgia Tech in 2014 as an Associate Professor in the departments of Biomedical Engineering and Bioinformatics where he is now the interim chair. Previously, as an Associate Professor at the University of Oxford, Dr Clifford helped found and led one of the five themes at its Sleep & Circadian Neuroscience Institute, where he is now an Honorary Professor. Prior to that Dr Clifford was a Principal Research Scientist at MIT, where he managed the collection and dissemination for the world's largest open access hospital database. His research interests focus on machine learning and signal processing for data fusion, prediction

and developing confidence intervals and trust metrics. Application areas in health: critical care, mHealth, sleep and circadian rhythms, and resource-constrained environments.

Dr. Amit Shah, MD, MSCR, is an Assistant Professor of Epidemiology with an adjunct appointment in Medicine (Cardiology) at Emory University, and a practicing cardiologist. He is an expert in the study of autonomic function and psychological risk factors for heart disease, and much of his research focuses on understanding the cardiovascular pathophysiology of depression and posttraumatic stress disorder. His training has largely been dedicated to studying the psychophysiology of PTSD, including circadian abnormalities associated with the condition. Recently, his work on PTSD and abnormal circadian rhythm was presented at the American Psychosomatic Society conference.

ABOUT EMORY UNIVERSITY

Emory University, located in Atlanta, USA, is internationally renowned for its focus on medical research and teaching, supporting the U.S. Southeast's leading health care systems, and serving over a million people. With more than \$572 million in research funding in the last fiscal year, Emory University is 16th among the list of colleges and universities in the United States by endowment, 19th among universities in the world by endowment, and 21st in U.S. News & World Report's 2016 National Universities Rankings. Its joint biomedical engineering program with Georgia Institute of Technology ranks 2nd in the U.S. and the Rollins School of Public Health is ranked 7th in the US News and World Report.

(1) <http://www.ptsd.va.gov/public/PTSD-overview/basics/how-common-is-ptsd.asp>

(2) <http://www.nimh.nih.gov/health/statistics/prevalence/post-traumatic-stress-disorder-among-adults.shtml>

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ABOUT MEDIBIO LIMITED

Medibio (ASX: MEB), is a medical technology company that has developed an objective test to assist in the diagnosis of depression, chronic stress and other mental health disorders. Based on research conducted over 15 years at the University of Western Australia, this test utilizes patented (and patent pending) circadian heart rate variability and cloud based proprietary algorithms delivering a quantifiable measure to assist in clinical diagnosis. Medibio's depression diagnostic is being validated in clinical studies undertaken by The University of Ottawa, among others. The clinical trials will support Medibio's application to become the first FDA approved, objective, and evidence based approach to the diagnosis of mental health disorders. Medibio's technology also provides an objective method for the assessment of stress and mental wellbeing that can be translated to the workplace stress/wellbeing market, wearable technology and App market. Located in Melbourne (Vic) Medibio is listed on the Australian Securities Exchange Ltd.