



# INVESTOR PRESENTATION

November 2015

# Company Summary



- Medibio has developed the first evidence based quantitative test for depression and mental health disorders, addressing the largest issue in healthcare today.
- Defensible IP/technology which has been developed based on 15 years of research into the relationship between the autonomic nervous system and depression, anxiety and stress
- Accelerating progress with US and Australian trials, FDA submission 2016, existing precedent for approval and reimbursement codes paves way for clinical and corporate acceptance
- Research being conducted by - Johns Hopkins, UNSW, IMHR
- Multiple commercialisation routes - Medical, Corporate and Consumer market. Each vertical represents significant market opportunity and revenue streams
- Revenue generation to commence now, Corporate and Consumer market products not dependent on regulatory approval

**“It is critical to realise that we cannot succeed if we use DSM categories as the gold standard - We need a quantitative method for diagnosing depression**

(U.S. National Institute of Mental Health - May 2013)



# Corporate Snapshot

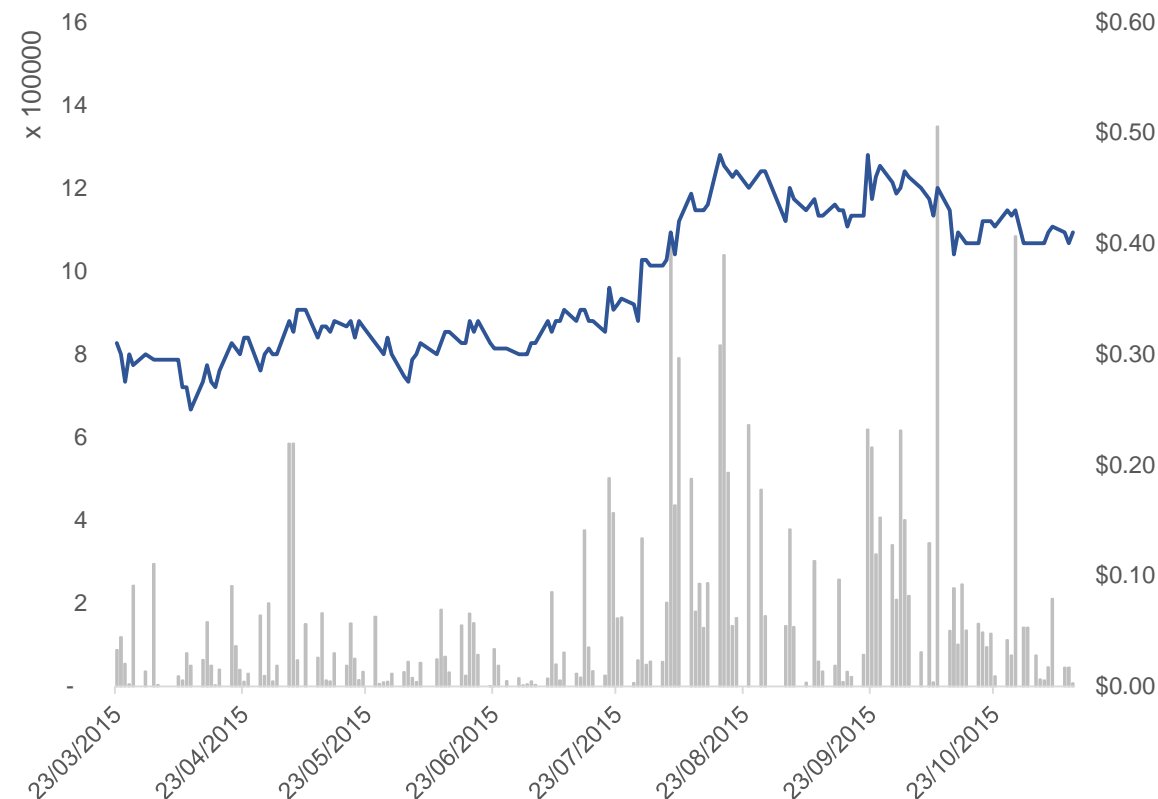


## Trading Information

ASX Ticker	MEB
Shares on Issue	99.1m
Share Price	\$0.40
52-Week High	\$0.50
52-Week Low	\$0.20
<b>Market Capitalisation</b>	<b>\$39.6m</b>

Top 20	63,330,745	70.3%
Board and Management	38,671,470	42.9% (incl <b>25.5m escrowed</b> )
Vendor Milestone 1	6,000,000	Independent Validation
Vendor Milestone 2	6,000,000	Commercial Algorithm Development
Vendor Milestone 3	6,000,000	FDA/CE Mark
Unlisted Options	21,530,009	\$0.30 (6.67M) & \$0.10 (14.86m)

