Risk in Real Life -

The Next Chapter in Underwriting & Claims

23rd April 2026

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Agenda

12:45 – 1:00pm

- **Welcome**

1:00 – 2:00pm

- **Future-Proofing Cardiomyopathy Risk : U/W & Claims Considerations – Dr Costas O'Mahony**

2:00 – 2:45pm

- **Closing the Loop – Leveraging AI and Data to Bridge U/W & Claims – Dan Ryan**

2:45 – 3:15pm

- **Coffee Break**

3:15 – 4:15pm

- **Beyond the Diagnosis – Modern Cancer Treatment and Insurance Risk – Dr Stephen Falk**

4:15 – 4:45pm

- **ABI Update – Rebecca Ward & Emily Collins**

4:45 – 4:50pm

- **Education Update – Mike Wilson**

4:50 – 5:00pm

- **Closing comments**

5:00pm onwards

- **Networking event @ CosyCocktails**

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Munich RE

PACIFIC LIFE RE

Gen Re

PartnerRe

SCOR
The Art & Science of Risk

Dr Costas O'Mahony -

Future-Proofing Cardiomyopathy Risk : U/W & Claims Considerations

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Future-Proofing Cardiomyopathy Risk: Underwriting and Claims Considerations

Dr Costas O'Mahony

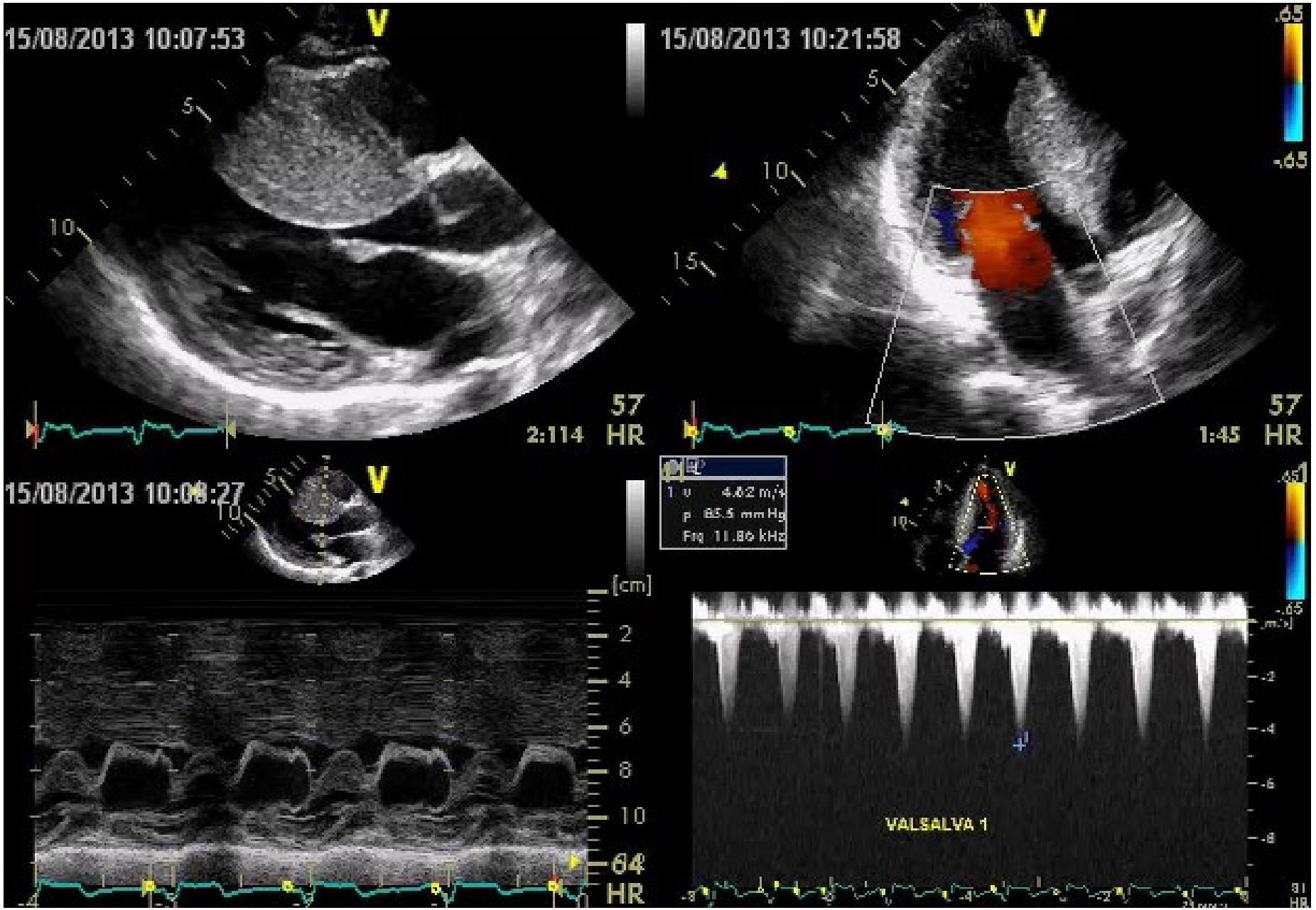
Consultant Cardiologist
St. Bartholomew's Centre for Inherited Cardiovascular Disease
&
Honorary Associate Professor
University College London

Conflicts of interest

- No financial conflicts of interest

Overview

- What is HCM?
- Causes
- Diagnosis
- Outcomes
- Treatments (new and old)
- Impact on underwriting and claims


15/08/2013 10:07:53
57
2:114
HR
15/08/2013 10:21:58
.65
-.65
57
1:45
HR
15/08/2013 10:08:27
1 v 4.02 m/s
p 65.5 mmHg
Frq 11.86 kHz
[cm]
64
HR
VALSALVA 1

Aetiology

- Familial disease
- AD inheritance
- Sarcomeric gene variants
  - Mostly MYH7 and MBPC3
- G+ (~40%) associated with worst outcomes

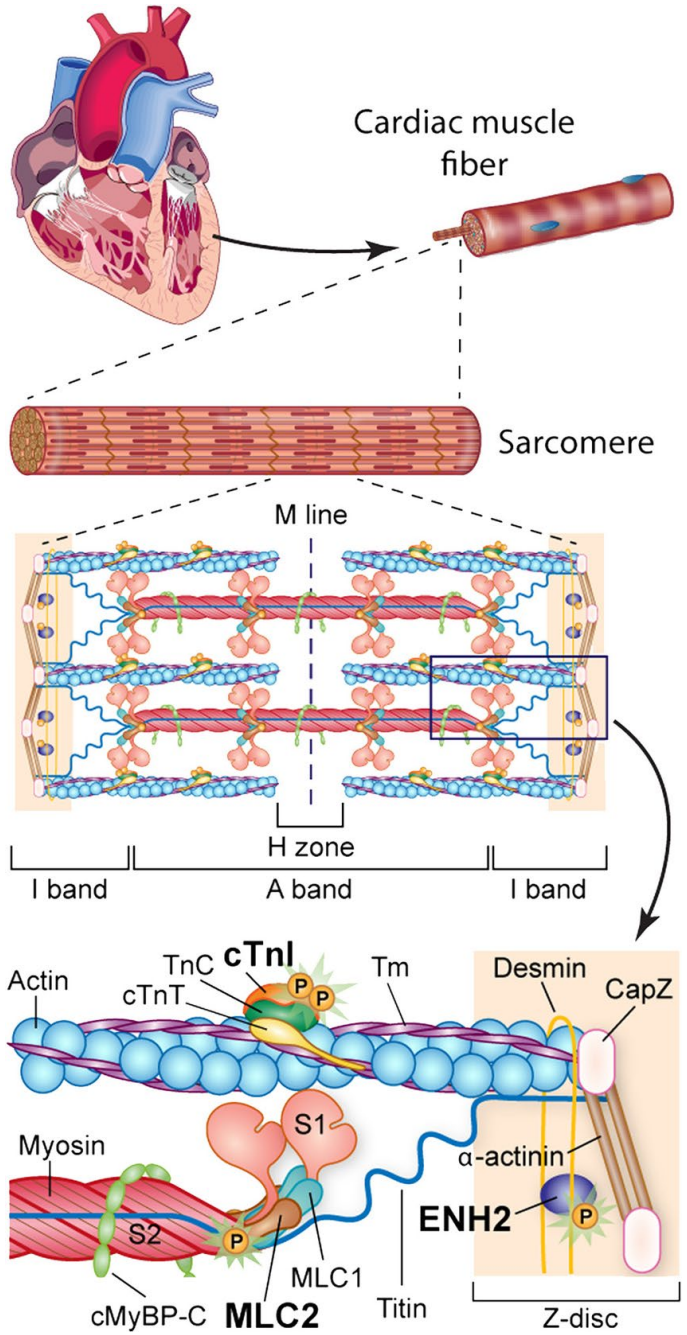


Image from Peng et al; Mol Cell Proteomics 2014

Diagnostic Criteria

1. Assess of wall thickness

- **Children:** LV wall thickness more than 2 standard deviations greater than the predicted mean (z-score >2)
- **Adults:** Maximal wall thickness ≥15 mm in any myocardial segment or ≥13 mm in first degree relatives of index case

2. Assess of loading conditions
3. Exclude phenocopies

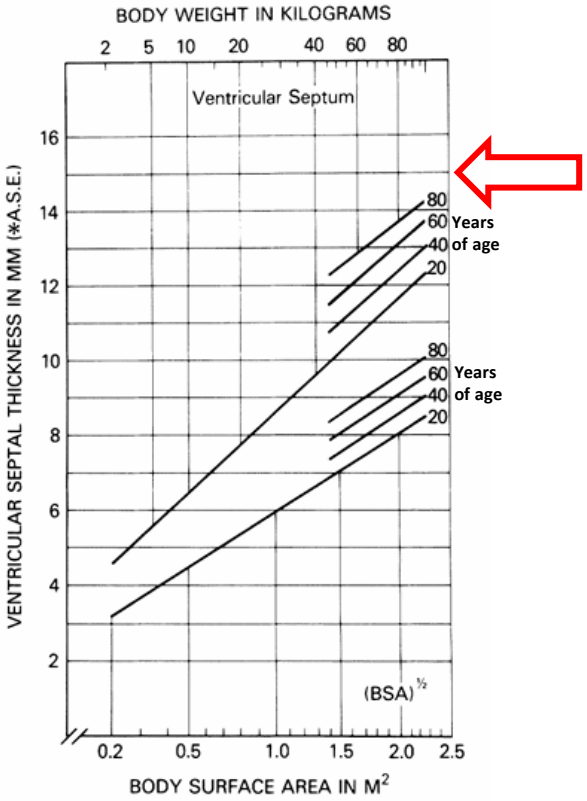


FIGURE 4. *Ventricular septal thickness plotted against body surface area (BSA) (lower horizontal axis) and body weight (upper horizontal axis). This echocardiographic measurement was made according to standards recommended by the American Society of Echocardiography (A.S.E.). The two diverging dark solid lines that extend from a BSA of 0.2 m² to a BSA of 2.3 m² represent the 95% prediction intervals of measurements obtained in normal subjects from 30 days to 20 years of age. The 95% prediction intervals for adult subjects who are 40, 60 and 80 years of age are indicated by the dark solid lines that extend from a BSA of 1.4 m² to a BSA of 2.3 m².*

92 children
136 adults

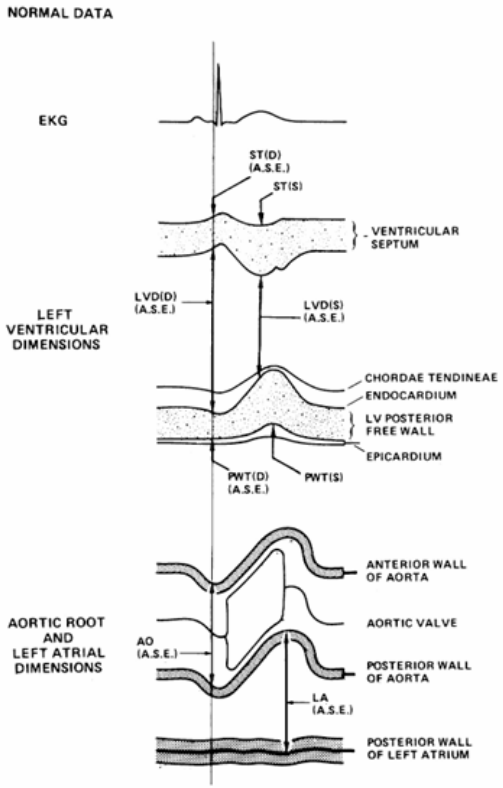


FIGURE 1. *Diagram of standards used to obtain various echocardiographic measurements, as recommended by the American Society of Echocardiography (A.S.E.). LVD(D) = left ventricular dimension at end-diastole; LVD(S) = left ventricular dimension at end-systole; ST(D) = ventricular septal thickness at end-diastole; ST(S) = ventricular septal thickness at end-systole; PWT(D) = left ventricular posterior wall thickness at end-diastole; PWT(S) = left ventricular posterior wall thickness at end-systole; AO = aortic root dimension at end-diastole; LA = maximal left atrial dimension.*

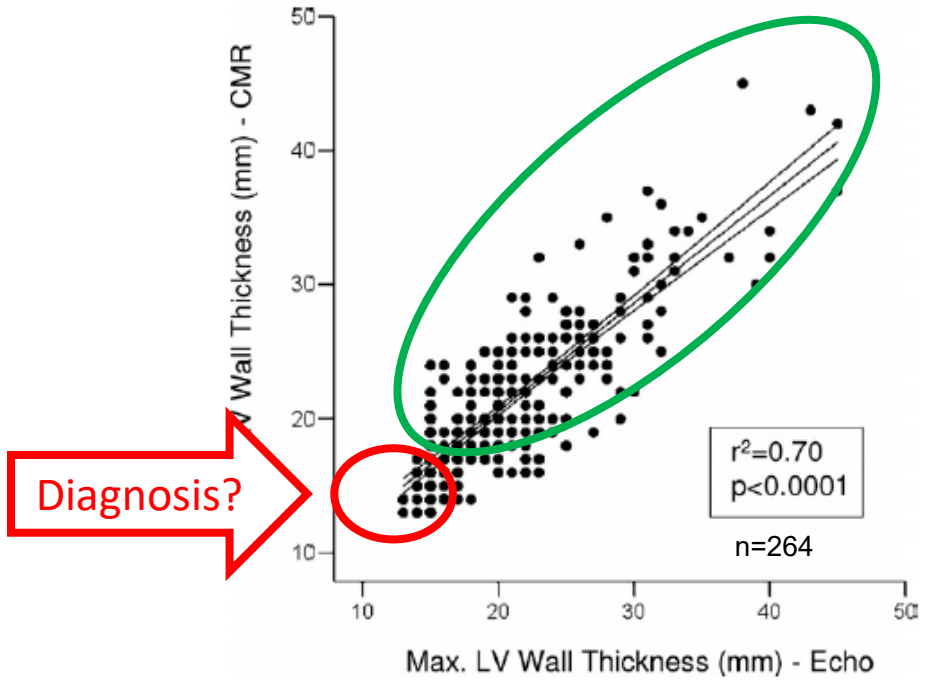
BUT:

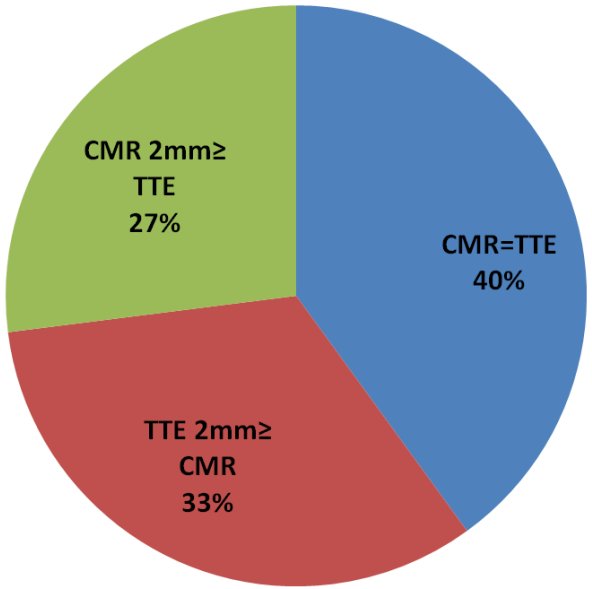
1. Motion-mode can overestimate the wall thickness with non-perpendicular oblique cuts of LV myocardium
2. MWT for diagnosis not adjusted to BSA/age/sex

Henry Circ 1980

2D TTE Vs CMR

Rx decisions?

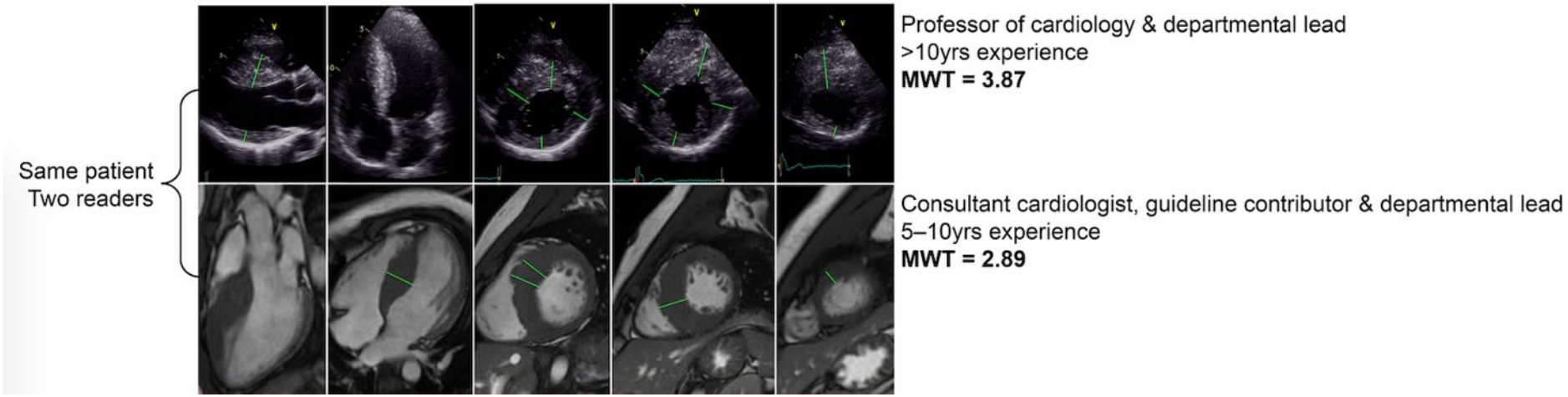




n=264 Average difference TTE / CMR: 0.3±3.4 mm

Olivotto JACC 2008

Lack of standardisation



- CMR measured MWT thicker than echocardiography by 3.7 mm
- Interobserver variability ($MWT_{measured}$- MWT_{mean})/MWT_{mean}*100
  - TTE –59% to 117% (SD 20%)
  - CMR –61% to 52% (SD 11%)
- Increased variability with increasing wall thickness

Captur JACC Imaging 2021

Age/Sex/BSA MWT thresholds?

TABLE 2 Predicted LVH Thresholds for Male Individuals

BSA		Age, y												
		20	25	30	35	40	45	50	55	60	65	70	75	80
1.7 m^2	95% PI (~2 SD)	12	12	12	13	13	13	13	13	14	14	14	14	15
	99.7% PI (~3 SD)	13	14	14	14	14	14	15	15	15	15	15	16	16
1.8 m^2	95% PI (~2 SD)	12	12	13	13	13	13	13	14	14	14	14	15	15
	99.7% PI (~3 SD)	14	14	14	14	14	15	15	15	15	15	16	16	16
1.9 m^2	95% PI (~2 SD)	13	13	13	13	13	14	14	14	14	14	15	15	15
	99.7% PI (~3 SD)	14	14	15	15	15	15	15	15	16	16	16	16	17
2.0 m^2	95% PI (~2 SD)	13	13	13	14	14	14	14	14	15	15	15	15	16
	99.7% PI (~3 SD)	14	15	15	15	15	16	16	16	16	17	17	17	17
2.1 m^2	95% PI (~2 SD)	13	14	14	14	14	14	15	15	15	15	16	16	16
	99.7% PI (~3 SD)	15	15	15	15	16	16	16	16	16	17	17	17	18
2.2 m^2	95% PI (~2 SD)	14	14	14	14	15	15	15	15	15	16	16	16	16
	99.7% PI (~3 SD)	15	15	16	16	16	16	16	17	17	17	17	18	18
2.3 m^2	95% PI (~2 SD)	14	14	15	15	15	15	15	16	16	16	16	17	17
	99.7% PI (~3 SD)	16	16	16	16	16	16	17	17	17	17	18	18	18

Predicted LVH thresholds for male individuals based on age and BSA. Derived from the healthy volunteer Reference Cohort, these thresholds are rounded to the nearest 1 mm. The table shows values at the upper 95% and 99.7% PI, corresponding to approximately 2 and 3 SDs above the mean. BSA values span the 5th to 95th percentile of male individuals in the Population Cohort.

BSA = body surface area; LVH = left ventricular hypertrophy; PI = prediction interval.

Shiwani JACC 2025

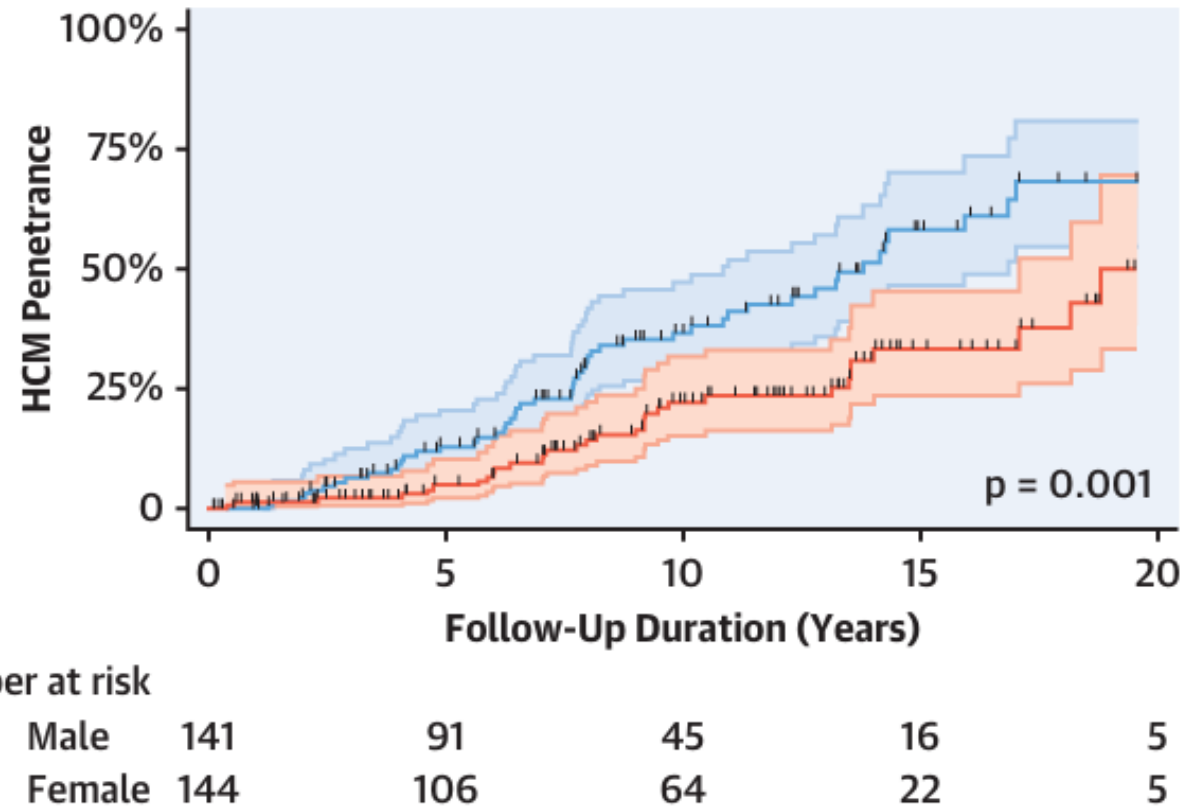
Screening

“ You have been diagnosed with a condition called hypertrophic cardiomyopathy which can be inherited. I have recommended that your first-degree relatives be offered the opportunity to see a cardiologist and have an ECG and an echocardiogram. “

285 adult and pediatric carriers of pathogenic/likely pathogenic sarcomere protein variants with no hypertrophic cardiomyopathy (HCM)

~10% penetrance at 5 years

Penetrance of HCM at 15-year follow-up: 46% (95% CI: 38%-54%)



Risk factors for HCM

Male
HR: 2.91
(95% CI: 1.82-4.65)

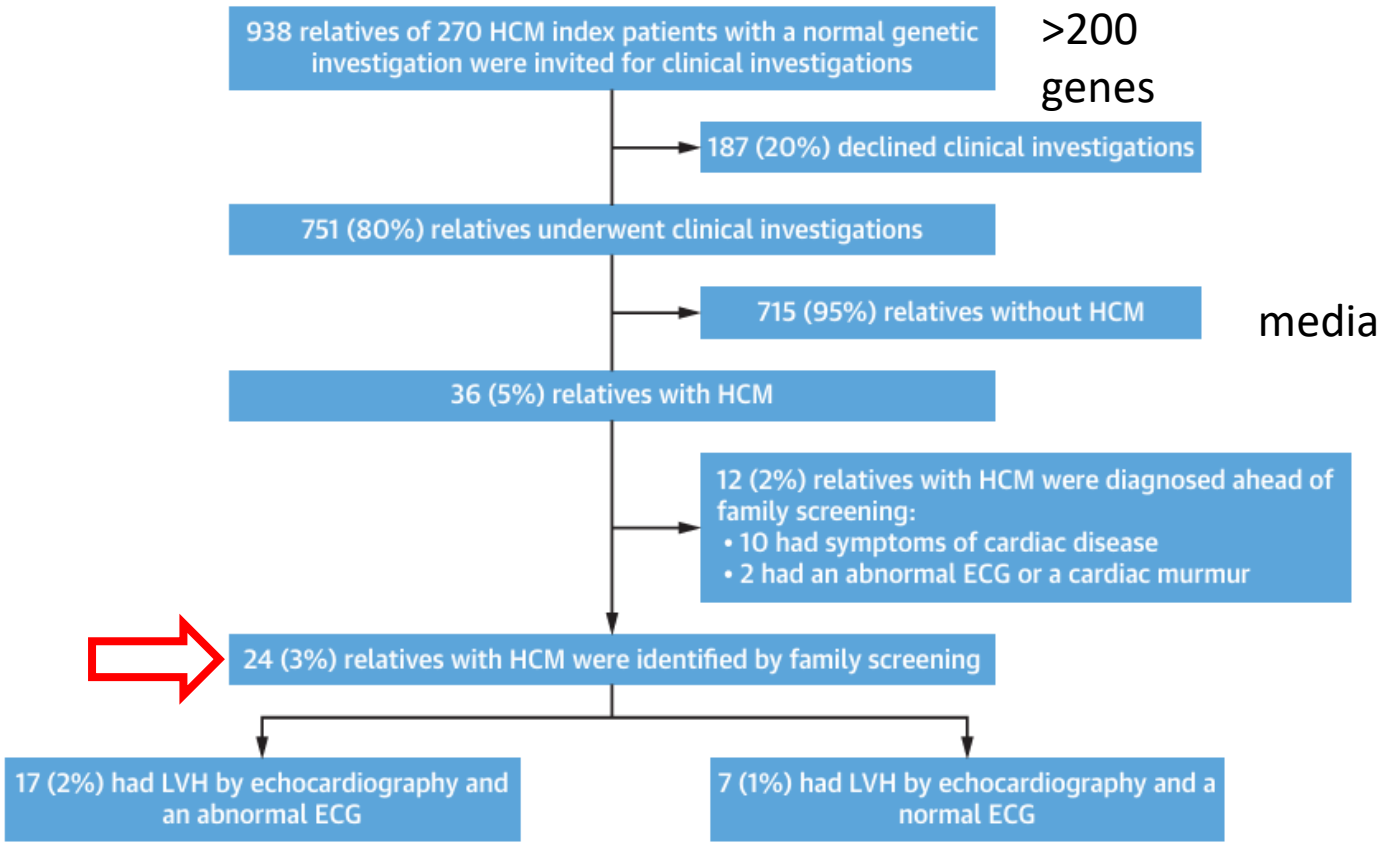
Abnormal ECG
HR: 4.02
(95% CI: 2.51-6.44)

Lowest risk for HCM

TNNI3 variants
HR: 0.19
(95% CI: 0.07-0.55)

Lorenzini, M. et al. J Am Coll Cardiol. 2020;76(5):550-9.

FIGURE 2 Number of Relatives With HCM Identified by Family Screening

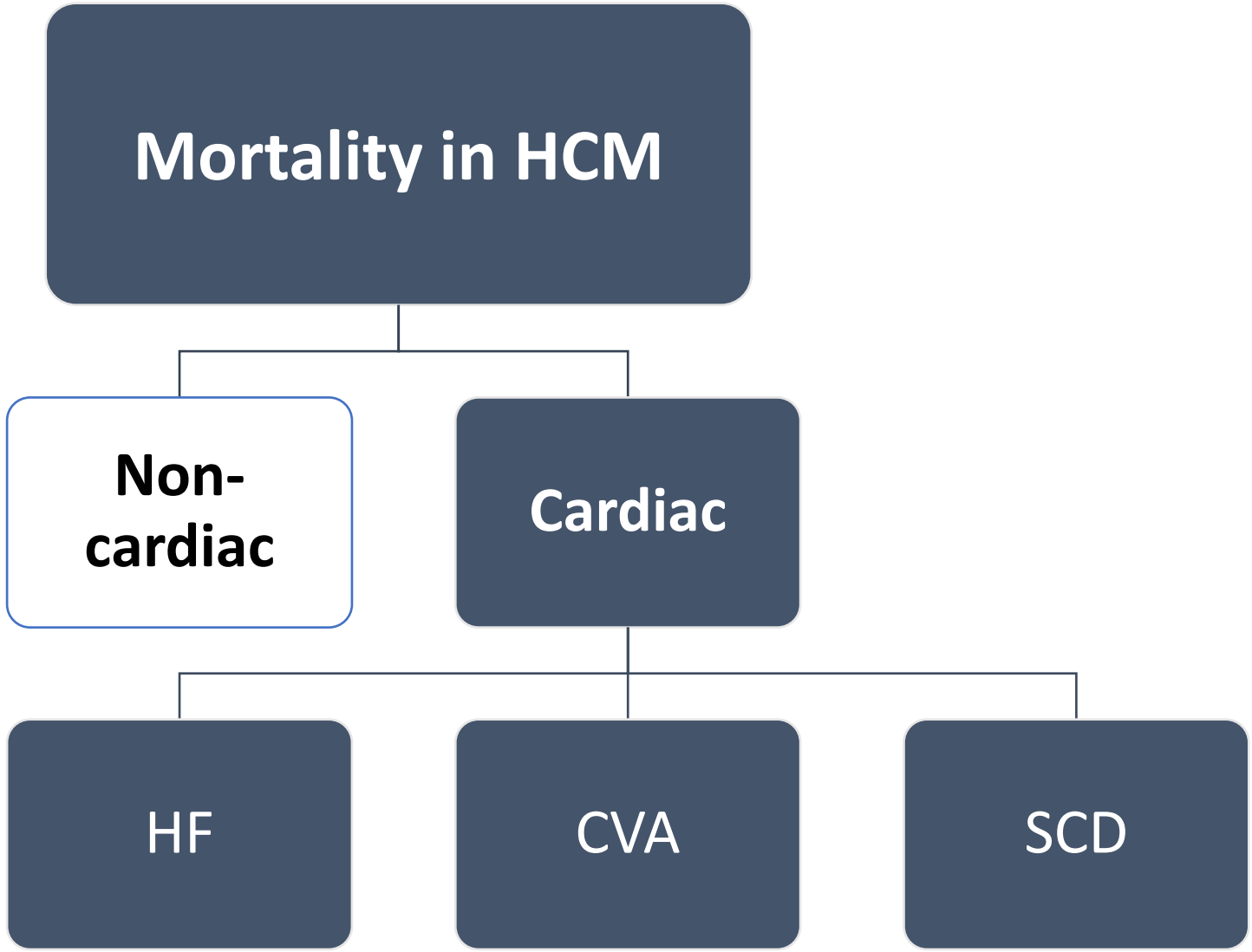


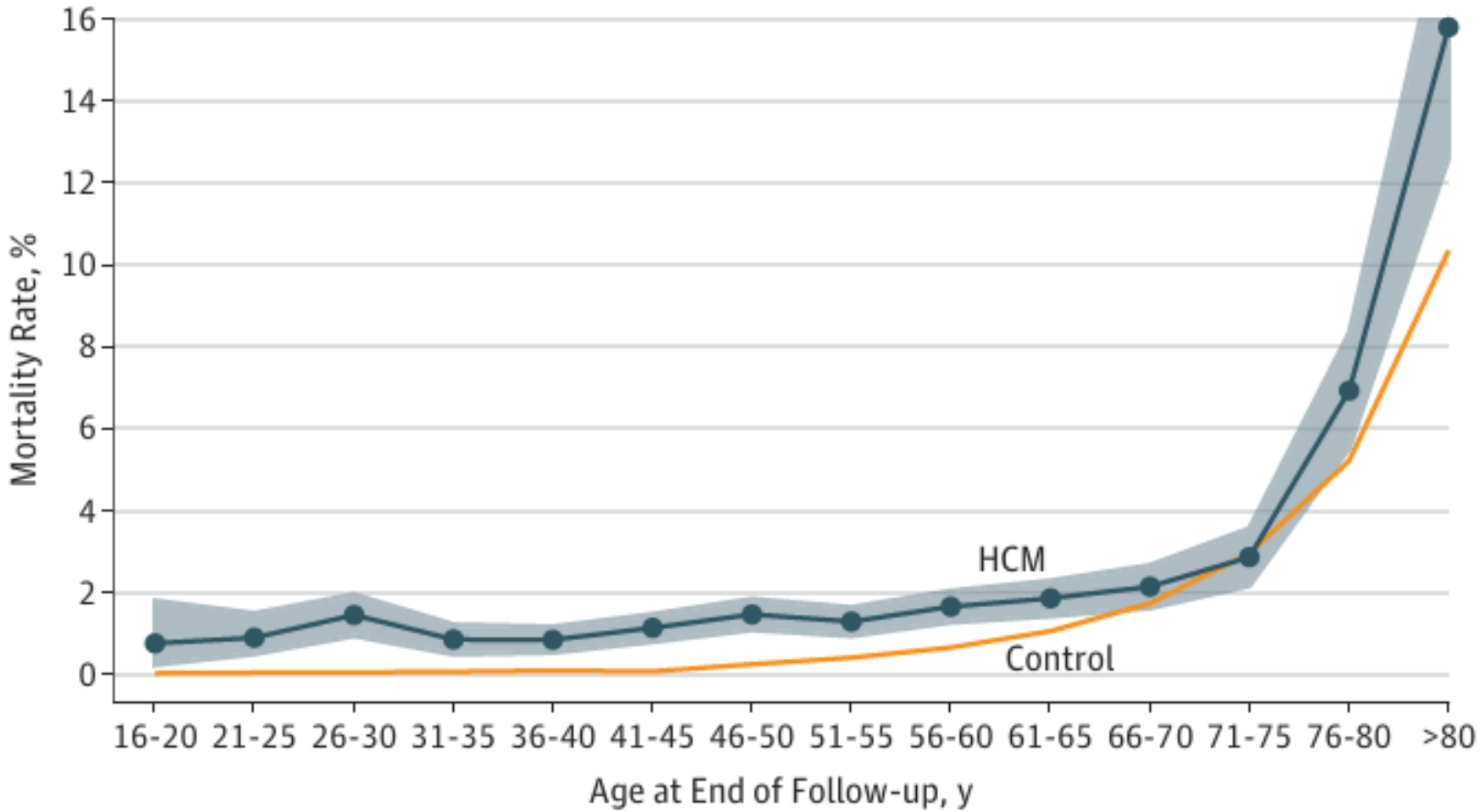
A total of 749 relatives underwent clinical investigations of whom 36 (5%) had hypertrophic cardiomyopathy (HCM). Two percent (n = 12) were diagnosed ahead of family screening because of cardiac symptoms (n = 10), or the presence of an abnormal electrocardiogram (ECG) or a murmur (n = 2). Three percent (n = 24) were diagnosed with HCM following family screening of whom 71% (17 of 24) had left ventricular hypertrophy (LVH) by echocardiography and ECG abnormalities, while 29% (7 of 24) had LVH and a normal ECG. Upon the first visit, 40% (13 of 24) of relatives diagnosed by family screening reported mild cardiac symptoms, including dyspnea or angina on exertion (25%, 6 of 24) or intermittent palpitations (24%, 5 of 24).

