



Machine Learning Analysis For Pregnancy Monitoring



ASX:HMD



OUR MISSION

Revolutionise pregnancy monitoring standards and significantly impact pregnancy outcomes through ongoing monitoring of multiple data sets.

Data will be sourced from existing electronic medical records provided by hospitals and medical institutions, as well as HeraMED's smart, medical grade foetal doppler, HeraBEAT.





THE PROBLEM WITH MONITORING ANALYSIS

MANUAL, INACCURATE, INEFFICIENT, OBSOLETE STANDARDS

💔 Low reliability of analysis

30% Expert Errors

👨‍⚕️ Shortage of fundamental services

~50% of the US counties have no OB/GYNs

Source: ACOG, ACNM, 2017

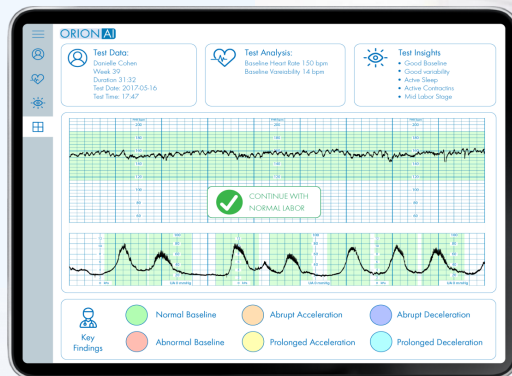
📊 Social and Financial costs

US\$50Bn | Annual Cost of Childbirth in the US alone

Source: Institute of Medicine in 2007

⚠️ Risk rates are on the rise

Preterm birth affects 12.5% of pregnancies



THE SOLUTION

MACHINE LEARNING ANALYSIS FOR PREGNANCY MONITORING



Machine Learning

Machine learning, AI software, evaluating millions of data records, enabling **unprecedented analysis accuracy**



Fully Automated

SaaS, cloud based, **fully automated**, easily implementable



Objective & Accurate

Immediate, **objective and accurate** interpretations



Outperforming Experts

Predicts physician analysis and annotation as well as clinical outcomes, **outperforming human capabilities**



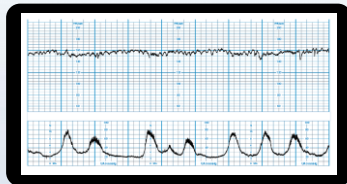
Early Detection

Orion is trained to detect precursors which can indicate possible pregnancy complications **before they become a problem**