## Share Price Since Listing



# Key Executives



Kris Knauer  
**Chief Executive Officer**

- 20 years experience in Finance and Corporate Advisory
- Experienced CEO of ASX Listed companies
- Previous role as CEO in a group owning GP Centers and Radiology practices
- Founded and grew ASX Listed company from sub \$3 million valuation to \$300 million valuation prior to a \$1bn takeover



Sean Mathieson  
**Chief Operating Officer**

- Business Technology Executive with 25 years of Global Business Software experience
- Reputation for Technology Vision enabling Business Outcomes
- Global Leadership Team of Siebel Systems, Founding Member of SAP Australia



Dr Matt Mesnik,  
**Chief Medical Officer**

- Healthcare Executive with 25 years of healthcare management experience
- Chief Medical Officer of Aprima Medical Software, US EMR company
- Chief Medical Officer of MinuteClinic, developed the concept of retail healthcare, the largest U.S. retail health clinic provider (>1,000 clinics with >8M annual primary care visits). Acquired by CVS Pharmacy with >7,500 stores.



Dr Michael Player  
**Head of Research**

- Research Psychologist at UNSW and active patient work as a Clinical Psychologist.
- Completed his PhD at the University of NSW, investigating and quantifying objective, biological markers of depression.
- Research importantly found that neuroplasticity was reduced in depression, as demonstrated by an objective test not confounded by subject effort and motivation. This provided ground-breaking support for the hypothesis of impaired neuroplasticity in MDD.



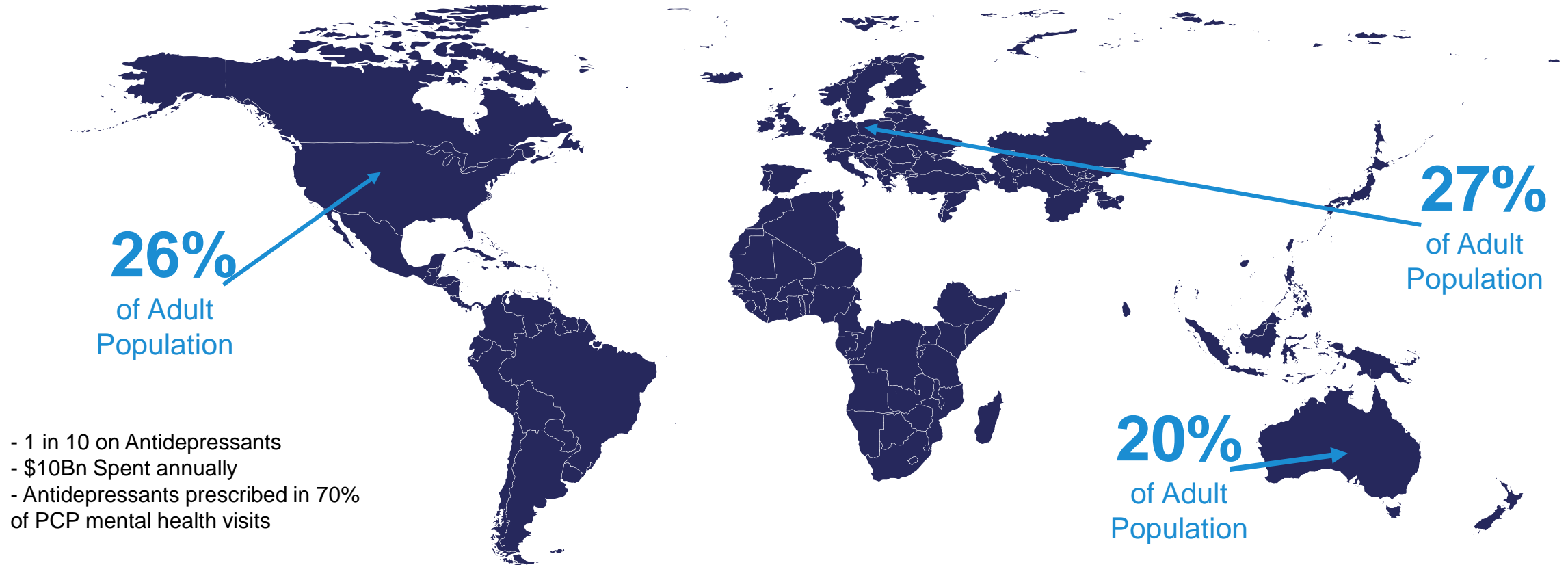
Dr Franklyn Prendergast  
**Advisory Board Member**