>200 genes

median FU ~5y

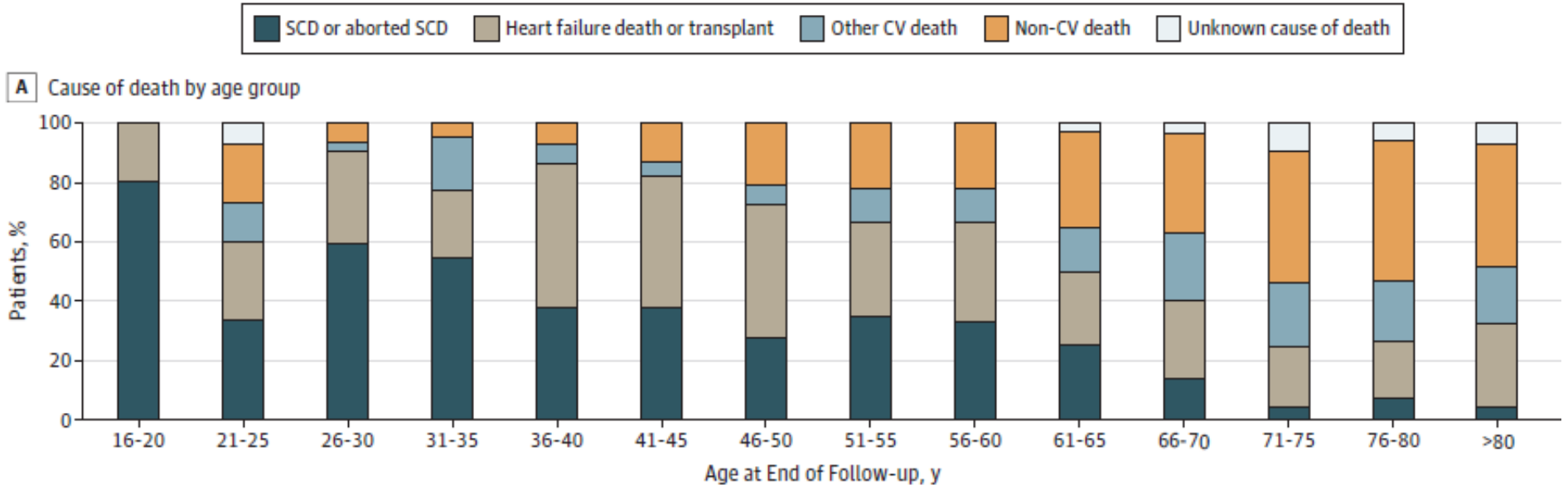
Nielsen et al. JACC 2023


Mortality in HCM
Non-cardiac
Cardiac
HF
CVA
SCD

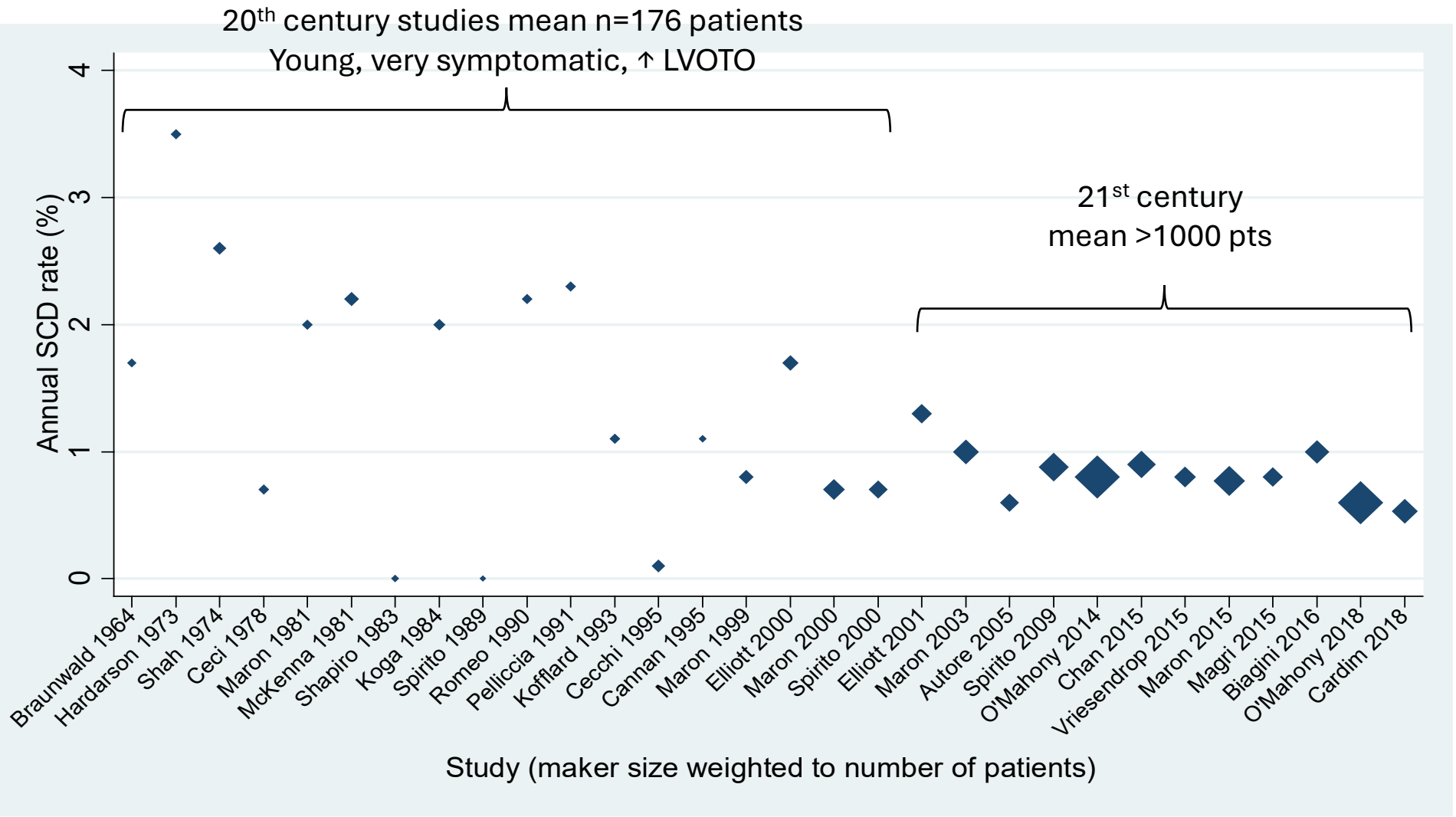


Lorenzini et al; JAMA Card 2020

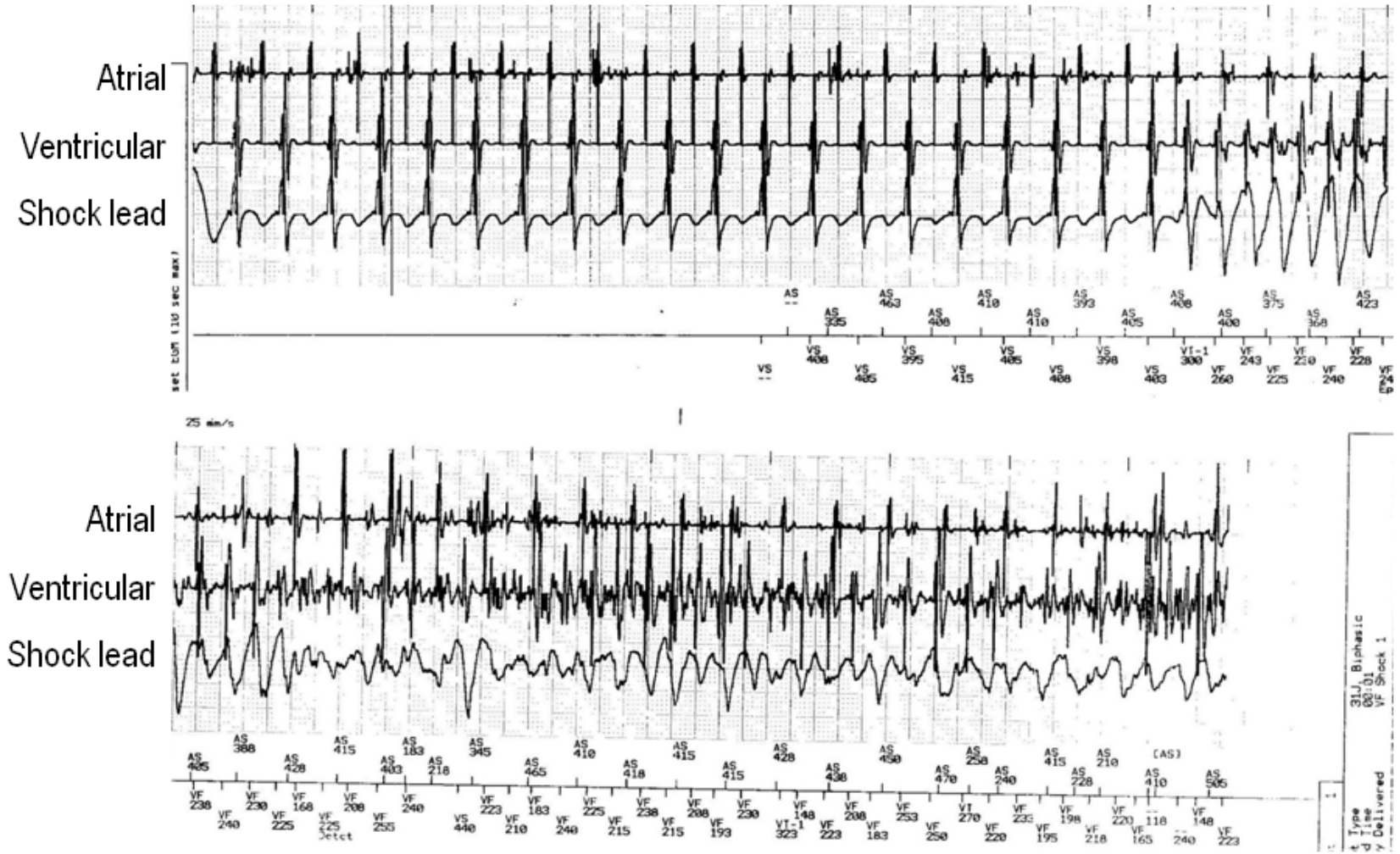
Age and SCD



Lorenzini et al; JAMA Card 2020


20th century studies mean n=176 patients
Young, very symptomatic, ↑ LVOTO
21st century
mean >1000 pts
Annual SCD rate (%)
0
1
2
3
4
Braunwald 1964
Hardarson 1973
Shah 1974
Ceci 1978
Maron 1981
McKenna 1981
Shapiro 1983
Koga 1984
Spirito 1989
Romeo 1990
Pelliccia 1991
Kofflard 1993
Cecchi 1995
Cannan 1995
Maron 1999
Elliott 2000
Maron 2000
Spirito 2000
Elliott 2001
Maron 2003
Autore 2005
Spirito 2009
O'Mahony 2014
Chan 2015
Vriesendrop 2015
Maron 2015
Magri 2015
Biagini 2016
O'Mahony 2018
Cardim 2018
Study (maker size weighted to number of patients)

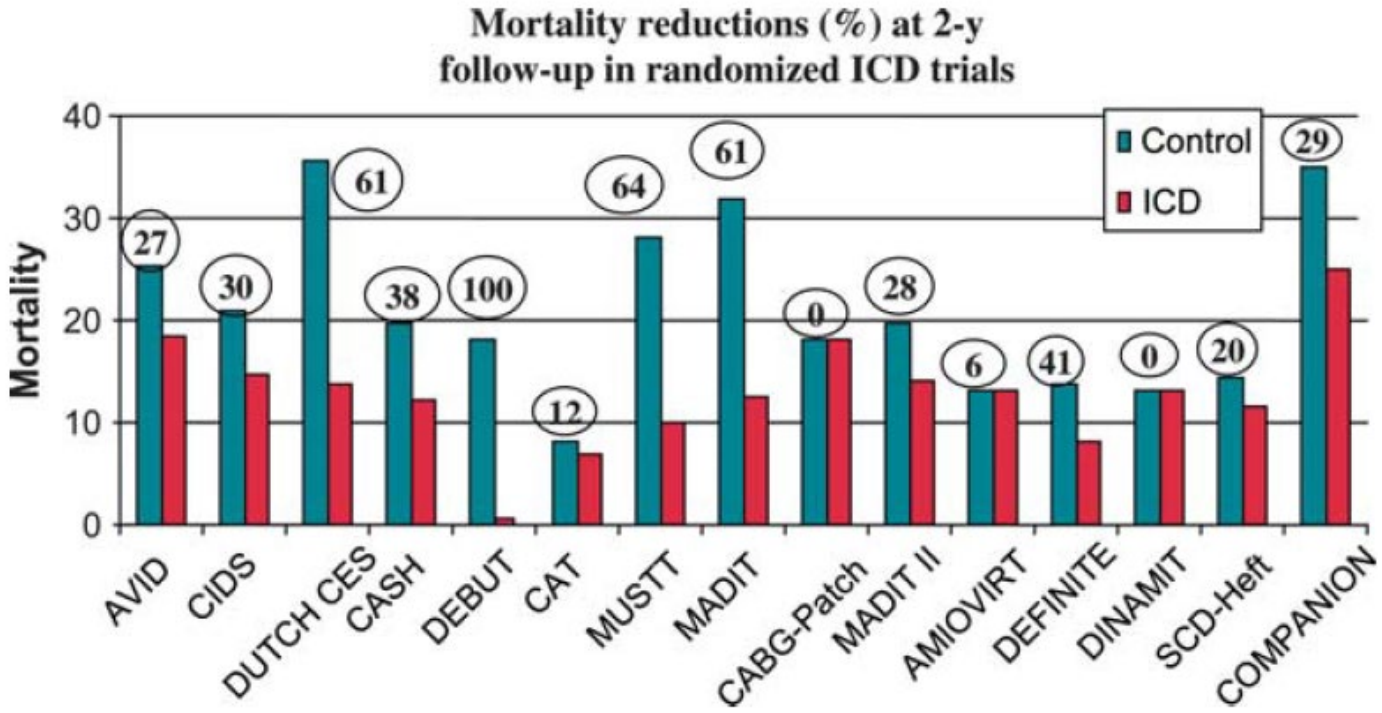
Ventricular arrhythmias → SCD



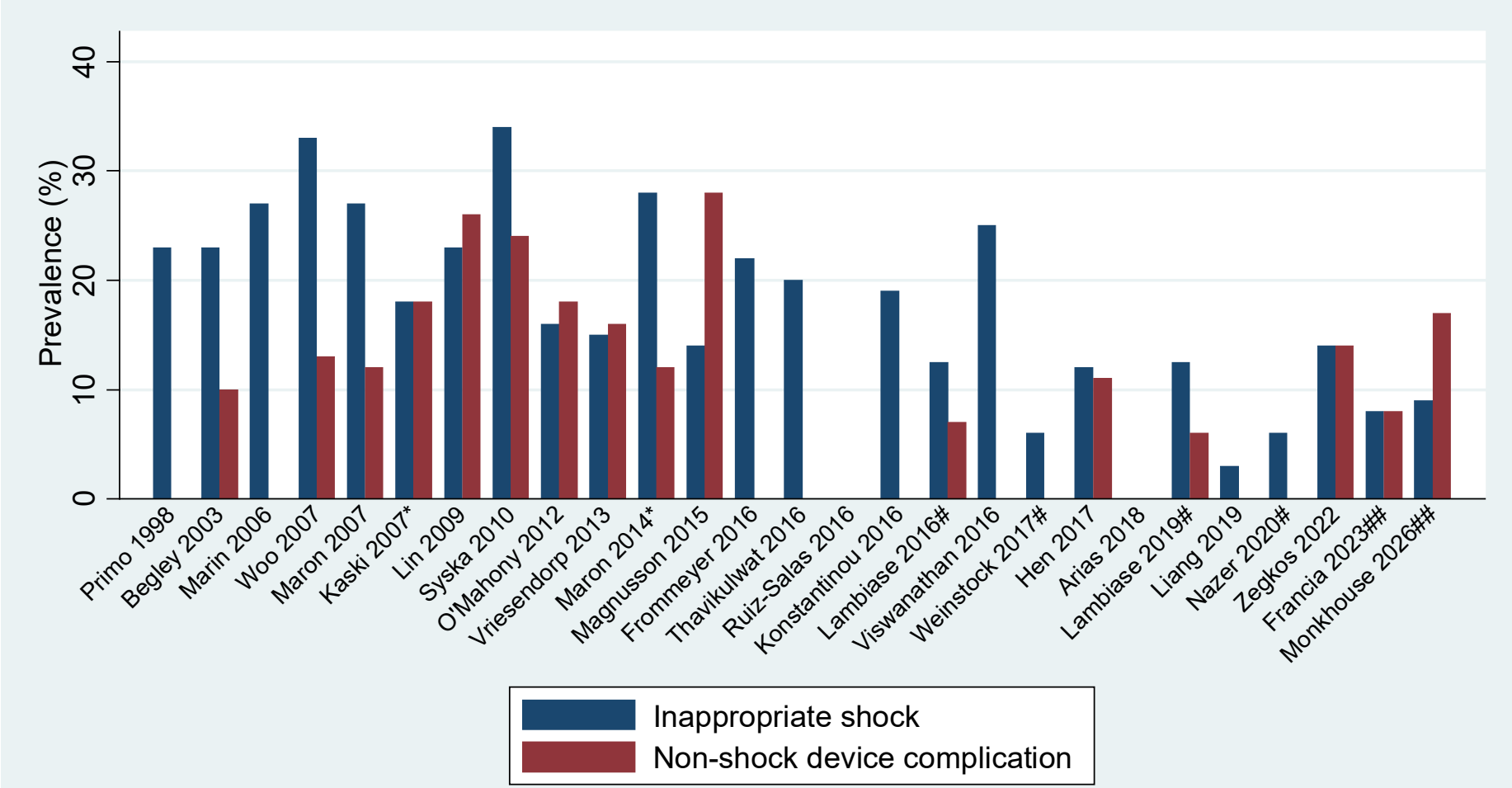
Termination of Malignant Ventricular Arrhythmias with an Implanted Automatic Defibrillator in Human Beings

M. Mirowski, M.D., Philip R. Reid, M.D., Morton M. Mower, M.D., Levi Watkins, M.D., Vincent L. Gott, M.D., James F. Schauble, M.D., Alois Langer, Ph.D., M. S. Heilman, M.D., Steve A. Kolenik, M.S., Robert E. Fischell, M.S., and Myron L. Weisfeldt, M.D.

N Engl J Med 1980; 303:322-324 | August 7, 1980



M Gasparini et al; Europace 2012



2/3 of ICD studies report inappropriate shocks
1/3 of ICD studies report implant complications

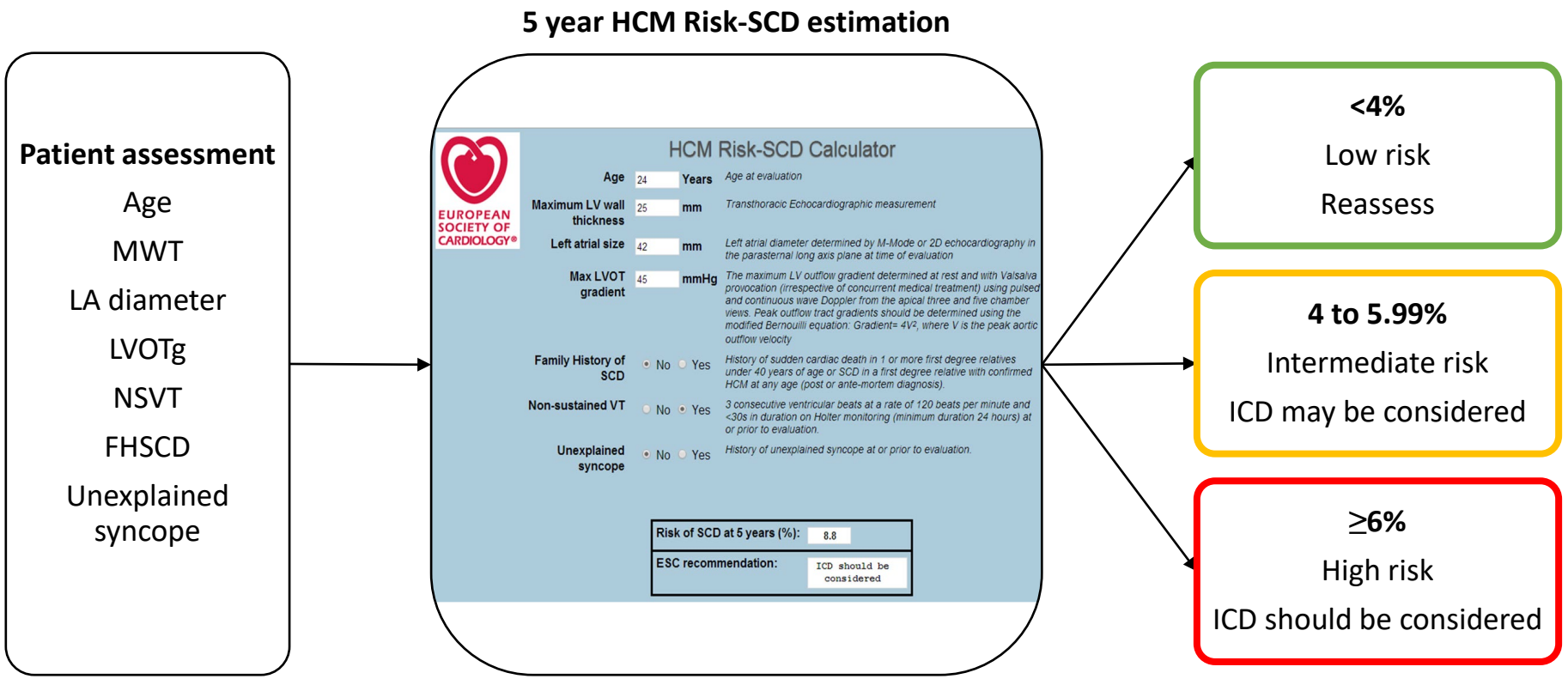
Which HCM patients should receive an ICD?

Asymmetry Of Risk

The challenge

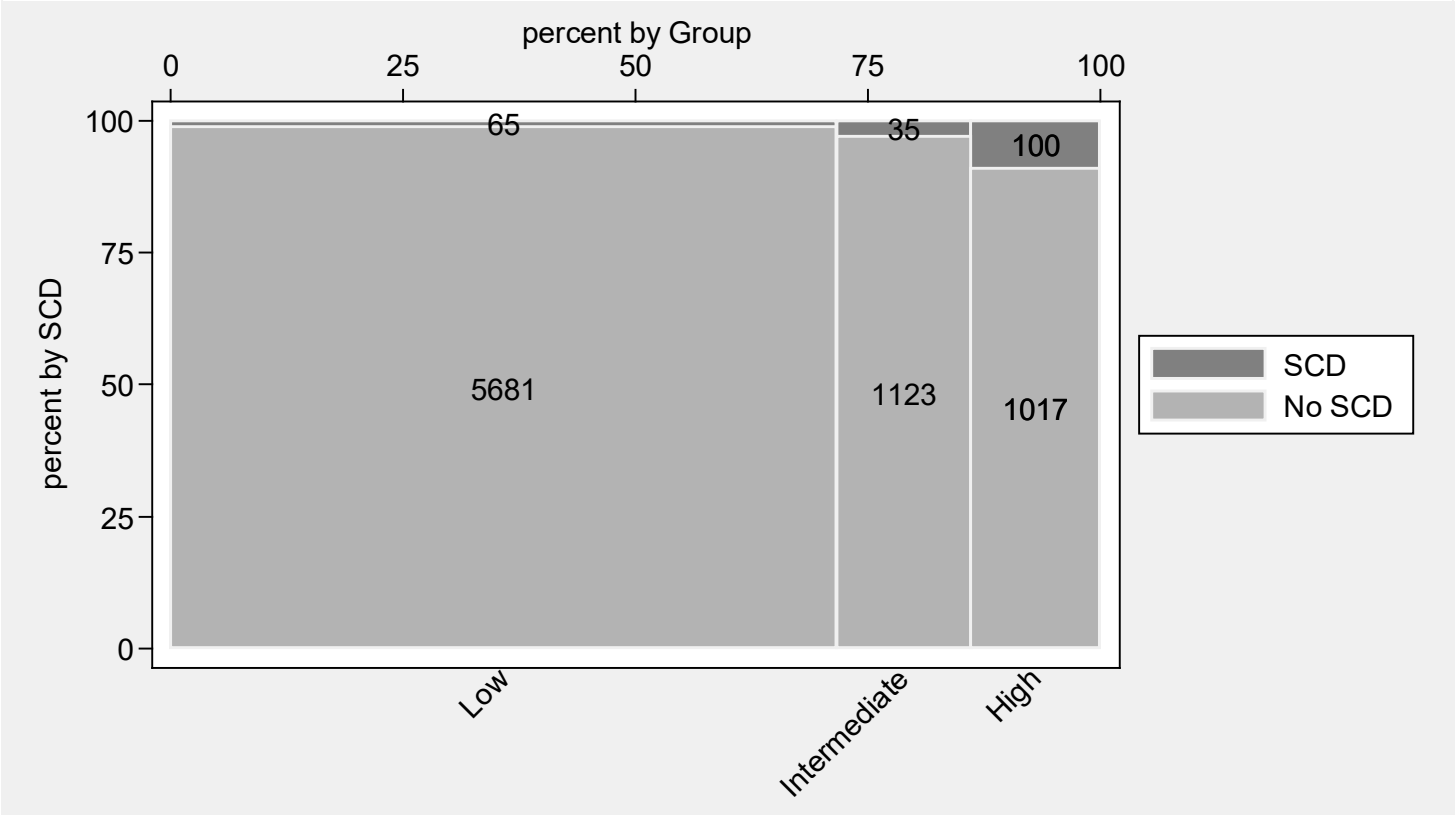
- The future cannot be predicted
- Not all SCD can be prevented
- How to best use clinical information to make rational decisions?
  - Maximise SCD prevention for the individual patient
  - Prevent unnecessary ICD implantations

HCM Risk-SCD model



O'Mahony et al. EHJ 2014; Elliott et al EHJ 2014

SCD in 5 years in 8021 patients



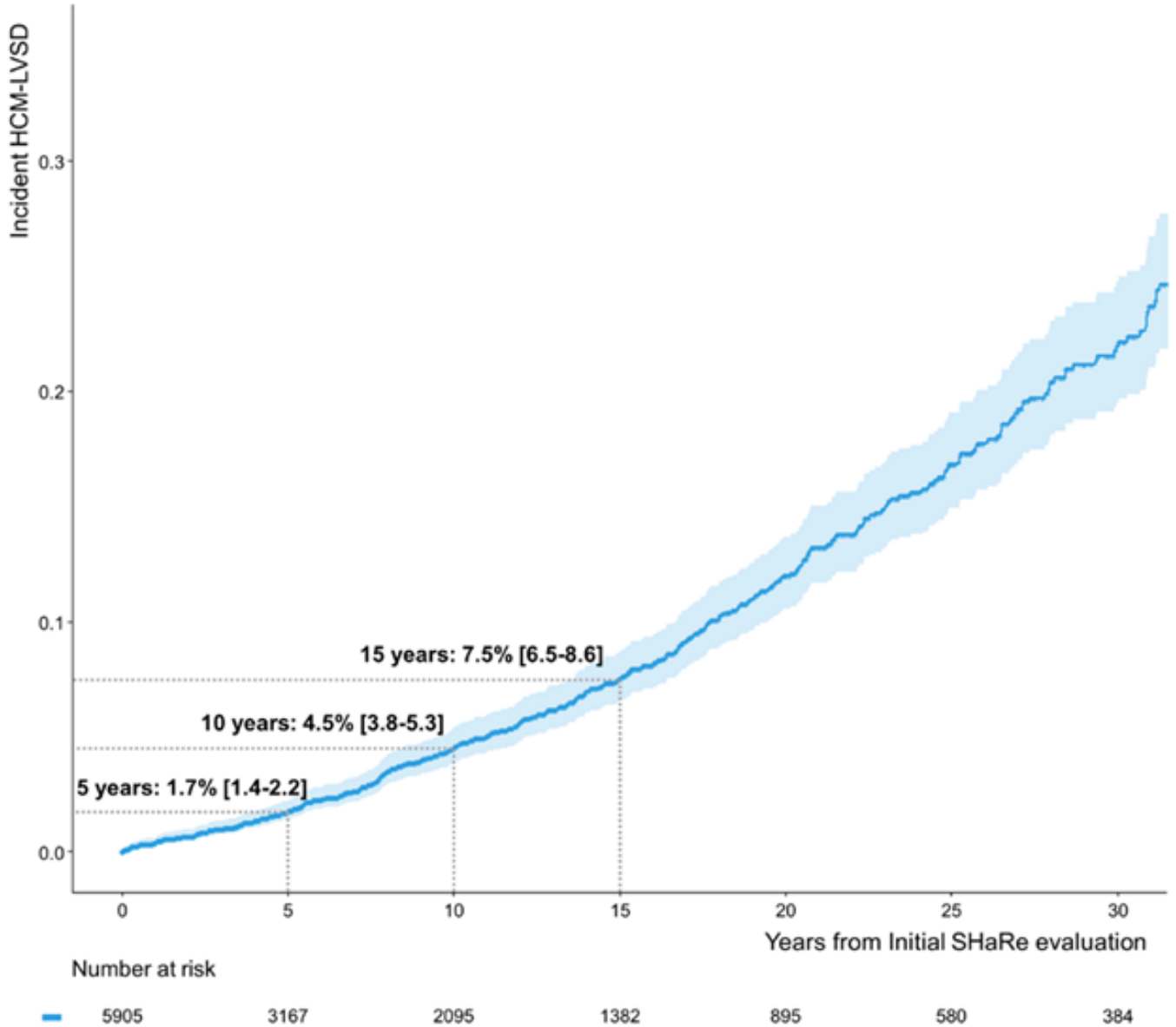
NB: There is no zero risk group

C O'Mahony et al. Heart 2019 + You-Jung Choi et al. Heart 2019

LVSD and heart failure

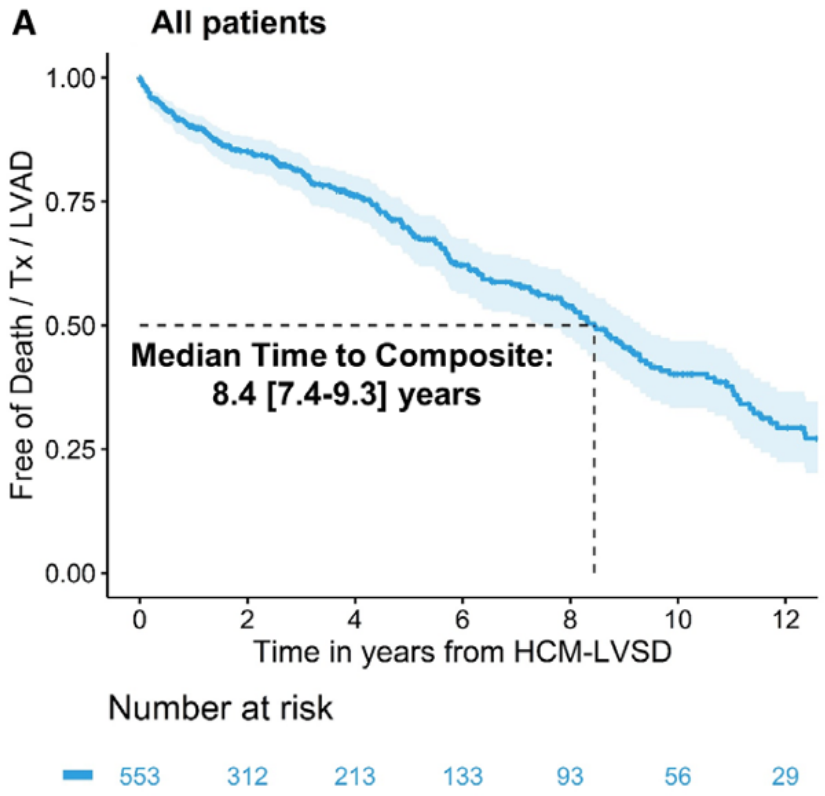
HCM with LVSD (EF<50%)

- EF>60% is normal for uncomplicated HCM
- Slow, progressive, permanent decline in LVEF
- Increase in LV size and reduction in MWT
- Restrictive physiology and PH, AF
- HF with progressive reduction exercise capacity



SHARE Marstrand et al; Circ 2020

Prognosis



SHARE Marstrand et al; Circ 2020

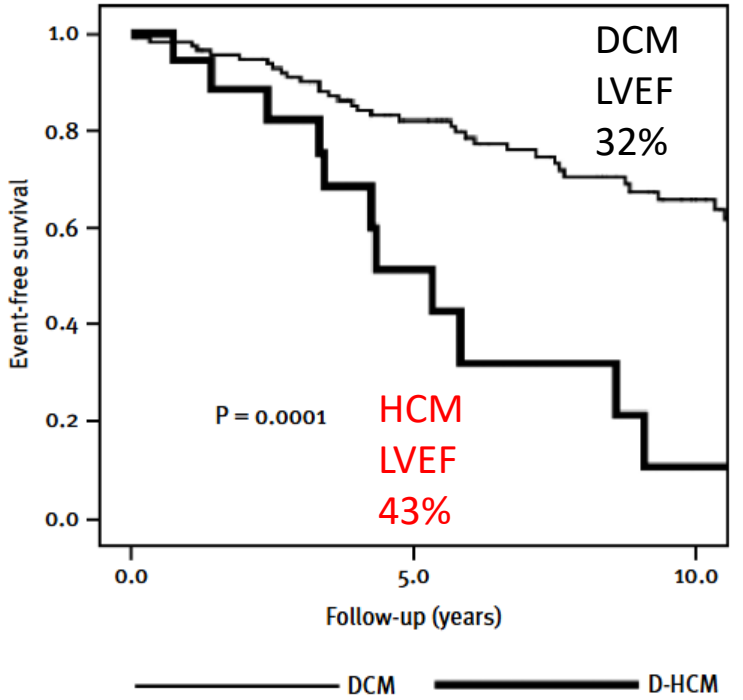


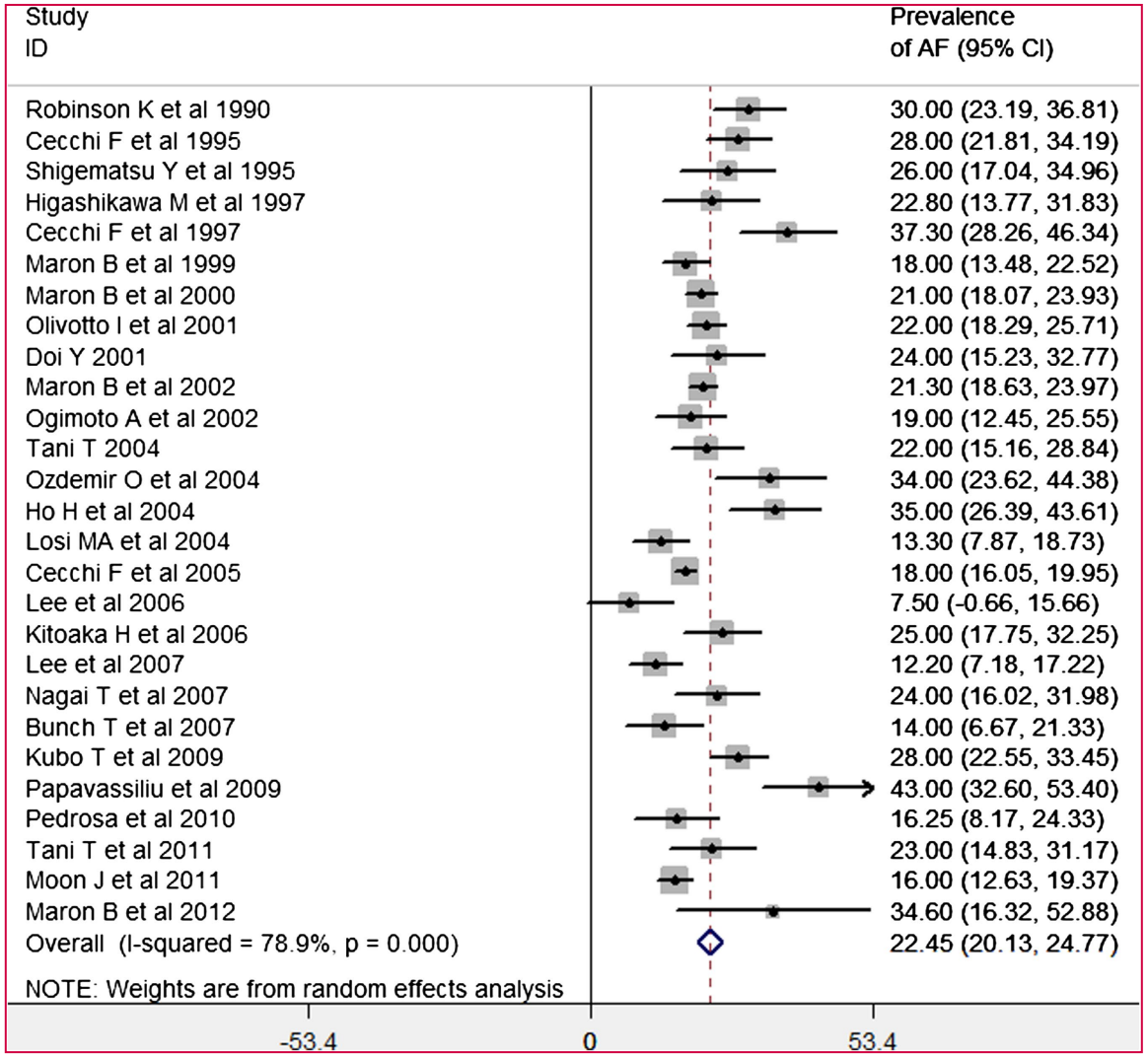
Figure 1. Kaplan-Meier curves for D-HCM vs DCM. Occurrence of all-cause mortality or cardiac transplantation during follow-up. Log-rank for trend $P = .0001$.

Hamada et al; Clin Inv 2010

Treatment

- No specific RCTs in HCM
- GDMT as per HFrEF guidelines
- LVOTO abates
  - Disopyramide/NDP-CCB/CMI can be stopped
- Take control of AF
- Consider device
  - ICD
  - CRT – benefit?
- *Early referral to transplant centre*

AF and systemic embolisation



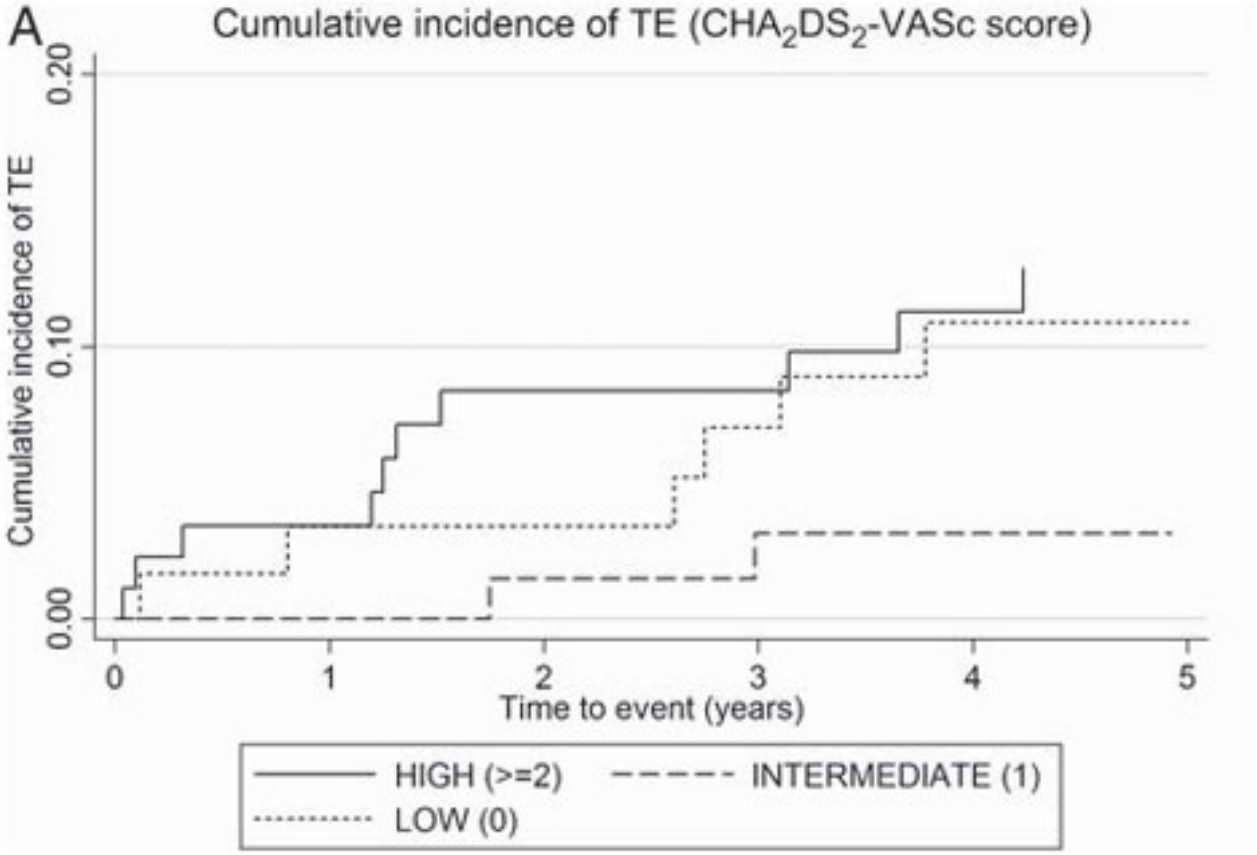
AF incidence 3%/y

Stroke and peripheral embolism prevalence : 27%

Stroke and peripheral embolism Incidence: 4%/y

Guttmann et al; Heart 2014

AF in HCM = Anticoagulation



CHA_2DS_2Vasc underestimates TE risk

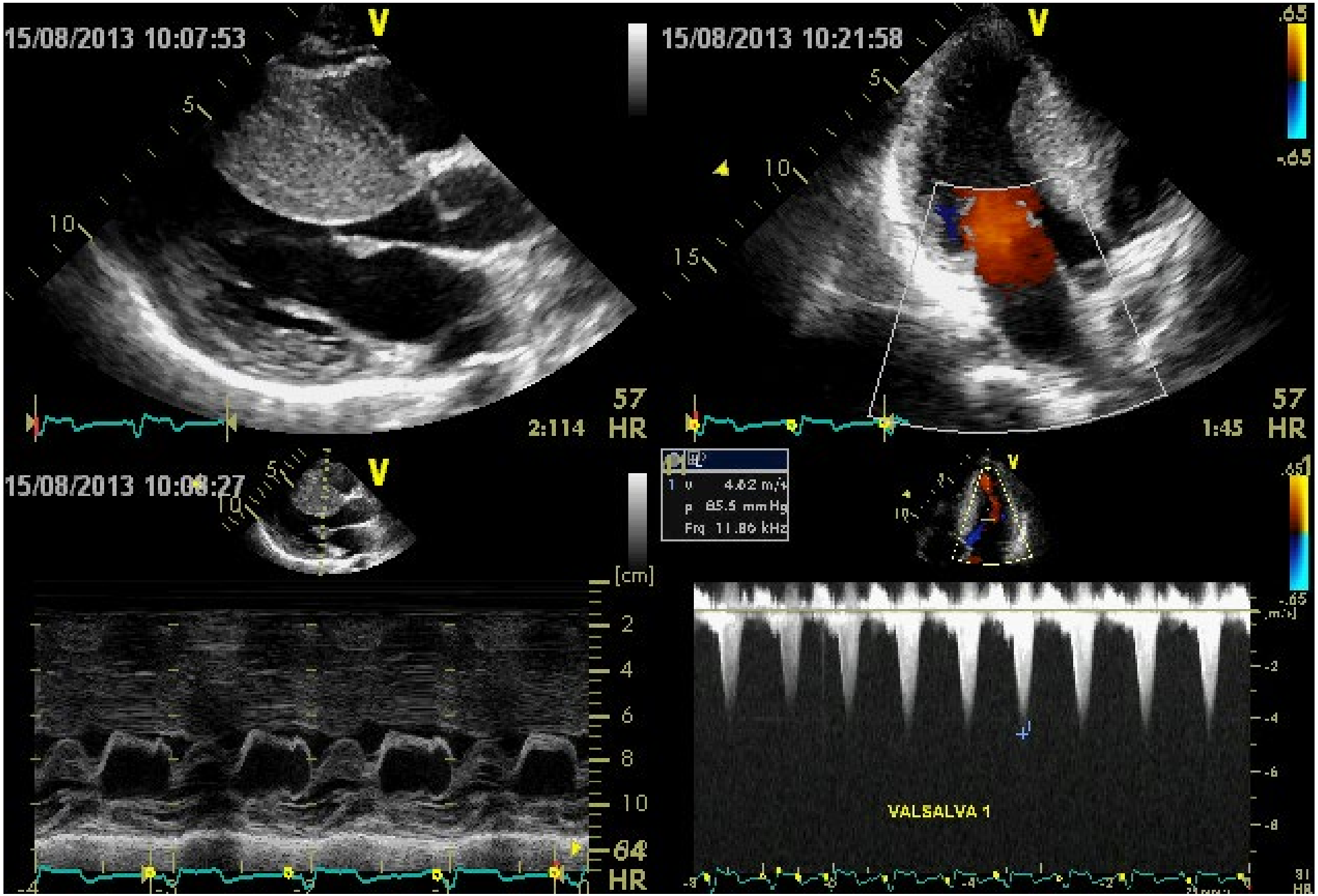
Guttmann et al; EHJ HF 2015

Rhythm control

- Driven by symptoms
- AAD
  - Amiodarone is most effective
  - Disopyramide an option
- Ablation

Pathophysiology

LVOTO:


15/08/2013 10:07:53
V
5
10
57
2:114
HR
15/08/2013 10:21:58
V
5
10
15
.65
-.65
57
1:45
HR
15/08/2013 10:08:27
V
5
10
1 v 4.62 m/s
p 85.5 mmHg
Frq 11.86 kHz
V
10
[cm]
2
4
6
8
10
64
HR
VALSALVA 1
-2
-4
-6
-8
81
HR

