



**ASX: EIQ RELEASE**

**30 October 2023**

**ECHO IQ PRESENTATION:  
ORD MINNETT HEALTHCARE FORUM**

**Sydney:** AI and Medical Technology company Echo IQ Limited (“the Company”) (ASX:EIQ) is pleased to advise that it will be participating in the Ord Minnett Healthcare Forum on 31 October, 2023. The presentation released today will be shared with participants of the forum.

- ENDS -

**Authorised for release by the Board of Directors of Echo IQ Limited.**

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**ABOUT ECHO IQ**

Echo IQ uses AI-driven technology and proprietary software to improve decision making in Cardiology. The company is based in Sydney, Australia.




**AI with heart**  
ASX:EIQ

# Echo IQ

AI-backed cardiology support

**ORD MINNETT**

Ord Minnett Healthcare Forum  
31 October 2023

The background features a dark blue gradient with a faint, stylized heart shape in the center. The heart is composed of a network of light blue lines and dots, resembling a molecular or data structure. A thin, light blue ECG line runs horizontally across the bottom of the image, passing behind the heart shape.

**Echo IQ** uses the power of  
**artificial intelligence** and data science  
to **improve detection**  
of structural **heart disease**.

# Corporate Snapshot

494,404,376

Shares on issue



A\$0.19

Share Price (27.10.2023)



A\$93.9M

Market Capitalisation



A\$3,081,004

Cash (30.09.2023)



NIL

Long Term Debt



Jul '22

Oct'23

**FIRST CONTRACT  
ANNOUNCED MAY 2023**

R+D rebate c. \$1M  
expected by or around  
year end calendar 2023

## SHAREHOLDER BREAKDOWN

47%

Board of Directors  
& Top 20

53%

Other  
Shareholders

## BOARD OF DIRECTORS



Andrew Grover  
Executive Chair



Steven Formica  
Non-Exec Director



Steven Picton  
Non-Exec Director



Simon Tolhurst  
Non-Exec Director



Jessamyn Lyons  
Company Secretary

# The Problem



30%<sup>1</sup>

of all deaths worldwide  
attributed to  
cardiovascular disease



1 in 2<sup>2</sup>

people with heart valve  
disease don't know  
they've got it



2 yrs<sup>3</sup>

mortality rate for certain  
forms of untreated  
structural heart disease

- structural heart disease is common
- it is becoming more prevalent
- left untreated, it has high rates of mortality
- lack of treatment has a large impact on the healthcare system



EDITORIAL COMMENT

## The Alarm Blares for Undertreatment of Aortic Stenosis

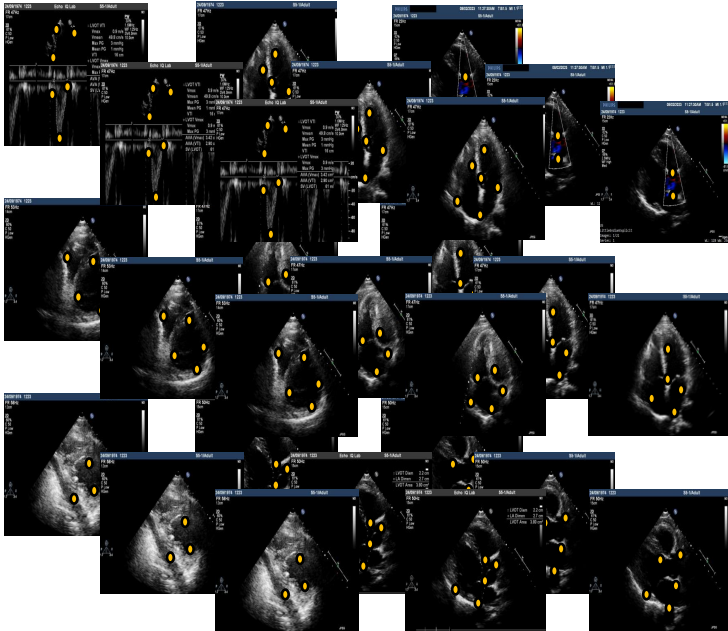


### How Will We Respond?\*

Brian R. Lindman, MD, MSc, Angela Lowenstern, MD, MHS

In one of America's leading health care systems, there was evidence of an overwhelming reduction in the risk of death with AVR in all AS subgroups examined, but <50% of patients with AS with an indication or potential indication for AVR were treated with an AVR.<sup>1</sup> Let that set in; hear and internalize the alarm. The status quo is unacceptable. What will *you* do? What will *we* do?

## Traditional Diagnosis for Aortic Stenosis (AS)



- Highly manual + labour intensive
- User dependent, prone to errors
- Unconscious bias
- ~ 50% patients routinely missed

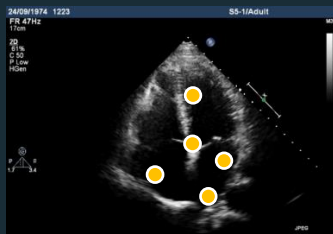
# EchoSolv™



- Automated assessment in under 3 seconds
- Zero variability with removal of bias
- Recognises multi-dimensional heart profile
- 100% of patients in guidelines identified \*

(\* Refer ASX Announcement 1 December 2022)