- Current Director of Eli Lilly and Company and Past Chair of the Board of Governors of the Mayo Foundation
- Past Chair, Department of Biochemistry and Molecular Biology, Mayo Foundation
- Guggenheim Professor of Biochemistry and Molecular Biology, Mayo Medical School (retired-January 2015)
- Past Director, Mayo Clinic Center for Individualized Medicine and Mayo Clinic Comprehensive Cancer Center

# Mental Health Landscape

**350 Million** Worldwide Diagnosed With Depression  
**1 Suicide Every 40 Seconds**

**1 Million Suicides Every Year**



**Global Cost \$2.5T** (2030 est. \$6T) — Depression and Anxiety account for **+50%** of this burden

# Most Challenging Problem in Healthcare Today



## The Problem

- No objective test for mental illness
- The diagnostic “gold standard” is a clinical/expert opinion
- Diagnostic agreement between clinicians can vary considerably – concordance rates near 70%
- Current assessments are subjective and some require professional administration)
- Misdiagnosis of depression (and other mental illness) places a huge cost burden on the healthcare system and the workplace

## The Solution (Medibio)

- Quantitative, objective test
- Diagnosis based on patient’s biometric data (circadian heart rate)
- Simple, safe, quick, and unobtrusive
- Provides objective indication of treatment efficacy along with medication compliance and adherence
- Savings to the health system and better patient outcomes



# First Quantitative Diagnostic Test for Mental Health

Medibio's research has allowed it to develop the first evidence based quantitative diagnostic test of all the key mental health disorders including:

- Depression
- Anxiety
- Mixed Depression and Anxiety
- Panic Disorder
- Psychosis and Schizophrenia
- PTSD – Post Traumatic Stress Disorder
- Stress

**Proprietary technology** in which algorithms assist in the diagnosis of a number of mental health conditions utilizing the analysis of Circadian Heart Rate ("CHR") variability waveforms

Sleep is **the key period**. It is only during sleep when external influences and distractions are absent

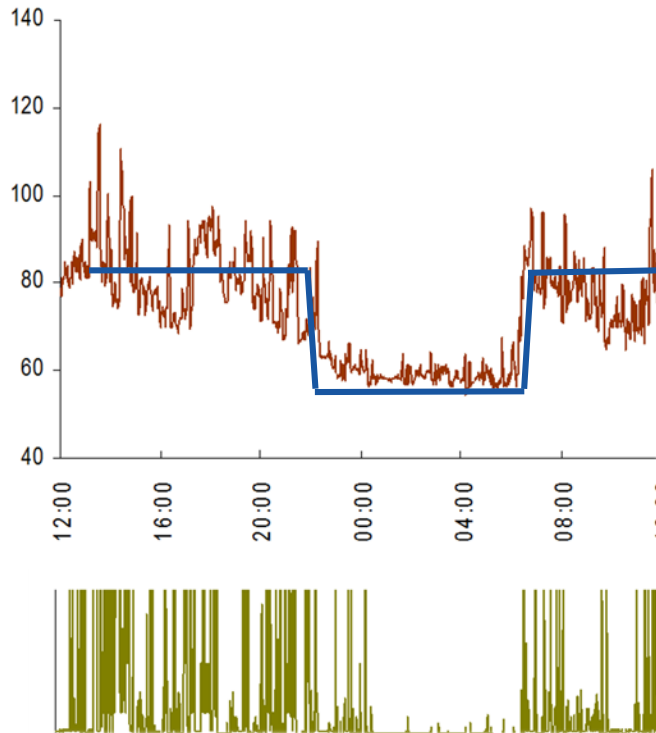
**CHR is 'state-dependent'** - a change in mental state is associated with a change in CHR waveform

Serial monitoring of patients under psychiatric treatment shows **Treatment efficacy is associated with normalisation of CHR**