Quantification

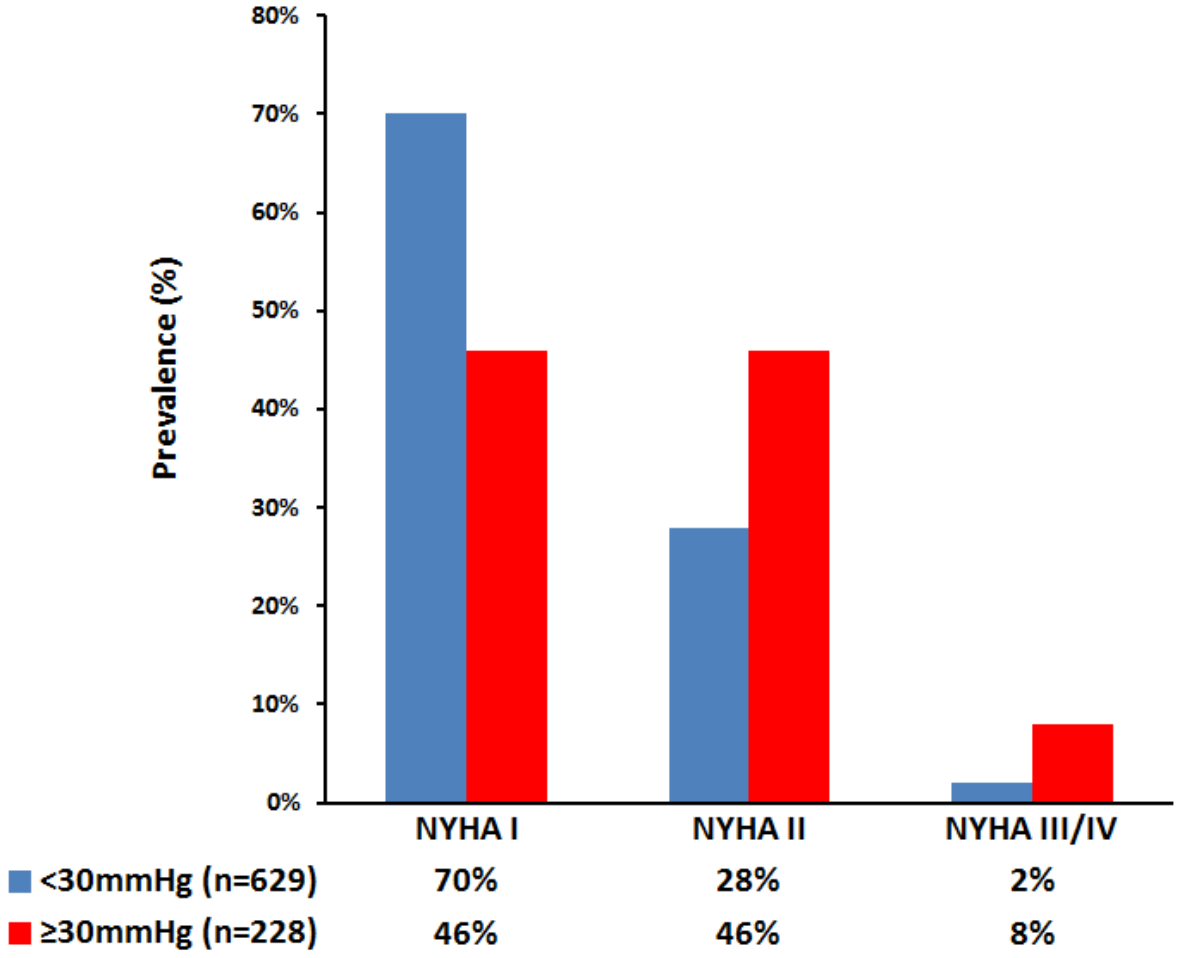
- TTE Doppler
- LVOTO rest = PPG ≥30 mmHg
  - Valsalva : Semi-supine / sitting / standing
- LVOTO exercise = PPG ≥50 mmHg
  - Exercise bike/treadmill
  - Post prandial exercise
- Cath if non-invasive studies inconclusive

But…

- LVOTO is not the sole cause of symptoms in HCM
- LVOTO treatment may only partially help with symptoms or not at all in some patients

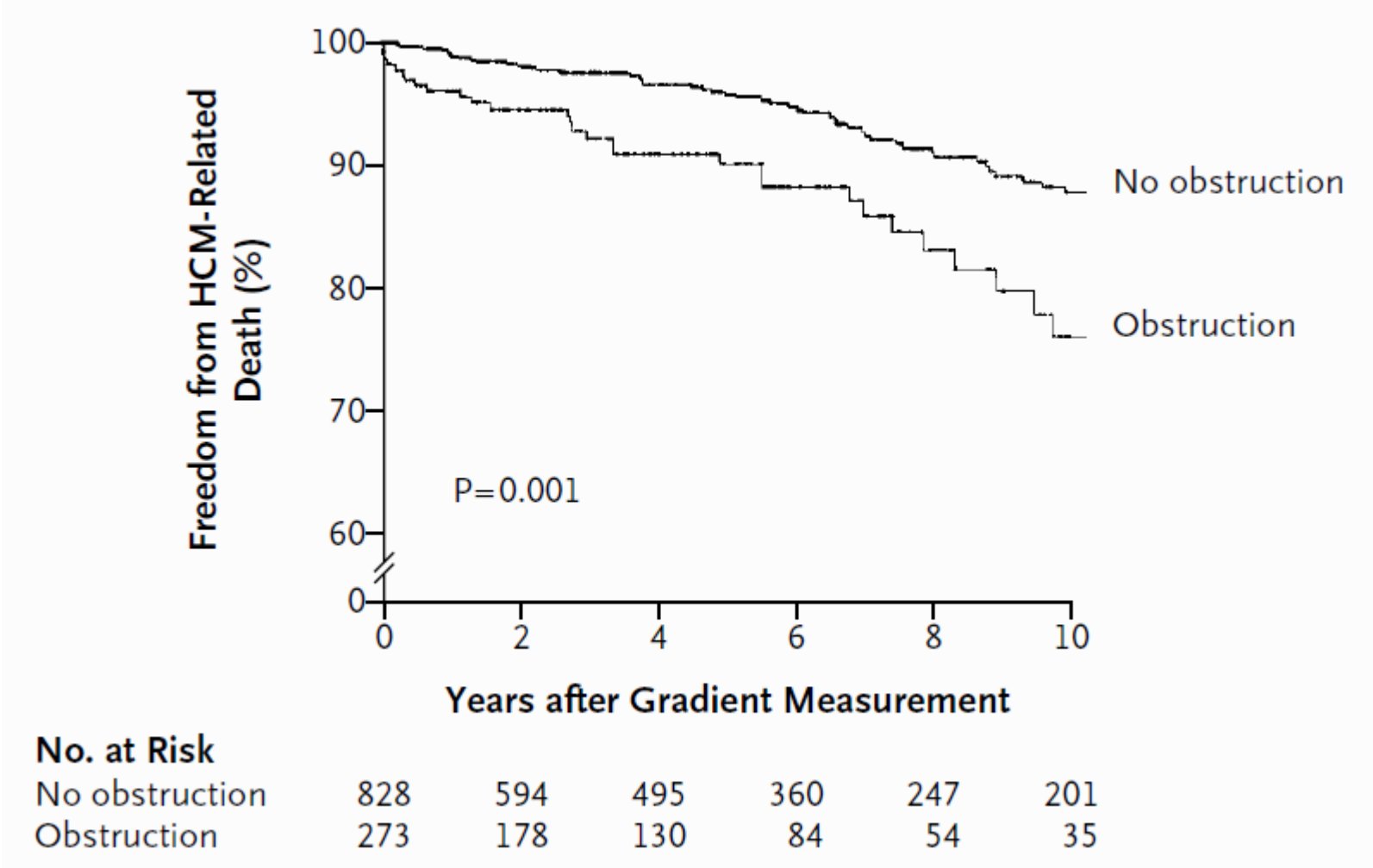
LVOTO: Consequences

Symptoms



Elliott et al. EHJ 2006

Prognosis



No. at Risk						
No obstruction	828	594	495	360	247	201
Obstruction	273	178	130	84	54	35

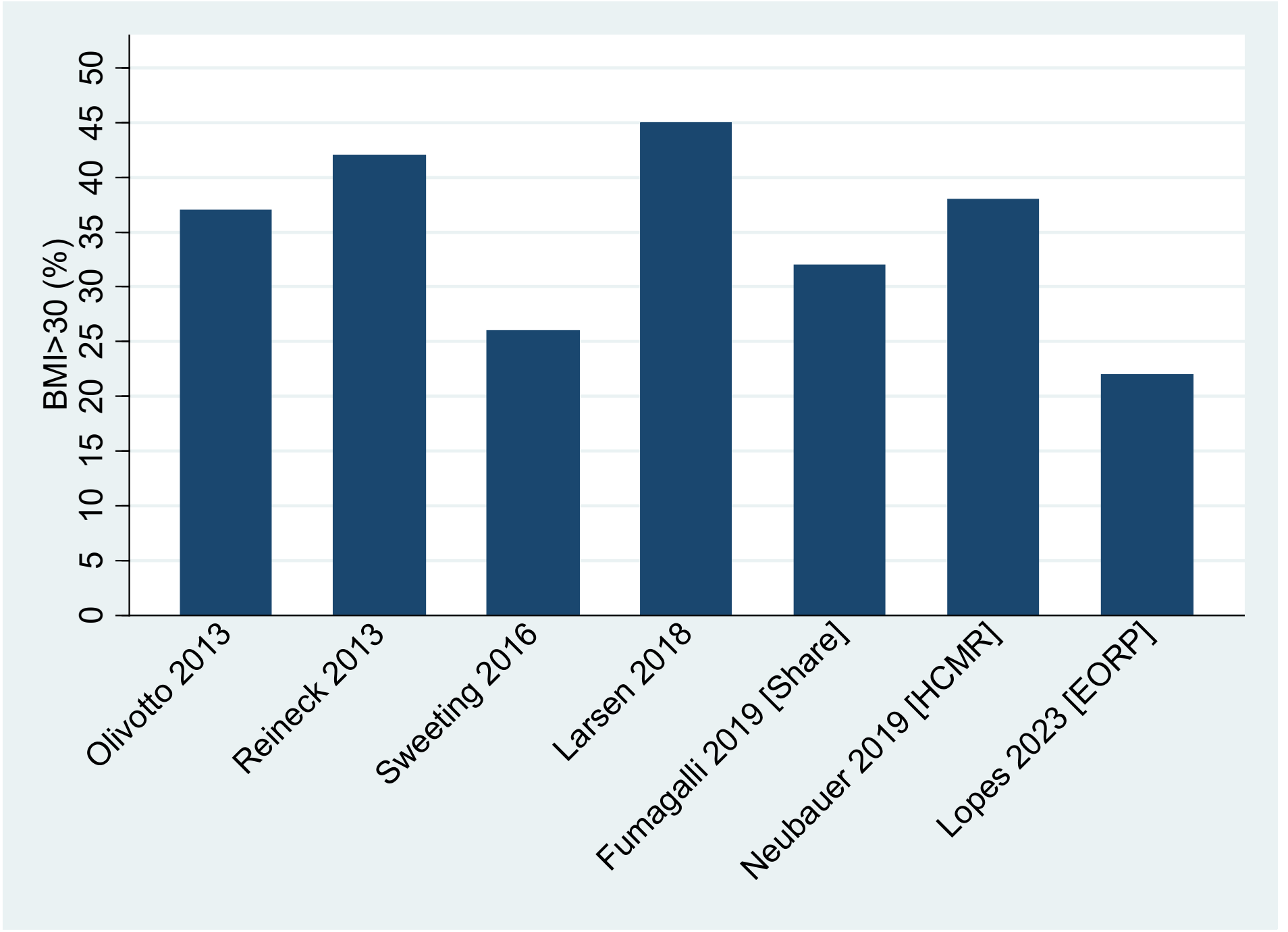
Maron et al; NEJM 2003

HCM Risk-SCD Calculator

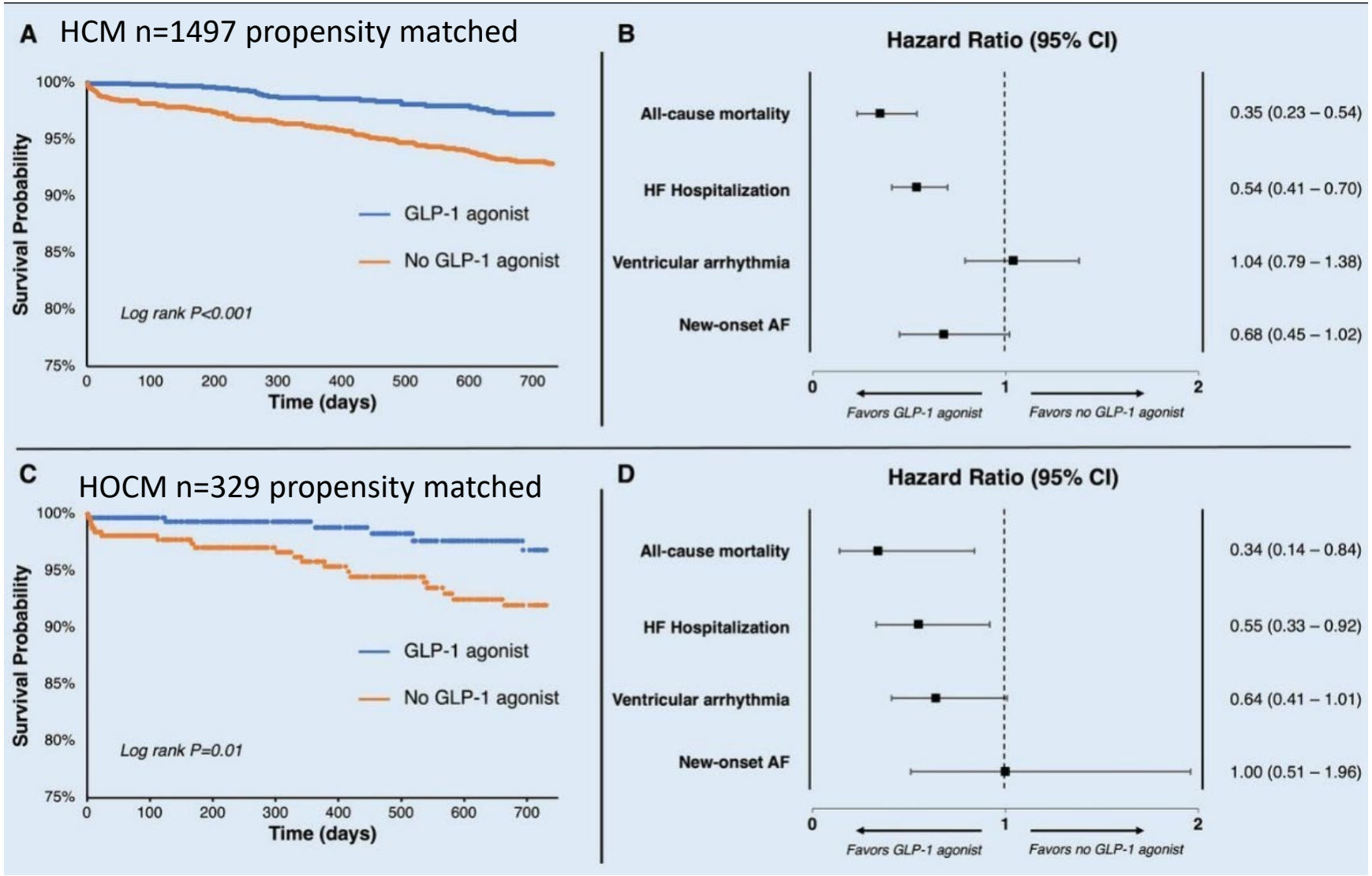
Age	**Years**	*Age at evaluation*
Maximum LV wall thickness	**mm**	*Transthoracic Echocardiographic measurement*
Left atrial size	**mm**	*Left atrial diameter determined by M-Mode or 2D echocardiography in the parasternal long axis plane at time of evaluation*
Max LVOT gradient	**mmHg**	*The maximum LV outflow gradient determined at rest and with Valsalva provocation (irrespective of concurrent medical treatment) using pulsed and continuous wave Doppler from the apical three and five chamber views. Peak outflow tract gradients should be determined using the modified Bernouilli equation: Gradient= $4V^2$, where V is the peak aortic outflow velocity*
Family History of SCD	○ No ○ Yes	*History of sudden cardiac death in 1 or more first degree relatives under 40 years of age or SCD in a first degree relative with confirmed HCM at any age (post or ante-mortem diagnosis).*
Non-sustained VT	○ No ○ Yes	*3 consecutive ventricular beats at a rate of 120 beats per minute and <30s in duration on Holter monitoring (minimum duration 24 hours) at or prior to evaluation.*
Unexplained syncope	○ No ○ Yes	*History of unexplained syncope at or prior to evaluation.*

Management of asymptomatic patients

- Objective:
  - Avoidance of symptoms
- Patient education
- Doctor education
- Treatment of co-morbidities


BMI>30 (%)
0
5
10
15
20
25
30
35
40
45
50
Olivotto 2013
Reineck 2013
Sweeting 2016
Larsen 2018
Fumagalli 2019 [Share]
Neubauer 2019 [HCMR]
Lopes 2023 [EORP]

GLP1-RA in HCM



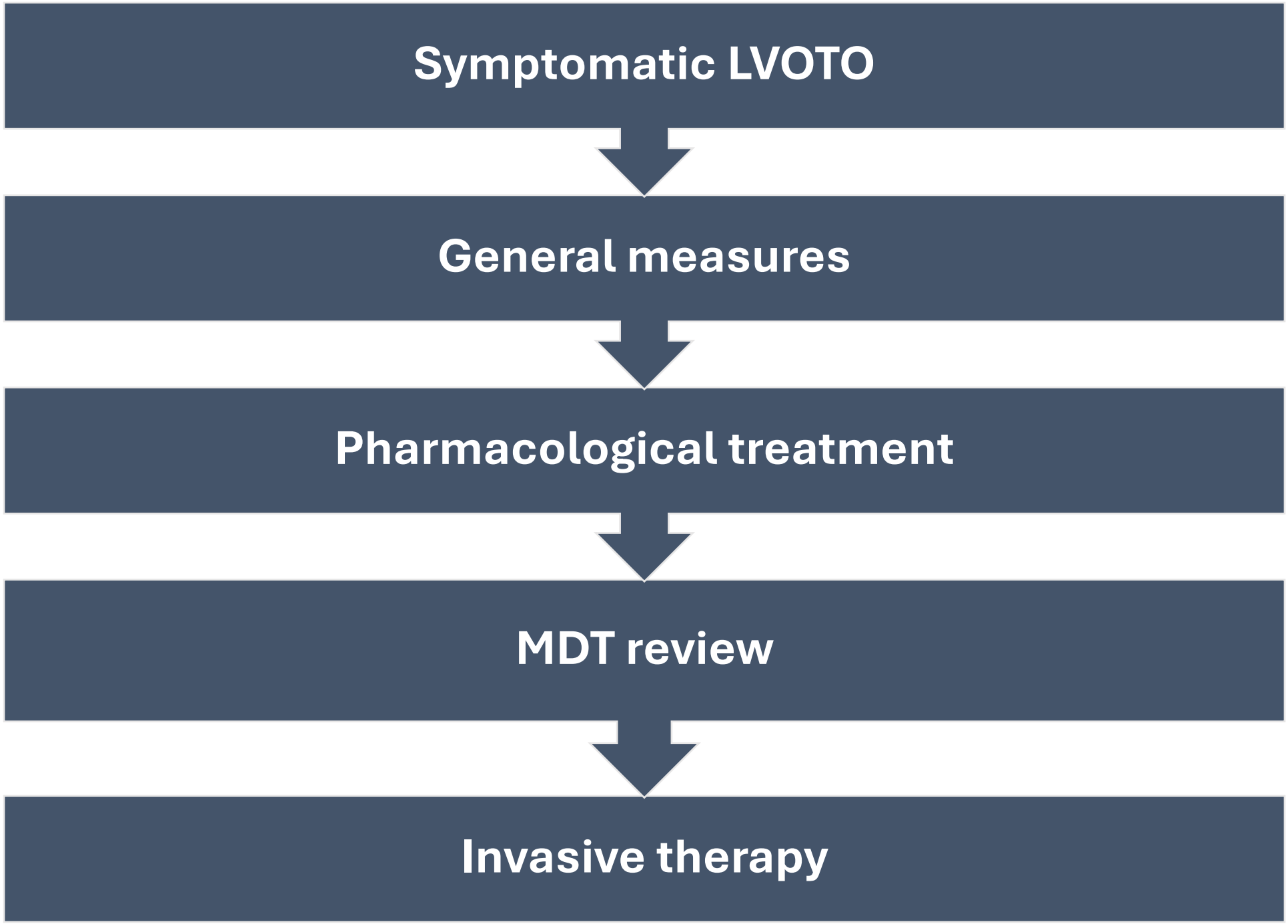
Fath et al; IJC 2025

Management of symptomatic patients

- Objective:
  - Improve symptoms by reducing LVOTO

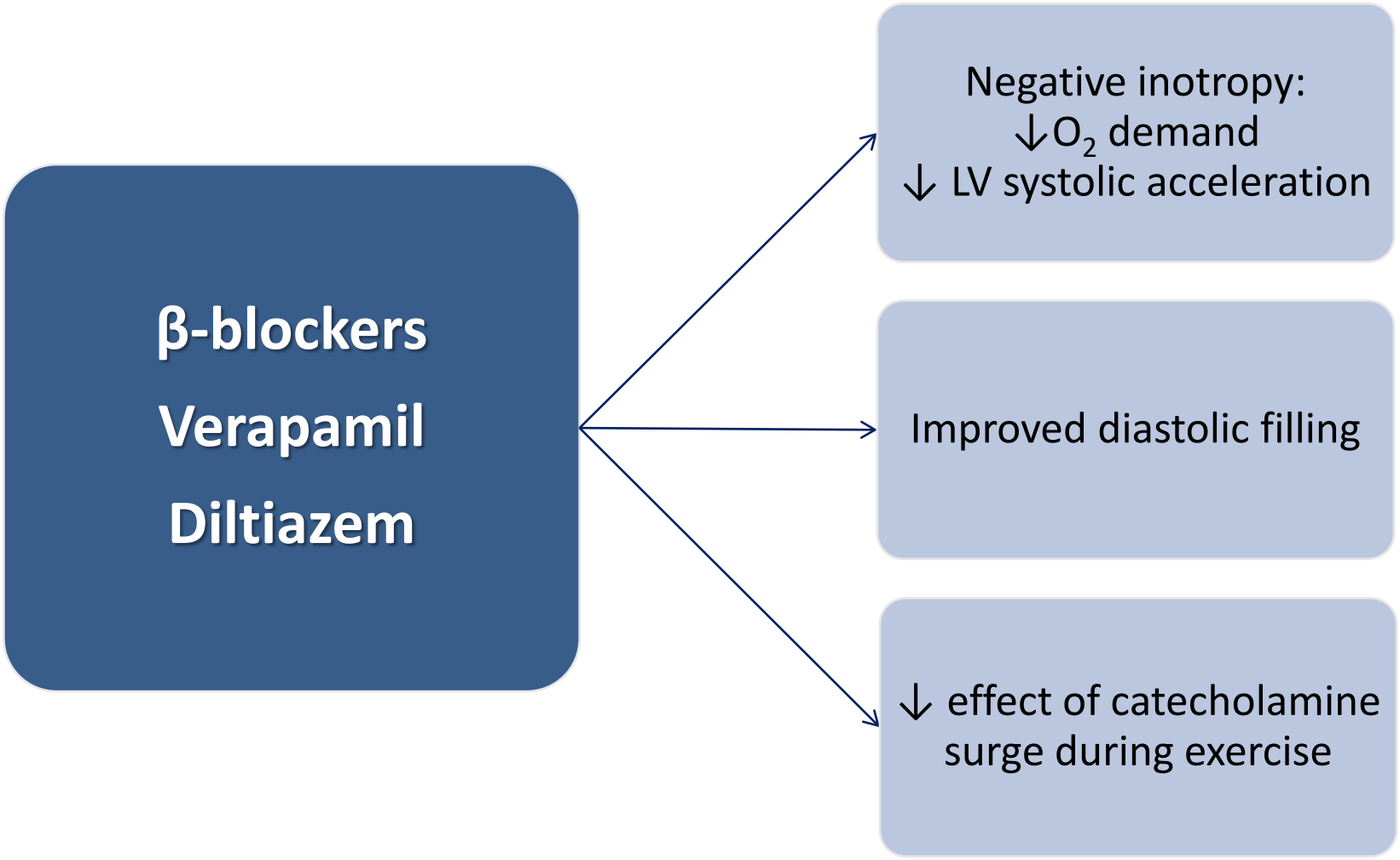
What does success look like?

- Minimum
  - Improved quality of life
  - Satisfactory functional status
- Maximum
  - NYHA 1
  - Rest LVOTO <30mmHg
  - Exercise LVOTO <50mmHg
  - Normal VO2max
  - Normal BNP/TropT


Symptomatic LVOTO
General measures
Pharmacological treatment
MDT review
Invasive therapy

LVOTO Rx: Pharmacotherapy

First line pharmacotherapy



N=7

Pronathalol

- Negative chronotropy
- Negative inotropy
- Reduction in LVOTg

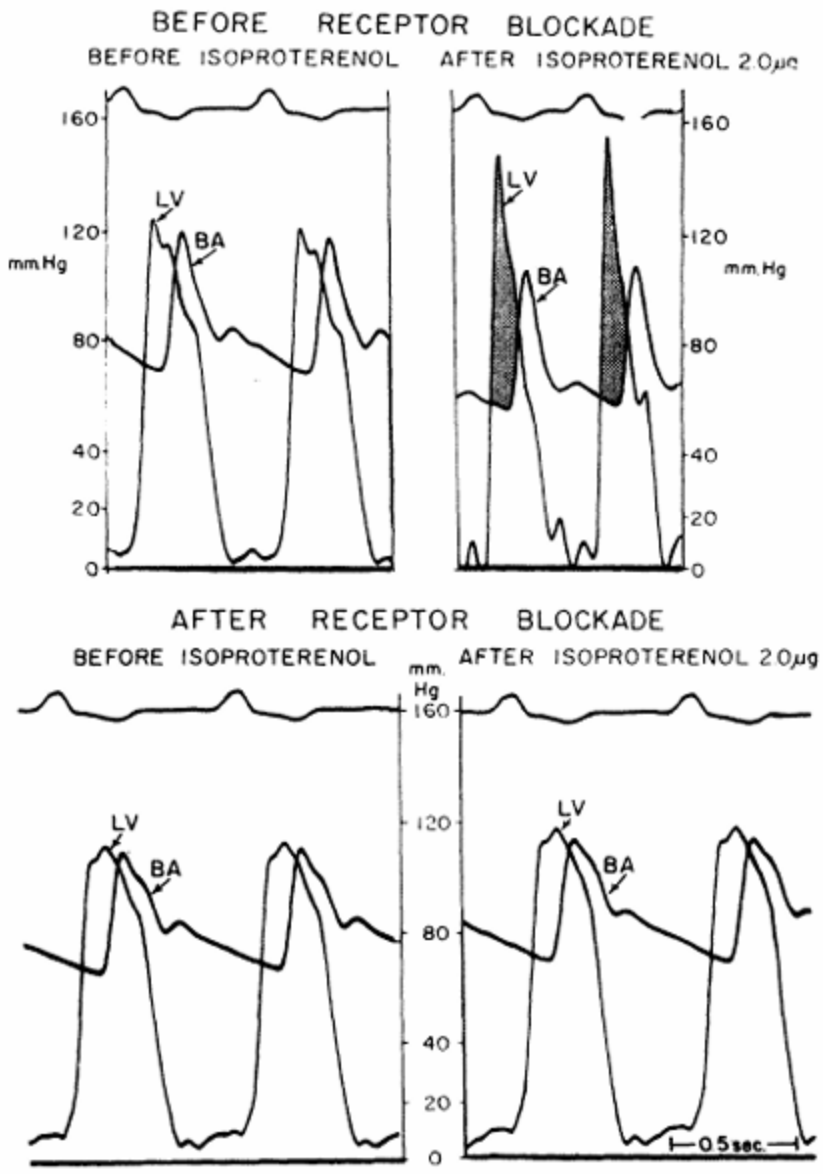
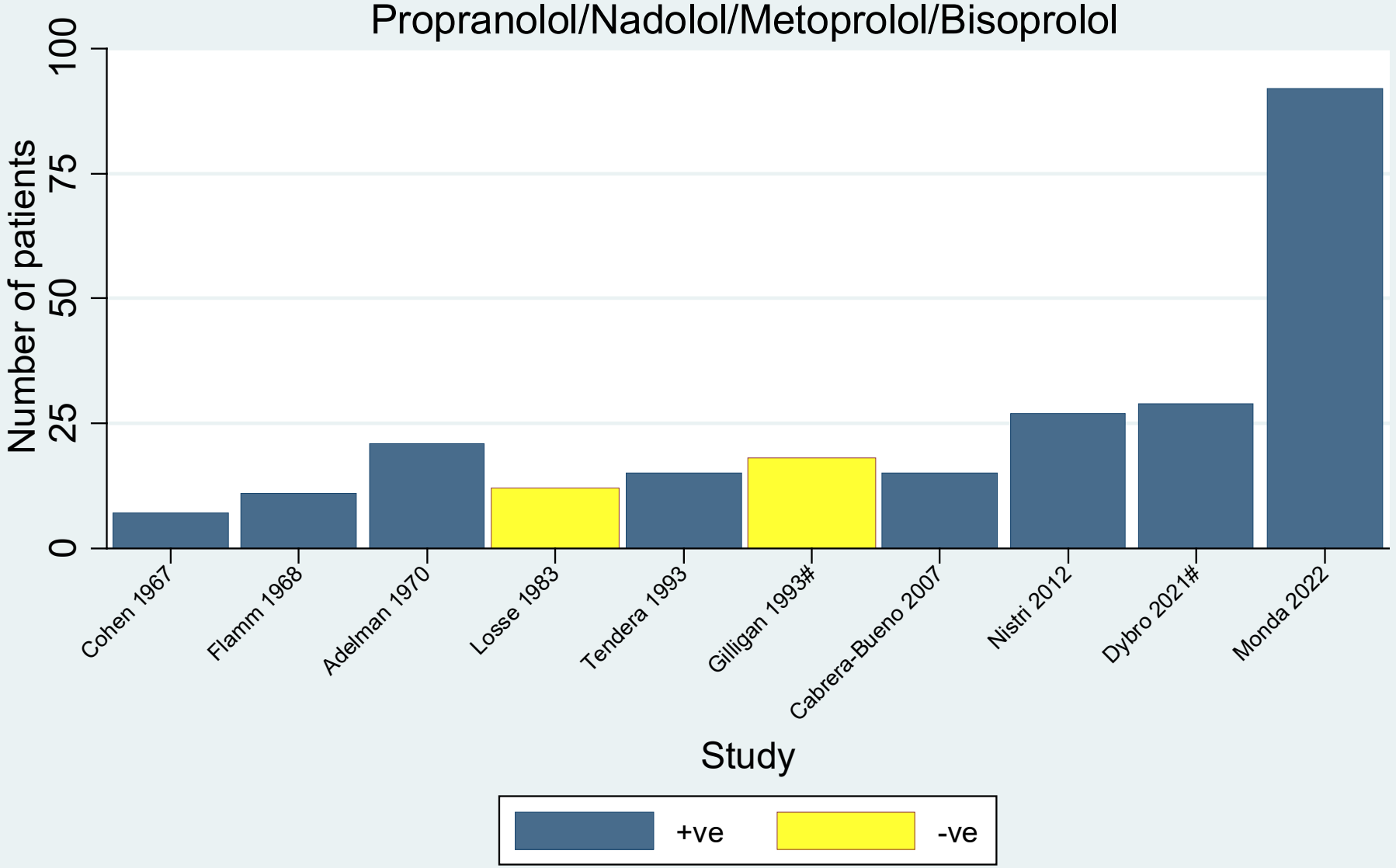


Figure 4

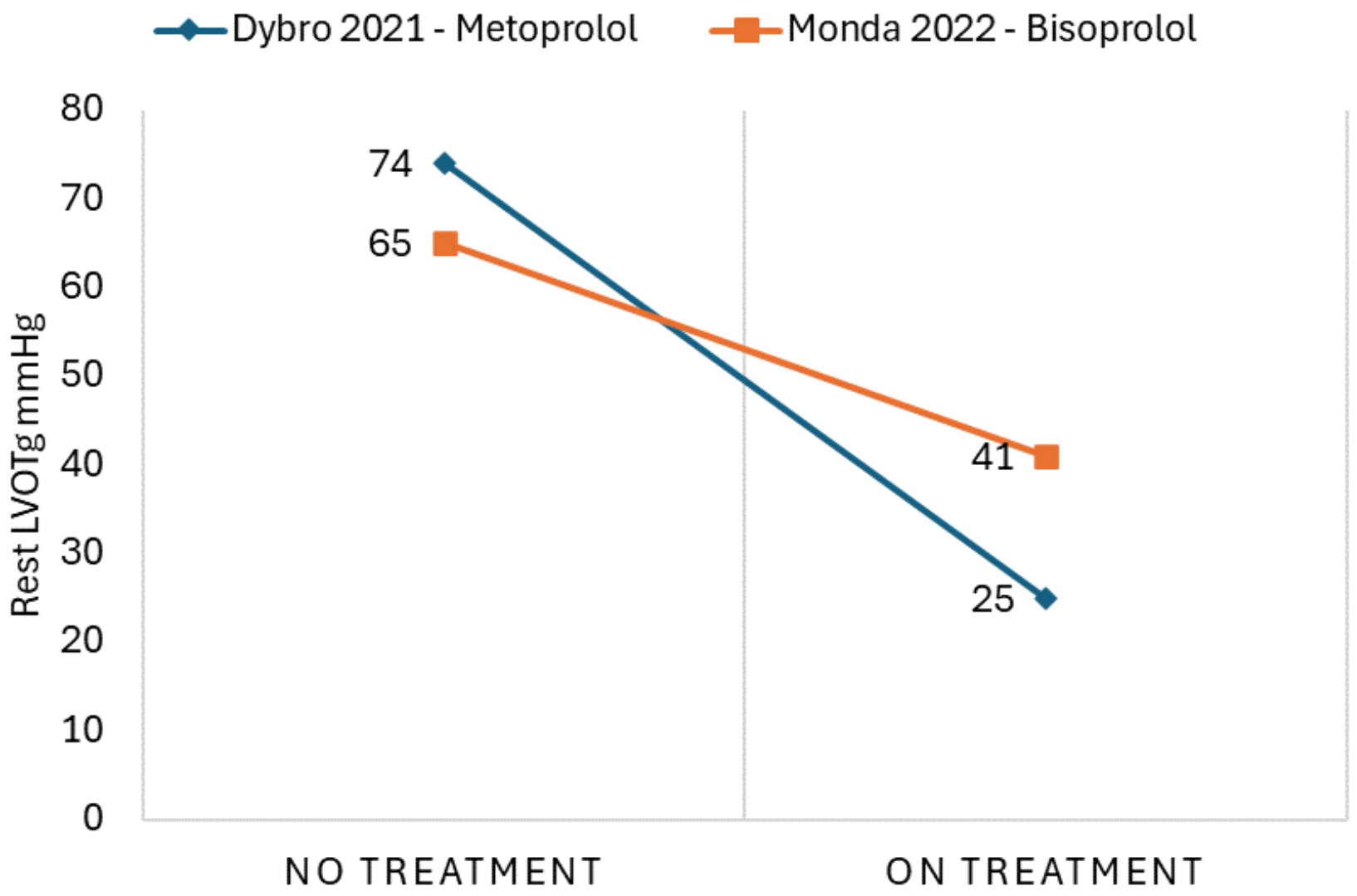
Circulation 1964

Improved Symptoms or LVOTg or Exercise time



# denotes RCT

ß-blocker impact on resting LVOTg



Circulation

VOL 60
DECEMBER 1979

An Official Journal of the American Heart Association, Inc.®

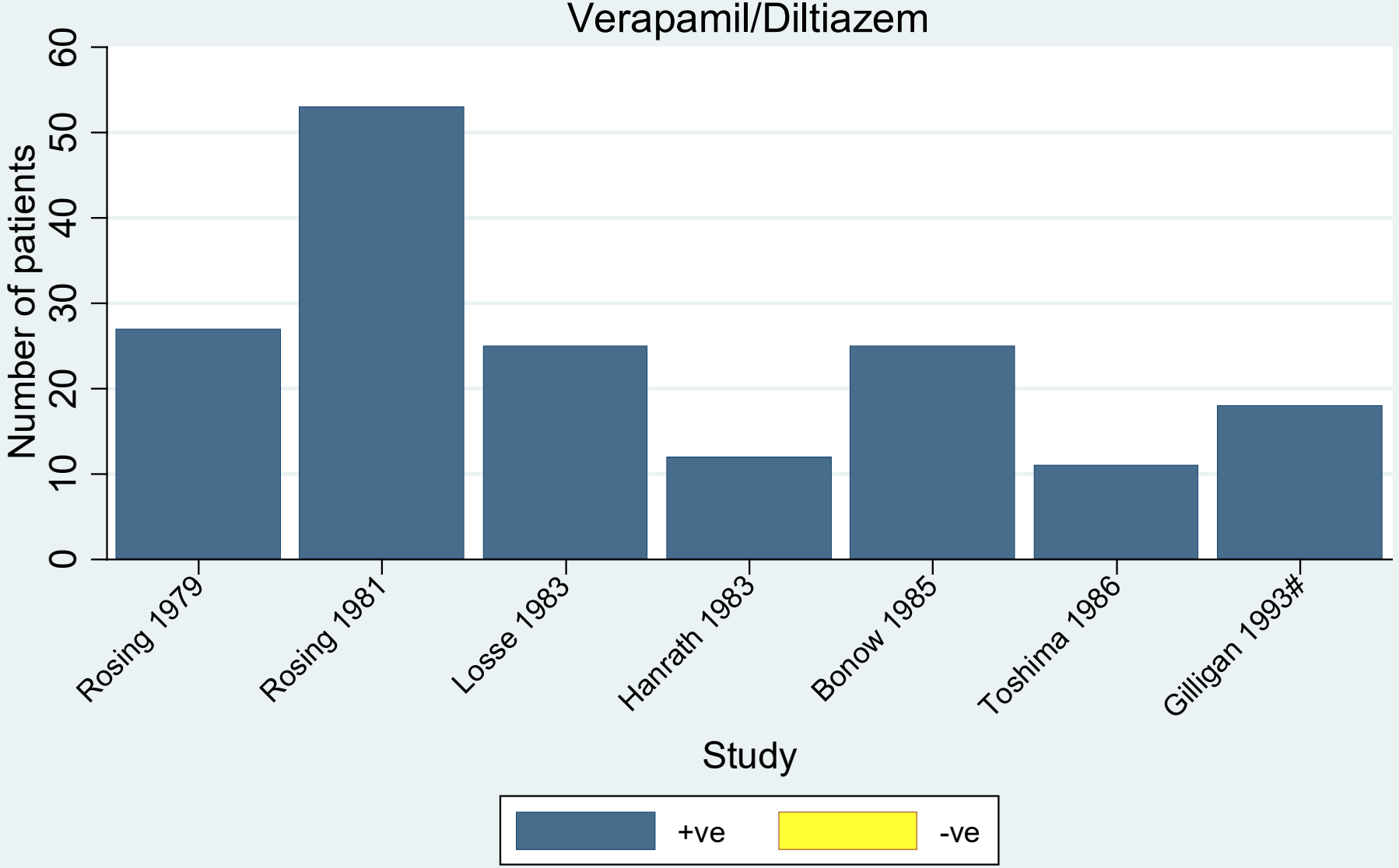
ORIGINAL ARTICLES

Verapamil Therapy: A New Approach to the Pharmacologic Treatment of Hypertrophic Cardiomyopathy

I. Hemodynamic Effects

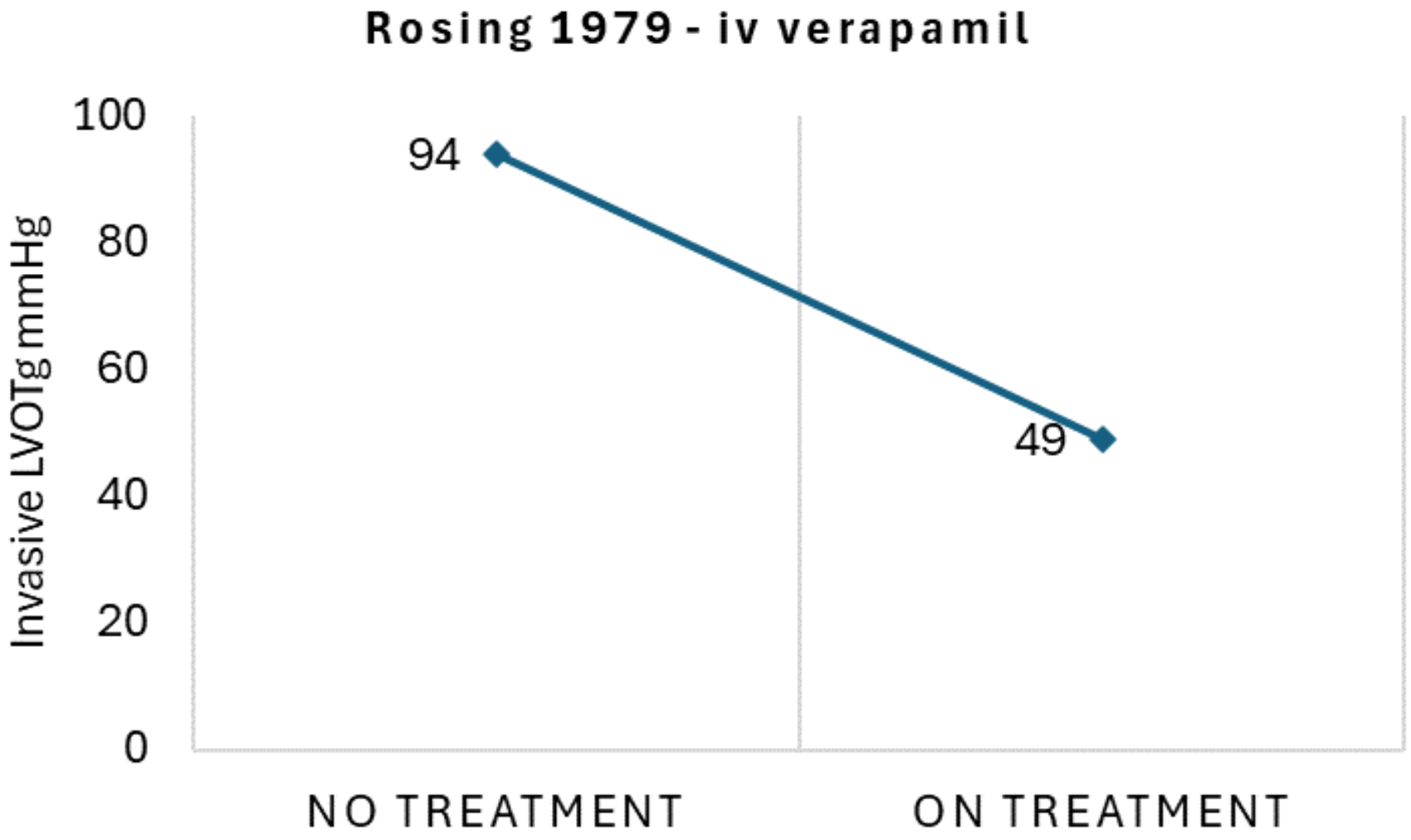
DOUGLAS R. ROSING, M.D., KENNETH M. KENT, M.D., PH.D., JEFFREY S. BORER, M.D., STUART F. SEIDES, M.D., BARRY J. MARON, M.D., AND STEPHEN E. EPSTEIN, M.D.