# EchoSolv™ AI processing





# EchoSolv AI processing





Article  
Text







Article  
info



Citation  
Tools

Valvular heart disease  
Original research

## Enhanced detection of severe aortic stenosis via artificial intelligence: a clinical cohort study

 [Geoff Strange](#)<sup>1, 2</sup>,  [Simon Stewart](#)<sup>3, 4</sup>,  [Andrew Watts](#)<sup>5</sup> and  [David Playford](#)<sup>6</sup>

Correspondence to Dr Geoff Strange; [gstrange@neda.net.au](mailto:gstrange@neda.net.au)



PDF



PDF +  
Supplementary  
Material

# Inclusion

**1,077,145 investigations from 631,824 individuals**

299,517 women ( $61.1 \pm 18.3$  years) & 332,307 men ( $60.1 \pm 16.9$  years)

23 centres Australia-wide with  $7.2 \pm 4.4$  years maximal follow-up

(29/05/1985 to 26/6/2019)

**442 276**

**TRAINING SET**

70% 30%

**189 548**

**TEST SET**

5247 excluded due to  
aortic valve replacement

Train the model/AI-DSA

Evaluate its operation

Assess its performance

# Inclusion

**1,077,145 investigations from 631,824 individuals**

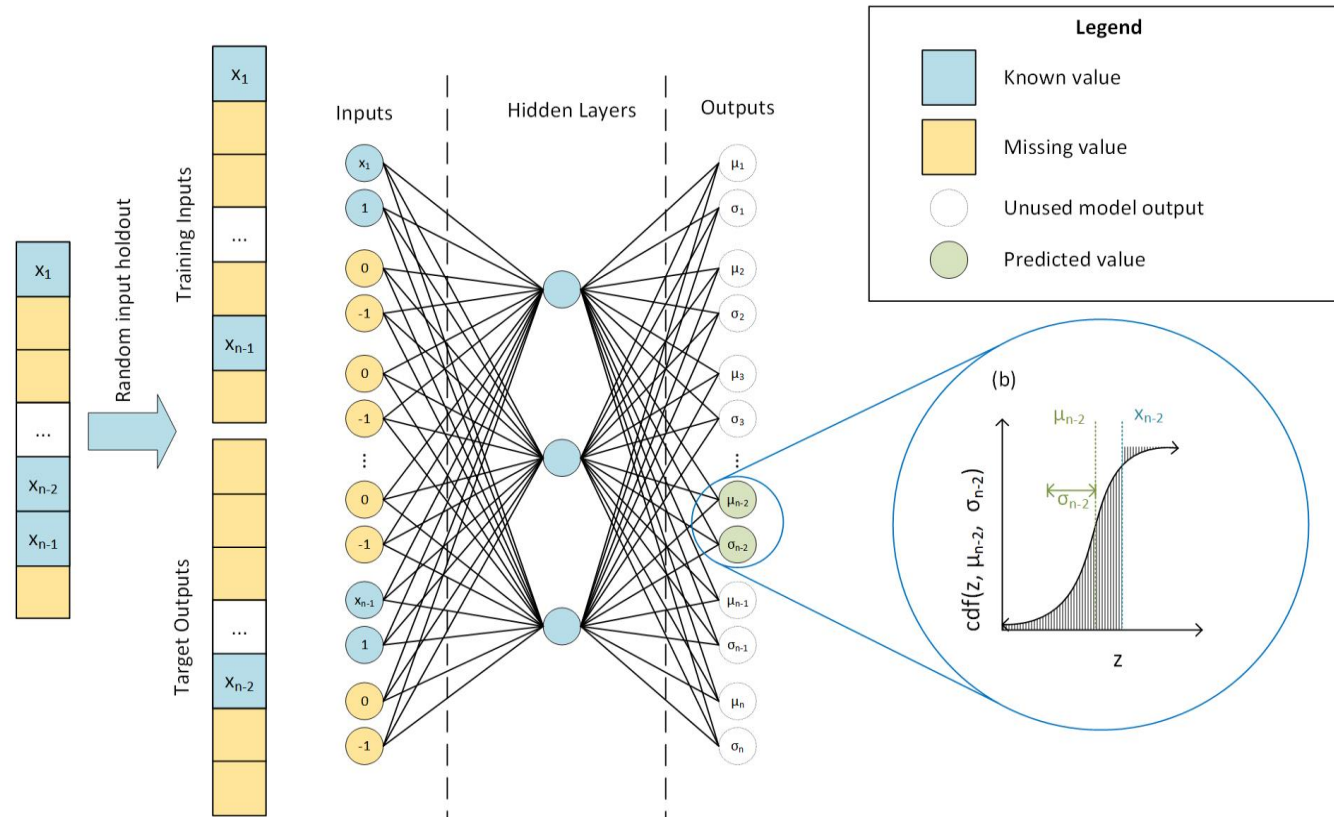
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(29/05/1985 to 26/6/2019)