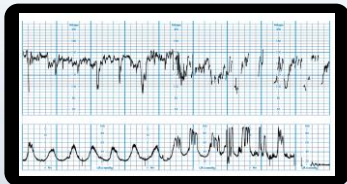
ORION AI DEMO

MACHINE LEARNING ANALYSIS FOR PREGNANCY MONITORING

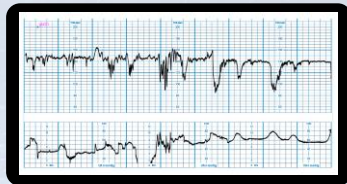
Sample Case Studies



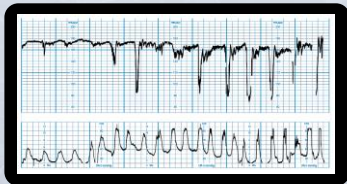
Normal Contractions



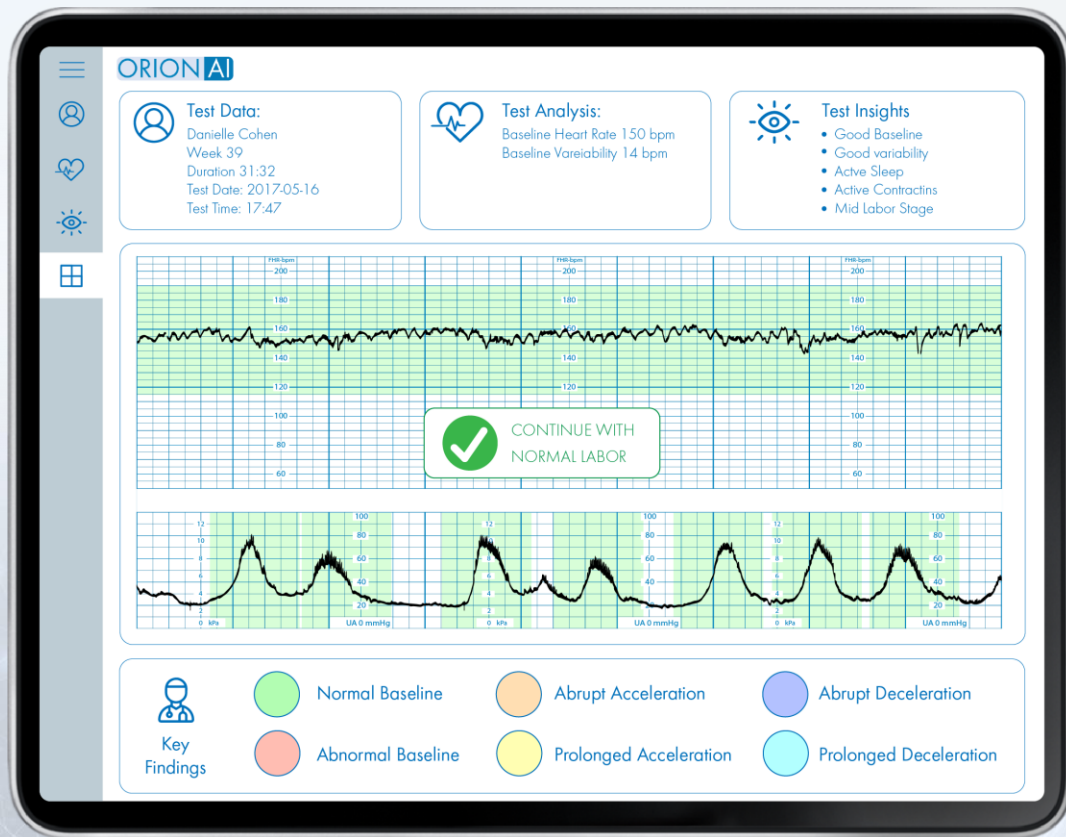
Hyper Stimulation



Minimal FHRV



Deceleration and Recuperation



THE IMPACT

Revolutionising pregnancy monitoring standards will significantly impact pregnancy outcomes, preterm rates and related costs



Reduce Costs

1% improvement in pregnancy complications & preterm birth recognition - **Can save US\$220m per annum in the US alone**



Diagnose Preterm Births

~45% of preterm births are caused due to unknown reasons; most **can be diagnosed and identified**



Optimise Healthcare Standards

to provide the highest level of service by making healthcare providers far more informed and effective



Empower OB/GYNs

offering the opportunity to minimise the work load associated with data analysis



Early Detection

early detection is the most acute and significant factor enabling immediate and proactive treatment

ROLES & DUTIES



HERAMED

- Project management and leadership by Dr Arturo Weschler MD, HeraMED VP Of Innovation
Former CIO Ichilov medical Center, former CMO Medial
- Clinical leaders:
 - Dr. Joseph Tovbin MD – Head of Delivery ward, Assuta Ashdod
 - Dr. Ofer Assayag MD – Leading OB/GYN and expert in bio-informatics
- Senior data analysis team
- Established Software development team
- License additional NST patient data from multiple sources
- IP ownership and regulatory approvals
- Commercialisation

MAYO CLINIC

- Prime investigator and project clinical lead by:
 - Dr. Paul Friedman MD – Head of Cardiology Dep.
- NST Patient data records including physician annotation, analysis and pregnancy outcomes
- Clinical and regulatory approvals for retrospective clinical trial (IRB)
- Participation in Project Funding
- Establish beta site

R&D ROADMAP

PRELIMINARY POC



UTILIZE
CURRENT HERAMED
DATABASE



CREATE
MONITORING DATA
SIMULATOR TO
CREATE INFINITE DATA



PRELIMINARY
ALGORITHM BASED
ON ACOG NST TEST
ANALYSIS



FETAL WELL-BEING
ASSESSMENT
ALGORITHM
REASSURING / NON



INITIATE
CLINICAL TRIAL
USING EXISTING
DATA

DONE

MACHINE LEARNING POC

1

REAL TIME TEST
HIPAA COMPLIANT
CLOUD

ACQUIRE SANITIZED
DIGITAL NST RAW
DATA
(10-50K SESSIONS)

SYNCHRONIZE DATA
PHYSICIAN ANALYSIS
& PREGNANCY
OUTCOMES

INTEGRATE DATA
VERIFICATION
PROCESS

ESTABLISH DEVICE
AGNOSTIC MACHINE
LEARNING
ALGORITHM

T + 8 MONTHS

REFINE & OPTIMIZE

2

ACQUIRE EXTENSIVE
RAW DATA FILES
100K +

REFINE AI
RESPONSE TIME
ENHANCE
ACCURACY

VALIDATE AI
ALGORITHM VS
PHYSICIAN ANALYSIS

EXPAND CAPABILITIES
AND FEATURES

DESIGN FREEZE

T + 18 MONTHS

PILOT & COMMERCIAL

3

PILOTING 5-10K
CASES IN REAL TIME

REFINE UPDATE
SUBMIT IP

BUILD API AND
FUNCTIONAL
SOFTWARE LAYER

COMMERCIAL
INTEGRATION WITH
HEALTH CARE
SYSTEMS/ PARTNERS

INTEGRATION WITH
HERABEAT PLATFORM

T + 24 MONTHS

BUSINESS MODELS

Decision Support

Effective, Accurate,
Objective,
Minimises professional
work load

device-agnostic,
analysis of existing
hospital monitors

SaaS, Cloud based
Fully automated
Easily implementable
& scalable



PRO

\$1.90

Per Test

HOSPITALS
CLINICS
PRIVATE PHYSICIANS



HOME

\$4.90

Per month

HOME USERS

Home Care

Provides expecting moms
immediate, accurate and clear
analysis of home
measurements

Integrates with the
HeraBEAT ecosystem

Premium service,
cloud based

ANNUAL MARKET POTENTIAL



PRO

Annual Pregnancies
In The Economically
Developed Countries.

50M

Normal Preg. Min. 2 Monitors
12% High Risk. Approx. 20
Monitors

~X4

Fee Per Test

\$1.90



HOME

30M

Annual Pregnancies
In The Addressable
Markets.

~X5

Average Months of use

\$4.90

Monthly Fee



“An individual’s lifetime health and disease
is most probably programmed at a very early stage
– while a child is still in the womb”

The Origins Project (Part of Ramsay Health)

Thank you
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