Improved Symptoms or LVOTg or Exercise time



# denotes RCT

CCB impact on resting LVOTg



Second line: Disopyramide

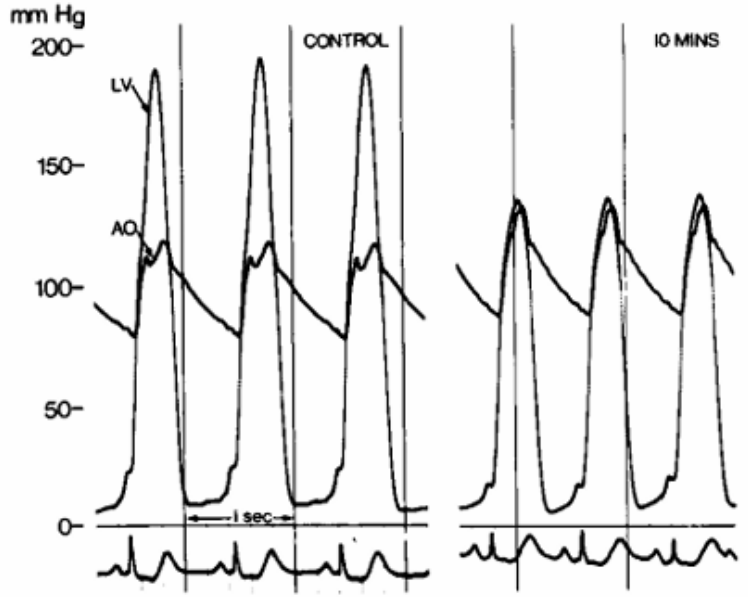
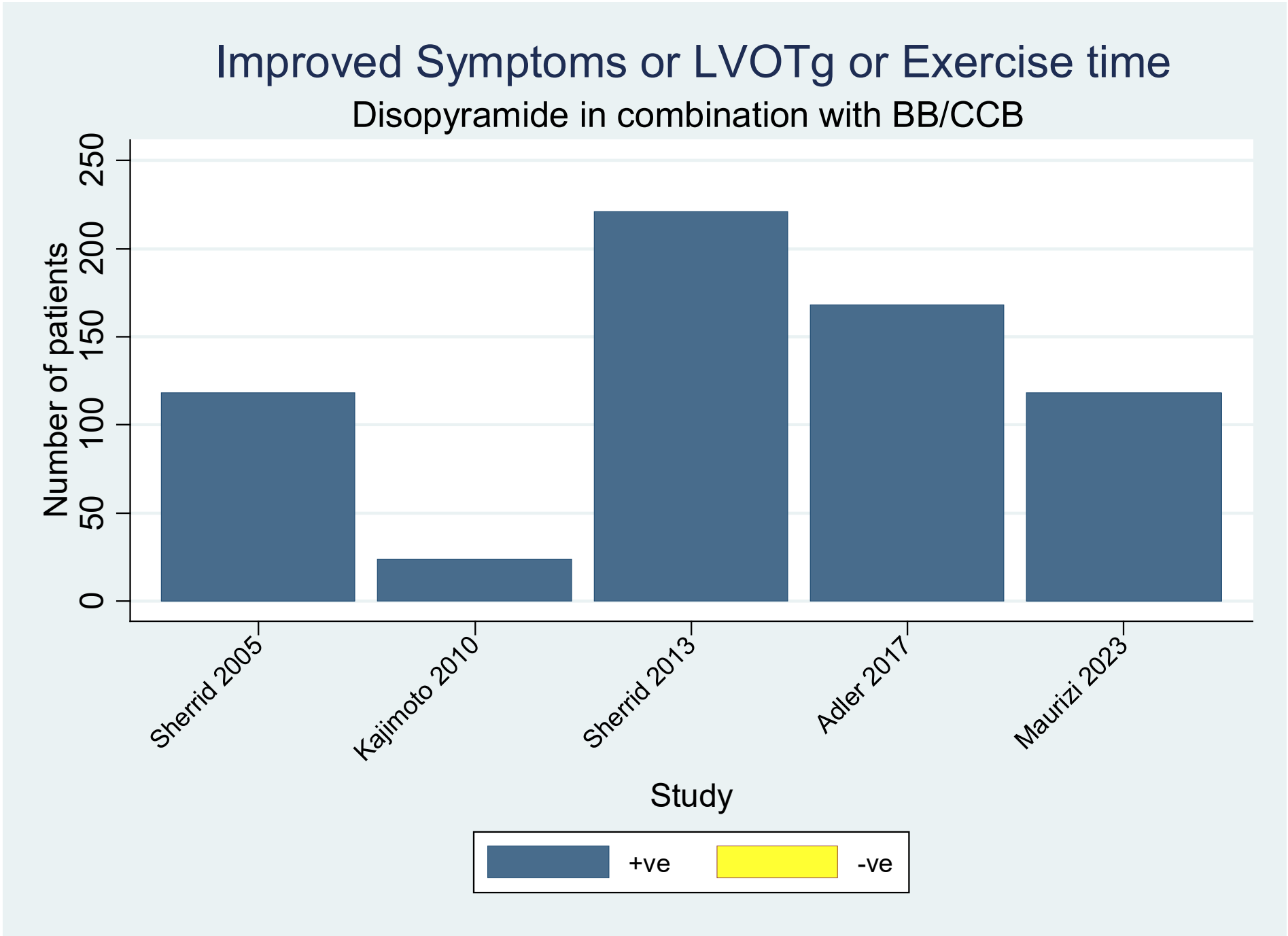


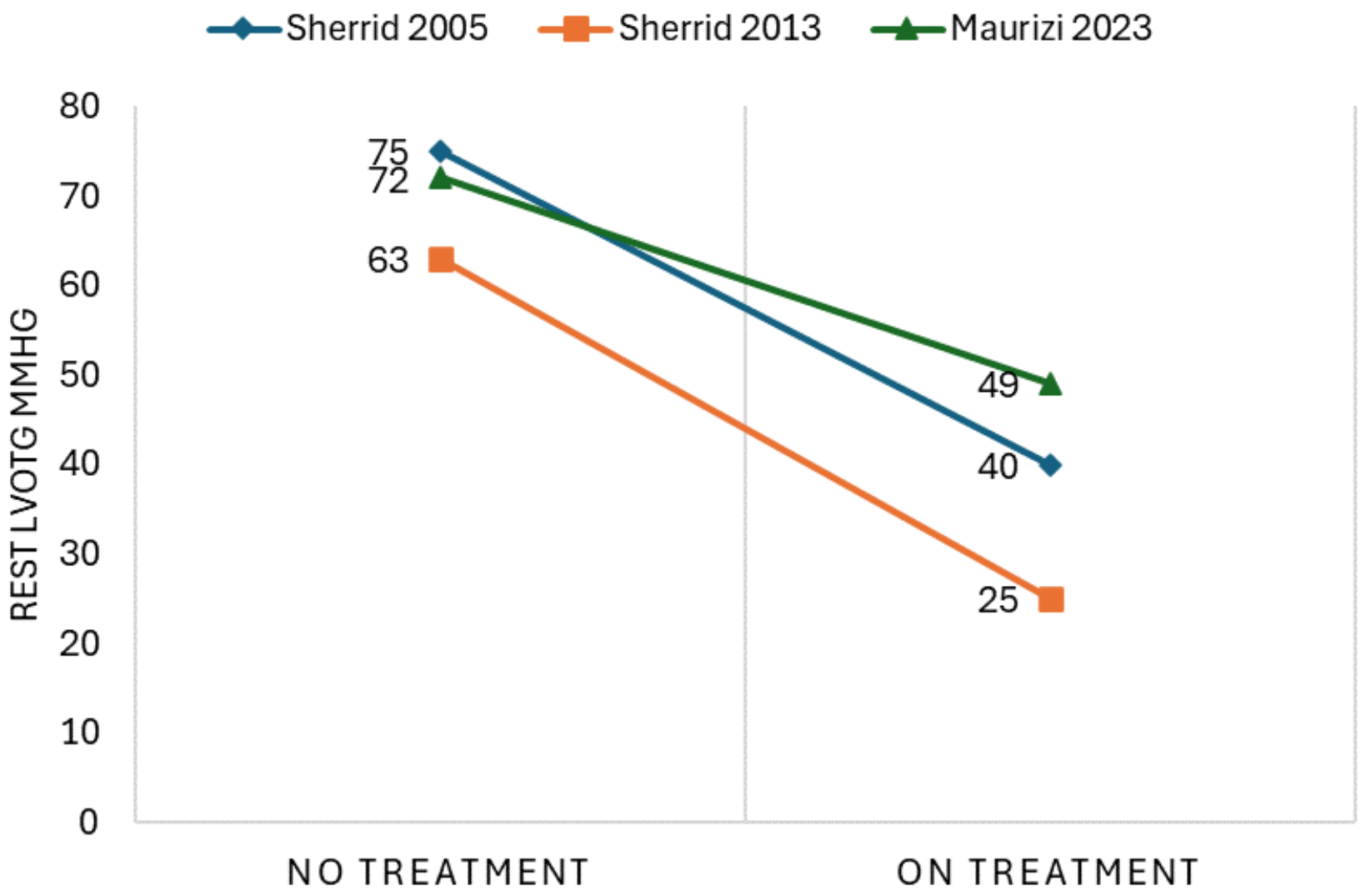
Figure 1. Simultaneous Left Ventricle (LV) and Aortic (AO) Pressures before (CONTROL) and 20 Minutes after Disopyramide (100 mg Intravenously) in Patient 1 (Upper Panel) and before and 10 Minutes after Disopyramide in Patient 2 (Lower Panel).

The pressure gradient fell from 73 mm Hg to zero in Patient 1 and from 70 mm Hg to 3 mm Hg in Patient 2.

Charles Pollick; NEJM 1982

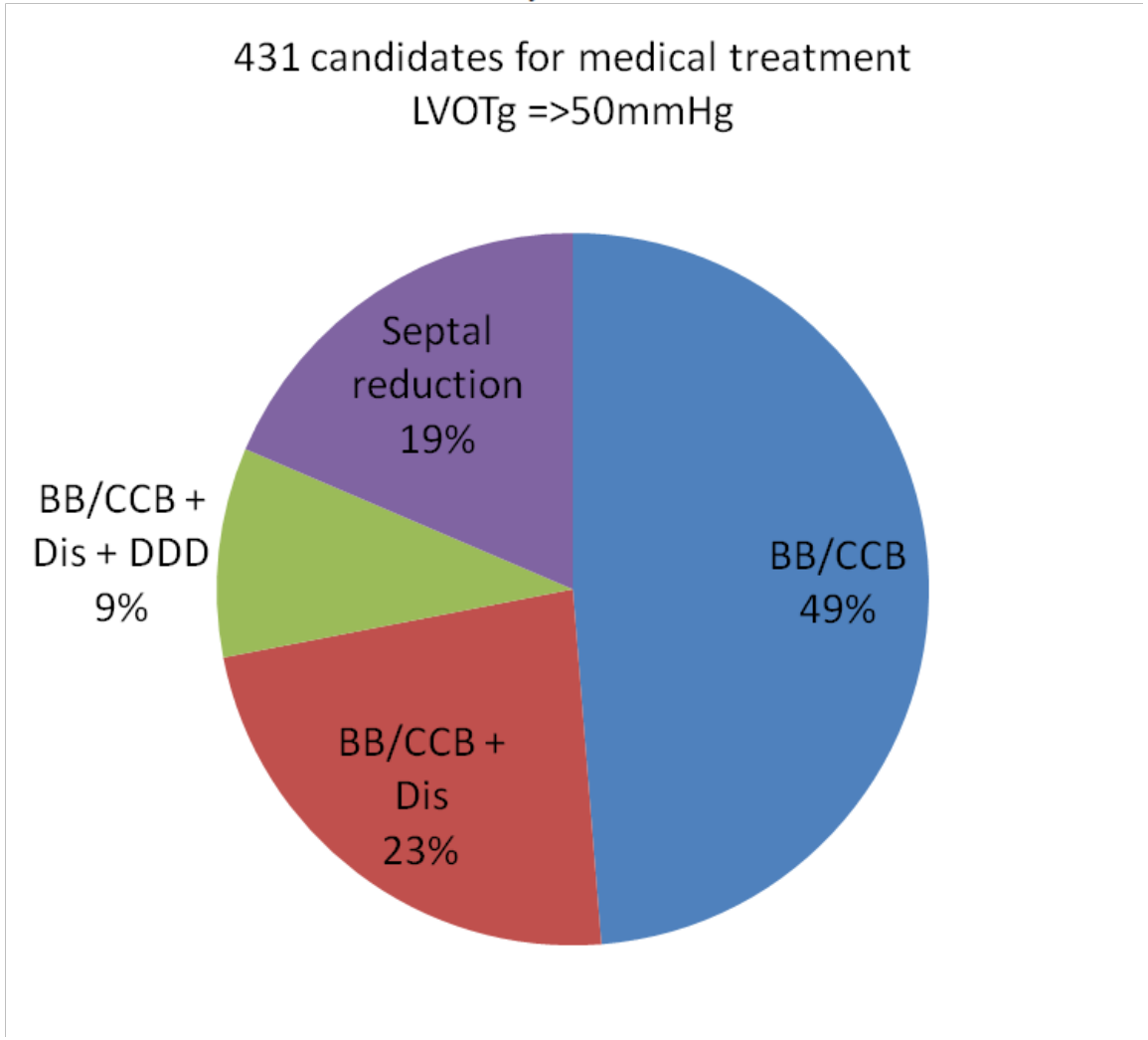

Improved Symptoms or LVOTg or Exercise time
Disopyramide in combination with BB/CCB
Number of patients
0
50
100
150
200
250
Sherrid 2005
Kajimoto 2010
Sherrid 2013
Adler 2017
Maurizi 2023
Study
+ve
-ve

Disopyramide effect



Treatment of Obstructive Hypertrophic Cardiomyopathy Symptoms and Gradient Resistant to First-Line Therapy With β-Blockade or Verapamil

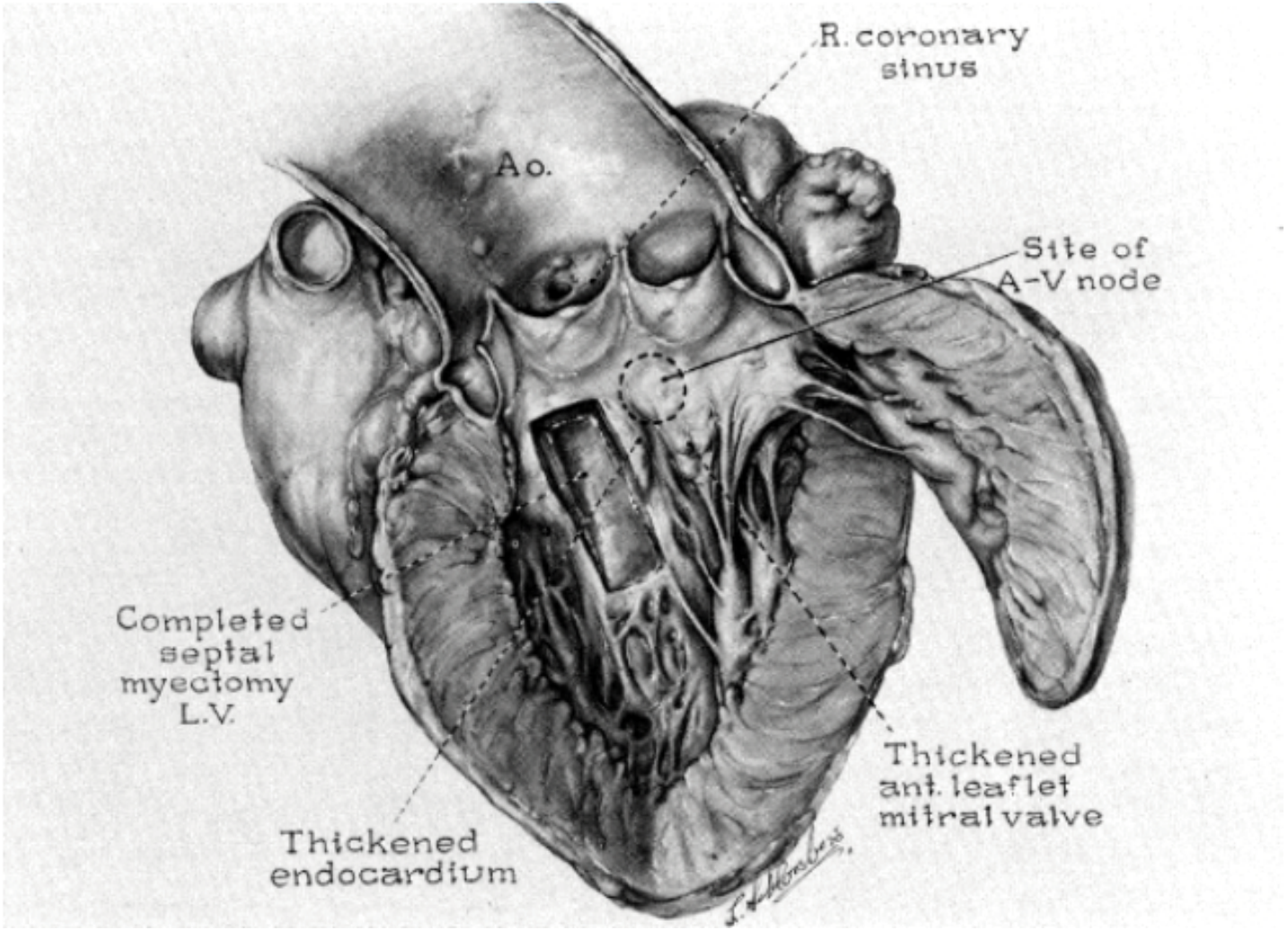
Mark V. Sherrid, MD; Aneesha Shetty, MD, MPH; Glenda Winson, RN; Bette Kim, MD; Dan Musat, MD; Carlos L. Alviar, MD; Peter Homel, PhD; Sandhya K. Balaram, MD, PhD; Daniel G. Swistel, MD



Circ HF 2013

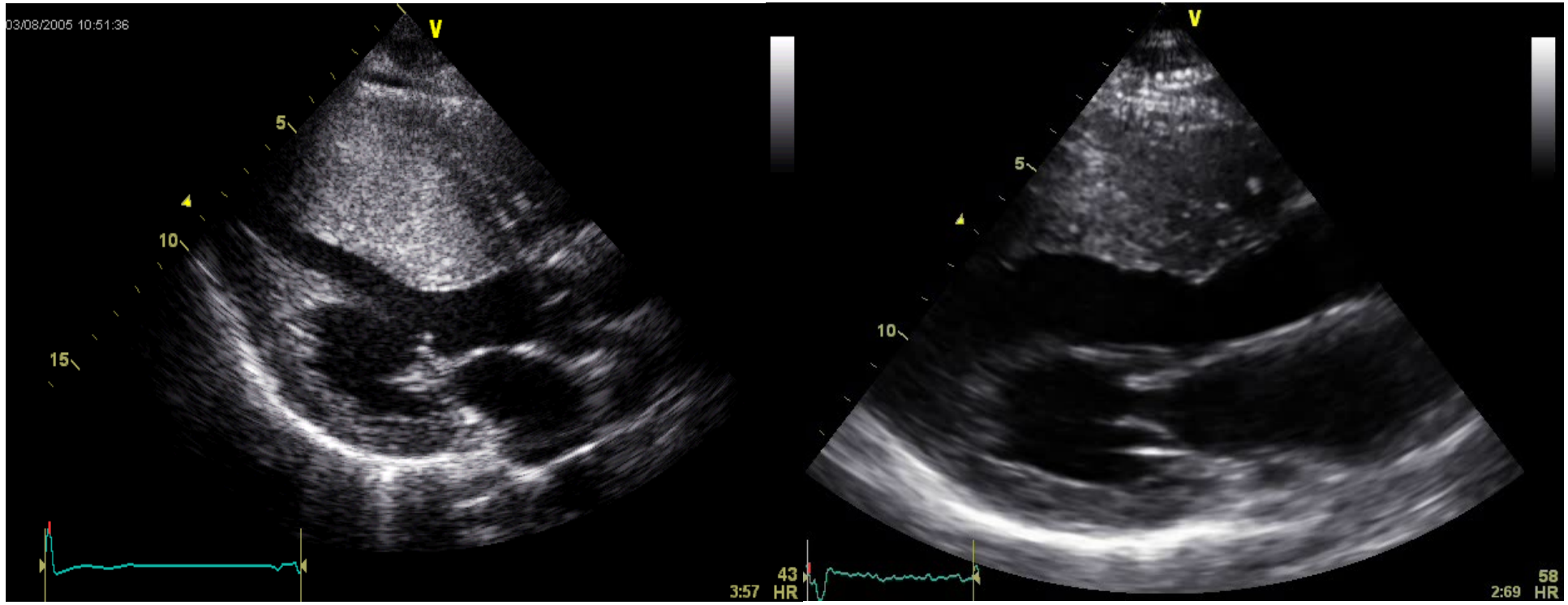
Myectomy

Treatment of drug refractory symptoms



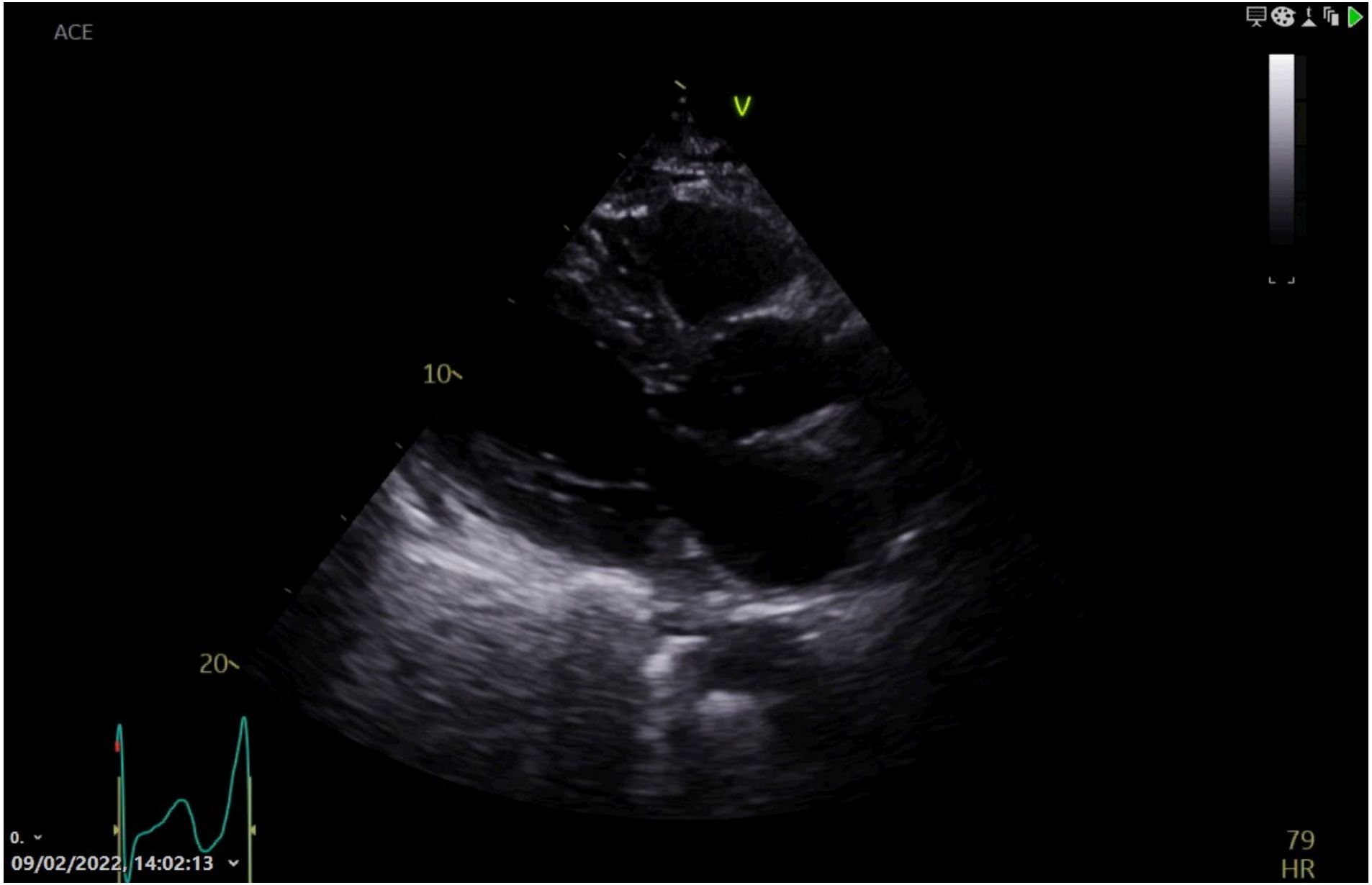
Morrow et al. Circ 1975

Pre- and post-myectomy

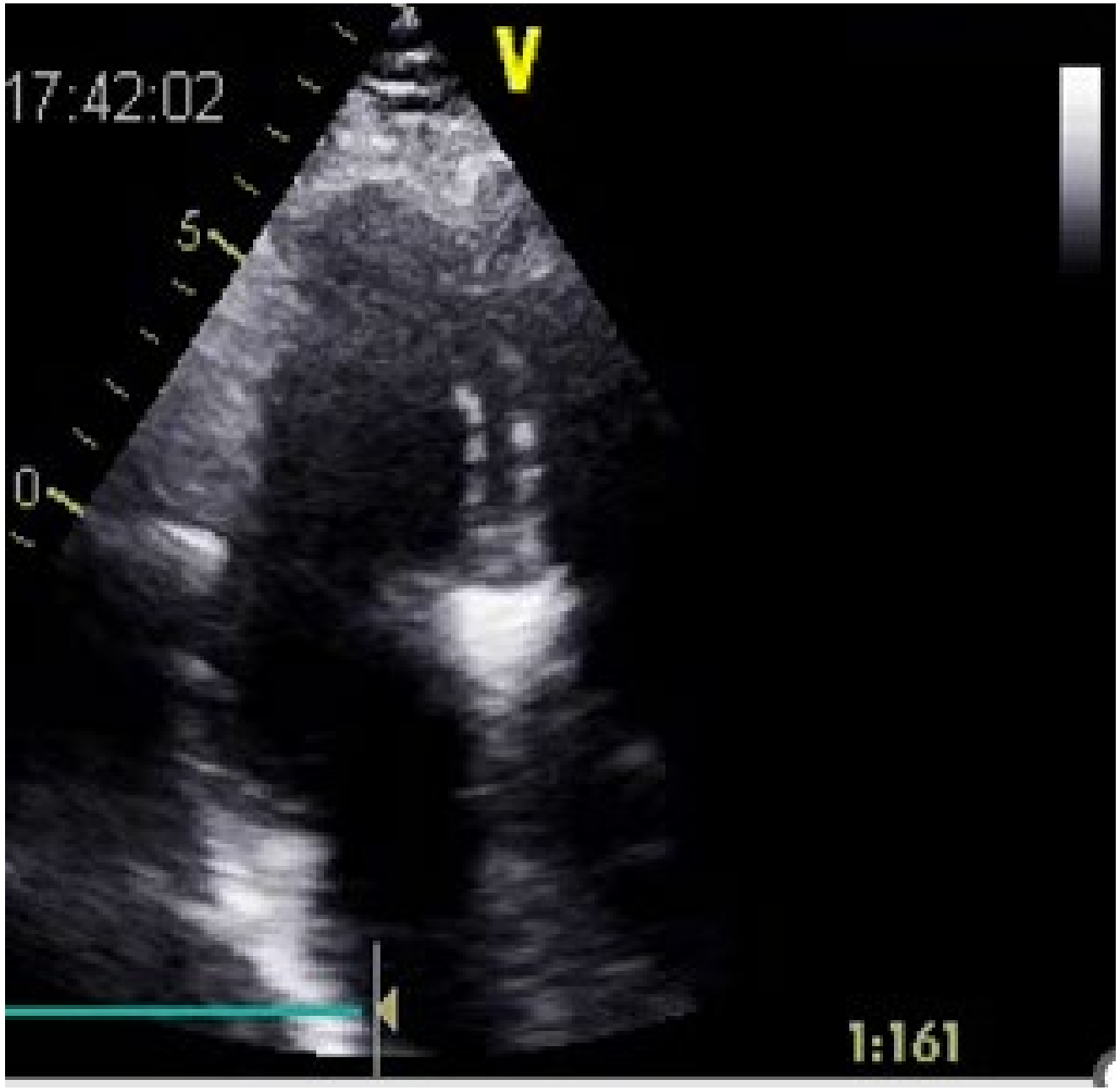


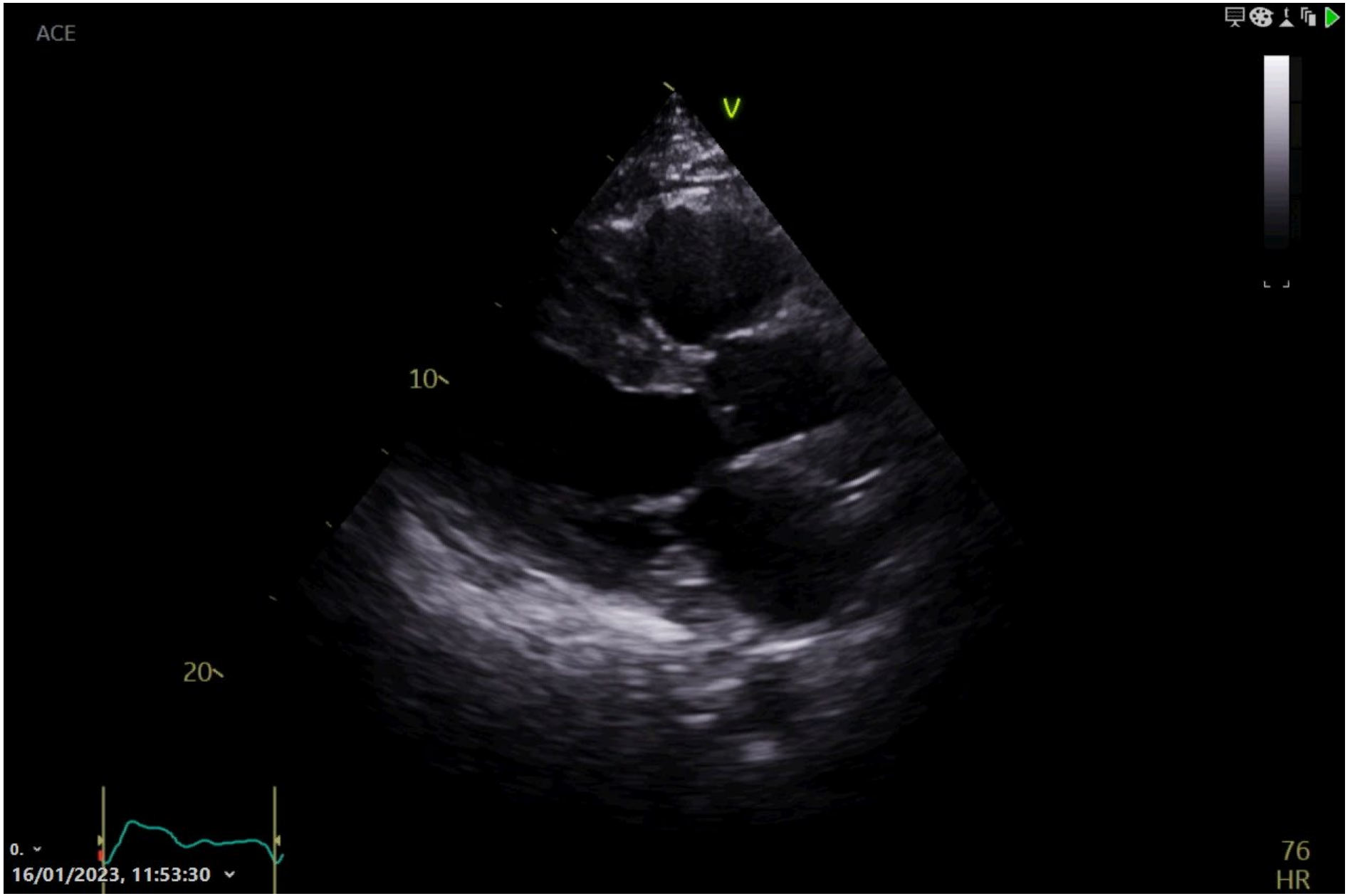
LVOTO Rx:

Alcohol ablation


ACE
V
10
20
0.
09/02/2022, 14:02:13
79
HR


5. Coro LD
C: 115.0, W: 159.0
C=115.0, W=159.0 1/1
L
28/06/2022, 15:29:36
F
5.811

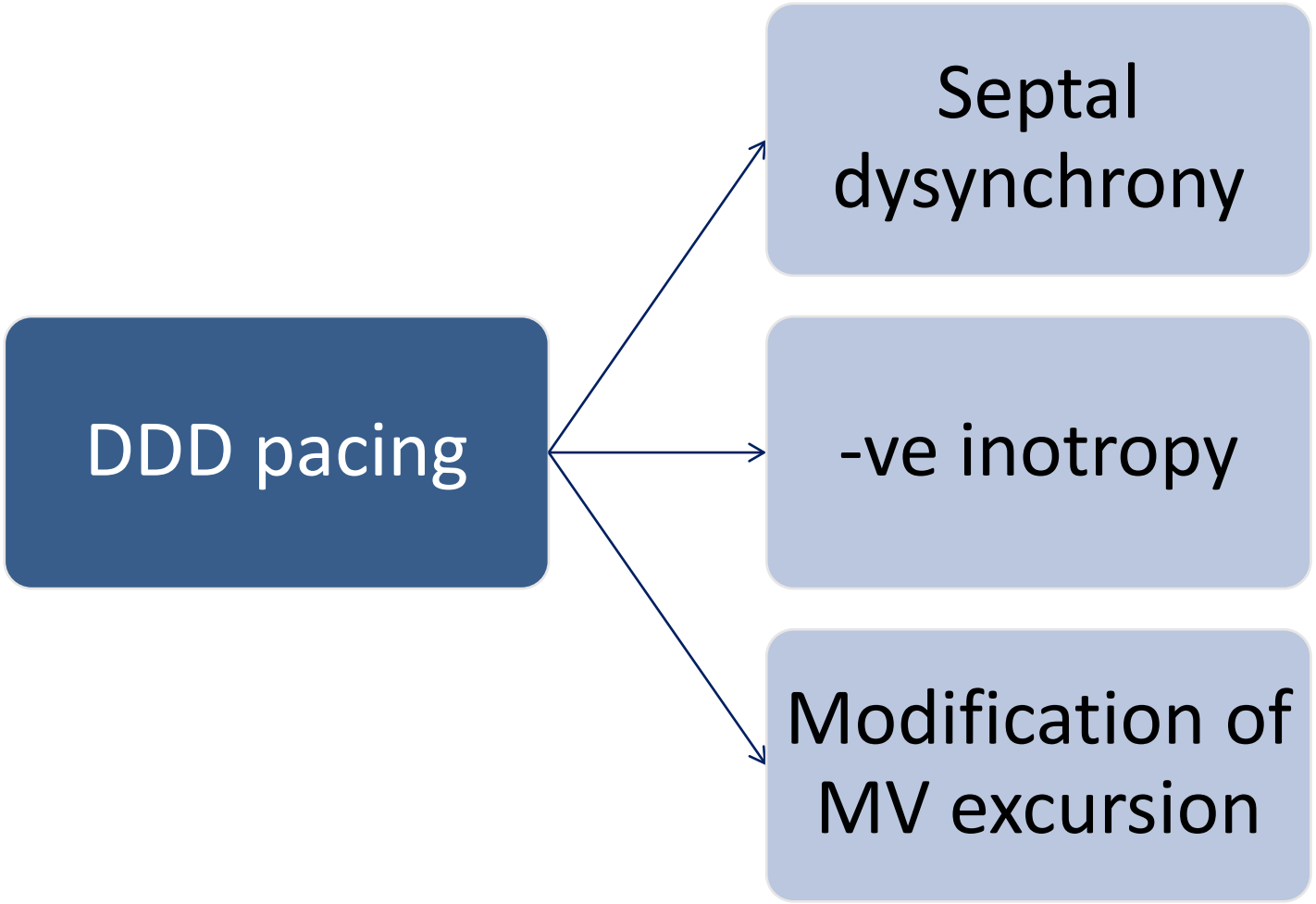

17:42:02
V
5
0
1:161


ACE
V
10
20
0.
16/01/2023, 11:53:30
76
HR

LVOTO Rx:

DDD pacing

DDD pacing with short AV delay

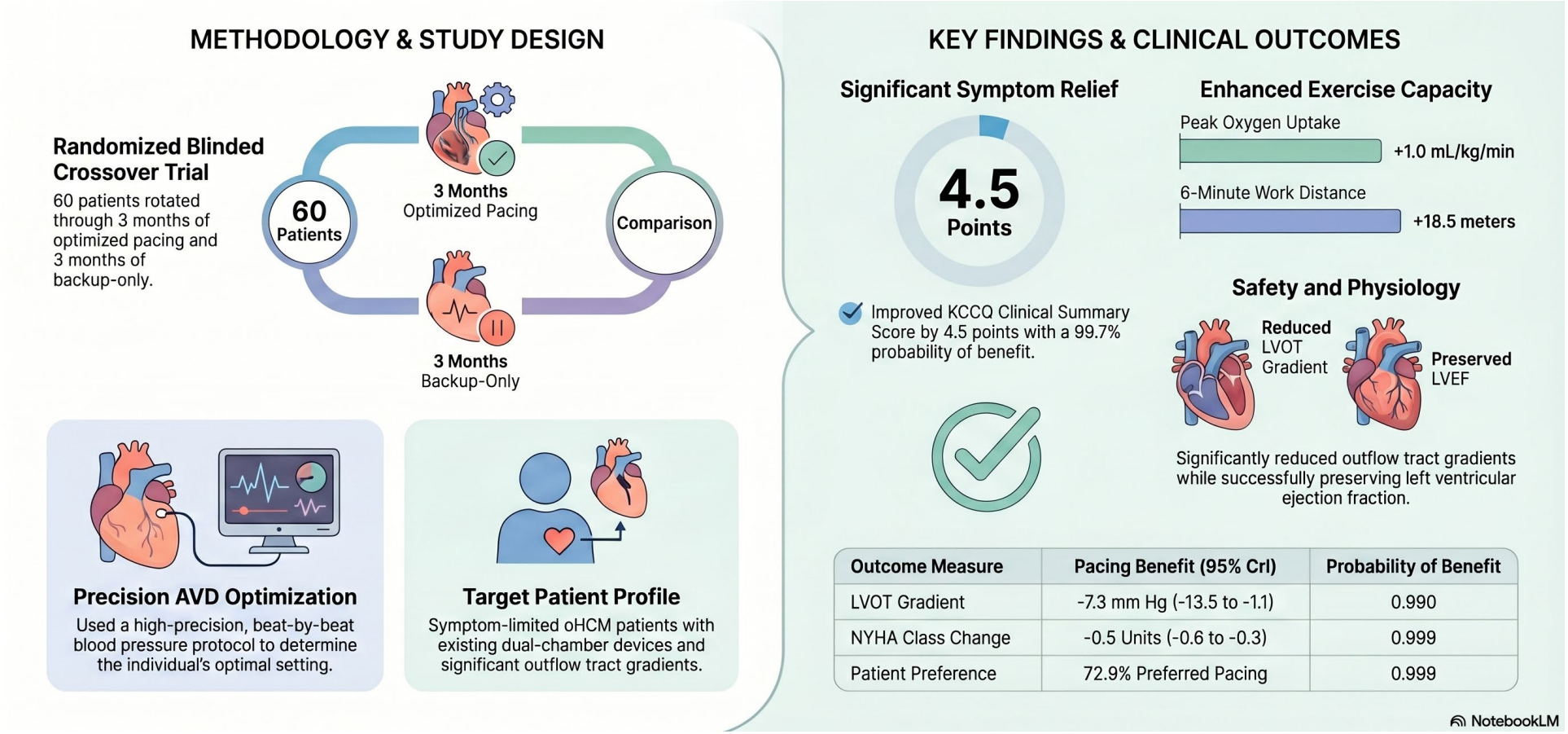


DDD pacing RCT trials

- LVOT gradient reduction (~30–50% reduction across trials)
- Inconsistent benefit
- Notable placebo effect