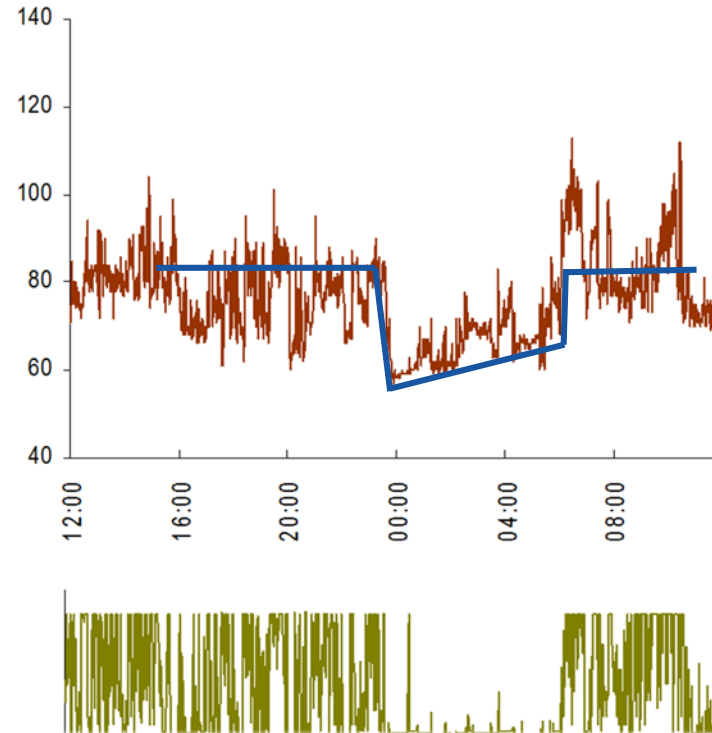


# Technology Overview

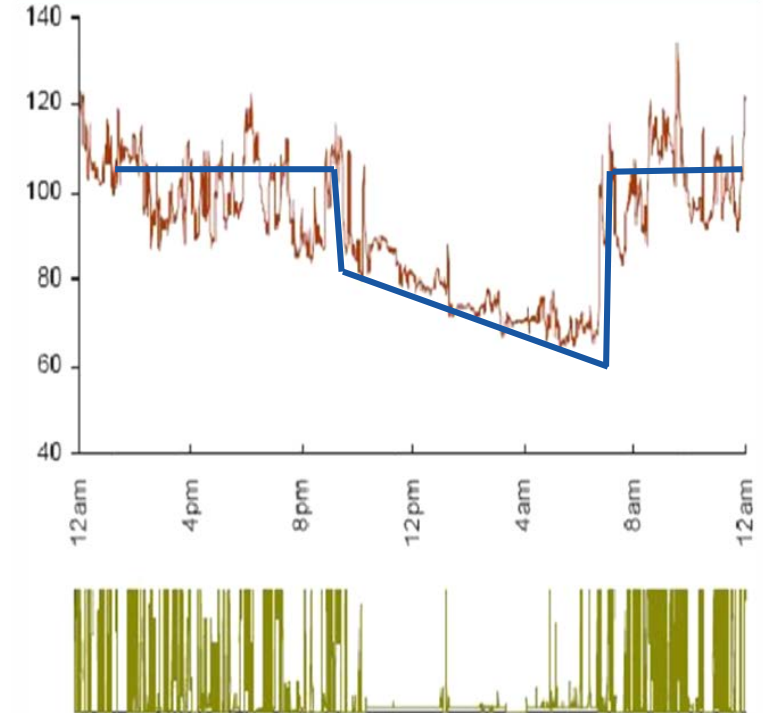
## Normal Individual



## Depressed Individual

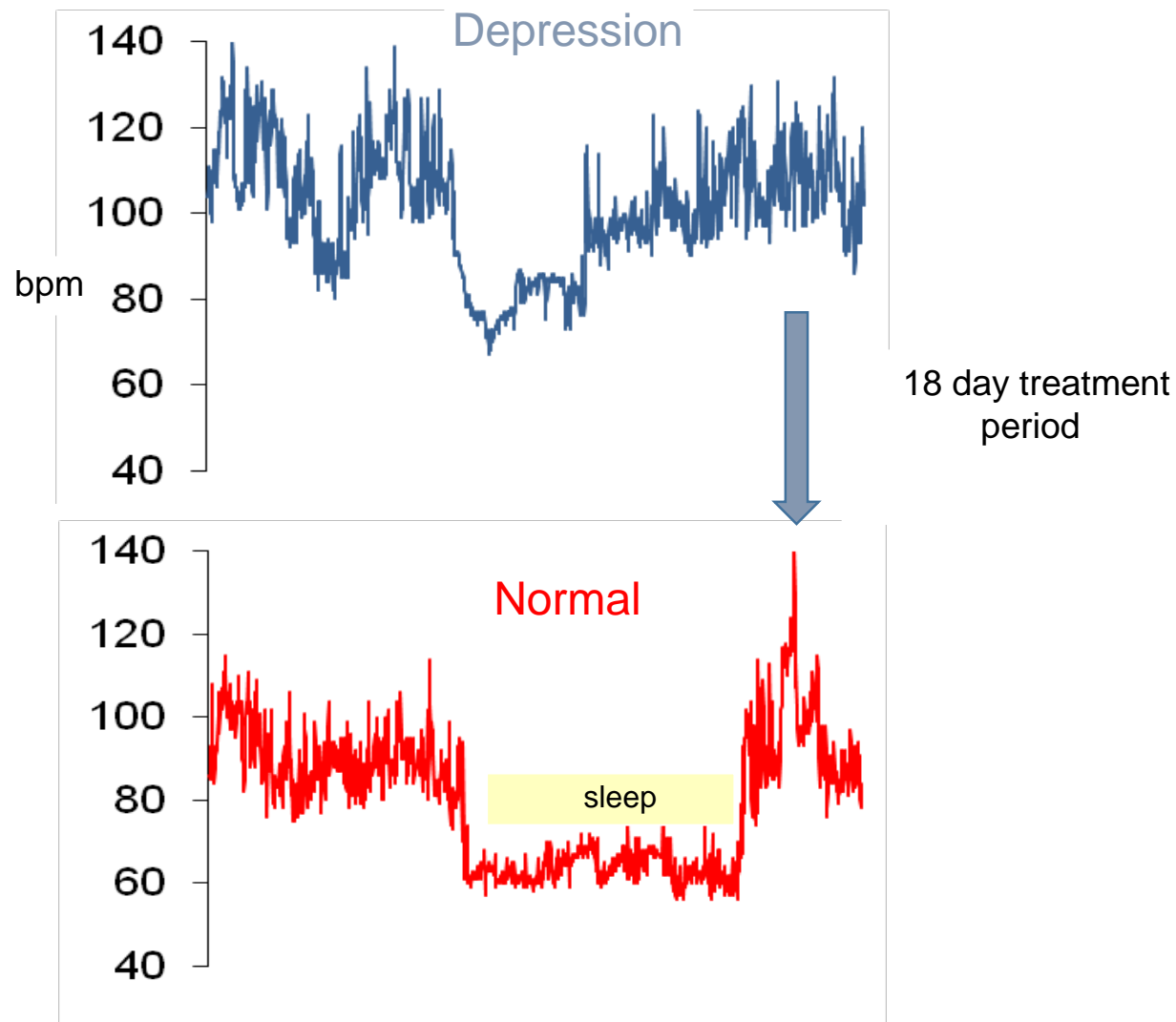


## Anxiety Disorder

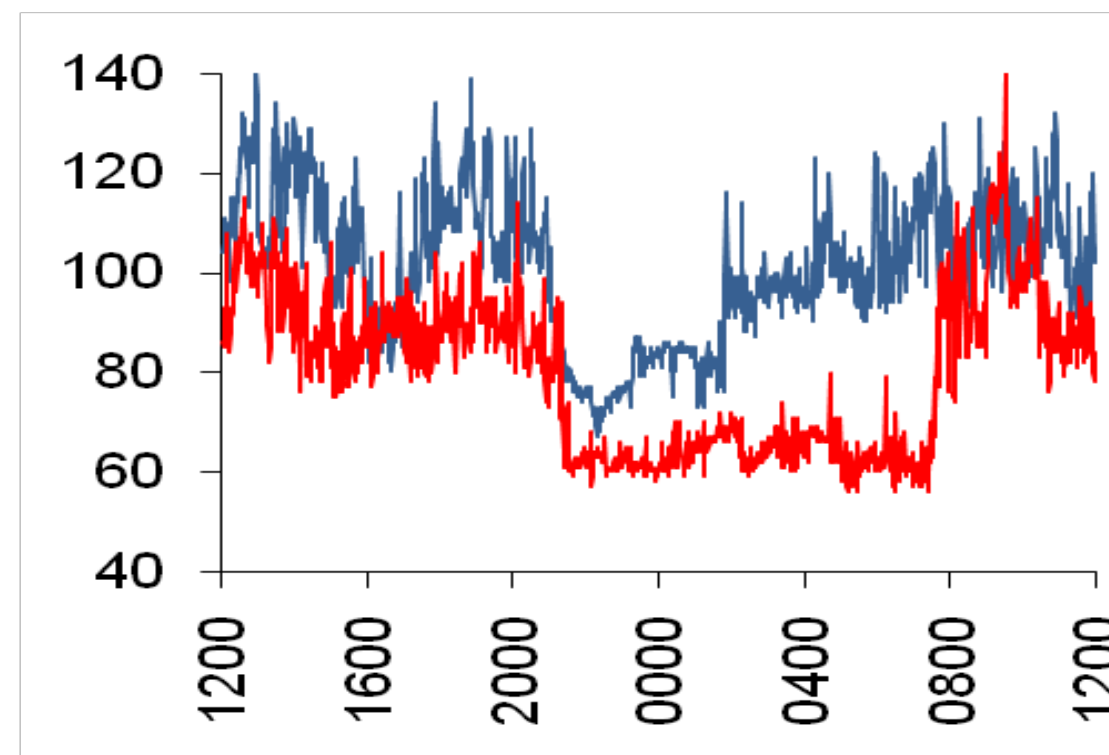




# Normalisation of Depression



- Depressed individual upon initial diagnosis
- Same individual after 18 days following effective intervention
  - Olanzapine – 10mg (night)
  - Mirtazapine – 60mg (night)
- Illustrates the 'state-dependent' nature - a change in clinical status is associated with a change in CHR patterns