# Background



Modified Mixture Density Network

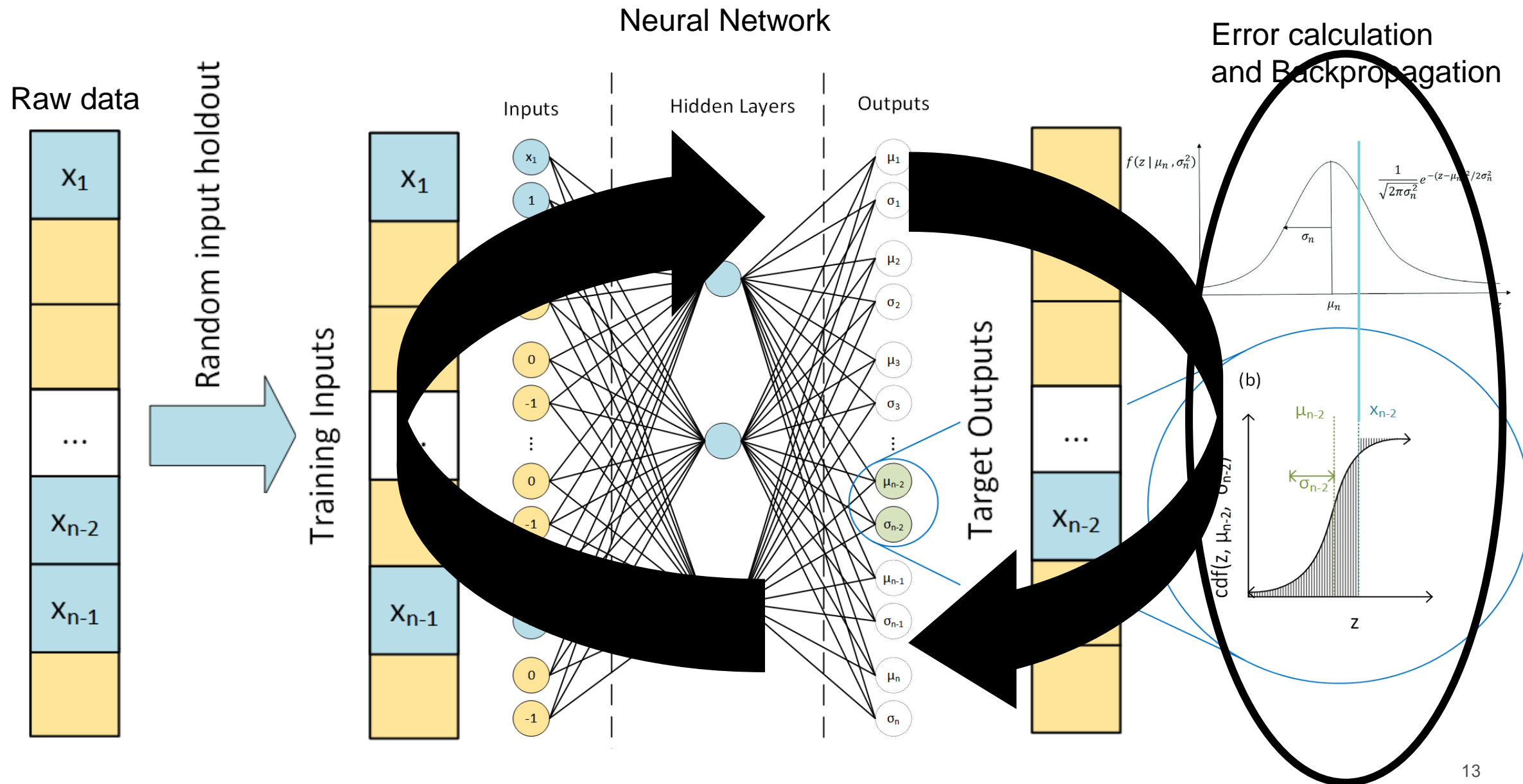
Use of AI/ML to automate severe AS phenotyping....

using only echocardiographic measurement data!!

- Deep learning neural network using multidimensional clusters
- Missing data imputed using multiple imputation model - tested across the entire data set with minimal imputation errors