Nishimura JACC 1997 | Kappenberger EHJ 1997 | Maron Circ 1999

EMORI-HCM



Mohal et al; JACC 2026

CMI

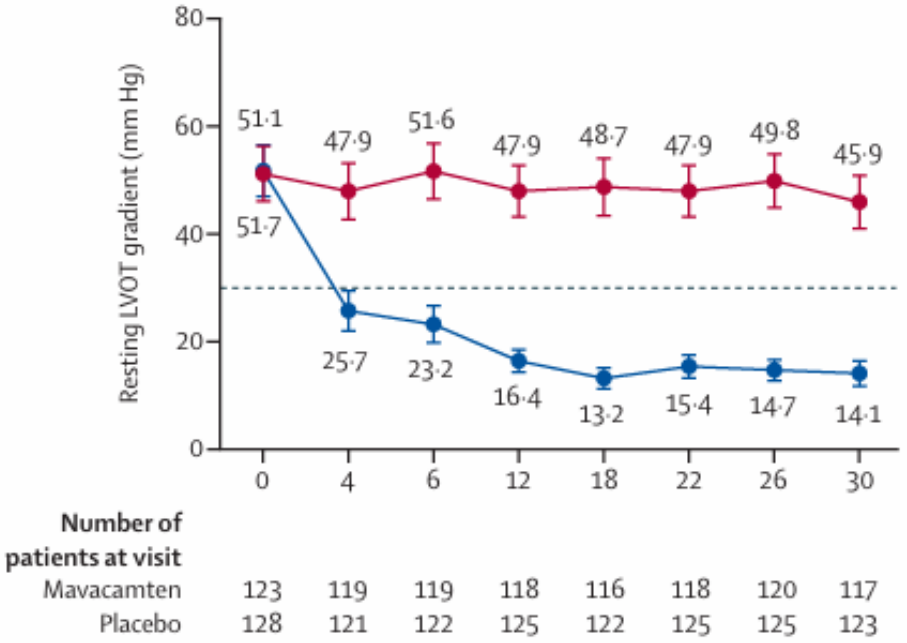
- Selective, reversible cardiac myosin inhibitor
- Shift myosin away from power-generating (on-actin) state towards a super-relaxed (off-actin) state
- Reduce:
  - myocardial hypercontractility
  - LVOTO
- Induce reversible LVSD

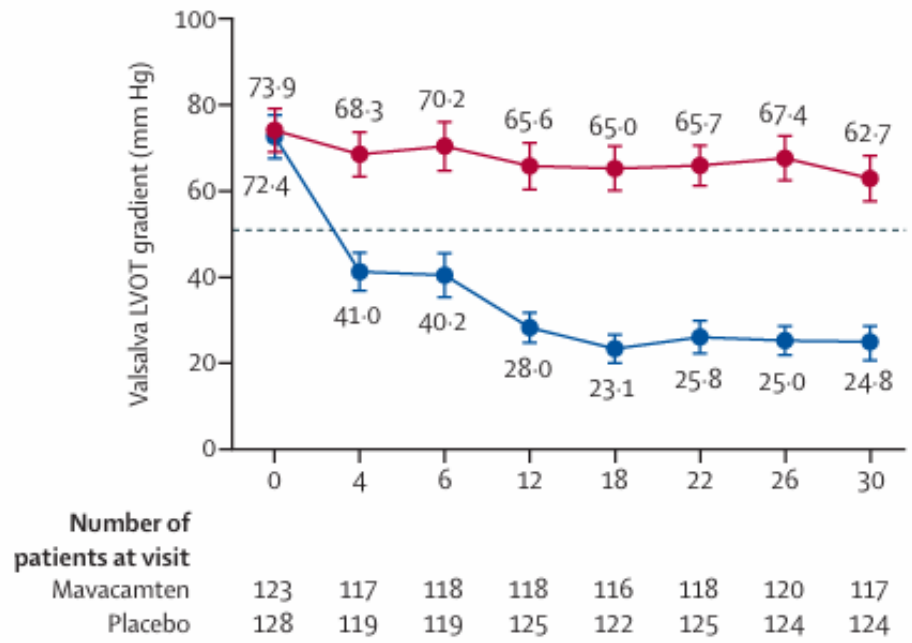
CMI

	Mavacamten	**Aficamten**
Formulation	Oral od	Oral od
TTE guided up-titration	2.5, 5, 10, 15mg	5, 10, 15, 20mg
Up-titration interval	4 weeks	2 weeks
$t_{1/2}$	8 days	3.4 days
Plasma steady state	5 weeks	2 weeks
CYP450 interactions	**++**	0
CYP450 genotyping	Required in EU	
Disopyramide	Contraindicated	Allowed

EXPLORER-HCM

- Mavacamten 30wk RCT
- RCT with 58% of screened subjects enrolled n=251
- NYHA 2-3 with LVOTg>50mmHg
- βB or CCB but not Disopyramide





Olivotto et al; Lancet 2020

The risk of death or transplant is reduced by 21% (95% CI 11% to 26%) for each 1 mL/kg/min increase in peak VO2; Coats et al Circ HF 2015

3ml/kg/min is roughly the observed improvement after SRT; Nagueh 2001, Firoozi 2002, Ommen 1999

	Mavacamten group (n=123)	Placebo group (n=128)	Difference* (95% CI), p value
Primary endpoint†			
Either ≥1·5 mL/kg per min increase in pVO, with ≥1 NYHA class improvement or ≥3·0 mL/kg per min increase in pVO, with no worsening of NYHA class	45 (37%)	22 (17%)	19·4 (8·7 to 30·1; p=0·0005)
≥1·5 mL/kg per min increase in pVO, with ≥1 NYHA class improvement	41 (33%)	18 (14%)	19·3 (9·0 to 29·6)
≥3·0 mL/kg per min increase in pVO, with no worsening of NYHA class	29 (24%)	14 (11%)	12·6 (3·4 to 21·9)
Both ≥3·0 mL/kg per min increase in pVO, and ≥1 NYHA class improvement	25 (20%)	10 (8%)	12·5 (4·0 to 21·0)
Secondary endpoints‡			
Post-exercise LVOT gradient change from baseline to week 30, mm Hg	−47 (40), n=117	−10 (30), n=122	−35·6 (−43·2 to −28·1; p<0·0001)
pVO, change from baseline to week 30, mL/kg per min	1·4 (3·1), n=120	−0·1 (3·0), n=125	1·4 (0·6 to 2·1; p=0·0006)
≥1 NYHA class improvement from baseline to week 30§	80 (65%)	40 (31%)	34% (22 to 45; p<0·0001)
Change from baseline to week 30 in KCCQ-CSS§	13·6 (14·4), n=92	4·2 (13·7), n=88	9·1 (5·5 to 12·7; p<0·0001)
Change from baseline to week 30 in HCMSQ-SoB§	−2·8 (2·7), n=85	−0·9 (2·4), n=86	−1·8 (−2·4 to −1·2; p<0·0001)

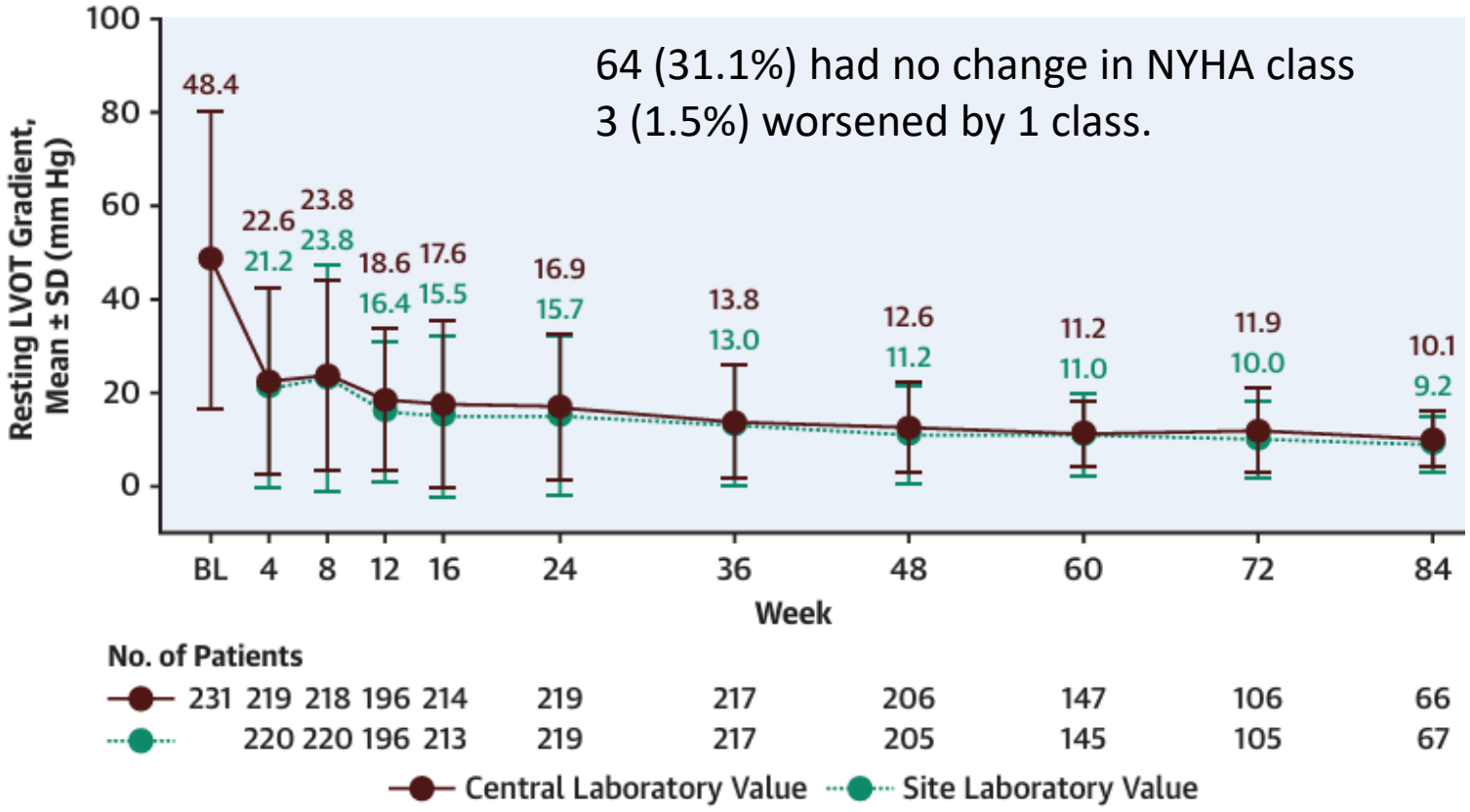
Data are n (%) or mean (SD). HCMSQ-SoB=Hypertrophic Cardiomyopathy Symptom Questionnaire Shortness-of-Breath subscore. KCCQ-CSS=Kansas City Cardiomyopathy Questionnaire-Clinical Symptom Score. LVOT=left ventricular outflow tract. pVO,=peak oxygen consumption. NYHA=New York Heart Association. *Model estimated least-square mean differences were reported for continuous variables. †Patients with a non-evaluable primary endpoint and NYHA secondary endpoint were considered as non-responders. The response rates were calculated with the N value as the denominator. ‡N was the number analysable for secondary endpoints based on availability of both baseline and week 30 values. §Due to the smaller numbers evaluable for patient-reported outcome endpoints, additional post-hoc analyses compared the reasons for missing data.

Table 2: Primary and secondary endpoints

Olivotto et al; Lancet 2020

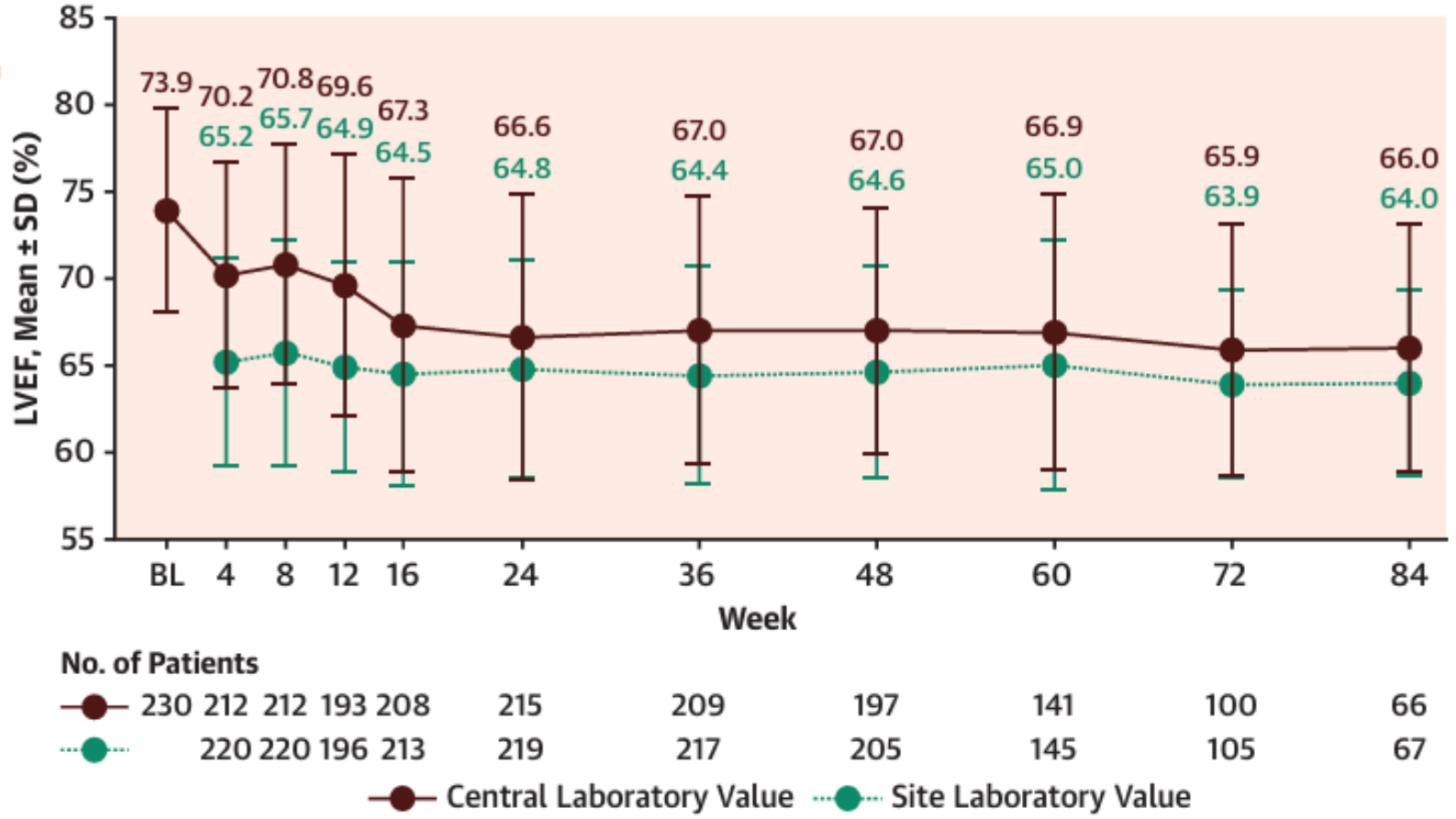
Mavacamten safety + durability

EXLPORER-LTE 5-year study
N=231/251 after 8 wk Rx withdrawal



Rader et al; JACC HF 2024

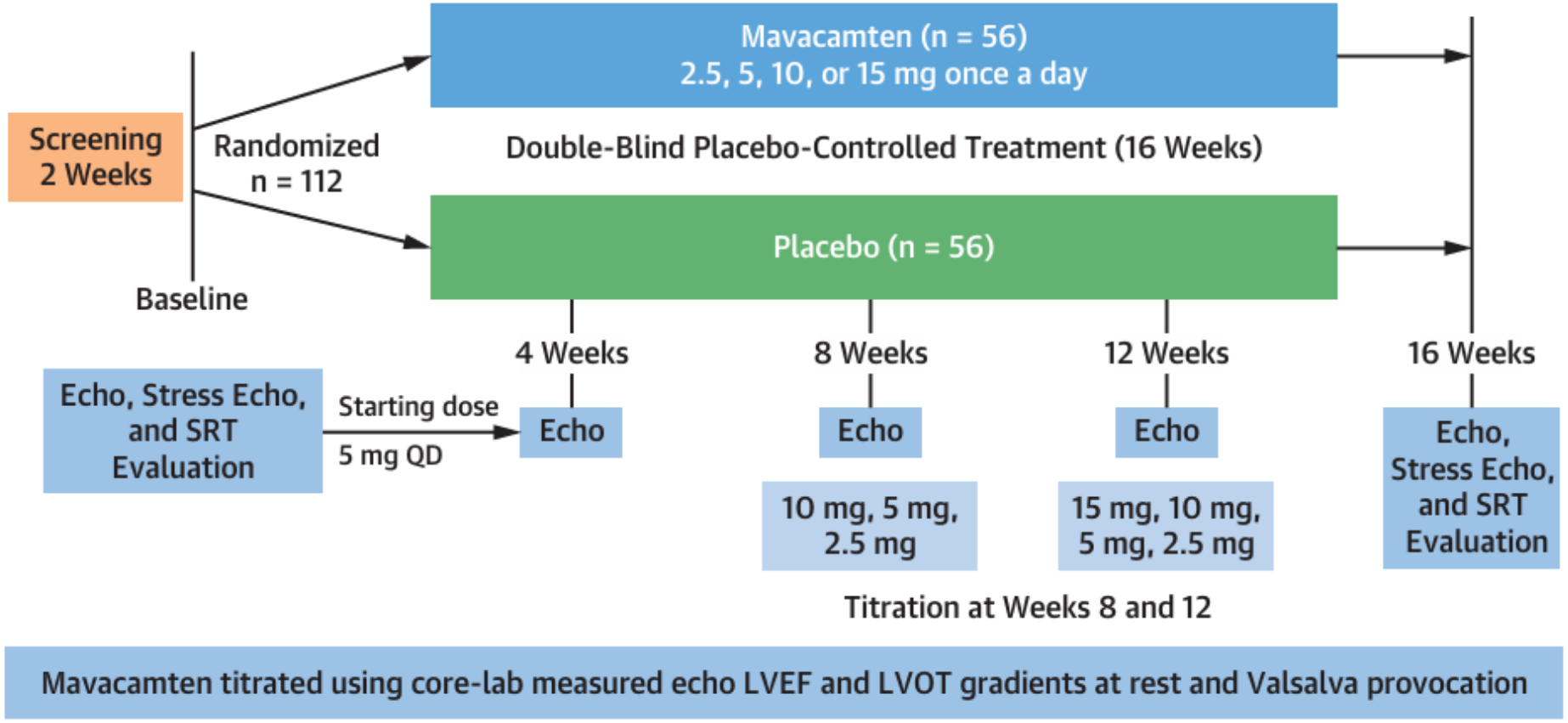
Mavacamten and LVEF



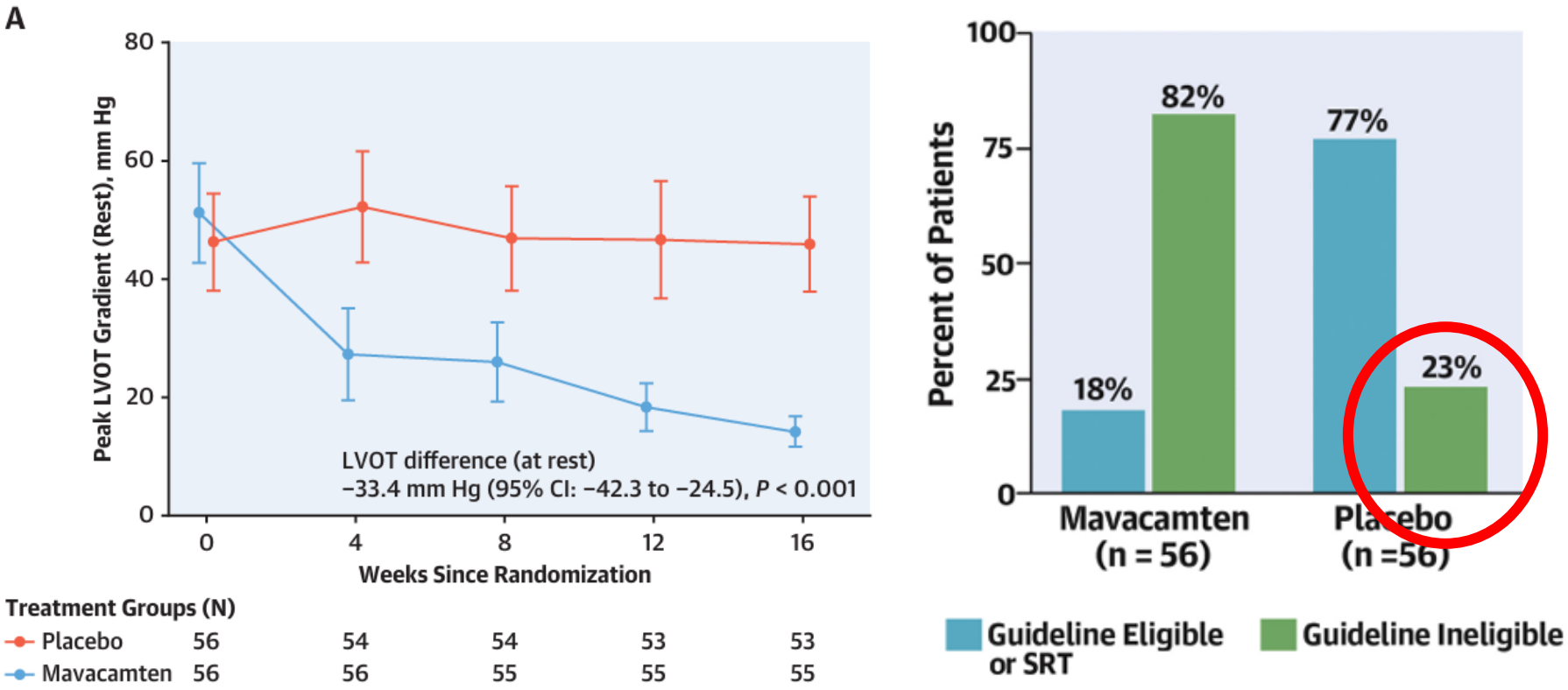
Rader et al; JACC HF 2024

VALOR-HCM

Does Mavacamten obviate the need for SRT in medically treated patients with refractory NYHA III symptoms?

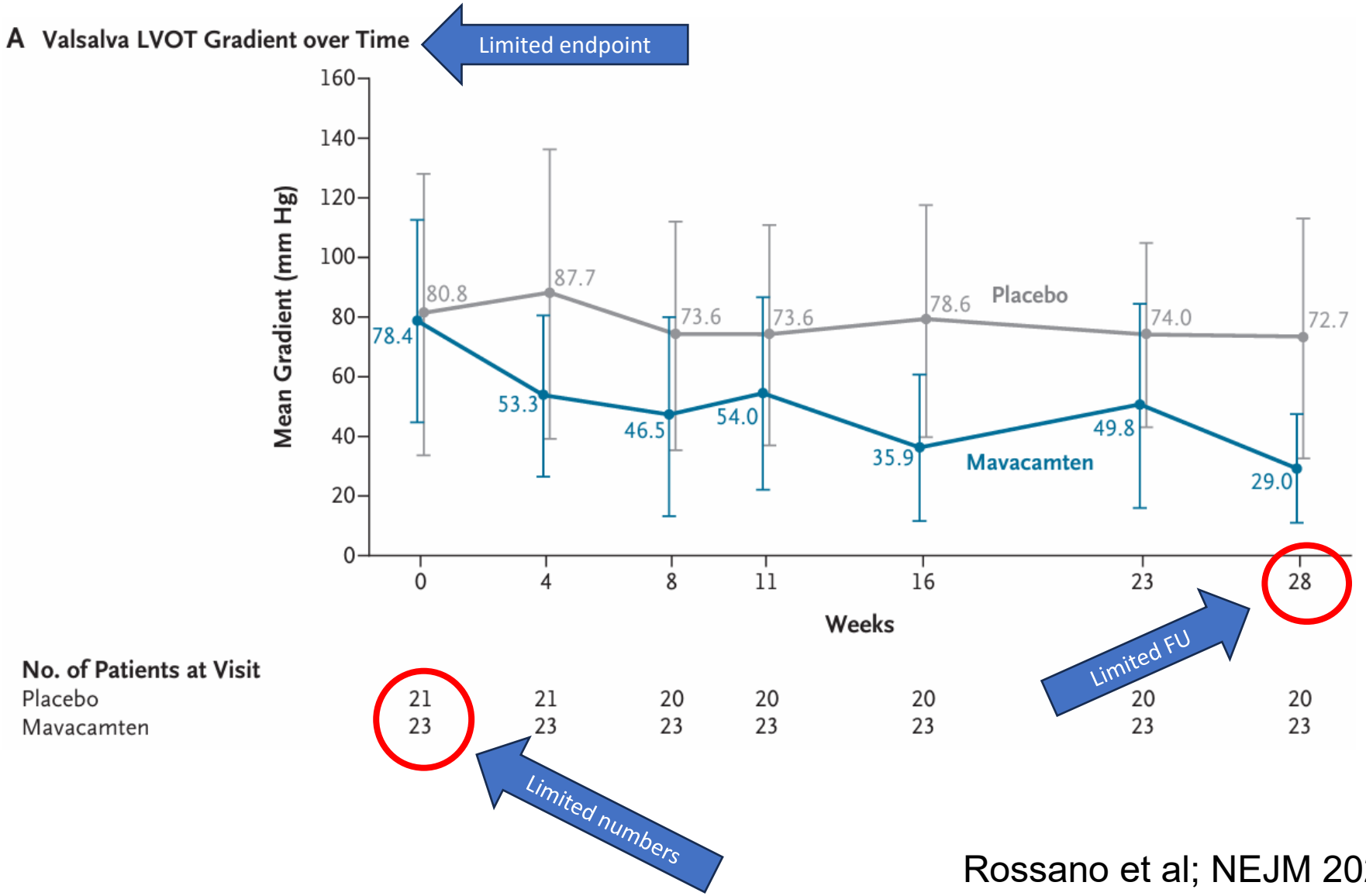


Desai et al; JACC 2022



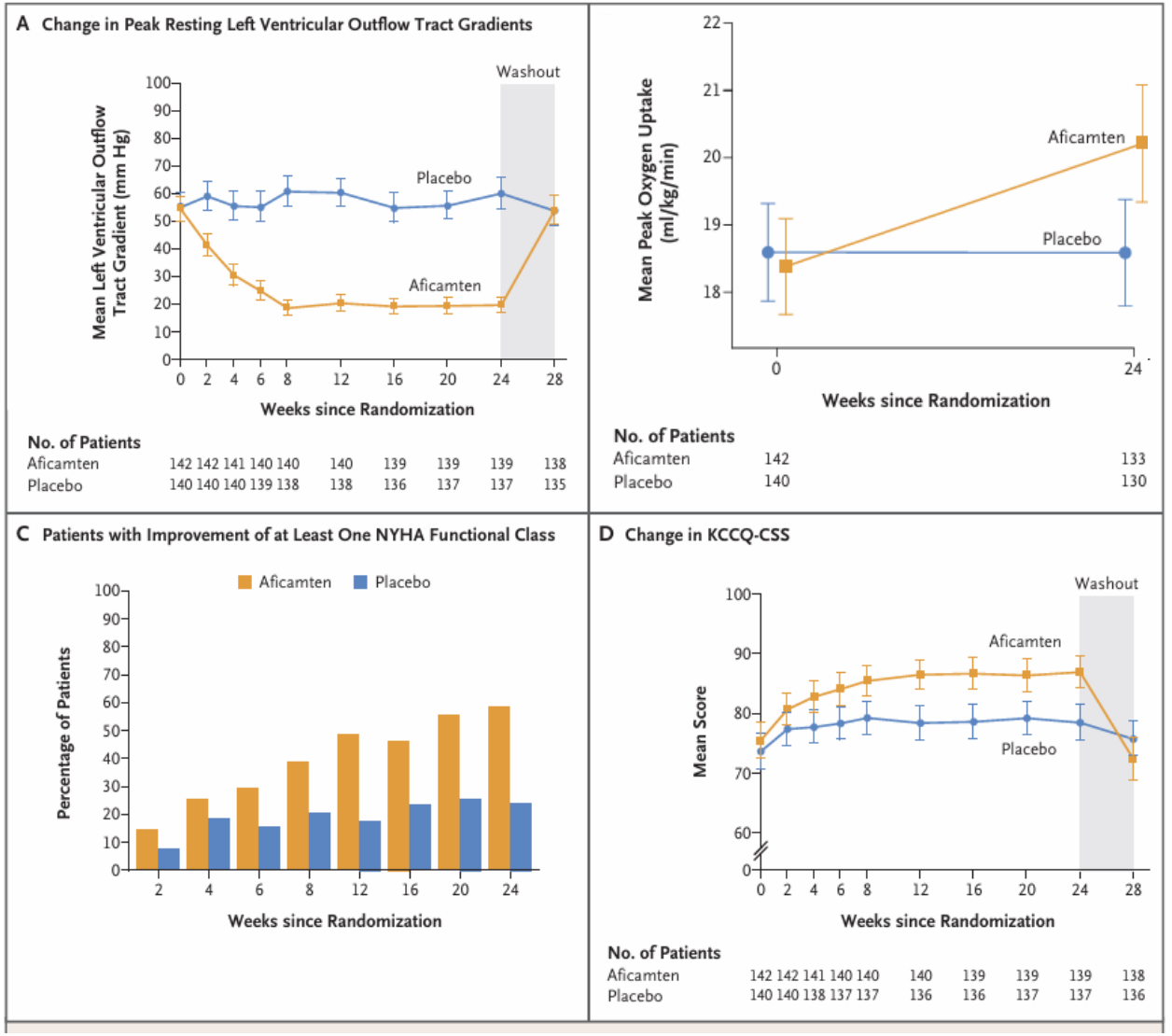
Desai et al; JACC 2022

Mavacamten in 12-17yr olds



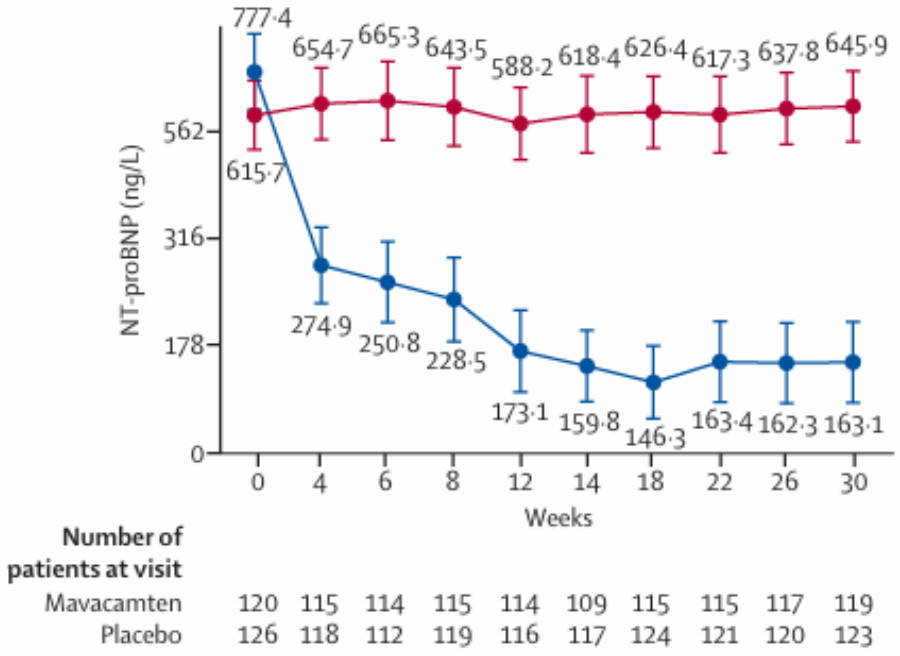
Rossano et al; NEJM 2026

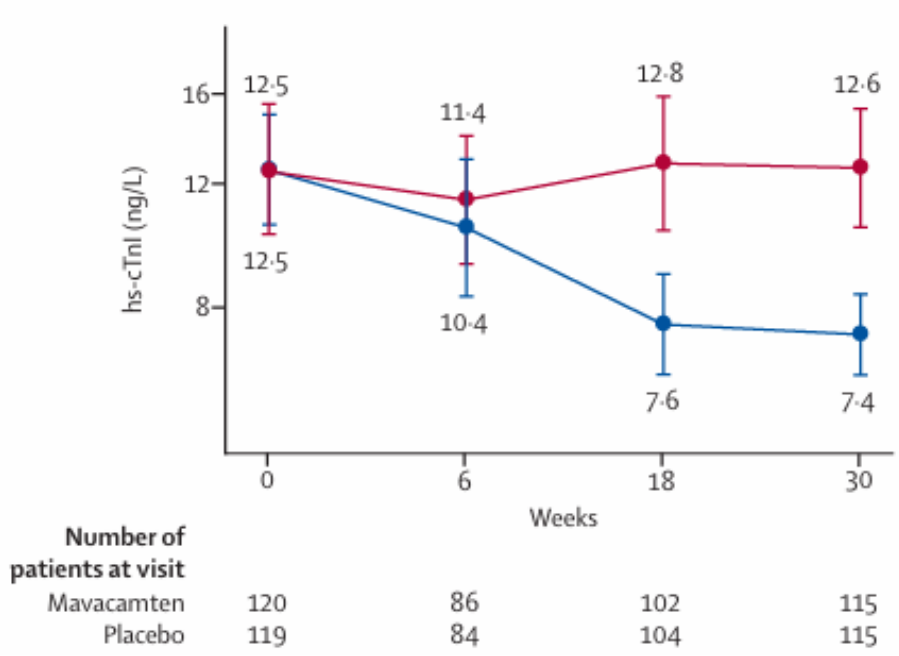
Aficamten: SEQUOIA-HCM



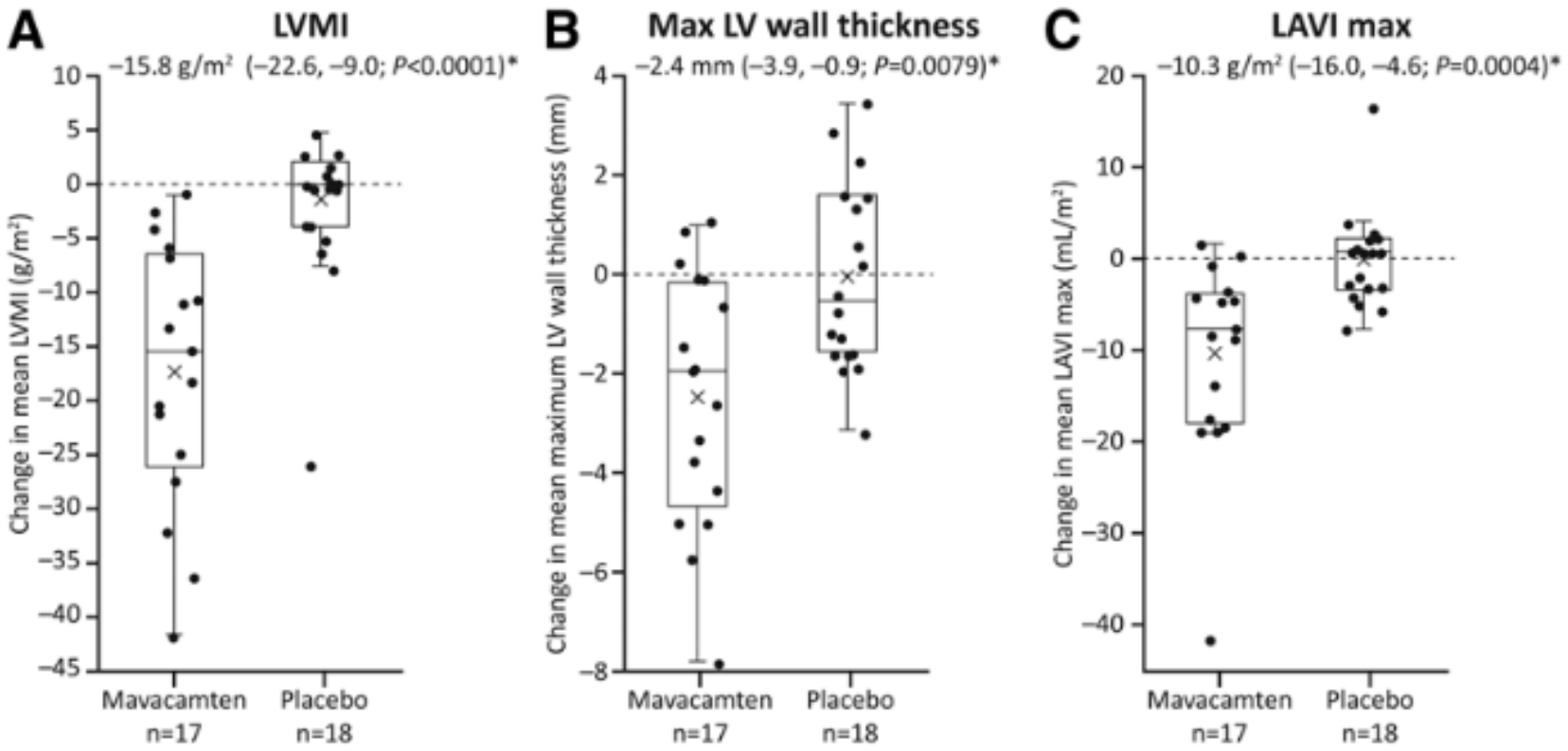
Maron et al; NEJM 2024

Favourable cardiac remodelling



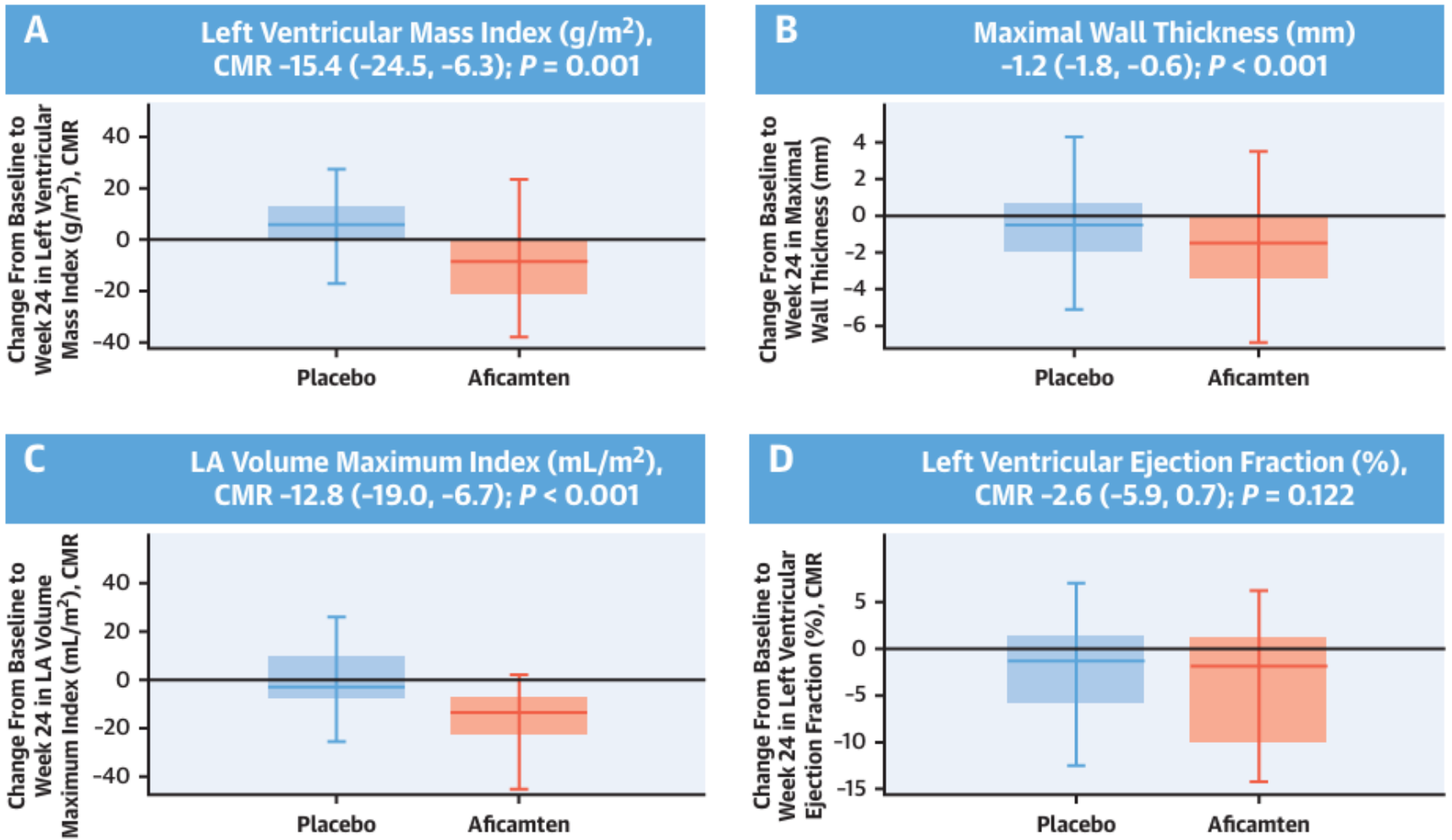


Olivotto et al; Lancet 2020



Saberi et al; Circ 2021

FIGURE 1 Effects of Aficamten on Measures of Cardiac Structure and Function Assessed by CMR



Masri et al; JACC 2024

But..