# Defensible IP Developed over 15 years



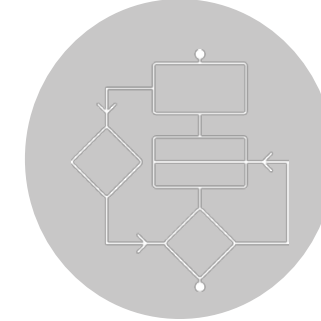
## Comprehensive suite of patents covering the use of CHR technology for both:

- Medical diagnostics including assessment of treatment efficacy
- Stress assessment



## Patent suite for medical diagnostics includes:

- “Method for Diagnosing Psychiatric Disorders”
- USA(US624502), Canada, Australia, New Zealand, Israel
- Method and System for Monitoring Stress Conditions” covering the use of CHR for stress assessment
- Method and System for using CHR to Diagnose Psychiatric Disorders” covering new discoveries in past 18 months



## Data set required for algorithm development is the natural protection:

- 10,000 +12 hour ECG files with a corresponding psychiatric diagnosis
- This data set would take 5 years and cost \$20 million to replicate

# Three Clearly Defined Markets

## Clinical

### Medical



**US\$30Bn**  
Industry

Primary Care Physicians  
Psychiatrists  
Psychologists  
Therapists  
Counsellors  
Cardiologists

## Non-Clinical

### Corporate



**US\$19Bn**  
Industry

High Risk Occupations  
▪ Defence  
▪ Police  
▪ Fire/Emergency  
Insurance Companies  
Corporate Wellness  
Professions  
Elite Sports