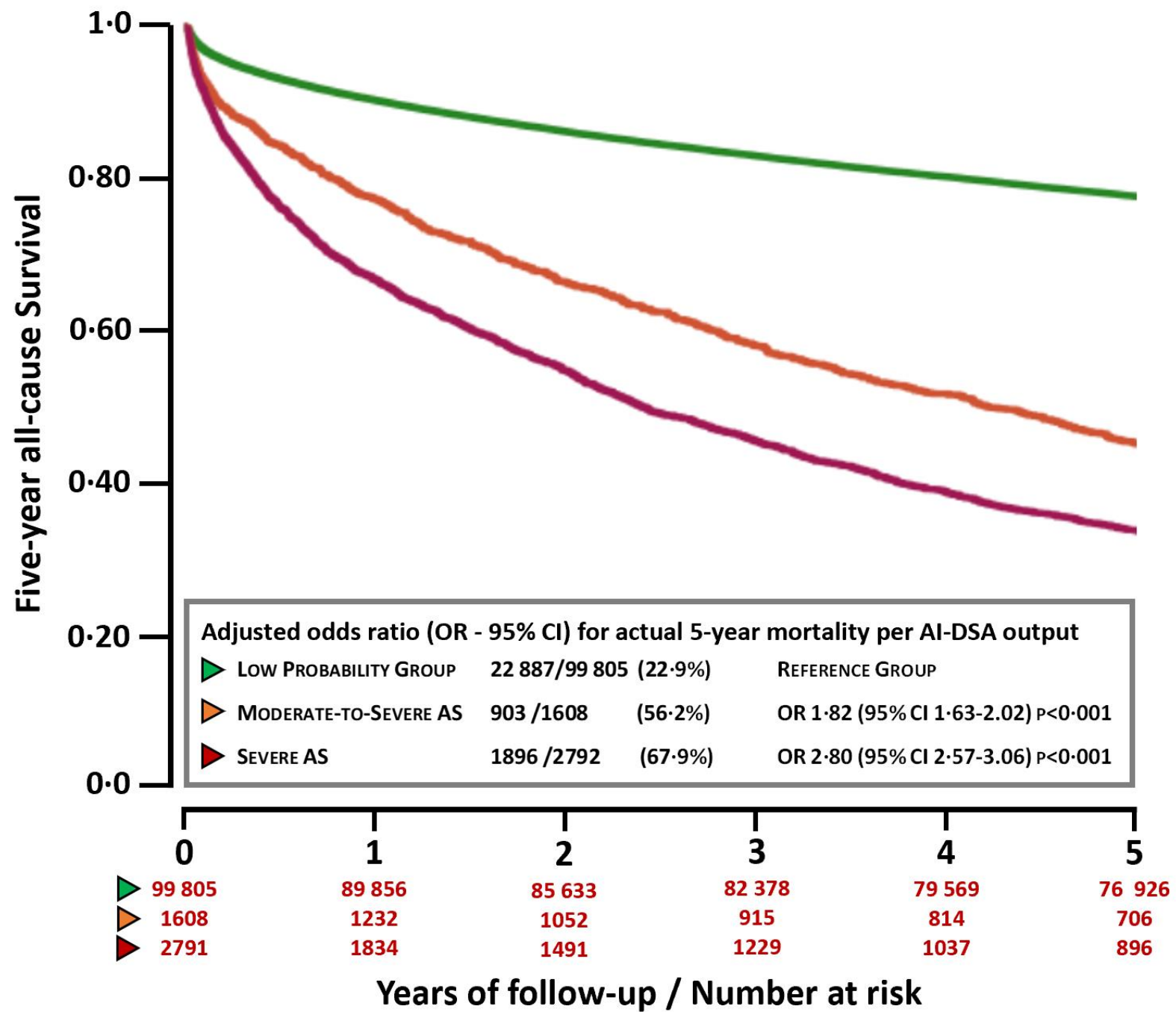


# Training: step-by-step

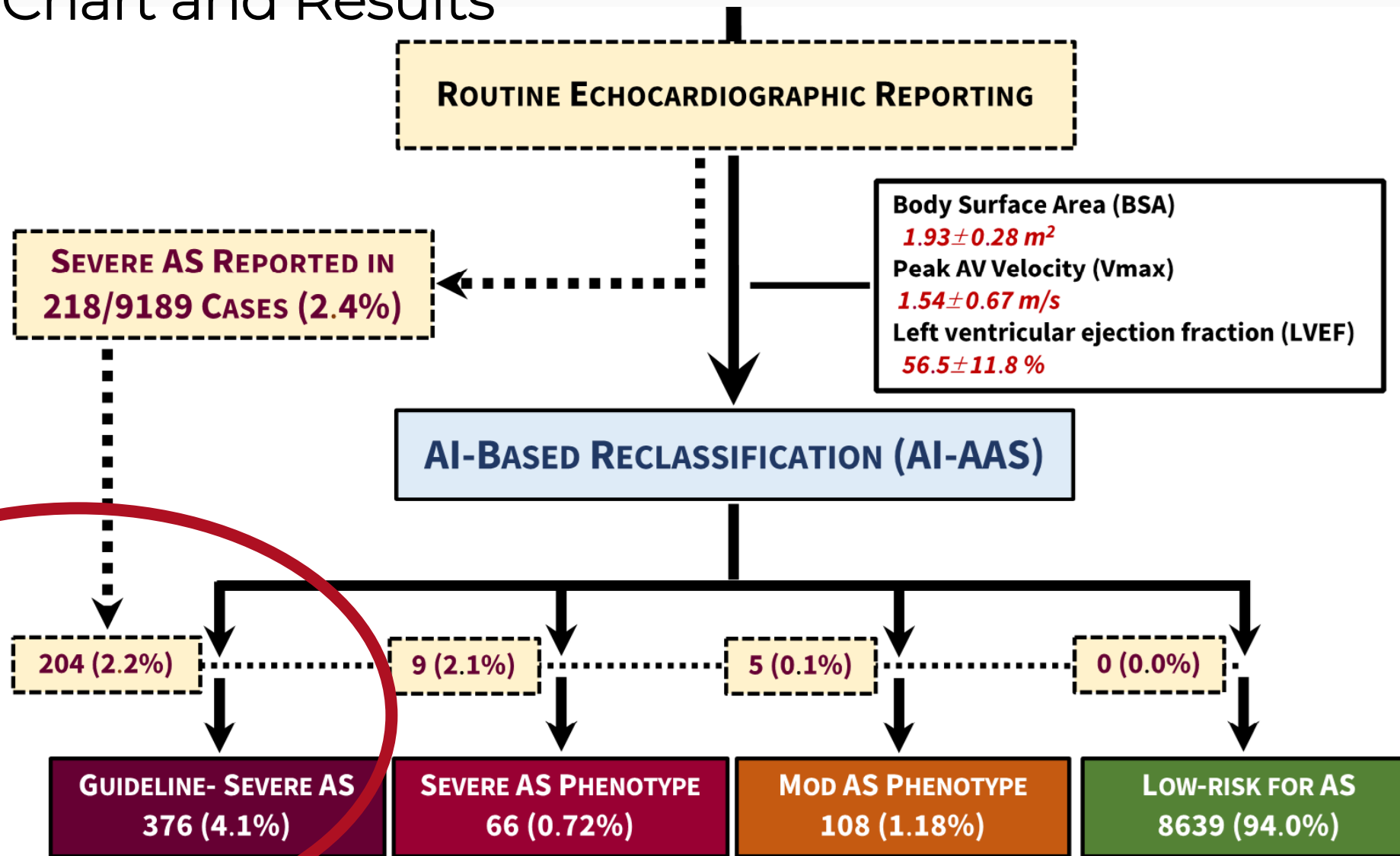


# 5-Year Survival Curves

Actual five-year all-cause survival according to three main outputs from the AI-DSA