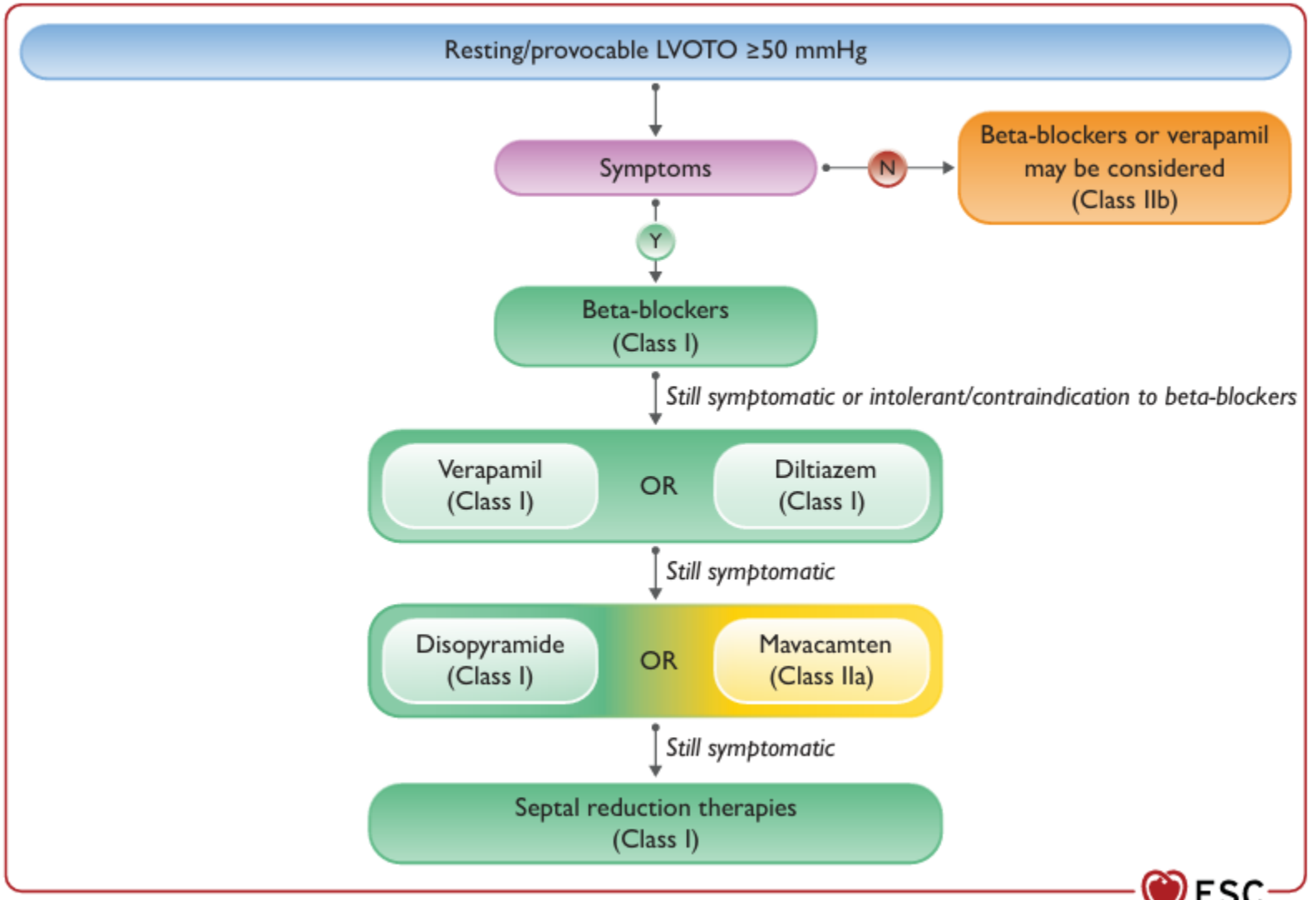
Impact on natural course of the disease and mortality not known

Short term data in a life-long condition

CMI side effects

- Hypertension
- AF (baseline bias?)
- LVSD ~5%
  - Rarely heart failure
  - Rarely cardiogenic shock
- Stress cardiomyopathy
- Palpitation/dizzy spells
- Headaches

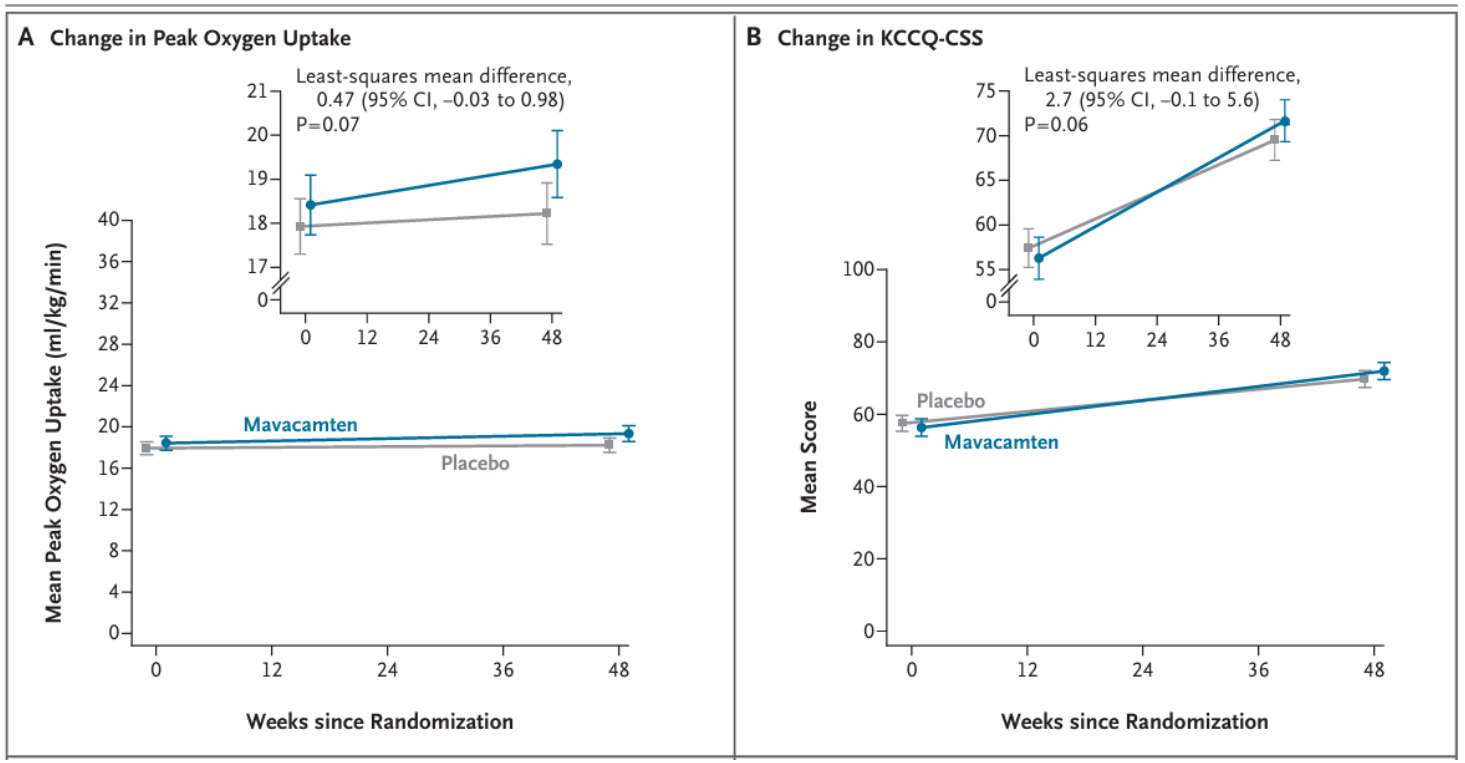
Guideline recommendations



Consensus in 2023 ESC and 2024 AHA/ACC guidelines

Mavacamten in nHCM

- Mavacamten 48wk RCT
- 56% of screened subjects enrolled n=580
- NYHA 2-3 with vLVOTg<50 & rLVOTg<30mmHg
- βB or CCB or Disopyramide



ODYSSEY-HCM; NEJM 2025

Why does Mavacamten does not work in nHCM

- Enrolled patients had long standing disease
- LVEF 65% (compared to 75% in oHCM studies)
- Despite improvements in biomarkers, too late to see clinical improvement in short term?
- Do we need a different dose / longer term follow-up?

Underwriting

Impact on underwriting 1

- Some clients may not have HCM (overdiagnosis)
- Adoption of BSA/Age/sex adjusted diagnostic thresholds will probably reduce diagnosis older / high BSA / high BMI subjects.
- Likely to increase monogenic disease prevalence which has worse prognosis
- Downstream increase in G+ relatives

Impact on underwriting 2

- Lenient terms in phenotype negative FDR of genotype –ve probands, especially in sporadic HCM
- Life expectancy: no treatment has been shown to improve survival in a RCT
- CMIs improve surrogates of disease severity but **DO NOT** assume improved prognosis

Impact on underwriting 3

- Can CMIs shift a patient from "uninsurable" to insurable?
  - Yes, but not curative treatment
  - Underlying disease still present
  - Improvement with CMI is not irreversible
  - Interruption of CMI= return to baseline in 1-2/12
- CMIs may be withdrawn/restricted due to rare but severe long term adverse events

Critical Illness

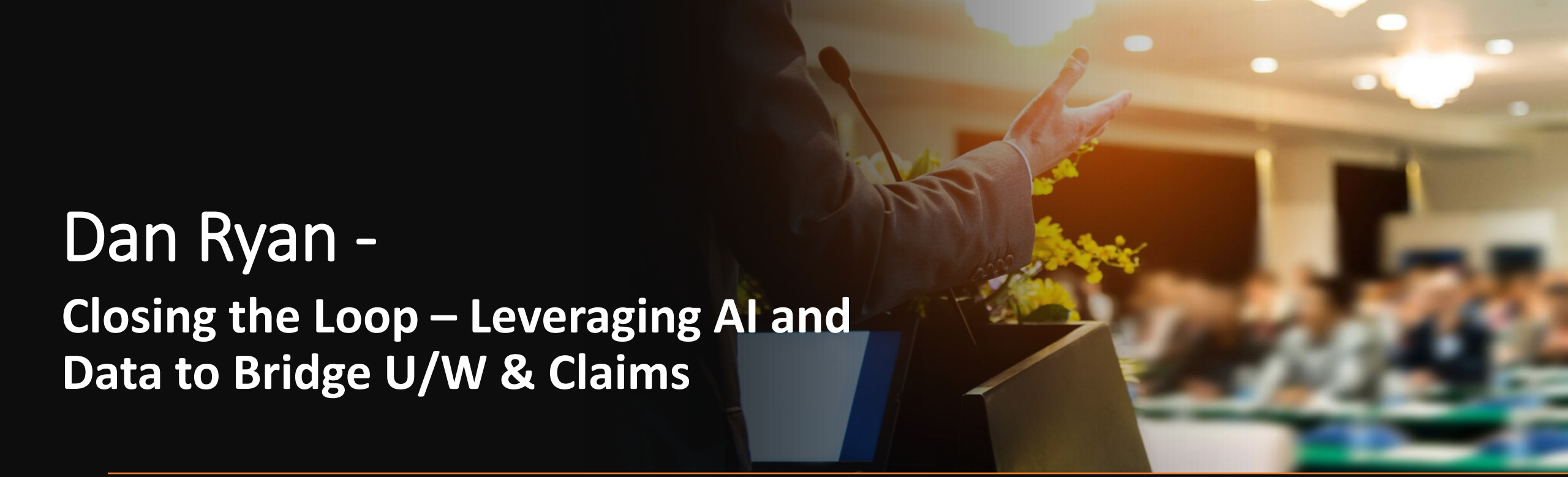
- CMI *may* reduce:
  1. ICD implants
  2. Reduce pathologic LVSD
  3. Reduce AF (stroke risk)
- LVEF <40% in CMI treated patients may facilitate claim but *reversible*
- CMI expected to reduce claims for NYHA 3-4

Income protection

- LVEF monitoring requirements – initially intense but if successful can return to work
- CMI side effects – not permanent
- *Could a patient delay or decline treatment to satisfy a severity-based definition, then commence treatment post-claim?*
  - Yes but not specific to HCM
  - Deliberate short-term delay is probably not catastrophic, but it is not risk-free

Conclusions

- HCM is phenotypically diverse
- Natural history is variable
- Incurable but treatable
- CMI are groundbreaking in HOCM
- CMI effects on SCD/LVSD/AF to be determined
- Underwriting the disease or the treated state?
- CIC and IP claims likely to reduce



Dan Ryan -

Closing the Loop – Leveraging AI and Data to Bridge U/W & Claims

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AMUS

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hcf

CLOSING THE LOOP

DAN RYAN

DIRECTOR OF DEMOGRAPHIC SCIENCE

JUST.

LEVERAGING AI AND DATA TO BRIDGE UNDERWRITING AND CLAIMS

AMUS, 23 APRIL 2026

WHAT WE WILL BE TALKING ABOUT

1. SHARED DATA ECOSYSTEMS
2. AI-DRIVEN CLAIMS INSIGHTS
3. EARLY WARNING VIA ML
4. EXPLAINABLE AI & GOVERNANCE
5. CONTINUOUS IMPROVEMENT

THE CASE FOR CLOSING THE LOOP

- Underwriting and claims have historically operated as separate silos, creating blind spots in risk assessment and reserving accuracy.
- AI and advanced analytics now make it commercially viable to build real-time feedback loops between policy origination and claims settlement.
- The FCA's focus on Consumer Duty and fair outcomes demands greater consistency and explainability in decision-making across both functions.
- This session provides a practical framework covering data architecture, AI tooling, governance and continuous improvement methodology.

01

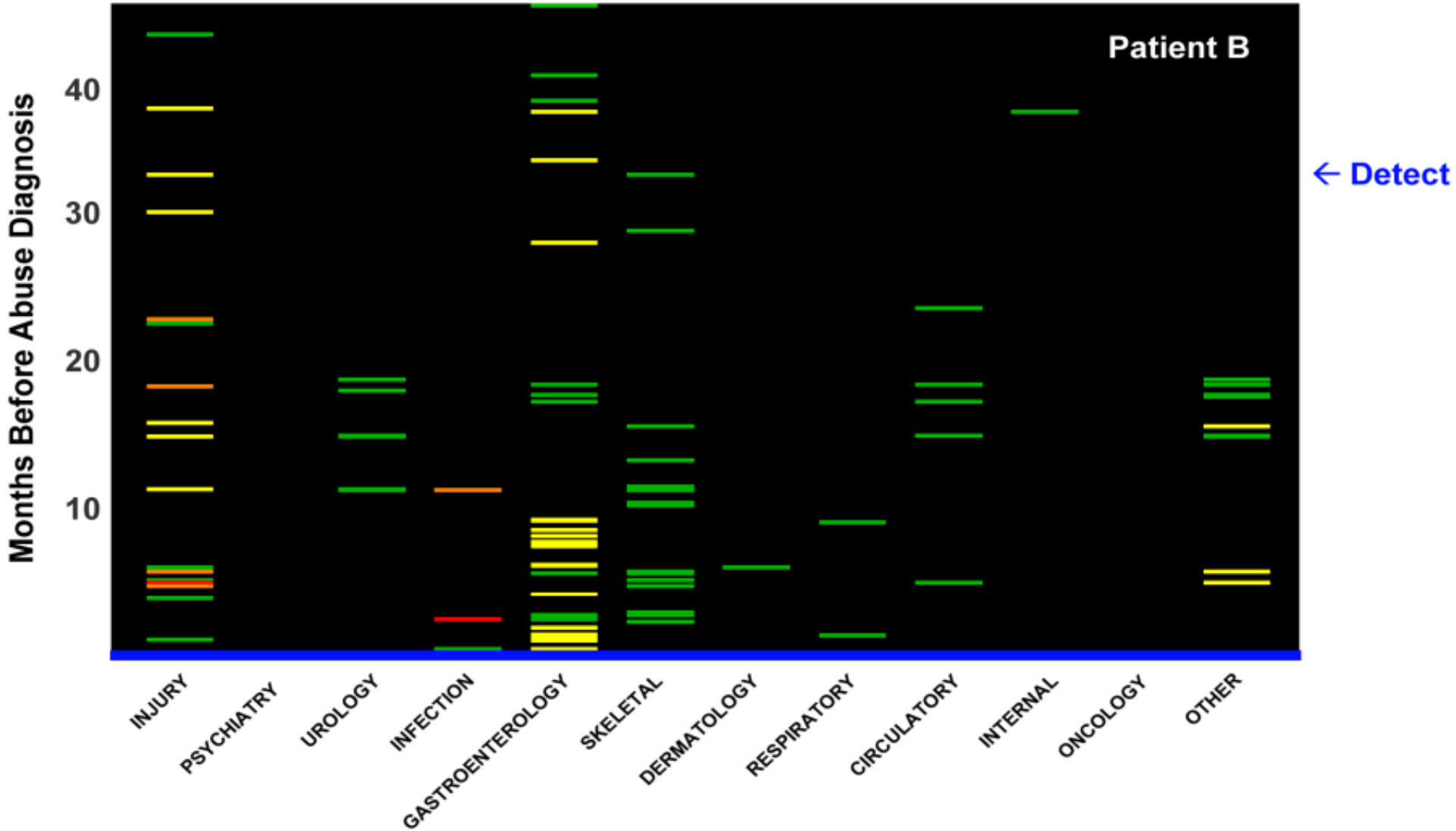
CREATING A SHARED DATA ECOSYSTEM

Where Life & Health underwriting and claims continuously inform each other

UNLOCKING THE POWER OF DATA (20YRS AGO) – US HEALTH CLAIMS DATA

13-Oct-87	13:33:00	3	ABDOMINAL PAIN	53190	GASTRIC ULCER NOS
6-May-88	11:49:27	71	RESPIRATORY DISTRESS	49390	ASTHMA W/O STATUS ASTH
9-Nov-88	18:34:23	40	INJURY - HAND (FINGERS)	81501	FX 1ST METACARP BASE-CL
16-Feb-89	17:54:09	26	EARACHE	3829	OTITIS MEDIA NOS
16-Feb-89	17:54:09	26	EARACHE	3099	ADJUSTMENT REACTION NOS
16-Feb-89	17:54:09	26	EARACHE	5355	GASTRITIS/DUODENITIS NOS
16-Jan-90	17:16:00	40	INJURY - HAND (FINGERS)	92320	CONTUSION OF HAND(S)
28-Feb-90	22:24:00	40	INJURY - HAND (FINGERS)	92320	CONTUSION OF HAND(S)
7-Mar-90	18:13:00	40	INJURY - HAND (FINGERS)	92320	CONTUSION OF HAND(S)
7-Apr-90	14:55:58	93	OTHER	7890	ABDOMINAL PAIN
10-Apr-90	15:53:54	20	DEHYDRATION	7999	UNKN CAUSE MORB/MORT NEC
12-Apr-90	17:22:17	20	DEHYDRATION	2765	HYPOVOLEMIA
27-Apr-90	10:47:39	46	INJURY - HEAD	3469	MIGRAINE NOS
5-Oct-90	12:33:49	3	ABDOMINAL PAIN	5301	ESOPHAGITIS
11-Oct-90	9:16:58	40	INJURY - HAND (FINGERS)	92320	CONTUSION OF HAND(S)
9-Nov-90	19:02:57	37	INGESTION	9899	TOX EFF NONMED SUBST NOS
21-Dec-90	19:27:00	3	ABDOMINAL PAIN	5355	GASTRITIS/DUODENITIS NOS
29-Jan-91	21:39:10	40	INJURY - HAND (FINGERS)	6829	CELLULITIS NOS
1-Feb-91	13:25:11	112	CELLULITIS	6829	CELLULITIS NOS
18-Feb-91	15:50:19	40	INJURY - HAND (FINGERS)	6824	CELLULITIS OF HAND
21-Feb-91	20:51:51	93	OTHER	7890	ABDOMINAL PAIN
21-Feb-91	20:51:51	93	OTHER	0799	VIRAL/CHLAMYD INFECT NOS
2-Apr-91	10:57:49	51	INJURY - KNEE	8362	TEAR MENISCUS NEC-CUR
13-May-91	3:13:56	57	LACERATION	87343	OPEN WOUND OF LIP
7-Jul-91	14:28:34	45	INJURY - EYE	920	CONTUSION FACE/SCALP/NCK
7-Sep-91	17:05:00	79	SUICIDE ATTEMPT	3009	NEUROTIC DISORDER NOS
8-Sep-91	12:24:55	100	FOLLOWUP VISIT/RECHECK	88102	OPEN WOUND OF WRIST
8-Sep-91	12:24:55	100	FOLLOWUP VISIT/RECHECK	V588	AFTERCARE NEC
6-Nov-91	18:48:29	40	INJURY - HAND (FINGERS)	81601	"FX MID/PROX PHAL
7-Nov-91	18:31:50	40	INJURY - HAND (FINGERS)	81500	FX METACARPAL NOS-CLOSED
23-Mar-92	16:28:17	27	EDEMA/SWELLING	7823	EDEMA
23-Jul-92	17:44:00	23	DIARRHEA	0090	INFECTIOUS ENTERITIS NOS
23-Jul-92	17:44:00	23	DIARRHEA	5301	ESOPHAGITIS
9-Aug-92	20:23:07	57	LACERATION	88102	OPEN WOUND OF WRIST
29-Oct-92	19:50:03	23	DIARRHEA	78900	ABDOMINAL PAIN-SITE NOS
29-Oct-92	19:50:03	23	DIARRHEA	53500	ACUTE GASTRITIS S HEMOR
17-Dec-92	17:55:00	57	LACERATION	88102	OPEN WOUND OF WRIST
27-Apr-93	12:58:08	135	DEPRESSION	8840	MULT OPEN WND ARM/S COMP
23-Jun-93	17:16:21	57	LACERATION	88100	OPEN WOUND OF FOREARM
14-Oct-93	14:22:00	31	GI BLEEDING	78900	ABDOMINAL PAIN-SITE NOS
5-Nov-93	18:37:17	3	ABDOMINAL PAIN	78900	ABDOMINAL PAIN-SITE NOS
8-Jun-94	12:51:11	20	DEHYDRATION	5990	URINARY TRACT INF NOS
8-Jun-94	12:51:11	20	DEHYDRATION	9955	CHILD MALTREATMENT SYND

UNLOCKING THE POWER OF DATA (20YRS AGO)
- HARVARD MEDICAL SCHOOL – PREDICTIVE MEDICINE GROUP

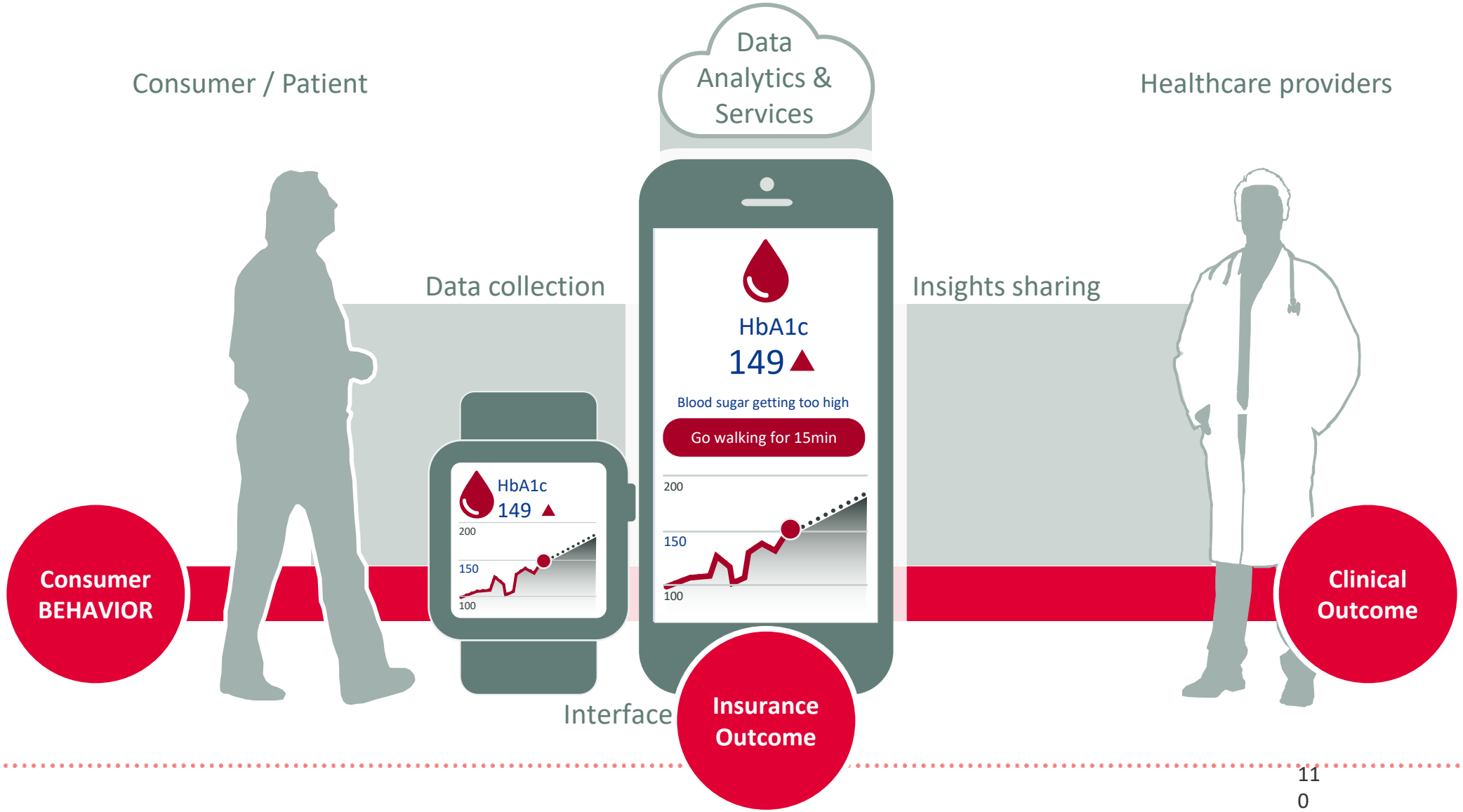


HOW DATA INSIGHTS INFORM OUR REALITY TODAY

Example Customer Journey

Breakfast with family 07.00h	Park & Ride (mobility) 07.30h	Park & Ride (mobility) 08.00h	Start Work 08.15h	Active Break 10:15h	End Work 17:30h	Outdoor Activity 17:45h	Outdoor Activity 18:45h	Shopping 19.00h	Mobility Service 19:15h	Time with Family 19:45h	Sleep 23:15h
Health risk related Interact.											
Digital Health Risk Related Interventions											
Healthy Stage						Great achie-vement today (12k steps) – 7k missing for next badge!			Don't forget your vitamins D today – here is why →	Don't eat fruits before at 21h – here is why → - prepare for sleep at 23h!	Today 7.5h sleep nece-ssary – listen to some music in advance – here is why →
Pre-Illness Stage	Reminder Take Medication	High stress level (blood pressure)! – relax / watch developments!	Take a walk outside for 35min				Relax – take the train eat an orange!				
Chronic Stage											
Generated Insights	Adherence and health risk monitoring & control	Impact on future risk exposure – Check for intervention!	Activity motivation – health adherence monitoring	Reward for completed activities (bon-ding services)			Stress prevention and emotional control feedback		Adherence and self health risk control	Customer education and health literacy	Sleep control and health literacy
	Notification	Prevention	Suggestion	Notification			Casualty		Notification	Prediction	Awarness

DATA UNDERPINNING OUR CONNECTED HEALTH



THE SILO PROBLEM FOR INSURERS TODAY

- Underwriting teams set pricing assumptions without systematic feedback on how risks actually develop once claims occur.
- Claims handlers may not have visibility of the original underwriting rationale, leading to inconsistent coverage interpretation.
- Reserving actuaries must manually bridge gaps between exposure data and claims experience, introducing lag and error.
- Research by Insurance DataLab shows UK insurers spend an estimated 18% of operational budget reconciling data between underwriting and claims platforms.
- Addressing this structural disconnect is the single highest-value data initiative available to most UK insurers today.

DATA GOVERNANCE IN MEDICAL DATA ENVIRONMENT

UK GDPR Article 9

Health = special category. Explicit consent, DPIAs and RBAC required at every processing stage.

ABI Moratorium

Genetic test results excluded from life/CI underwriting — must be a hard constraint in any AI system.

Consumer Duty

AI decisions must produce fair outcomes, especially for vulnerable customers.

Data Quality

Joint governance council owns completeness, timeliness and accuracy KPIs across UW and claims.

Synthetic Data

Syntegra / Gretel.ai generate realistic non-personal training data — substantially reducing GDPR risk.

Lineage Tools

Collibra / Informatica provide FCA and PRA with full audit trail from source to decision.

INTEGRATING CORE L&H SYSTEMS: KEY PLATFORMS

Category	Platform / Tool	Integration Value
Policy Admin	FAST · EXL LifePRO · FIS IPAS	Surface claims enrichment at renewal/re-UW
Claims Management	Sapiens ClaimsPro · Majesco · StoneRiver	Publish diagnostic outcomes to analytics layer
GP Report Automation	iGPR · Hannover Re Cleo	Electronic GP data — weeks to hours turnaround
Wearables / Health	Vitality (Apple Watch) · Garmin · Fitbit	Dynamic behavioural risk profiles, updated live
NHS Data	NHS Digital APIs · NHS login	Prescription history supplements GP report data

02

AI-DRIVEN CLAIMS INSIGHTS

Refining Life & Health underwriting rules and improving risk segmentation

HOW AI TRANSFORMS CLAIMS DATA INTO UNDERWRITING INTELLIGENCE

- Natural language processing (NLP) extracts structured insights from unstructured claims narratives and medical reports at scale.
- Gradient boosting models (XGBoost, LightGBM) trained on closed claims can identify the risk characteristics most predictive of poor outcomes.
- Sentiment analysis of claimant communications and legal correspondence can flag escalating claims before they breach thresholds.
- Automated claim triage using AI directs complex, high-value claims to specialist handlers while freeing routine claims for straight-through processing.
- A/B testing of underwriting rule changes provides statistically robust evidence for rule amendments.

USE CASE: AUTOMATED UNDERWRITING PLATFORMS

UnderwriteMe — Pacific Life Re

Up to 85% auto-decided

Rules + triage engine embedded in digital protection journeys.

Allfinanz DALI — Munich Re

Real-time rule refinement

Automated UW API with continuous experience monitoring and explainable decision logs.

Cleo — Hannover Re

Days → hours

Automates GP report retrieval and medical data extraction.

VELOGICA — SCOR

Seconds per decision

Full feature attribution logged per decision — supports retrospective claims correlation.

DecisionPoint — iPipeline

Rules + AI hybrid

Integrated with Assureweb and The Exchange across major UK protection distributors.

AURA — RGA

CI/IP auto-assessment

Cross-references claims data vs policy terms; generates preliminary assessor recommendation.

USE CASE:
AI-ASSISTED CLAIMS ASSESSMENT PLATFORMS

Tractable
TRIAGE

Computer vision + NLP on medical docs. Automates initial triage and severity classification for disability and health claims.

Gradient AI
COST PRED.

ML models predict group life/health claim costs at inception — enabling proactive case management and reserving.

Shift Technology
ANTI-FRAUD

AI fraud detection for L&H claims with demographic bias testing built in, deployed by major European insurers.

RGA AURA
ASSESSMENT

Automates initial CI/IP assessment; cross-references claim vs policy and medical databases for preliminary decision.

Sapiens ClaimsPro
STP

STP for low-complexity death and CI claims — cited 40% reduction in average claim duration in pilot deployments.

FRISS
FRAUD/RISK

Integrated fraud, risk and compliance AI for L&H claims, including anomaly detection on claim patterns and networks.

03

EARLY WARNING SIGNALS VIA ML

Spot Life & Health patterns before they hit the P&L

THE SCIENCE OF EARLY WARNING

- Anomaly detection algorithms (Isolation Forest, Autoencoders) can flag statistically unusual claims clusters.
- Time-series models (LSTM neural networks, Prophet) identify seasonal and cyclical patterns in claims frequency
- Ensemble methods—combining multiple ML algorithms—reduce model instability and improve early warning signal reliability in volatile classes.
- Human-in-the-loop validation checkpoints prevent automated signals from triggering portfolio actions without qualified underwriter review.
- Clear documentation of model assumptions & limitations and known failure modes are essential for regulatory review and internal audit confidence.

EMERGING TRENDS DETECTABLE BY AI BEFORE HIT P&L

Mental Health

ML detects IP incidence rise 6–9 months before A/E ratio deterioration appears in quarterly MI.

Long COVID

GP consultation + hospital admission data used by reinsurers to stress-test IP and life reserves in real time.

NHS Waiting Lists

Rising private hospital treatment costs and NHS backlog data flag PMI severity inflation early.

Medical Inflation

Procedure cost tracking from PMI claims provides 3–6 months advance signal on severity trend shifts.

ONS / CPRD Signals

Public ONS mortality data and CPRD prescription trends feed ML models as leading indicators.

Climate & ESG

Air quality, heatwave frequency and social determinants of health integrated into long-term mortality models.

FROM ML SIGNAL TO ACTION – THE PROTOCOL

SIGNAL SEVERITY TIERS

WATCH — parameter review only

AMBER — targeted rate or appetite action

RED — immediate appetite restriction / reinsurer notify

- Pre-agreed protocols cut time from signal to action — minimising adverse selection window.
- Reinsurance notification triggered automatically where ML detects treaty concentration breach.
- Post-implementation review builds institutional memory for future signal calibration.

BUILDING AN EARLY WARNING CULTURE ACROSS TEAMS

- Cultural change is as important as technology: underwriters must trust that AI signals represent genuine risk intelligence, not noise.
- Rotating cross-functional attachments allow claims managers to spend time in underwriting and vice versa, deepening ecosystem empathy.
- Transparent communication of model performance statistics (hit rate, average lead time) maintains credibility and engagement with business users.
- Recognition of underwriters who act on AI signals and achieve measurable portfolio improvement reinforces the desired behaviour at appraisal.
- Leadership alignment—where the CUO and Head of Claims jointly champion the early warning programme—is the single most important success factor.

04

EXPLAINABLE AI & GOVERNANCE

Ethical, transparent decision-making in Life & Health

WHY EXPLANABILITY IS NON-NEGOTIABLE

FCA Consumer Duty | UK GDPR Art. 22 | ABI AI Code | PRA SS1/23 | IFoA AI Guidance | Equality Act 2010

- Declining a CI/IP application or disputing a claim has profound financial consequences — the highest bar for explainability in insurance.
- Consumer Duty: AI-influenced decisions must produce demonstrably good outcomes for all customers, especially the vulnerable.
- GDPR Article 22: any automated decision with significant effect must have a human review pathway available to the individual.
- Without explainability, UW and claims professionals cannot exercise informed override — creating Errors & Omissions liability and regulatory exposure.
- FCA multi-firm review (2024): several insurers lacked adequate documentation of how AI influenced individual UW decisions.

EXPLAINABILITY TOOLKIT FOR L&H MEDICAL AI

SHAP Values

GOLD STANDARD

SHapley Additive exPlanations

Decomposes any model output into per-feature contribution. Full audit trail for every UW and claims AI decision.

LIME

INDIVIDUAL

Local Interpretable Model-Agnostic

Approximates model behaviour locally — plain-language explanation of individual CI/IP underwriting decisions.

Counterfactual

ACTIONABLE

What-If Explanations

'What would need to change for standard terms?' — actionable for applicants, valued by brokers and FCA alike.

Attention Maps

NLP / DOCS

NLP Model Visualisation

Highlights which GP report or consultant letter phrases drove the underwriting classification decision.

FAIRNESS, CONSISTENCY & VULNERABLE CUSTOMERS

Consistent AI triage: identical medical presentations → equivalent initial decisions regardless of assessor or channel.

Coverage determination AI calibrated against ABI model definitions — carrier-specific policy wordings differ materially.

Mental health claims: AI trained on historical data may embed past under-settlement bias — Consumer Duty demands correction.

Vulnerable customers: fast-track human review pathway must always be available — AI flags vulnerability indicators proactively.

FRISS / Shift Technology fraud AI: mandatory demographic bias testing before deployment — FOS upheld cases rising.

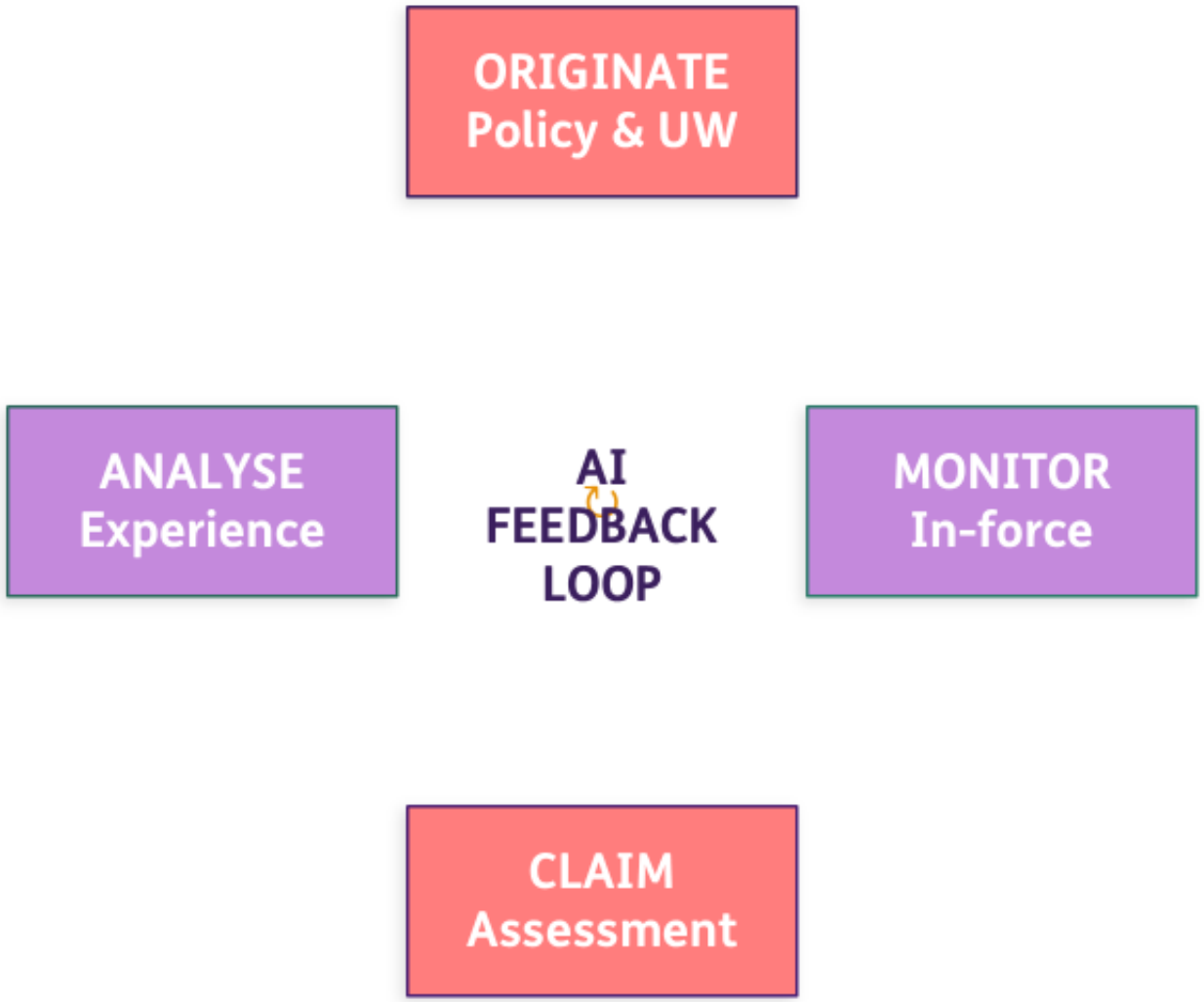
All AI-influenced claims communications reviewed for accuracy, tone and Consumer Duty compliance before deployment.

05

CONTINUOUS IMPROVEMENT VIA AI ANALYTICS

Trends across the full Life & Health policy lifecycle

BUILDING A CONTINUOUS IMPROVEMENT ENGINE



- Quarterly model retraining calendar — UW, claims and actuarial coordinated.
- OKRs aligned to A/E ratio, claims NPS, speed-to-decision and NTU rate.
- Automated A/B testing of UW rule changes across matched cohorts.
- Reinsurer analytics partnerships supplement domestic data.
- Post-event reviews: identify which AI signals were present but not acted upon.
- Knowledge management: preserve logic behind every UW rule evolution.