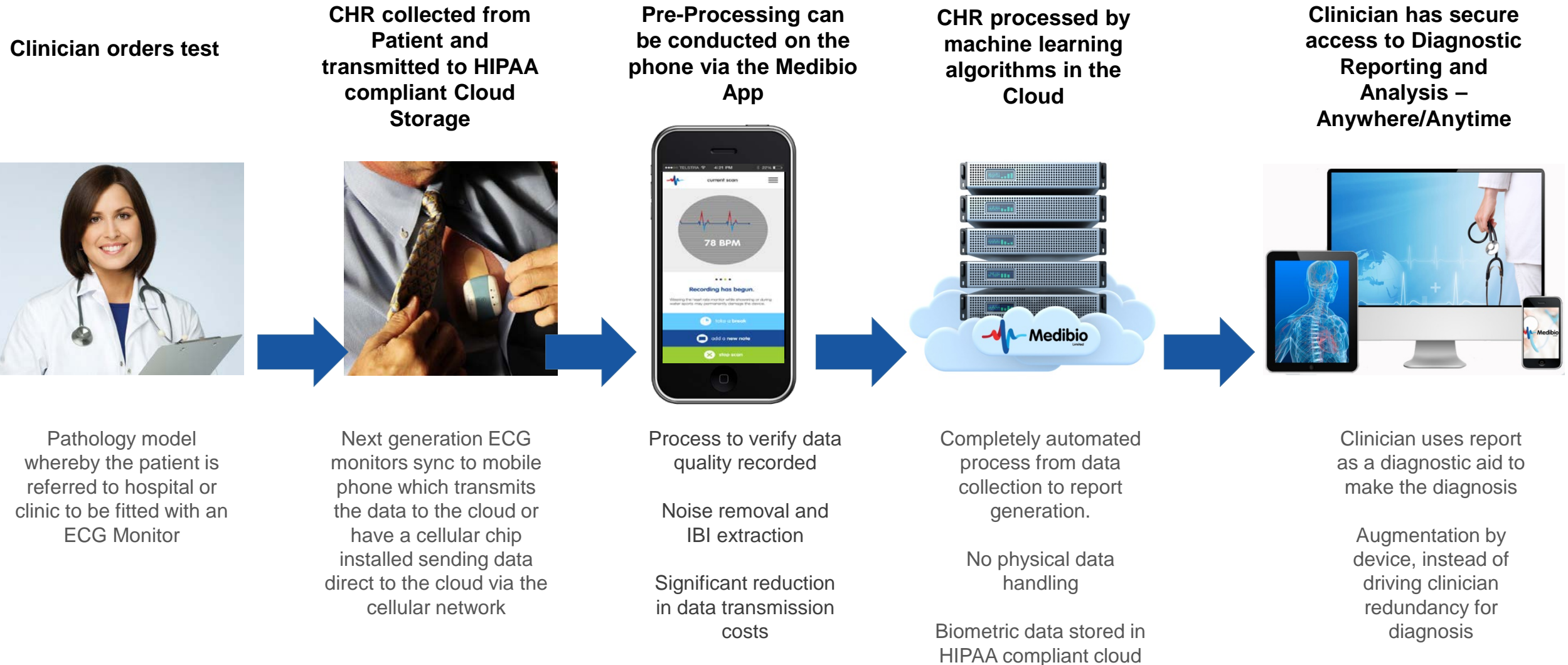
### Consumer



**US\$26Bn**  
Industry

App Stores  
Insurance Companies  
Wellness  
Digital Health  
Companies

# How it Works



# Clinical Market Opportunity

- GP's or PCP's in the US are becoming the primary psychiatric care provider with in excess of **50% of all psychiatric diagnosis** in the US done by PCPs.
- Of the **21 million annual** PCP visits in the US which are mental health related:
  - **40%** receive only psychiatric medication
  - **30%** receive medication and are referred for therapy
  - **30%** are referred to a psychiatrist/psychologist
- The test will be marketed as a **diagnostic aid with the early adopters** to be GP's and Primary Care Physicians in the US
- Partner and Payment structure for 24hour ECG monitoring.

	Medicare	Private	Insurance	Assumption
93225	Recording (Provider)	\$26.87	\$40	
93226	Analysis with Report (Medibio)	\$37.91	\$57	\$45
93227	Physician review and Interpretation (Provider)	\$26.87	\$40	

- PCP Initial diagnostic market – **21 million annual PCP visits @ \$45 ~ \$1 billion annually**
- Ongoing monitoring - **16 million with depression in US quarterly <sup>2</sup> @ \$22.50 ~ \$1.6 billion annually**
- **5% penetration of the US market** for depression diagnosis would generate revenue of **\$175 million annually**
- Cloud based analysis and reporting = minimal costs per report = **very high margins**

# Corporate Stress Product

Using stress specific algorithms MEB has developed the first objective measure of the impact of **stress on wellbeing**

Based on the type and degree of deviation from normal CHR and the clinical significance of these deviations, individuals are classified into one of three distinct categories.

- **'green'** - normal to mild (no immediate action needed)
- **'amber'** - moderate (the impact of stress on wellbeing is approaching unhealthy levels)
- **'red'** - serious (the impact of stress may have an unhealthy impact on wellbeing (recommend lifestyle changes)

Initial target market is the **Corporate Wellness market** where Medibio provides an end to end solution for corporates

We provide the first objective measure of stress and a series of interventions tailored specifically to the employees stress level