# Flow Chart and Results



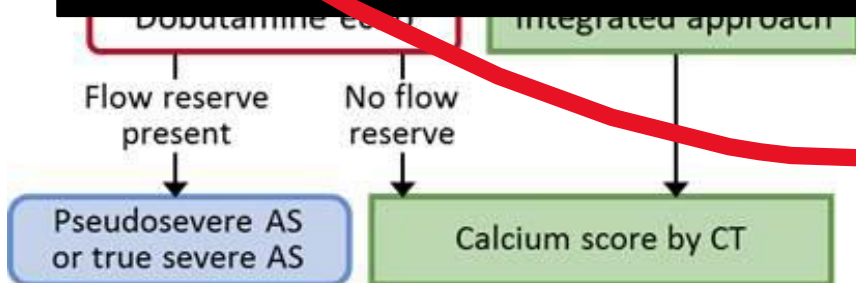
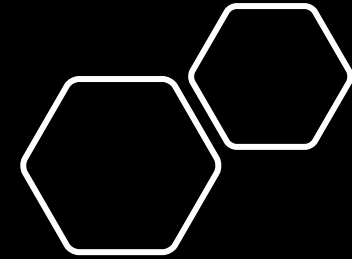
Valve morphology by echocardiography suspicious of AS

# Valve

Left Ventricle

Left Atrium

Pulmonary Circulation





## SCIENTIFICALLY-PROVEN AI

### For enhancing diagnosis of structural heart disease

EchoSolv™ removes the labour intensiveness, user-dependency and unconscious bias in diagnosis which can lead to greater accuracy compared to traditional methods.



### Patient triage on-the-go

Assessments available  
wherever you are, on  
any device



### Real-time alerts

Tailored alerts to  
reduce missed  
patients



### Rapid results

In under 3  
seconds  
per patient



### AI Phenotyper

Unique AS risk  
assessment using AI and  
proprietary research



### View 360

Wide view of heart  
health for better  
decision-making



### Guideline detection

Aligned to local  
regulatory standards  
and frameworks



# EchoSolv™ Product Pipeline

Echo IQ has a clear near-term roadmap for whole-of-structural-heart solutions.

● Available now

● Available Nov 23 - Jan 24

## Diastolic Dysfunction

Guidelines Tool (Nov'23)

Affects 20-30% of adult population<sup>7</sup>

## Pulmonary Hypertension

Guidelines Tool (Nov'23)

Affects 10% of adults over 65, drug therapy treatment<sup>8</sup>

## Mitral Stenosis

Guidelines Tool (Jan'24)

Rare but manageable with drug therapies

**Left Ventricular Mass**  
(Dec '23)

## Aortic Stenosis

Severe AS Guidelines ✓

Severe AS AI Phenotype ✓

## Left Atrial Volume

Indicator for multiple conditions

## Mitral Regurgitation

Chronic MR Guidelines ✓

## Heart Failure

Guidelines Tool (Nov'23)

Causes > 10% of **all** deaths<sup>9</sup>

# Proven clinical effectiveness

Beth Israel Deaconess  
Medical Center



EchoSolv™ identified 100% of the patients with guideline-defined severe aortic stenosis, equal to ~5% of the study population.

EchoSolv™ identified an additional cohort, similar in size, at high risk of mortality.

3 in 4 of the EchoSolv™ identified cases with AS had NOT received treatment.

*"EchoSolv™ worked extremely well to identify individuals with severe aortic stenosis, despite needing minimal data inputs. Using EchoSolv™ in clinical practice could make a huge difference in our ability to identify those individuals who need timely evaluation."*

*Prof. Jordan Strom. Harvard Medical School  
Principal Investigator*



EchoSolv™ identified 100% of the patients with guideline-defined severe aortic stenosis, equal to ~4% of the study population. This was a 72% increase on human-only identification.

Women were 66% less likely to have been accurately diagnosed than men. EchoSolv™ addresses this bias in diagnosis.

*"The EchoSolv™ platform is the first in the world to show improvement in severe AS identification compared with current clinical practice."*

*Prof. David Playford  
Chief Medical Advisor, Echo IQ*

*Refer to ASX Announcements dated 19 April 2023 and 1 December 2022*

# Commercialisation Strategy

## CLINICAL VALIDATION & REGULATORY



✓ Clinical studies at St. Vincent's Hospitals (AU) and Beth Israel Deaconess Medical Center (US)

✓ FDA 510(K) pathway defined. Reader study underway for final application Q4 2023

✓ Multiple ESC late-breaking presentations and Open Heart publication of clinical findings

## COMMERCIAL PILOTS



✓ Pilot with Advara HeartCare, Australia's leading provider of cardiology services