THANK YOU

QUESTIONS OR COMMENTS

Coffee Break

Follow AMUS on LinkedIn…

AMUS

Follow HCF on LinkedIn…

hcf

Dr Stephen Falk -

Beyond the Diagnosis – Modern Cancer Treatment and Insurance Risk

Follow AMUS on LinkedIn…

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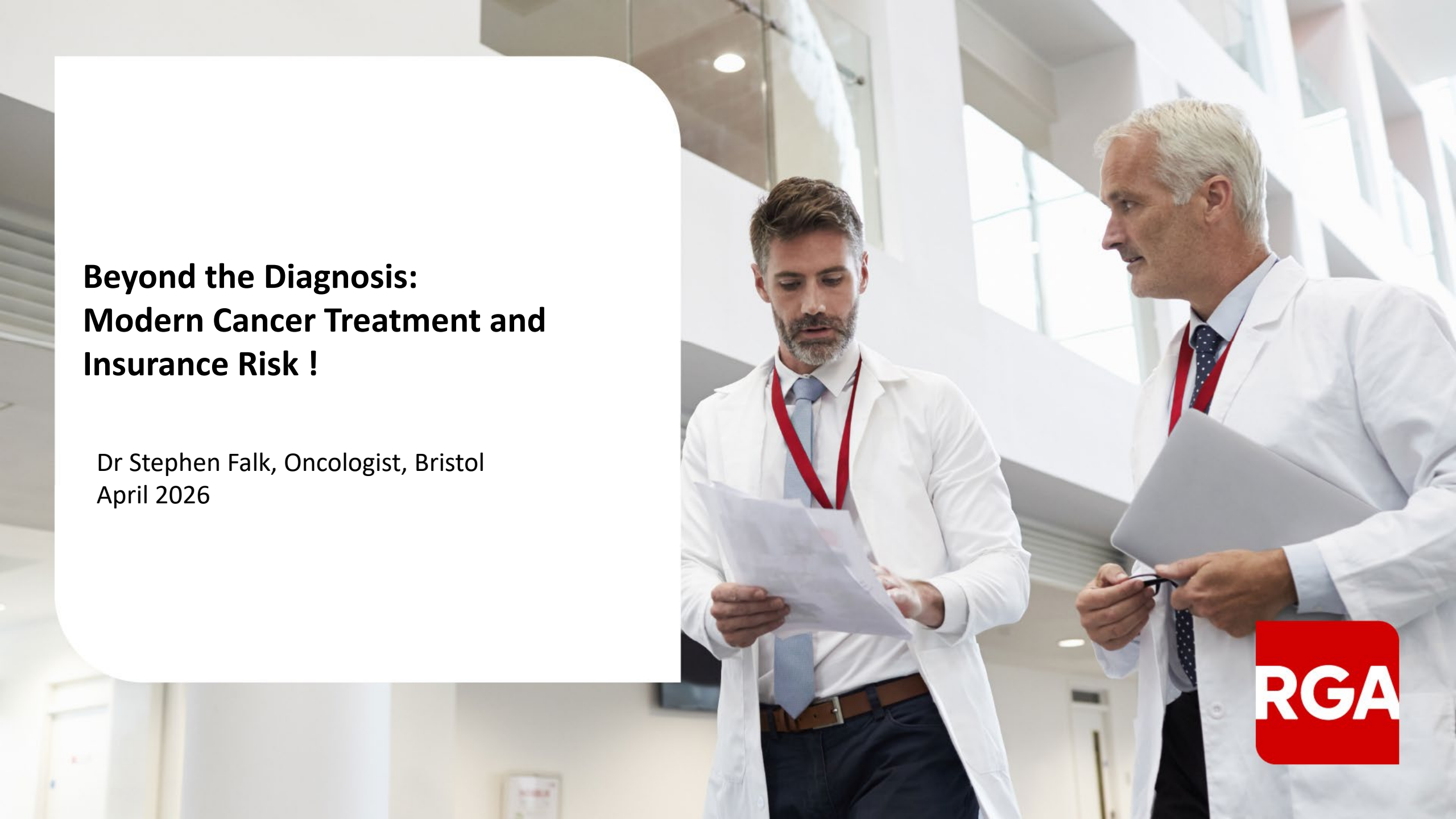
Beyond the Diagnosis: Modern Cancer Treatment and Insurance Risk !

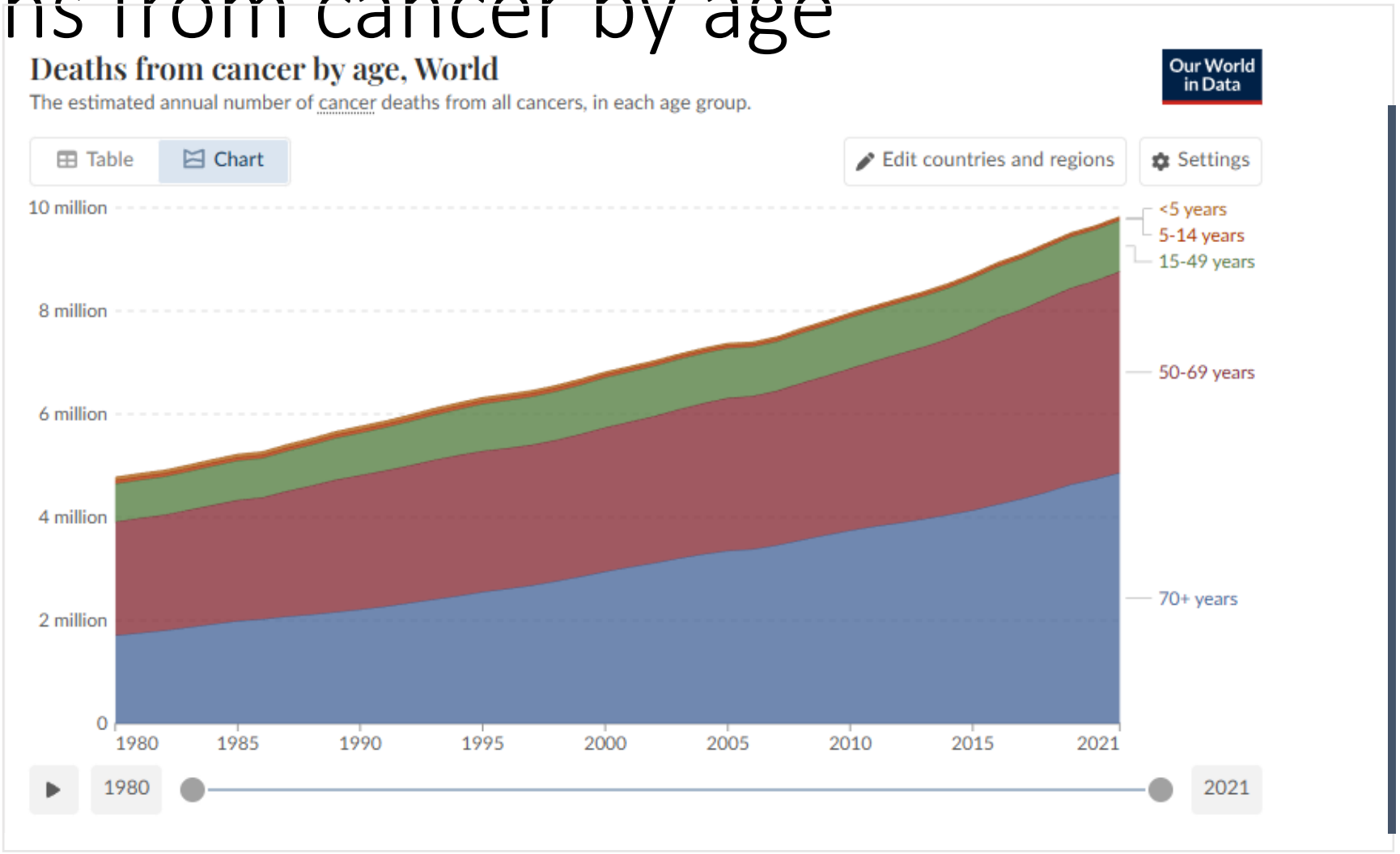
Dr Stephen Falk, Oncologist, Bristol
April 2026



Beyond the Diagnosis:
Modern Cancer Treatment and Insurance Risk !

- Pancreas cancer
- Melanoma
- Lung Cancer
- Breast cancer
  - Case study
- Changes in treatment
- Communication
- Changes in outcome
  - Survival
  - Survivorship

Deaths from cancer by age

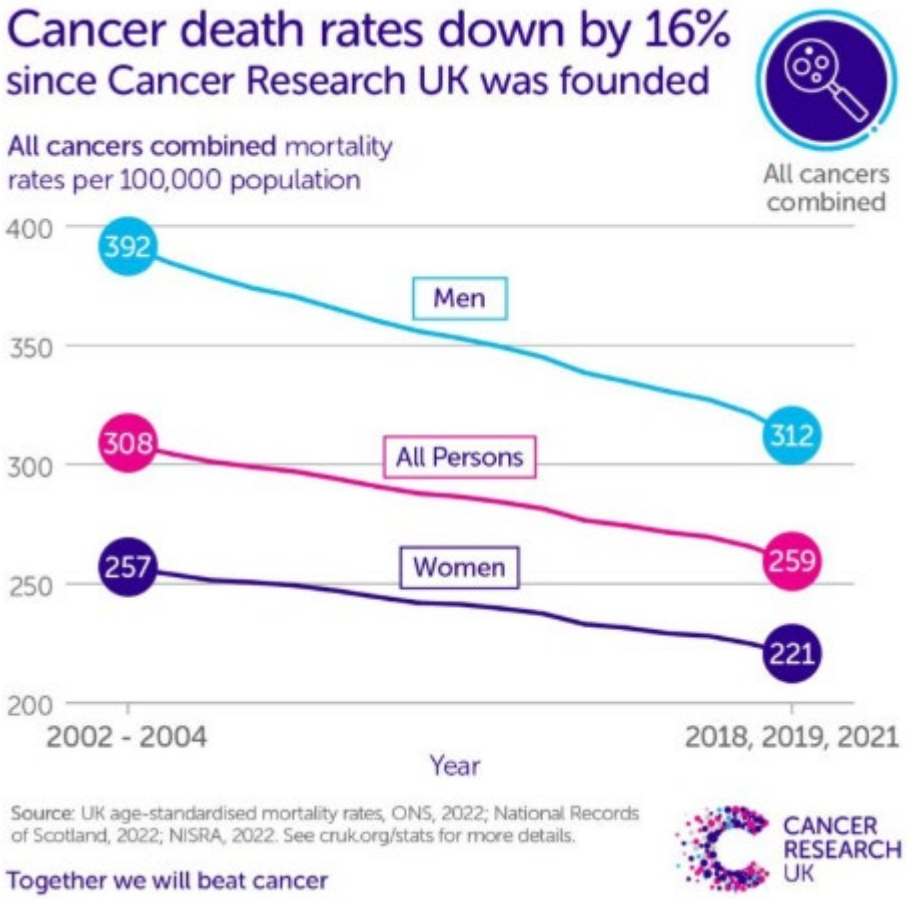


Data source: IHME, Global Burden of Disease (2024)
https://ourworldindata.org/cancer

Some cancers have done better than others

- What proportion of patients live more than 5 years following a diagnosis of cancer ?
- 15-25%
- 35-45%
- 55-65%
- 75-85%

Improvements in outcome



The five-year survival of all patients diagnosed in 2016 was 55.7%, a 7.8 % improvement since 2005.

For example, death rates from stomach cancer have fallen around 50%.

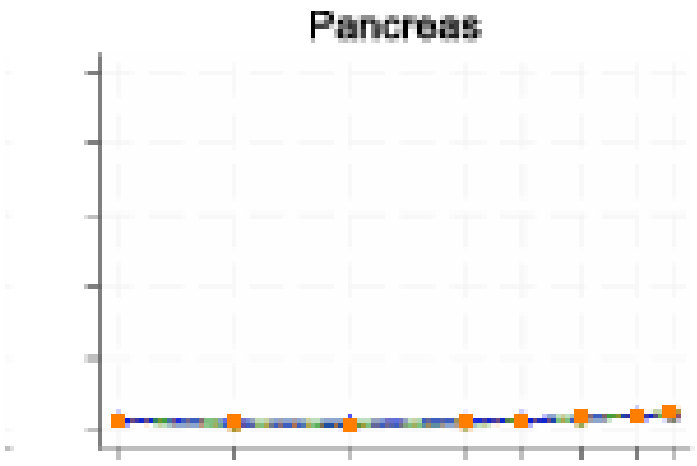
The number of people with lung cancer that survive their disease for 5 years has doubled to around 20% since the mid-2000s.

- Prevention
- Screening
- Better treatments

Some cancers have done better than others

- What proportion of patients live more than 10 years following a diagnosis of pancreatic cancer ?
- <10%
- 10-20%
- 20-50%
- >50%

No meaningful progress in pancreas cancer



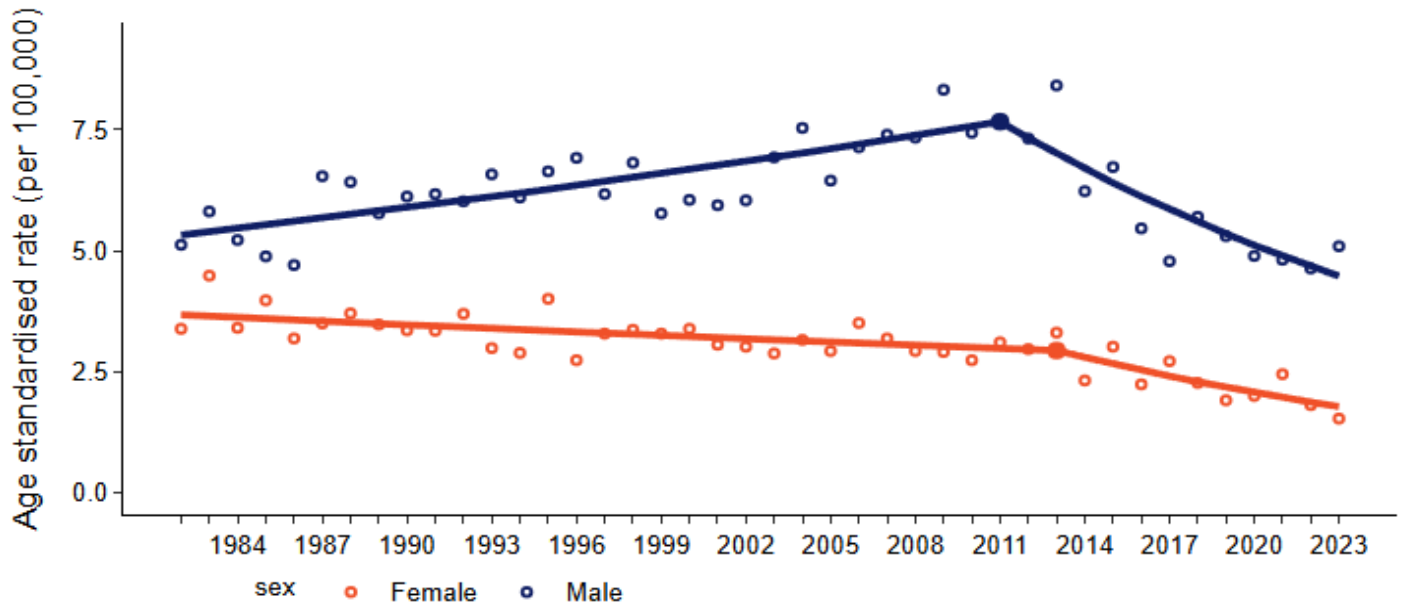
10 year cancer specific survival
in UK from 1971 to 2018

Lancet 2025 56: 101385

Previously fit 65-year old male presents with weight loss, sickness, jaundice and rapid decline over 6 weeks
CT Multiple liver metastases and gastric outlet obstruction
Attempted insertion of stent to relieve gastric outlet obstruction failed
Died at 4 weeks following admission

Melanoma

Figure 3b: Trend in mortality of melanoma cancer for the period 1982 to 2023 by sex



Source: Victorian Cancer Registry (2025)

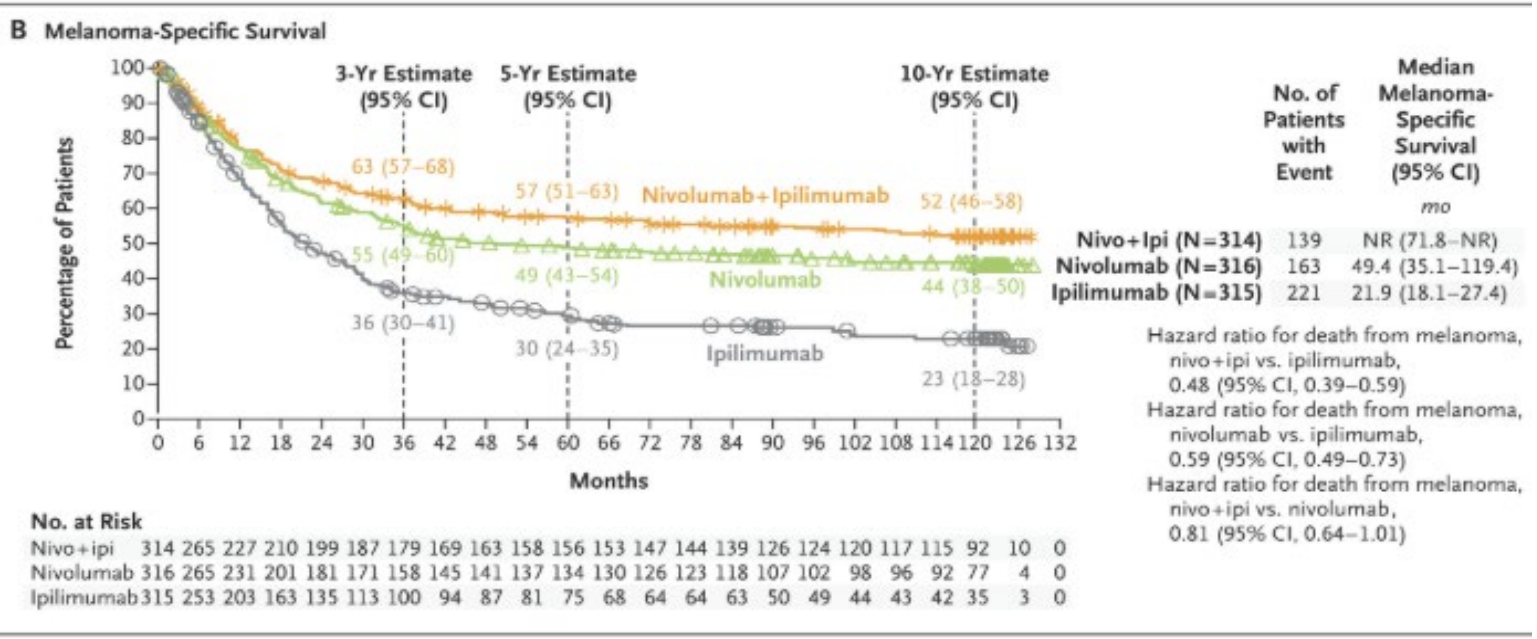
Melanoma

- Survival stage IV disease in 2004 was <10%
- What is the 5-year survival of metastatic melanoma post combination immunotherapy
- 10-25%
- 25-50 %
- >50%

Melanoma Legal case

- 18/01/2022 32 year old female attends GP with new black lesion on arm, reassured ‘freckle’
- 22/04/22 Reattends ‘it’s getting bigger and itchy’, reassured ‘inflamed’
- 29/08/22 Reattends with bleeding from mole
- 29/08/22 2 week wait cancer referral
- Diagnosis BRAF wild type stage IV disease with liver and lung and nodal metastases
- Treatment: nivolumab plus ipilimumab
- Complete response

Melanoma



	No. of Patients with Event	Median Melanoma-Specific Survival (95% CI)
		mo
Nivo+Ipi (N=314)	139	NR (71.8–NR)
Nivolumab (N=316)	163	49.4 (35.1–119.4)
Ipilimumab (N=315)	221	21.9 (18.1–27.4)

Hazard ratio for death from melanoma, nivo+ipi vs. ipilimumab, 0.48 (95% CI, 0.39–0.59)
Hazard ratio for death from melanoma, nivolumab vs. ipilimumab, 0.59 (95% CI, 0.49–0.73)
Hazard ratio for death from melanoma, nivo+ipi vs. nivolumab, 0.81 (95% CI, 0.64–1.01)

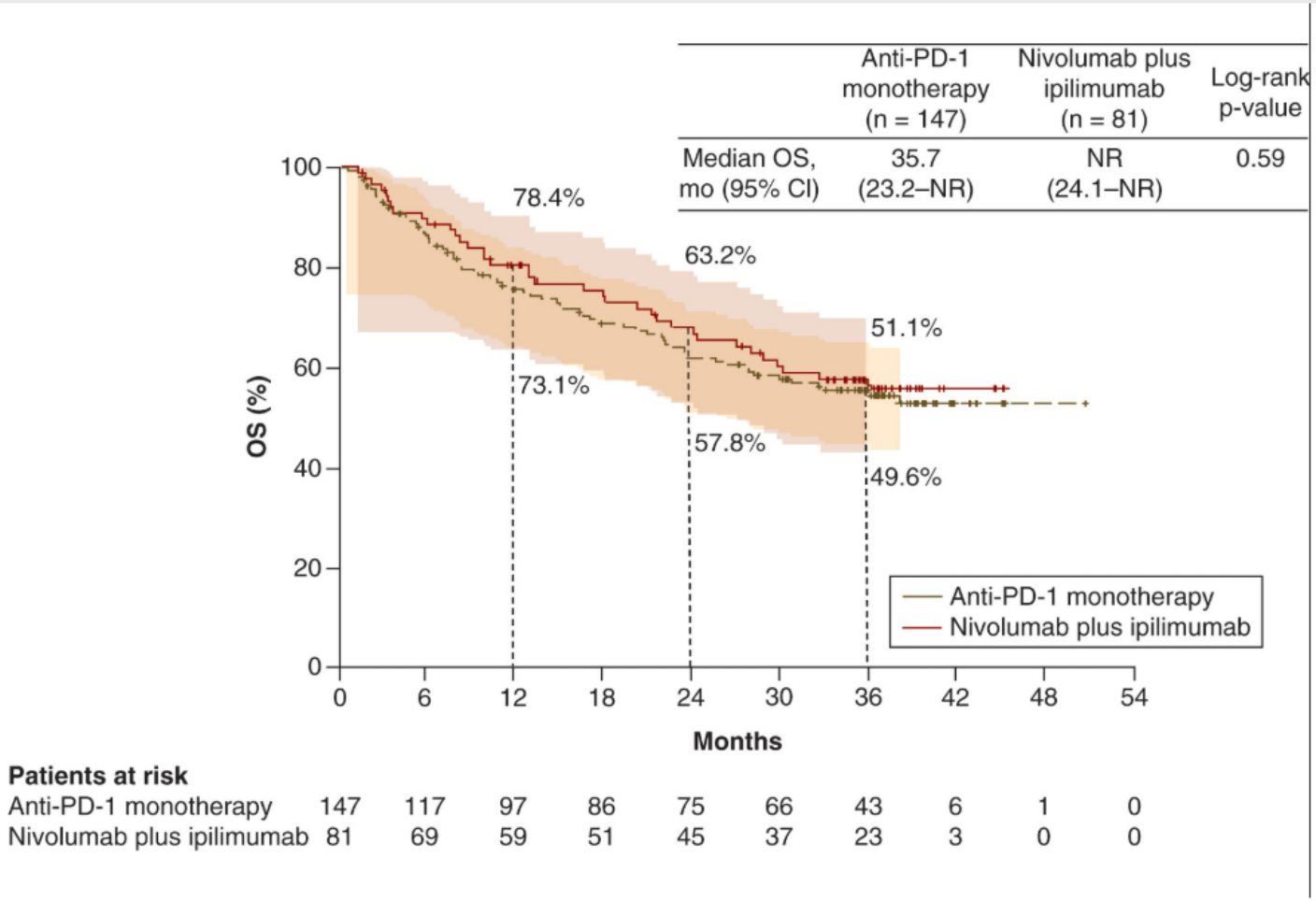
Wolchok et al NEJM 2025 392: 11-22

Among patients who had been alive and progression-free at 3 years,
10-year melanoma-specific survival was
96% with nivolumab plus ipilimumab,
97% with nivolumab and
88% with ipilimumab.

Melanoma – real world data

Anti-PD-1 monotherapy included nivolumab (n = 32) and pembrolizumab (n = 115).

CI: Confidence interval; I-O: Immuno-oncology; OS: Overall survival; NR: Not reached; PD-1: Programmed death 1.



OPTIMIzE Registry 2023

Lung cancer

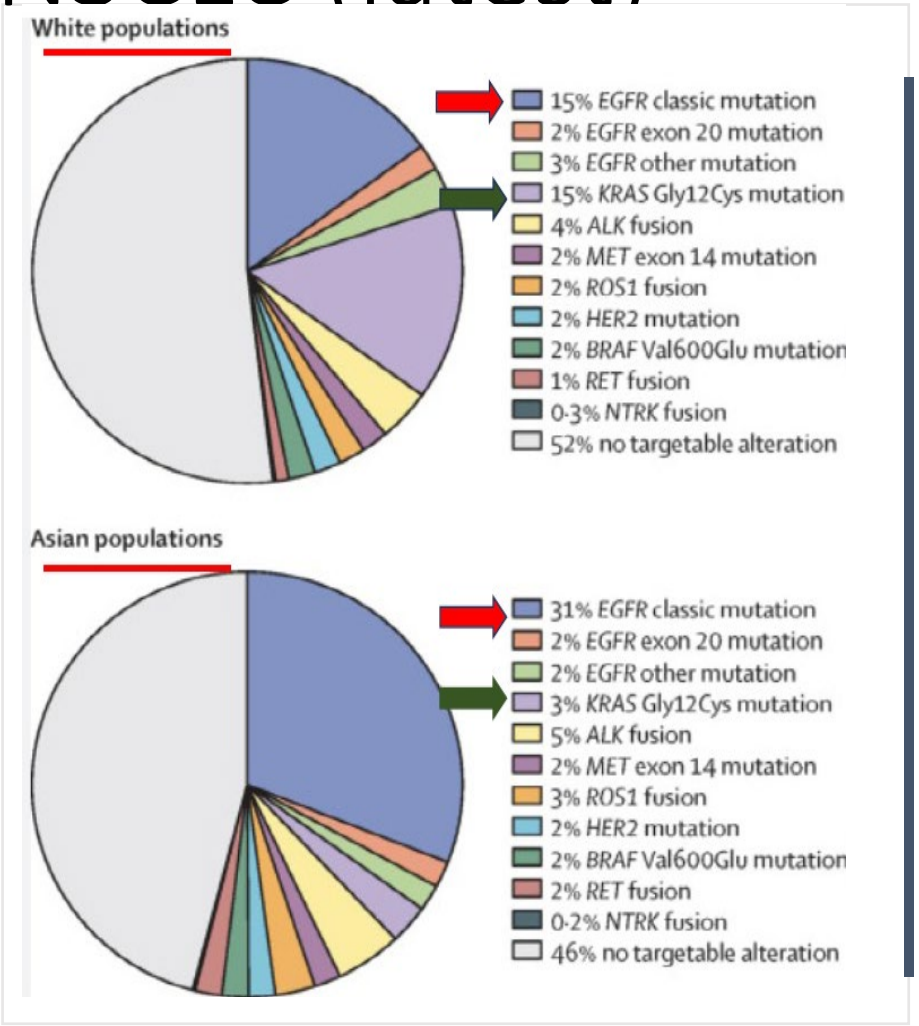
- Molecular/genetic testing has significantly improved outcome for what proportion of stage IV lung cancer cases
- <10%
- 20-30%
- 30-50%
- 50-100%

Case study

- 54 ♀ presented with cough and breathlessness
- 02/2018 R pneumonectomy T2N0M0 adenocarcinoma
- 03/2021 Right arm weakness – solitary brain metastasis surgery
- 04/2021 ALK mutation starts Crizotinib
- 05/2023 Local recurrence – tingling in fingers SRS Alectenib
- 06/2024 ? Progression on scan – surgery – post RT necrosis
- 03/2026 Remains in remission asymptomatic, driving licence reissued, intermittent drug holidays when Liver function and renal function worsen on treatment

Molecular landscape of NSCLC (latest)

- NSCLC shows **multiple oncogenic drivers** detectable on NGS.
- EGRG remains most common but **others are rising**.
- Key actional alterations: **KRAS G12C, METex14, RET, ROS1, HER2, BRAF, NTRK**
- Each mutation has **distinct biology** and **drug sensitivity**.
- Combined, emerging targets account for **20-30%** of adenocarcinoma cases.
- Many have **CNS-active TKIs**, improving control in brain metastases.



Broad molecular testing is now **standard of care.**

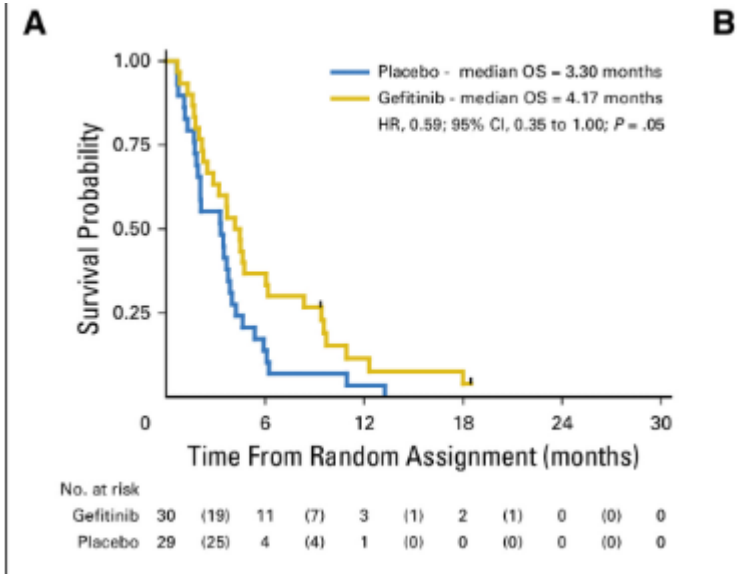
Targets can influence outcome

- ALK-positive lung cancer median survival rates reaching 6.8 years
- EGFR Mutant median survival rates 25.8 to 44.2 months
- PDL1 (>50%) high disease median survival rates 30 months

Driver	Targeted Therapy	ORR (%)	Median PFS	Median OS	Notes
KRAS G12C	Sotorasib / Adagrasib (2L)	28 - 43%	-5.5 – 6.8 mo	-10 – 12 mo	Used after chemo-IO; 1L trials ongoing
MET exon 14	Capmatinib / Tepotinib	40 – 68%	-8 – 12 mo	-17 – 20 mo	Strong CNS activity
RET fusion	Selpercatinib / Pralsetinib	60 – 85%	-20 - 25 mo	-30+ mo	LIBRETTO-431 (1L) shows major benefits
NTRK fusion	Larotrectinib / Entrectinib	57 – 75%	-11 – 24 mo	Often >30 mo	Deep, durable responses; tumor-agnostic
BRAF V600E	Dabrafenib + Trametinib	63 – 64%	-9.7 -11 mo	-18 – 24 mo	FDA-approved based on Phase II
HER2 mutation (ex20)	Trastuzumab deruxtecan (T-DXd)	50 – 55%	-8 – 9 mo	-17 – 18 mo	Works only in HER2-mutant (not amplified)

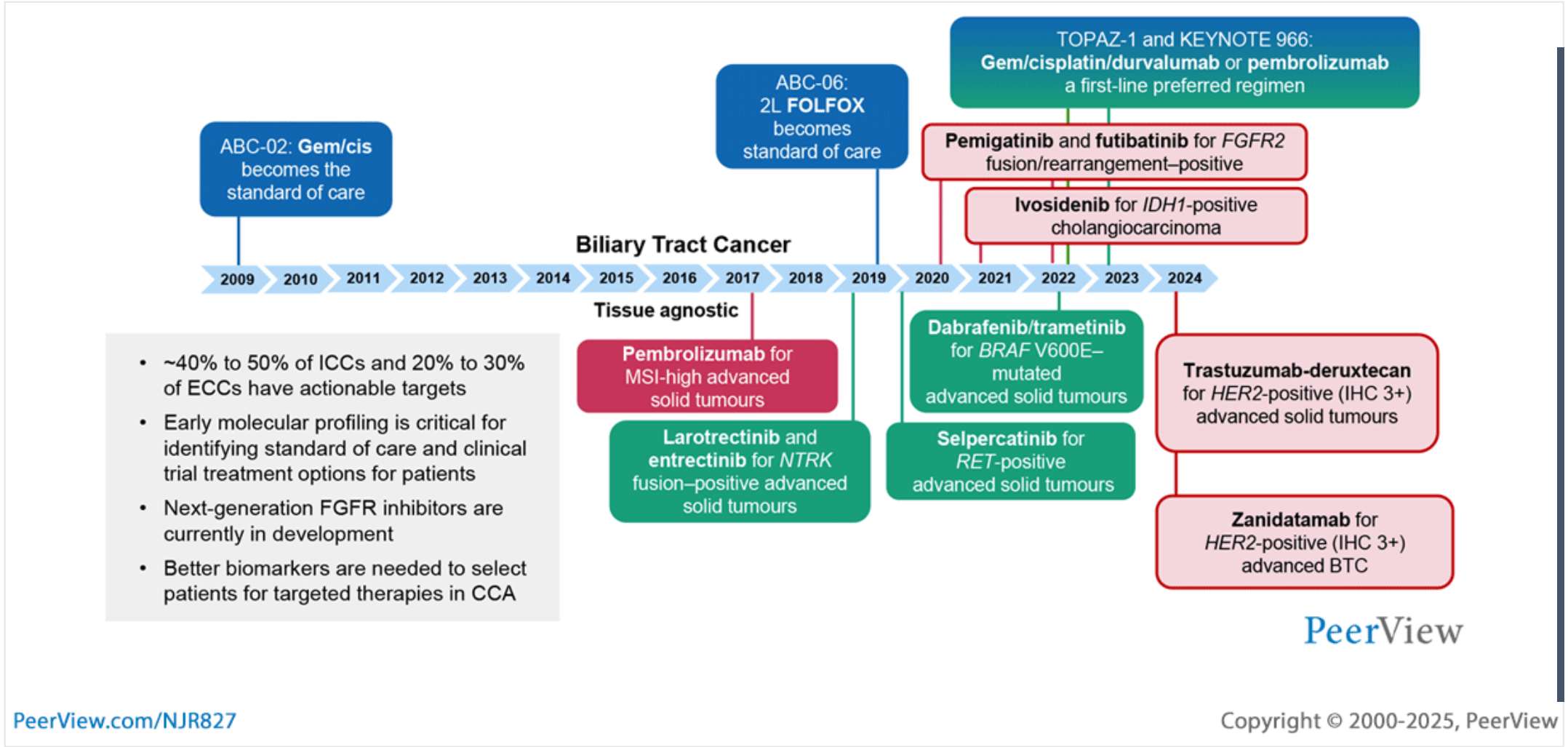
Better targeted therapies have not always become standard practice in rare cancers

- Oeosphageal cancer and EGFR
- Cancer Esophagus Gefitinib trial.
- Conducted to compare efficacy of gefitinib with that of placebo. In EGFR FISH-positive tumours (20.2%), overall survival was improved with gefitinib compared with placebo (hazard ratio [HR] for death, 0.59; 95% CI, 0.35 to 1.00; P = .05)



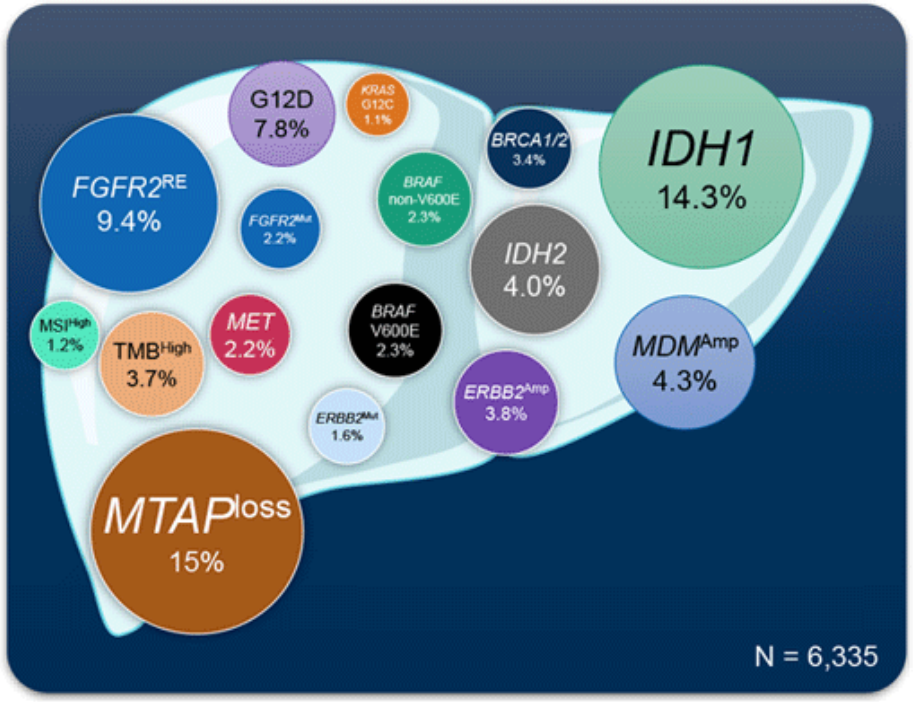
J Clin Oncol **35**, 2279-2287(2017)

Precision oncology is key for the management of cholangiocarcinoma



Many targeted therapies are already available, with others in ongoing trials[1]

Intrahepatic Cholangiocarcinoma



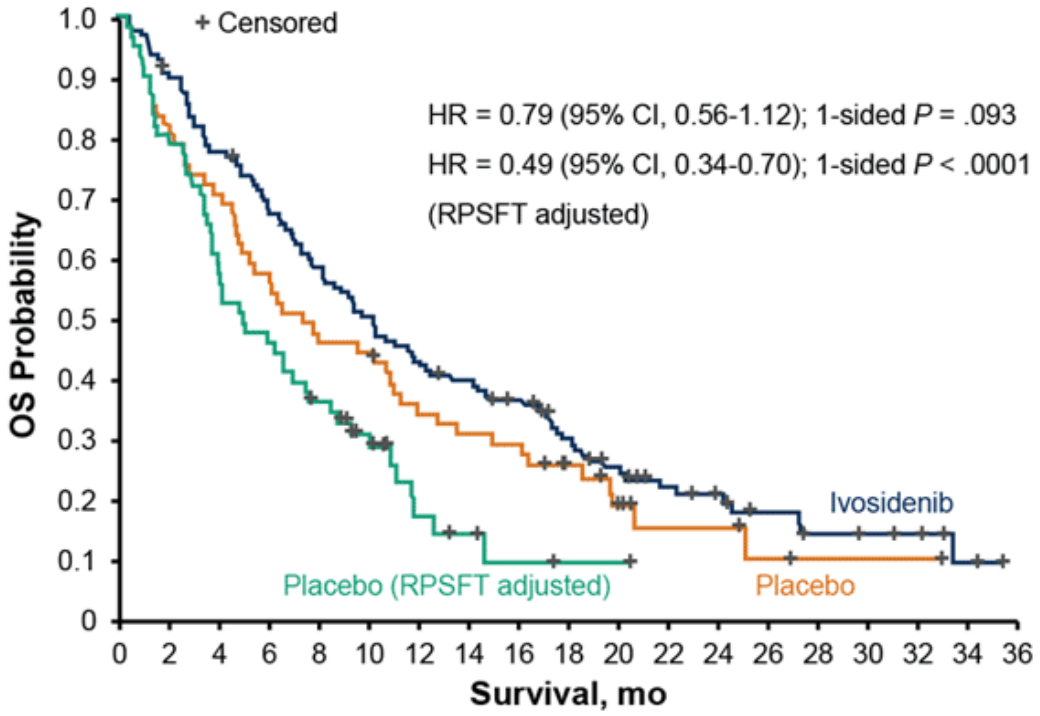
ESMO Guideline–Recommended Targeted Agents[2]

FGFR^{RE} 9.4%	Pemigatinib, futibatinib
IDH1 14.3%	Ivosidenib
ERBB2^{Amp} 3.8%	T-DXd, zanidatamab
BRAF V600E 2.3%	Dabrafenib/trametinib
NTRK	Entrectinib, larotrectinib, repotrectinib
RET	Selpercatinib
MSI-H/ dMMR	Pembrolizumab
BRCA1/2 3.4%	PARP inhibitors

1. Kendre G et al. *J Hepatol.* 2023;78:614-626. 2. Vogel A. et al. ESMO Open. 2025;10:104003.

PeerView

ClarIDHy: 2L Ivosidenib improved OS for IDH1-mutant cholangiocarcinoma[1]



	Ivosidenib (n = 126)	Placebo (n = 61)
Median OS, mo	10.3	7.5
6-month OS rate, %	69	57
12-month OS rate, %	43	36

Rank-preserving structural failure time method was used to reconstruct the survival curve for the placebo subjects as if they had never crossed over to ivosidenib; with this method, the median OS with placebo adjusts to 5.1 months

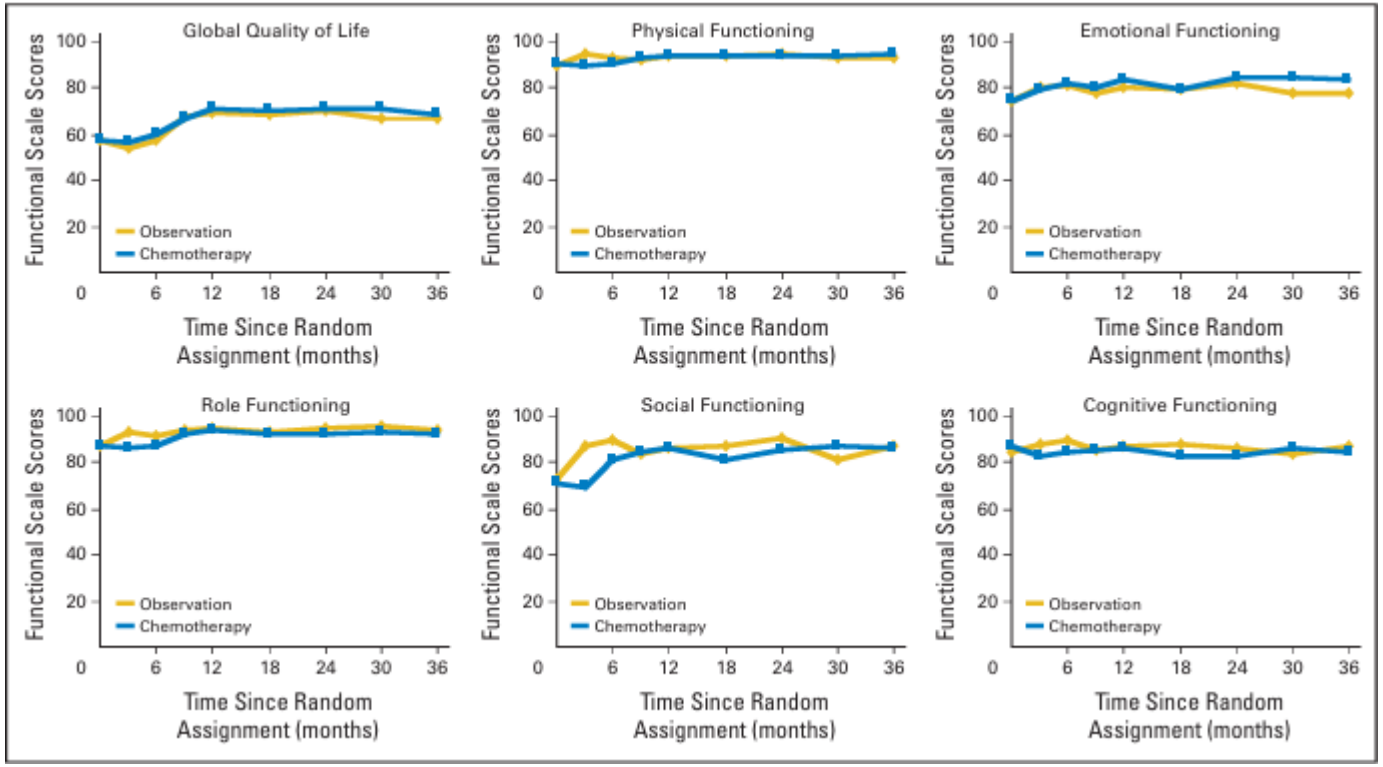
1. Zhu A et al. *JAMA Oncol*. 2021;7:1669-1677.