## ASSESSMENT

Enable employees to check their stress levels

Personal early warning system for people at risk

Prevention is better than cure



## SUPPORT

Provide education, support, and intervention based on stress level

May recommend discussion with PCP

Provide the ability to conduct on-going monitoring to check progress



## Employer Benefit

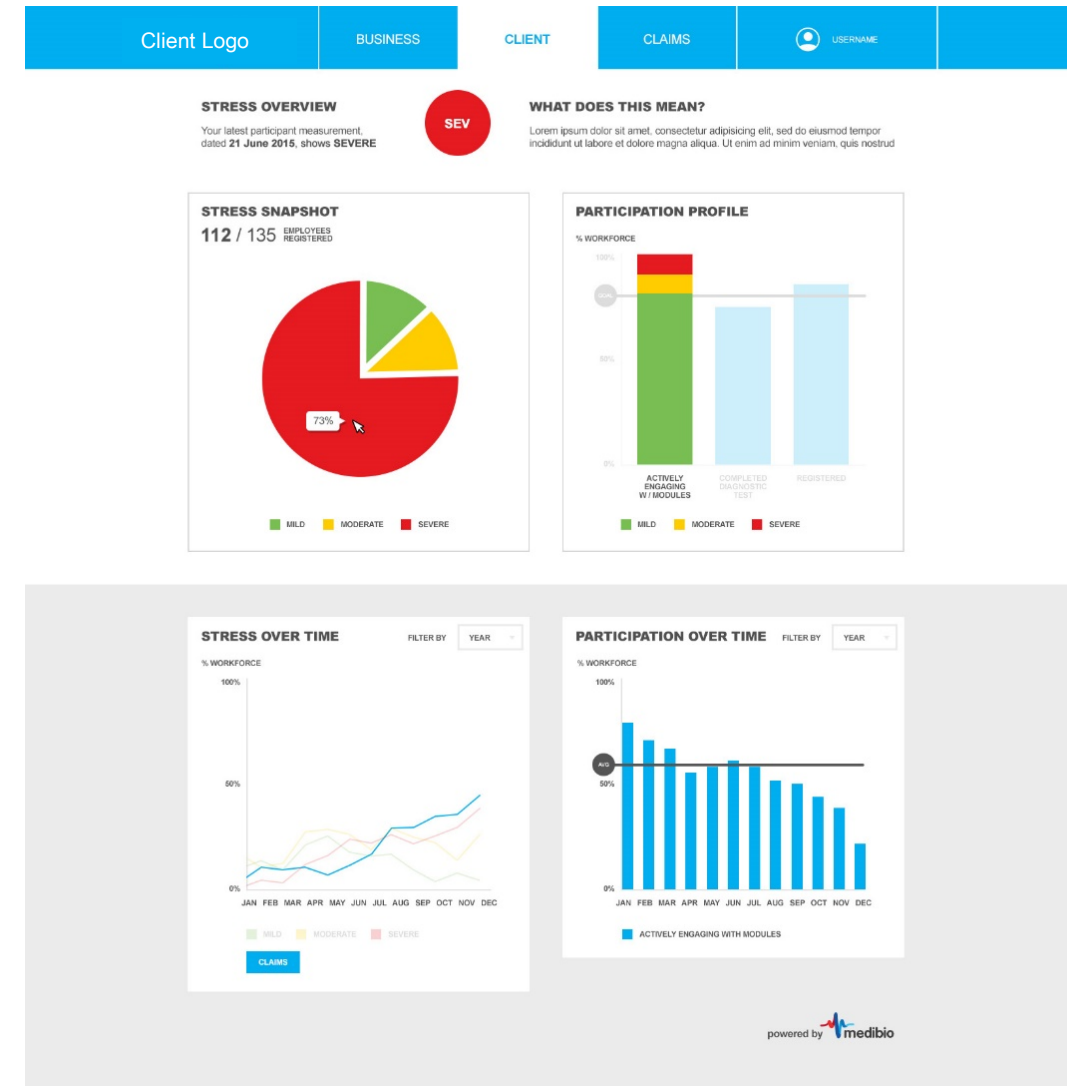
Metrics on stress levels for job classes and types

Reduced absenteeism and increased productivity

Reduced claims and pressure on the health care systems

# Corporate Stress Market Opportunity

- Price point is important
  - \$120** - executives and at risk employees only
  - <\$60/year/employee** – entire staff base
- Pricing model
  - \$25** for initial stress assessment
  - \$10** for re-test (moderate/serious category)
  - Intervention **\$2/employee/month**
- Revenue of ~ **\$52** per staff member per annum  
(Ametus Group Independent Analysis)
- 5% penetration of the US market would generate \$200 million annual revenue**  
(Assumptions 5% of 76 million employees @ US\$52)
- 5 year revenue target **\$100 million annual revenue**





# Consumer App Market Opportunity



- All Apps related to stress/mental health are:
  - based on reducing tension via breathing, yoga, and relaxing sounds
  - wellness products not stress identification and management
  - mental health Apps are based on a digitised version of the DSM
  - **none offer objective stress assessment based on extended research**
- Medibio's App:
  - Based on **15 years of medical research** which is currently being validated by **Johns Hopkins University and others**
  - An objective, health sector endorsed, objective stress assessment application and management tool
  - Ability to compare this test with previous scans run to check progress
  - **Best in class** intervention tailored to your stress level
- Business Model:
  - Initial **\$5 download** gives you a month of complete usage including the stress management interventions
  - **\$10 to subscribe for a 12 month period** and have ability to retest and track your progress against yourself
  - A "Stress Doctor" penetration would generate **\$600 million** in revenue and our offering is superior



# Investment Highlights

- One of the few areas in Health Care yet to be disrupted by technology
- Multiple commercialisation routes with each vertical representing a multi billion dollar market opportunity
  - Medical
  - Corporate
  - Consumer App.
- Strong lead over any potential competing technologies and exclusivity over the use of CHR – IP secured
- Significant cost advantage over any other competing technologies
- Revenue not dependent on regulatory approval – can generate income via range of applications
- Commercialising the first vertical now - 5% of the US market generates \$200 million annual revenue
- Scalable, low cost, and high margin – minimal capital outlay or operating expenditure
- The next six months will be transformational for the company