✓ Pilot with Gold Coast Private Hospital converted to commercial SaaS agreement

## SAAS AGREEMENTS

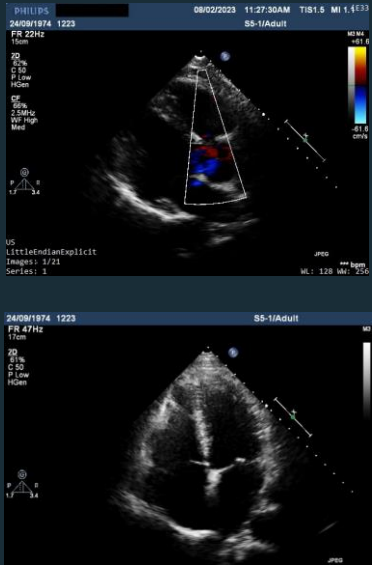


✓ Agreements in place in Australian cardiology and hospital sectors

✓ Strong and growing pipeline of US customers in multiple sectors



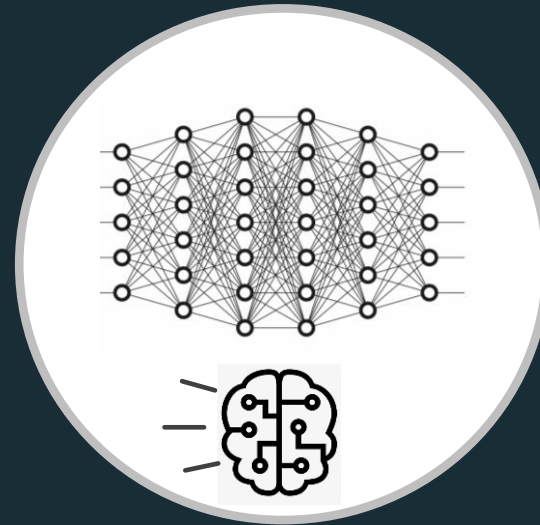
# EchoSolv™ Unique AI to address the problem of under-diagnosis of structural heart disease.



AI Outputs from Images

Measurements  
(Manual/ Automated)