PeerView

Survivorship

- A cancer survivor is anyone who has received a diagnosis of cancer, no matter where they are in their treatment or life journey. That means that a cancer survivor may have been just recently diagnosed, in the middle of active treatment, continuing to receive care that will help them live better and longer, or had a history of cancer and are no longer receiving any treatment
- Managing long term effects of cancer and its treatment
- Coping with emotional and social changes
- Maintaining overall health and quality of life
- Highly individual – person living with cancer

Quality of life post op chemotherapy vs nil Lung cancer



An improvement at 3months in role Functioning for patients randomly assigned to observation arm

A small deterioration for patients in chemotherapy arm;

Both were significant changes from baseline, and the Difference between arms was significant

No significant change for observation arm; gradual improvement in role functioning for patients randomly assigned to Chemotherapy arm;

Difference in the rate of change between arms was not significant

J Clin Oncol 26:5052-5059. 2008

Recovery of Patient-reported Quality of Life After Oesophagectomy

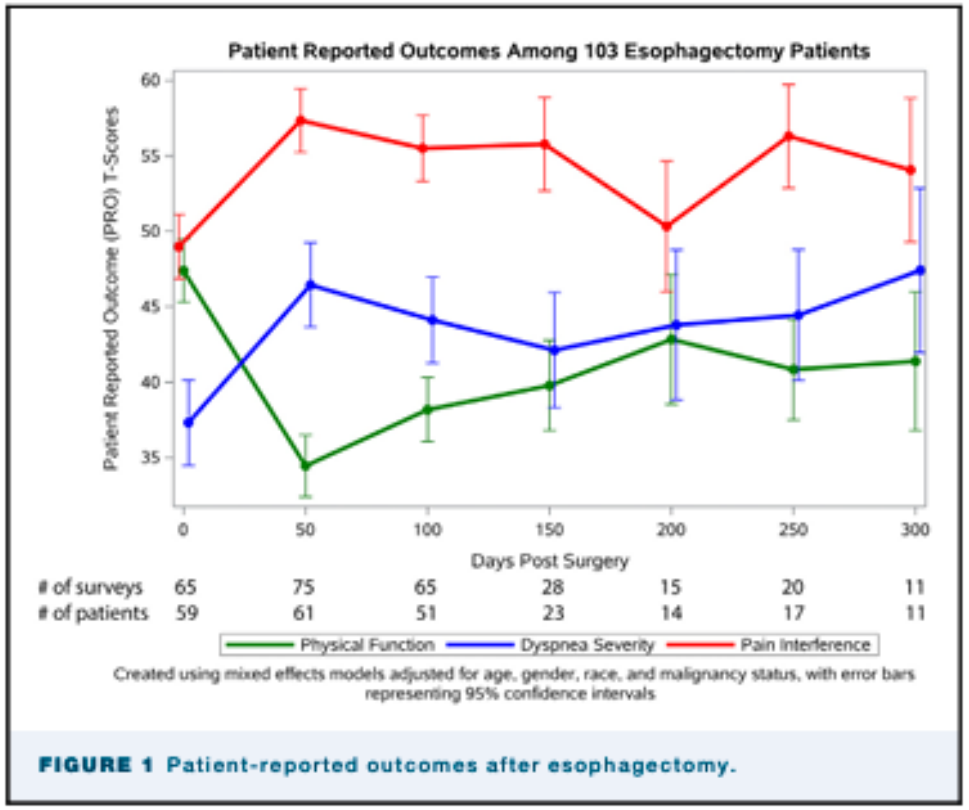
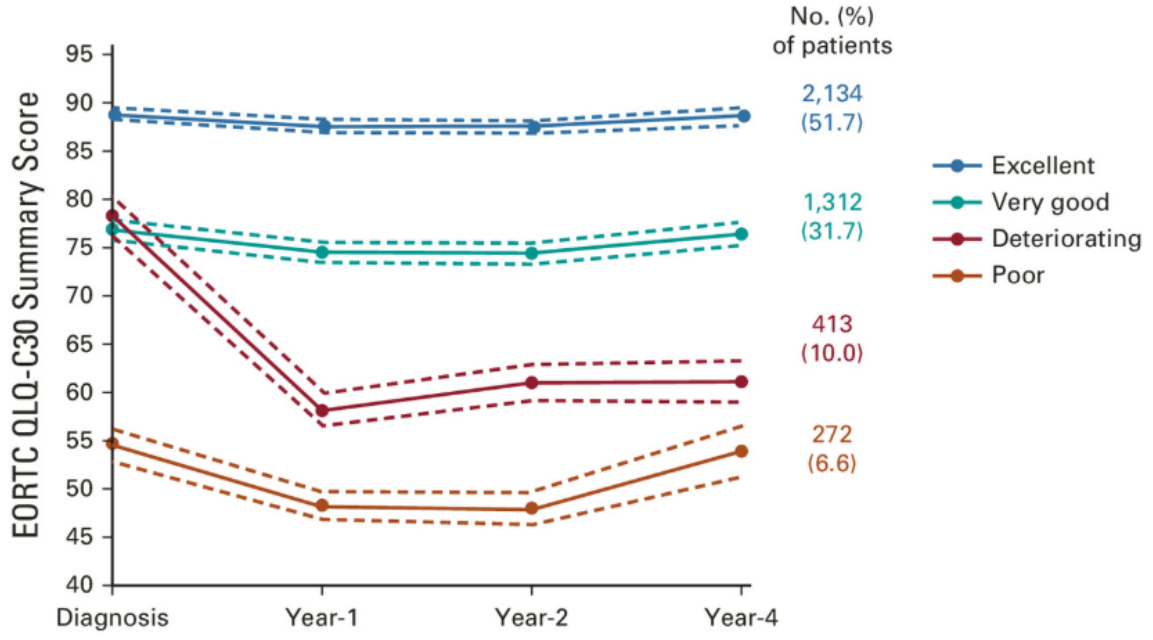


FIGURE 1 Patient-reported outcomes after esophagectomy.

'Considerable declines in QOL scores immediately after oesophagectomy with recovery lasting nearly a year'

Ann Thorac Surg 2023;115:854-61

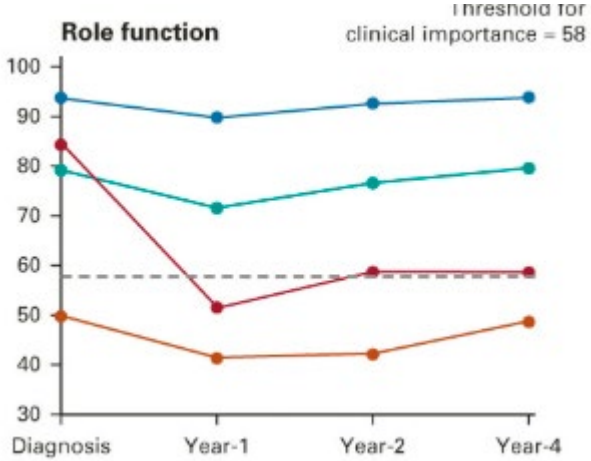
Recovery of Patient-reported Quality of Life After Breast Cancer Treatment



C30 Summary Score Values and Respective 95% CIs by Trajectory-Group (N = 4,131)

Trajectory Group	Assigned Patients	Mean Value	95% CI		Mean Value	95% CI		Mean Value	95% CI		Mean Value	95% CI	
			Lower	*Upper*		*Lower*	*Upper*		*Lower*	*Upper*		*Lower*	*Upper*
	No. (%)	Diagnosis			Year-1			Year-2			Year-4		
Excellent	2,134 (51.7)	88.8	88.1	89.5	87.6	87.0	88.3	87.6	86.9	88.3	88.6	87.8	89.5
Very good	1,312 (31.7)	76.9	75.8	78.0	74.5	73.5	75.5	74.4	73.3	75.4	76.4	75.2	77.6
Deteriorating	413 (10.0)	78.3	76.2	80.5	58.1	56.4	59.9	61.0	59.1	63.0	61.1	59.0	63.3
Poor	272 (6.6)	54.7	53.0	56.4	48.3	46.9	49.7	48.0	46.3	49.7	53.9	51.2	56.5

J Clin Oncol **40**, 3190-3204(2022)



Healthy behaviours were associated with better performing trajectory groups. Eg deteriorating group associated with:
Obesity (adjusted odds ratio [aOR] *v* lean, 1.51
current smoking (aOR *v* never, 1.52 [95% CI, 1.27 to 1.82];
Excess body weight and insufficient physical activity through year-4
Frequent exposure to tobacco smoking during chemotherapy.
Younger age (aOR, 1-year decrement 1.01), c=
Comorbidities (aOR *v* no, 1.22
Lower income (aOR *v* wealthier households, 1.21
Endocrine therapy (aOR *v* no, 1.14).

Fatigue

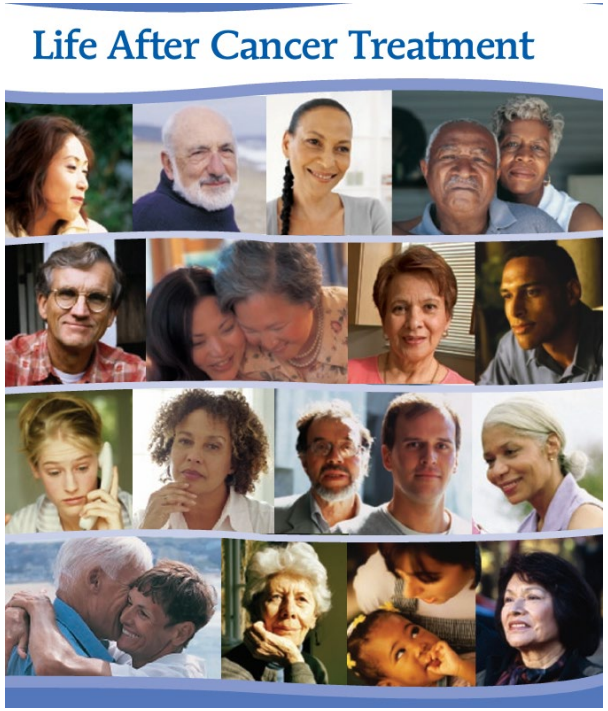
- A persistent, overwhelming tiredness caused by cancer or its treatment that is not relieved by rest or sleep
- More than 80% of people with cancer experience fatigue while receiving chemotherapy or radiation therapy
- Poorly studied – only evidence-based intervention is exercise
- Increasing attention being paid by charities to ‘living well with cancer’

Cancer and employment

- Considered a disability under the Equalities Act 2010
- Recovery time is not just physical
- Surgery quickest recovery, slowest is chemotherapy
- Chronic treatments eg hormonal for breast and prostate impair function

Personalised care and improving quality of life outcomes – NHS National Cancer Plan

- Providing personalised care and support planning and interventions, including delivering more and better cancer services in the community
- Extending personalised stratified follow up care, including patient initiated follow-up, to all appropriate cancer pathways
- Reducing the impact of cancer and its treatment, including improving support for people's psychosocial needs, encouraging physical activity across the cancer pathway and prehabilitation and rehabilitation services.



Communication regarding prognosis

- Oncologists are not good at this.
- Averages are difficult. ‘I’ve been given 3 months’
- 352 patients were asked whether they would like to be given a ‘qualitative prognosis’ (i.e. patient will/will not die from the disease/probably live a long time) or a ‘quantitative prognosis’ (i.e. an estimate of their expected survival).
- 80% wanted a qualitative prognosis but only half wanted a quantitative estimate. *Health Comm.* 2002; **14**:221-241

Communication regarding treatment benefit and disbenefit

- 37 patients with advanced disease
- During the consultations, information given to patients about survival benefit included numerical data (“about four weeks”), an idea of timescales (“a few months extra”), vague references (“buy you some time”), or no mention at all. In most consultations (26/37) discussion of survival benefit was vague or non-existent

BMJ. 2008 Jul 31;337:a752

Triggers and barriers to informed consent in oncology consultations

Triggers: survival benefit discussed

Patient

Asking direct question*

Justifying refusal

Oncologist

Responding (numerical data/idea of timescales)

Justifying no active treatment

Volunteering information (realistic expectations)

George sang along to the tune, wondering what the big deal was about Radiotherapy

Barriers: survival benefit not discussed or information is vague

Patient

Is patient assuming lengthy survival

Not wanting treatment

Blocking*

Oncologist

Focusing on other benefits (symptom relief)

Is patient aware of potential benefits?

Responsibility to (sensitively) inform

*Or by partner/carer, with patient's agreement

Breast cancer – Case study

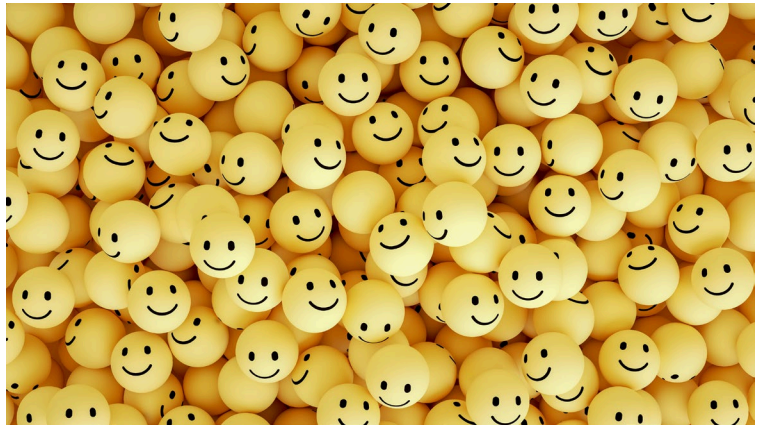
- Female 48, non-smoker, no FHx, no co-morbidities
- 8/2018 inflamed right breast (no lump)
- ***Initial screening****:* "Angry breast" - Bilateral mammogram: Extremely dense nodular mixed fibroglandular background patter. Extensive skin thickening right breast. Extensive segmental malignant microcalcification lower outer quadrant (at least 75mm). No focal mass but suggest extensive inflammatory malignancy. Needle aspirations done.
- ***Histopatholgy report****:* Large ? inflammatory right breast cancer. Multiple cores of breast tissue infiltrated by grade 3 invasive carcinoma (t3 P3 M2) with lobular growth pattern.
  - Insitu carcinoma is present suggestive of classic and pleomorphic LCIS.
  - Possible lymphovascular invasion
  - Dx Grade 3 invasive B5b
- *Rx Sept 2018 – Jan 2019* – 6 cycles neoadjuvant chemotherapy – Taxotere, Carboplatin, Herceptin, Perjeta

Prognosis

- Initial thoughts?
  - Treatable?
  - Functional impact?
  - Emotional impact?
  - Work & Personal Life
- Critical Illness claim – approved?
- Income Protection claim – approved?

Positive news!

- CI claim paid and helped with treatment above private medical coverage.
- No IP claim but employer provided support.
- January 2019 PET – ***complete metabolic remission!!***



- Rx Herceptin injections, Aromasin, Zoladex to Feb 2020.

2020 recurrence…

- Planned elective R breast mastectomy March 2020
- Surgery identified recurrence = invasive Lobular carcinoma pT3/p T4d (?) N2a ER 6/8, PR 4/8 and HER 2 +ve (**note – pre-op Ultrasound in FEB 2020 did not identify this mass!)**
- **March 2020:** R breast mastectomy, axillary node clearance, R breast reconstruction and TRAM flap. Histology invasive lobular carcinoma, Grade III, pT3, 13cm in size. Extensive lymphovascular invasion. Moderate amount of pleomorphic plus classic type lobular carcinoma in situ – 4/13 axillary node. No extracapsular invasion.
- Post surgery - Rx 4 cycles Adriamycin + Cyclophosphamide May- June 2020
- Radiotherapy (25 fractions) July 2020
- Herceptin injections to July 2021
- PET December 2021 – clear. 2021 Rx Zoladex injections, Prolia, Exemestane 25mg.

Prognosis now?

- Initial thoughts?
  - Treatable?
  - Functional impact?
  - Emotional impact?
  - Work & Personal Life

Real life – Hazel's story

2018

2020

Survivorship … how?

- Stay positive – a positive mindset and embracing the “experience” to win and come out stronger
- Good support network: family, friends, colleagues, employer, medical team
- ***Initial screening****:* “Angry breast” do not wait – check and get checked!
- ***Diagnosis:*** *Scary, complicated, unclear – have a companion*
- ***Family:*** *impacts all those around you – in it together*
- ***Living:*** *impact and adjustments*
- *Personal – lots more to do and experience – “keep calm and carry on”*

Rebecca Ward & Emily Collins -

ABI Update

Brenda_Lim@GallagherRe.com

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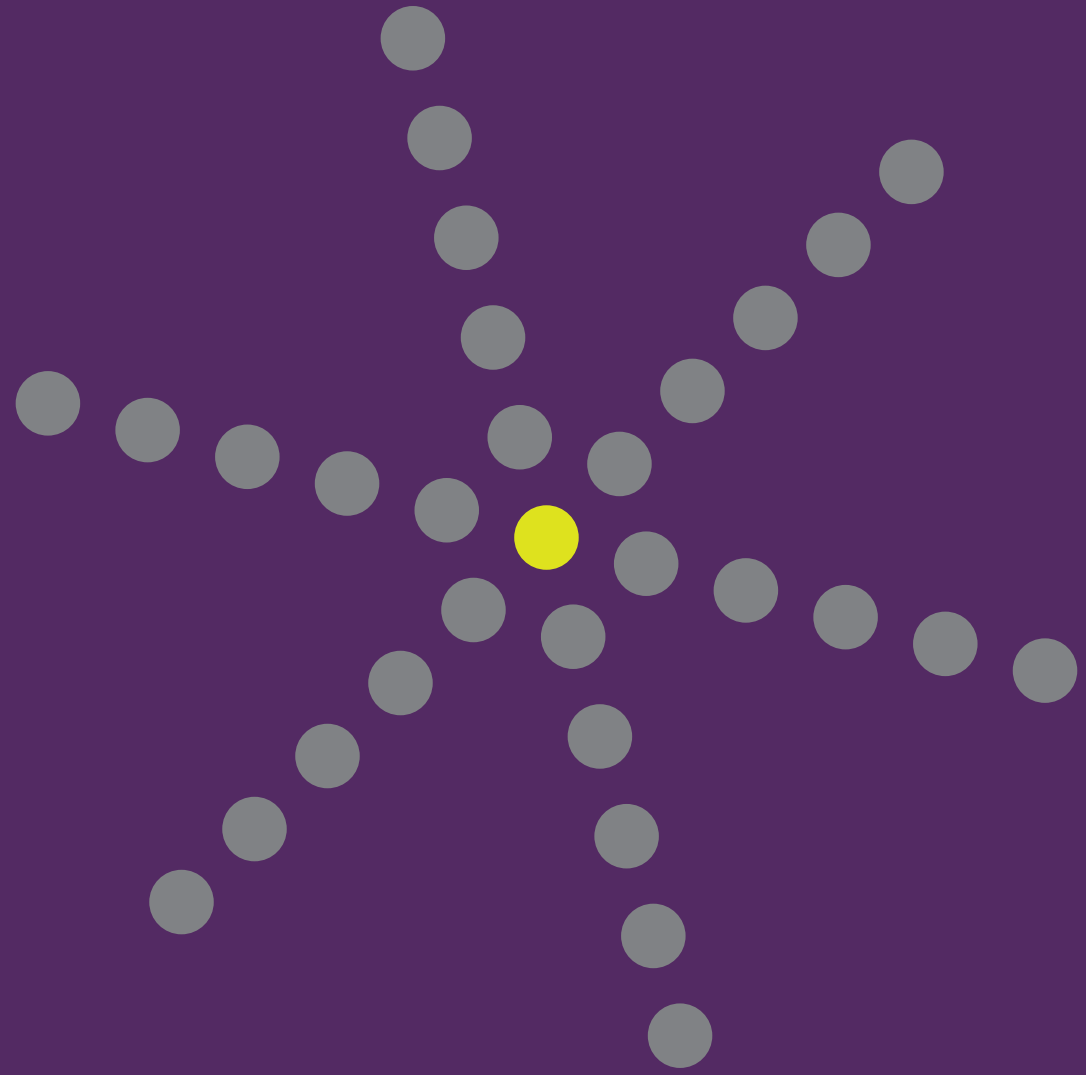
AMUS & HCF – ABI presentation

Emily Collins and Rebecca Ward

April 2026

1. Workplace health and wellbeing
2. Conduct Regulation
3. Genetics
4. Other activity and watching briefs
5. Any questions?

01 | Workplace health



Background

The UK faces an urgent economic activity crisis driven largely by ill-health and the barriers to work faced by disabled adults.

There are currently 2.8 million people out of work due to health conditions. That is 800,000 more than in 2019, with projections showing another 600,000 people could follow suit by 2030 without action.

The independent **Keep Britain Working Review**, led by Sir Charlie Mayfield, published its Final Report in November 2025. The next phase of the review (the Vanguard Phase) has now begun and is moving at pace.

In addition to the Review, Government activity includes:

- **10 Year Health Plan for England: fit for the future** - Implementation is now underway to build a health service fit for the future, setting out three shifts: hospital to community, analogue to digital, and sickness to prevention.
- **Employment Rights Bill** – now in force has introduced sick pay available from day 1 and removed the lower earnings limit, extending eligibility to all employees
- **Industrial Strategy Green Paper (Invest 2035)** - The ABI highlighted the role of health and protection products in tackling economic inactivity, a position reinforced in our response to HM Treasury's Financial Services Growth and Competitiveness Strategy.

ABI key messages and policy asks on workplace health

- Working together, across sectors, to **support a healthy and thriving workforce** is a priority for the ABI.
- We want to create **an active partnership between the industry and government** to harness health and protection insurers' expertise through the Keep Britain Working Review Implementation work.
- An **important part of the UK's workplace health market is employer-provided insurance**. Insurers have the tools to be part of the collective response to the current workplace crisis.
- Insurers support workers' health and wellbeing through, for example, mental health support, occupational health and rehabilitation services, employee assistance programmes, wellbeing initiatives, and/or access to primary care.
- We would like Government to use **targeted nudges and remove barriers to encourage greater employer take-up of workplace health and protection insurance**. This should include:
    - **Employer Transparency:** requiring employers to clearly set out their workplace health offer, including prevention, early intervention and return-to-work support.
    - **Strengthening Statutory Sick Pay (SSP):** following the expansion of SSP, ensuring it effectively supports health, retention and phased returns to work, alongside employer provided support.
    - **Day One Statements:** requiring employers to provide 'day one statements' every year which communicate transparently the employer's health and wellbeing benefits and sick pay provision to employees .
    - **Reducing tax barriers:** improving the tax treatment of health and protection products to support uptake by SME's and lower-paid workers.

Invitation - Annual ABI Health & Protection event

The ABI
Together Driving Change

Mental Health: From evidence to action

Mental health has been a recurring topic among health and protection members, with the prevention and intervention support they provide, increasing claims and a strong connection to the workplace health agenda. We will be bringing members together to discuss what the future may hold and how best the industry can support consumers.

*The event takes place during mental health awareness week, which this year calls on people to take **action**.*

Sir Charlie Mayfield's recent Keep Britain Working report highlights the importance of getting this right, noting that:

- *the growth in 16- to 34-year-olds with a mental health condition who are economically inactive due to long term sickness is particularly concerning, having risen by 190,000 (76%) between 2019 and 2024; and*
- *understanding of what specific actions employers can take to protect young people's mental health and wellbeing is weak.*

The event will be an opportunity for members to reflect on the prevalence, presentation and trends in the population's mental health; latest evidence in health prevention and intervention; and the ABI's mental health standards and ABI/Rightsteps online training for frontline staff.

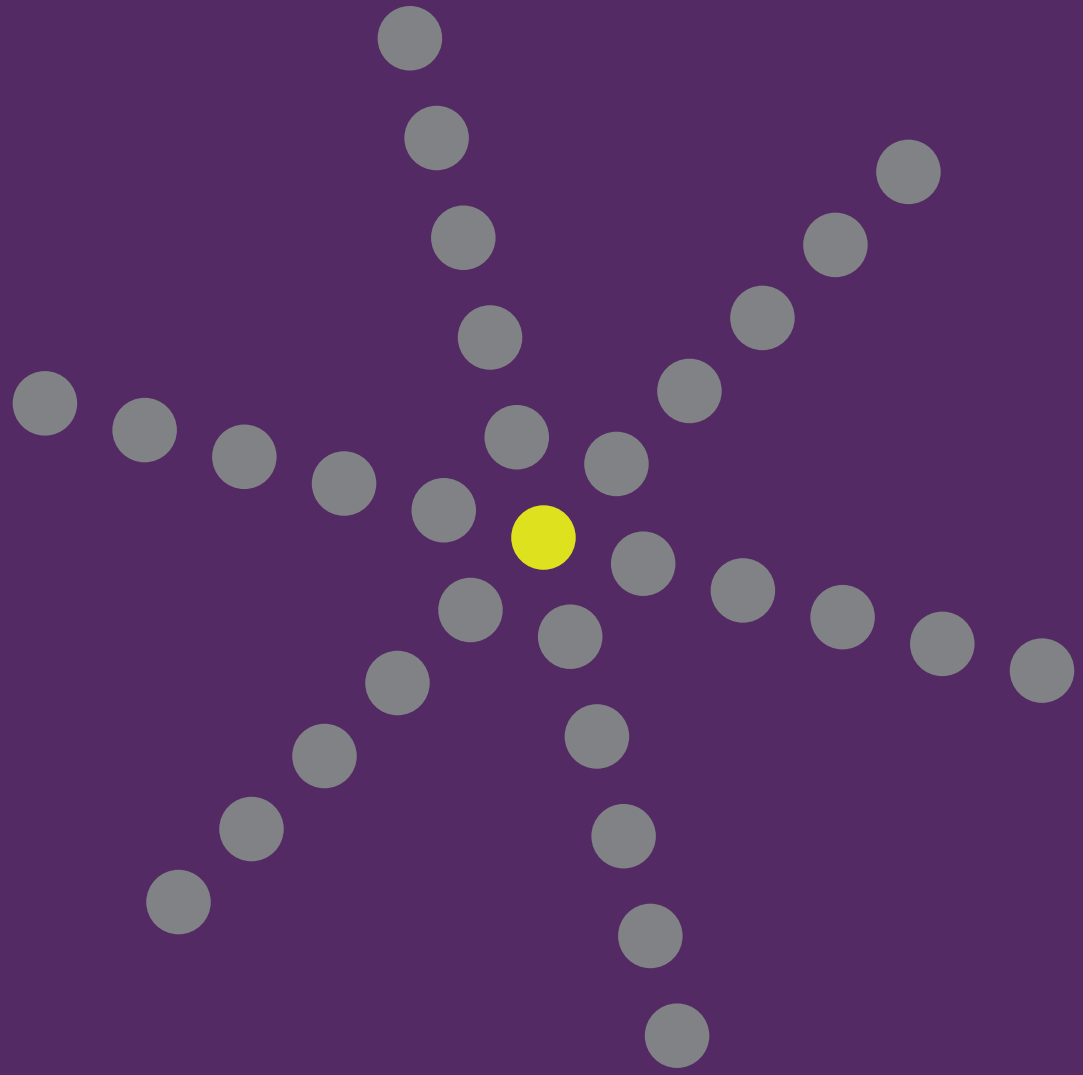
When: 12 May 2026, 10:15 to 14:20

Where: The ABI, Level 14, 30 Fenchurch St, London, EC3M 3BD

Registration: 10:00 and will include a networking lunch

Registration at www.abi.org.uk/events/2026

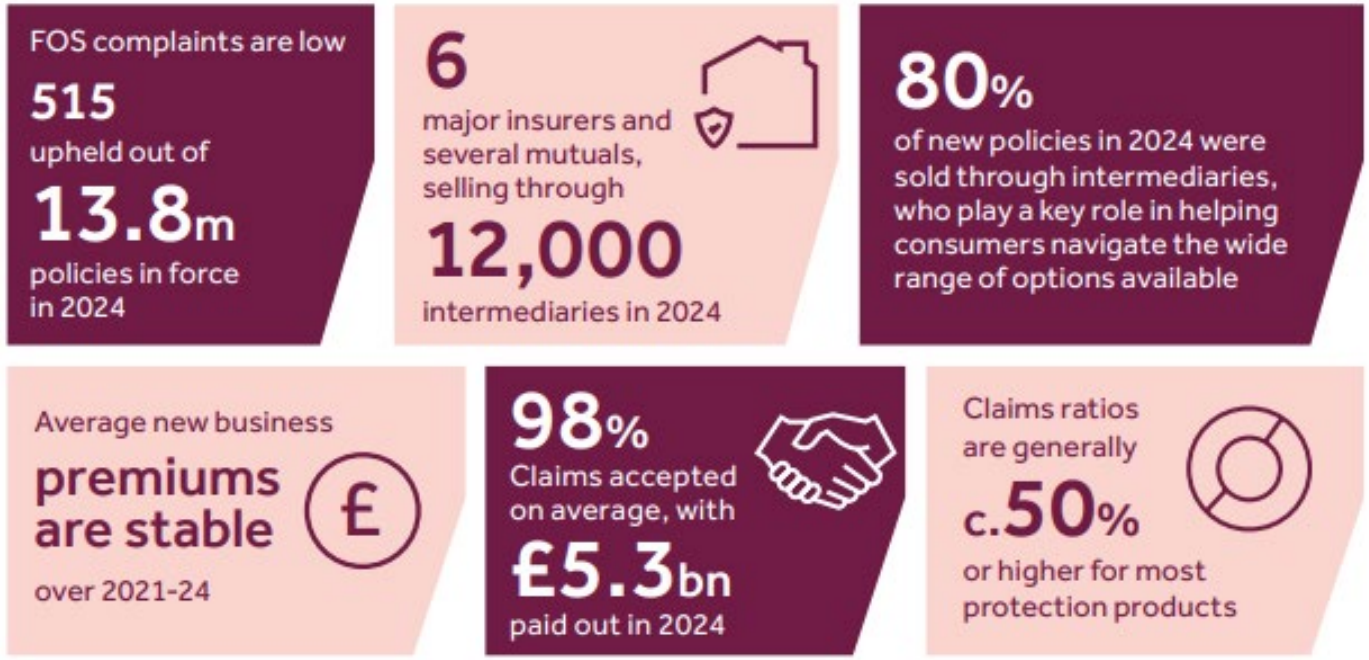
O2 | Conduct Regulation



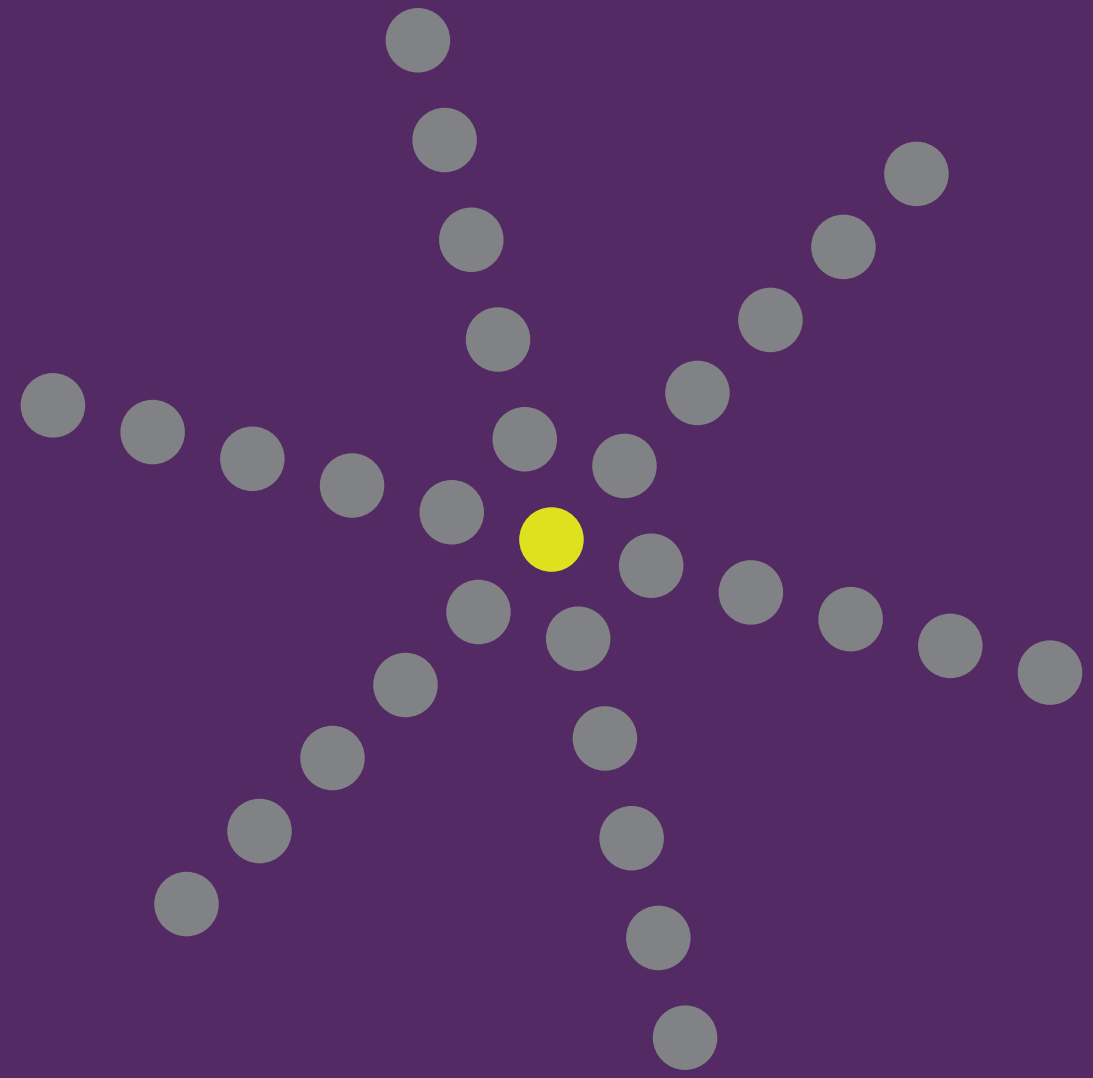
Conduct Regulation/Financial Conduct Authority (FCA)

Pure Protection Market Study: the FCA is undertaking a market study into the distribution of pure protection products - term assurance, critical illness cover, income protection and whole of life insurance, including over 50s policies with guaranteed acceptance.

The FCA's interim report concludes that the **market is working well** and doesn't need significant intervention. However, they acknowledge the **protection gap** that needs coordinated industry action to close. They also noted three smaller areas for further assessment: value, switching/churning, and claims experience.



O3 | Genetics



Genetics

- **2025 Triennial Review:** to ensure the Code on Genetics and Insurance remains fit for purpose and reflects the latest developments in genomic science and consumer protection. Following last year's Review, several actions have been agreed with the Department of Health and Social Care (DHSC):

  1. Amendment of the Code - any review of an application to take into account relevant research & ethical considerations.
  2. Cross-sector subgroup to review the Code's existing definitions.
  3. DHSC to work with the ABI to amend the Consumer Guide.
  4. DHSC to gather preliminary data and explore behavioural research to understand if, for example, patients delay or avoid genetic testing due to concerns on potential impact to insurance.

- **Triennial Review Report and Annual report:** published at the beginning of the year and is available on the ABI Genetics and Publications pages; and signposted on the gov.uk website here. The annual report provides a commentary on the state of the market and compliance with the Code.

O4 | Other activity and watching briefs

- Terminal illness – Life insurance
- Better access to health information
- Mental Health – Rightsteps training plus two webinars
- Financial Inclusion Strategy – income protection
- Economic abuse
- Assisted Dying
- Social Care developments

Mental health training

Mental Health Standards

Any questions?

healthandprotection@abi.org.uk

Mike Wilson -

Education Update

Follow AMUS on LinkedIn…

Follow HCF on LinkedIn…

Thank you Phil!

Thank you to our speakers!

- Dr Costas O’Mahony
- Dan Ryan
- Dr Stephen Falk and Hazel Etherington
- Emily Collins & Rebecca Ward
- Mike Wilson

Thank you (again) to our sponsors!

RGA

Munich RE

PACIFIC LIFE RE

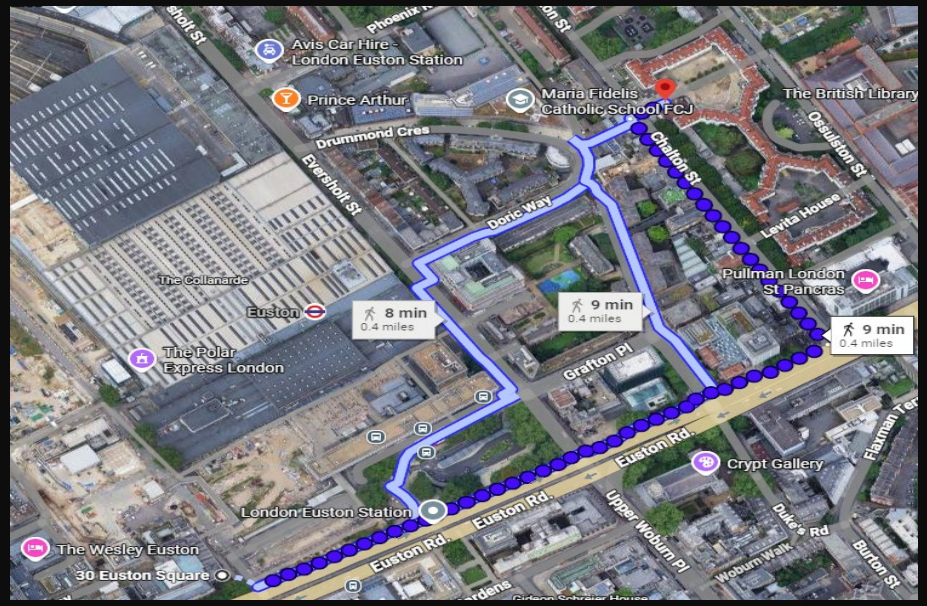
Gen Re

PartnerRe

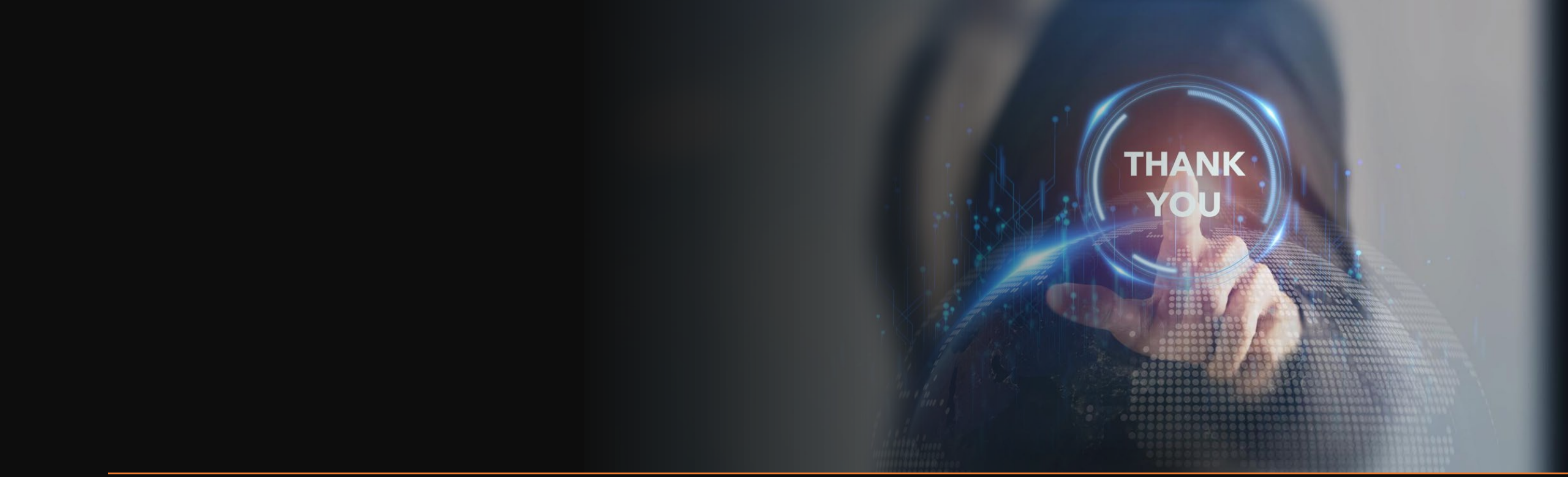
SCOR
The Art & Science of Risk

Networking Reception

Cosy Cocktails @ The Somers Town Coffee House,
60 Charlton St, NW1 1HS



Google Maps directions



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