Physician Interpreted  
Measurements



EchoSolv™

AI and Machine Learning  
trained on over 1M echo's

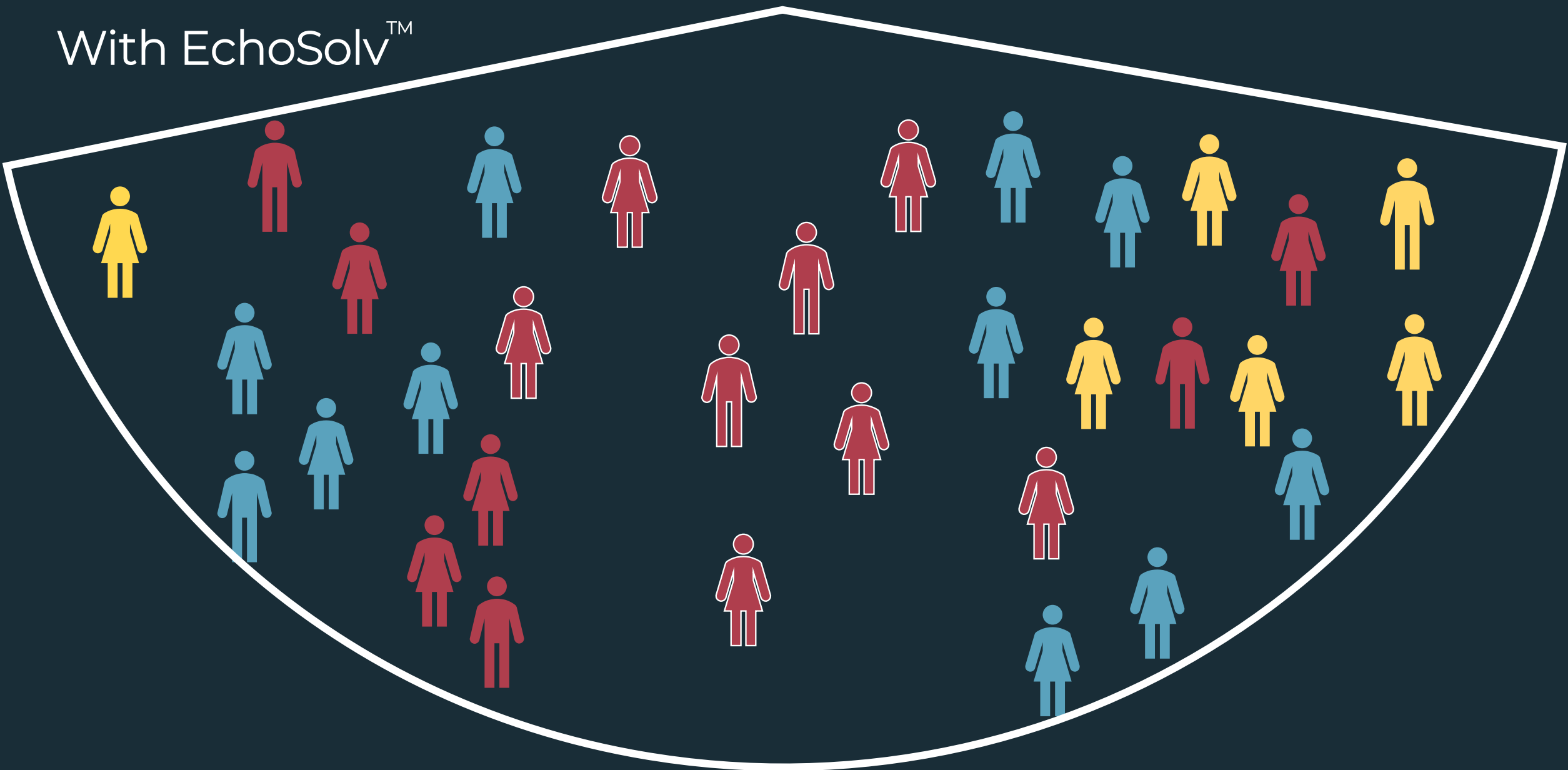
Disease Detection

# Training: step-by-step





With EchoSolv™



# EchoSolv™: Easy to interpret results

EIQ

EchoSolv

Search for a patient

Stealth Mode Off

EIQPAT\_5

Name: Mary Brown

Sex: Female

DOB: 1963-11-20

2022-11-01

Overall

Severe Aortic Stenosis

HIGH

Severe AS Phenotype

MET

Guideline Severe AS

Outcome

Artificial Intelligence is suggestive of a high probability of a severe aortic stenosis phenotype. The Echocardiographic measurements are consistent with current severe aortic stenosis guidelines.

Relevant Measurements

The measurements displayed here are selected from the source echocardiogram data. These measurements are not outputs of the AI product.

Aortic Valve Mean Gradient 38mmHg

Aortic Valve Peak Velocity 450cm/s

Aortic Valve Area 1.1cm²

Stroke Volume Index N/A

Left Atrial Volume Index N/A

Right Ventricular Systolic Pressure N/A

Left Ventricular Ejection Fraction Teichholz Method 8%

Study Details

Measurements

Aortic Valve Area

1.1 cm²

Aortic Valve Mean Gradient

38 mmHg

Aortic Valve Peak Velocity

450 cm/s

Body height

165 cm

Body Mass Index Calculated

31.55 kg/m²

Body Surface Area

1.98 m²

Body Weight

85.9 kg

Left Ventricular Ejection Fraction Teichholz Method

8 %

Unique assessment reference: c24674c4-d6e5-47e2-a3b2-d1fe673099e6

- Clear calls to action
- Key measurements for Severe Aortic Stenosis displayed alongside probability results
- Easy to navigate to patients' historical studies
- Export to PDF or CSV to share

HIGH RISK

MET

AS Phenotype
Guideline Severe AS


### Analysis Outcome

The Echocardiographic measurements are consistent with current severe aortic stenosis guidelines\*. Artificial intelligence is suggestive of a severe aortic stenosis phenotype\*\*.

### Key Measurements

	Raw Input Measurements	Standardised Measurements
Aorta at sinotubular junction diameter	3 cm	3 cm
Aorta at sinuses diameter	3 cm	3 cm
Aortic arch diameter	1 cm	1 cm
Aortic regurgitation pressure half time	650 ms	650 ms
Aortic root diameter	1 cm	1 cm
Aortic root diameter m mode	1 cm	1 cm
Aortic valve mean gradient	42 mmHg	42 mmHg
Aortic valve mean velocity	100 cm/s	100 cm/s
Aortic valve peak gradient	42 mmHg	42 mmHg
Aortic valve peak velocity	450 cm/s	450 cm/s
Aortic valve velocity ejection time	250 ms	250 ms
Aortic valve velocity time integral	50 cm	50 cm
Ascending aorta diameter	5.5 cm	5.5 cm
Body height	168 cm	168 cm
Body mass index calculated	27.99036281179138322 kg/m²	27.99036281179138322 kg/m²
Body surface area	1.920069443188622453 m²	1.920069443188622453 m²
Body weight	79 kg	79 kg
Heart rate	182 bpm	182 bpm
Isovolumic relaxation time	122 ms	122 ms
lv diameter expiration	4.04 cm	4.04 cm
lv diastolic thickness	2.42 cm	2.42 cm
lv diastolic thickness m mode	2.42 cm	2.42 cm
lv systolic thickness m mode	2.42 cm	2.42 cm
lv to pr ratio	8.020000000000001	8.020000000000001
Lateral mitral annular tissue doppler e to e prime ratio	40.02	40.02
Left atrial ao ratio	8.040000000000001	8.040000000000001
Left atrial ao ratio m mode	8.040000000000001	8.040000000000001
Left atrial area 2 chamber view	66 cm²	66 cm²
Left atrial area 4 chamber view	80.2 cm²	80.2 cm²
Left atrial length 4 chamber view	8.2 cm	8.2 cm
Left atrial systolic diameter m mode	8.2 cm	8.2 cm
Left atrial systolic diameter parasternal long axis	8.2 cm	8.2 cm
Left atrial volume	320.20000000000005 cm³	320.20000000000005 cm³
Left atrial volume index	320.20000000000005 m³/m²	320.20000000000005 m³/m²
Left ventricular diastolic area method of discs 4 chamber method	121 cm²	121 cm²
Left ventricular diastolic area psax for lv mass assessment	121 cm²	121 cm²
Left ventricular diastolic diameter m mode	7.5 cm	7.5 cm
Left ventricular diastolic diameter parasternal long axis	7.5 cm	7.5 cm
Left ventricular diastolic length 2 chamber	10.600000000000001 cm	10.600000000000001 cm
Left ventricular diastolic length 4 chamber	10.600000000000001 cm	10.600000000000001 cm
Left ventricular diastolic volume 4 chamber area length method	404 cm³	404 cm³
Left ventricular diastolic volume method of discs 2 chamber method	404 ml	404 ml
Left ventricular diastolic volume method of discs 4 chamber method	404 ml	404 ml

# SaaS Revenue Model

 Pay-as-you-go

EchoSolv

## Per Study

Ideal for Echo labs and clinics with lower volumes

- ✓ Severe Aortic Stenosis Guidelines Detection
- ✓ Severe Aortic Stenosis AI Phenotype
- ✓ Mitral Regurgitation Guidelines Detection
- ✓ Real-time PACS Integration
- ✓ SMS and Email Alerts
- ✓ Data Export
- ✓ Unlimited Re-assessments for Each Study

 Enterprise

EchoSolv

## Fixed Monthly Fee

Unlimited assessments with predictable pricing

- ✓ Severe Aortic Stenosis Guidelines Detection
- ✓ Severe Aortic Stenosis AI Phenotype
- ✓ Mitral Regurgitation Guidelines Detection
- ✓ Real-time PACS Integration
- ✓ SMS and Email Alerts
- ✓ Data Export
- ✓ Unlimited Re-assessments for Each Study
  
- + Unlimited Study Assessments
- + 12-month Retrospective Quality Audit

# Rapid Market Development

		MARKET		USAGE MODE		REVENUE MODEL		
		AUSTRALIA	UNITED STATES	REAL-TIME	QUALITY-AUDIT	MONTHLY SAAS	FEE PER SCAN	PROJECT FEE
PARTNER TYPE	Hospital	Contracted + Announced		Contracted + Announced	Contracted + Announced	Contracted + Announced		
	Cardiology Practice	Contracted + Announced			Contracted + Announced	Contracted + Announced		
	PACS/Reporting	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced	
	Distributor	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced	Contracted + Announced
	Valve Manufacturer	Significant engagement	Significant engagement		Significant engagement			Significant engagement
	Hardware Scanning	Significant engagement	Significant engagement	Significant engagement	Significant engagement	Significant engagement	Significant engagement	Significant engagement
		Contracts in place in Australia including paid pilot with country's largest cardiology provider. Advanced engagement and pipeline in US.		EchoSolv(TM) seeing traction for real-time analysis and quality audit.		Multiple revenue models in place to support users with different scale, need and objectives.		

# Case Study:

## Potential Impact in Hospital Setting



EchoSolv

Impact

*Review Mode*

Human-Only

AI +  
Automation

*Number of  
EchoCardiograms Assessed*

9189

9189

*Number of Severe Aortic  
Stenosis cases detected*

218

**376**

**+ 72%**

*Hospital income from respective  
valve replacements \**

US\$6.98M

**US\$9.84M**

**+ 41%**

\*Extrapolated figures derived using detection rates from St. Vincent's Study (as reported in ASX announcement dated April 19), combined with assumed industry replacement valve costings of \$32,000 and a 43% surgical non-suitability rate



# 510k FDA clearance pathway

Securing FDA clearance in US market becomes a material revenue accelerator

Allows cardiologists to pursue undiagnosed patients and tap revenue from insurance and public health rebate channels (similar to Medicare).

## Q4 2022

### Pre-submission meeting

- + Acceptance of predicate
- + Reader Study recommended

## Q1 2023

### Reader Study Set-Up

- + Study design accepted by FDA
- + Sites identified

## Q2/3 2023

### Reader Study runs

- + Study commenced and majority completed
- + Final stage before submission

## Q4 2023

### 510k submission

- + Anticipated Q4
- + 66% reader completion

## Q1 2024

### 510k clearance

- + Anticipated Q1 2024

Reimbursement opportunities available post-FDA clearance

# Scientific Advisory Board

- > Comprises a team of globally recognised experts in cardiovascular medicine, echocardiography, sonography, applied artificial intelligence and public health
- > More than 1,200 peer-reviewed publications
- > Former Presidents and Chairs, Am. College of Cardiology and Am. Society of Echocardiography
- > Includes a TedMed Speaker and NASA's lead scientist in ultrasound
- > Includes a member of the team that performed the world's first transcatheter aortic valve replacement using the transapical approach



Prof. Huon H. Gray

CBE MD  
Former National Clinical Director  
CVD, NHS England, Am. College  
Cardiology Chair (International  
Council)



Partho Sengupta

MD MBBS FACC FASE  
Henry Rutgers Professor of  
Cardiology. Chief of Division, Robert  
Wood Johnson Medical School



James Thomas

MD FACC FASE FESC  
Former President Am. Society of  
Echocardiography, Director, Center  
Heart Valve Disease



David Ouyang

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San Diego Cardiac Center



Jordan Strom

MD Msc FACC FASE  
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University



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Scott & White, Cardiovascular  
Governance



Greg Scalia

MBBS MSc FRACP FCSANZ  
FACC FASE  
Wesley Hospital, QLD

# Investment Highlights

- 1 Echo IQ is now revenue generating with paying customers in professional healthcare segments
- 2 Strong sales pipeline in the US and Australia with new contracts imminent
- 3 EchoSolv<sup>™</sup> advances from single disease solution to complete structural heart decision support tool for cardiology
- 4 Competitive moat underpinned by exclusive access to world's leading echocardiographic measurement database linked to mortality
- 5 Clearly defined and highly progressed FDA 510(k) pathway for maiden AI-backed phenotype indicator, with clearance anticipated in Q1 2024



# Echo IQ

THANK YOU

[echoiq.ai](https://echoiq.ai)

AI with heart