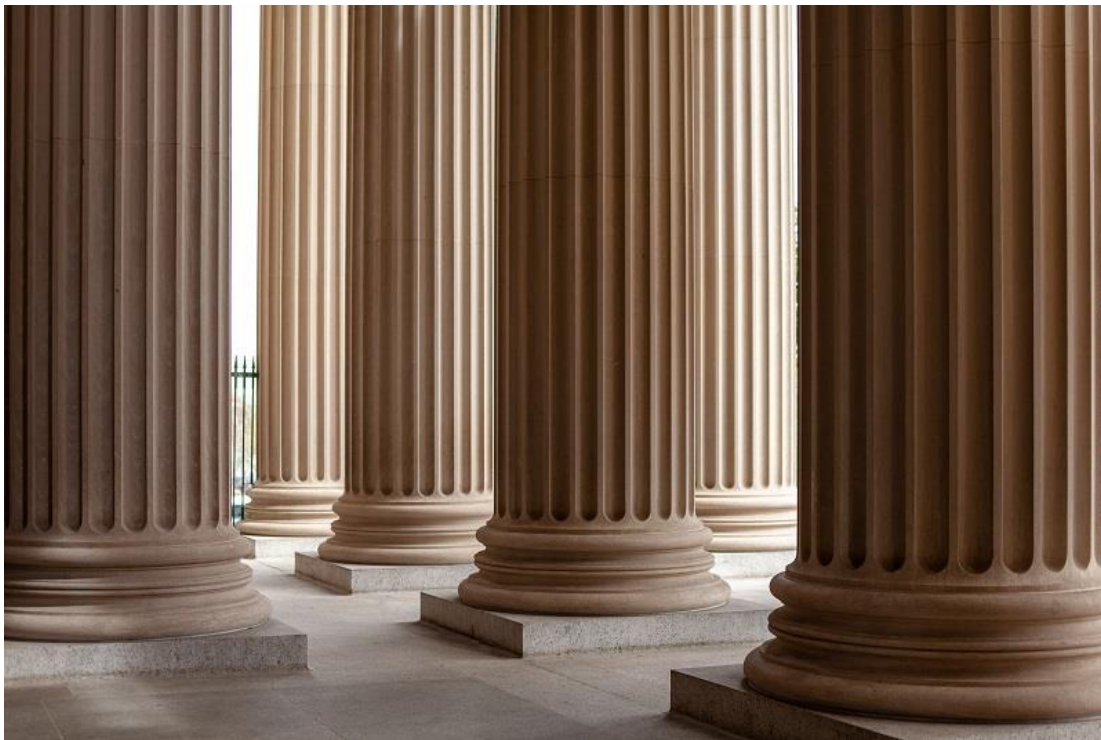




Het geheime ingrediënt voor het vier-pilaren-recept Lessen uit de TITRATE HF registry

Dr. Stefan Koudstaal





Groene Hart Ziekenhuis 
Open voor iedereen

Erasmus MC
Universitair Medisch Centrum Rotterdam


Het geheime ingrediënt van het vier-pilaren recept; Lessen uit de TITRATE-HF registry

WCN Congres 2024, 29 November 2024

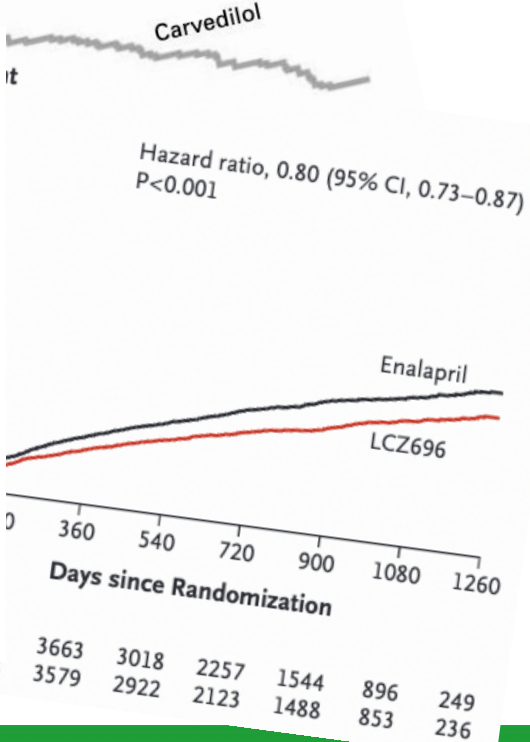
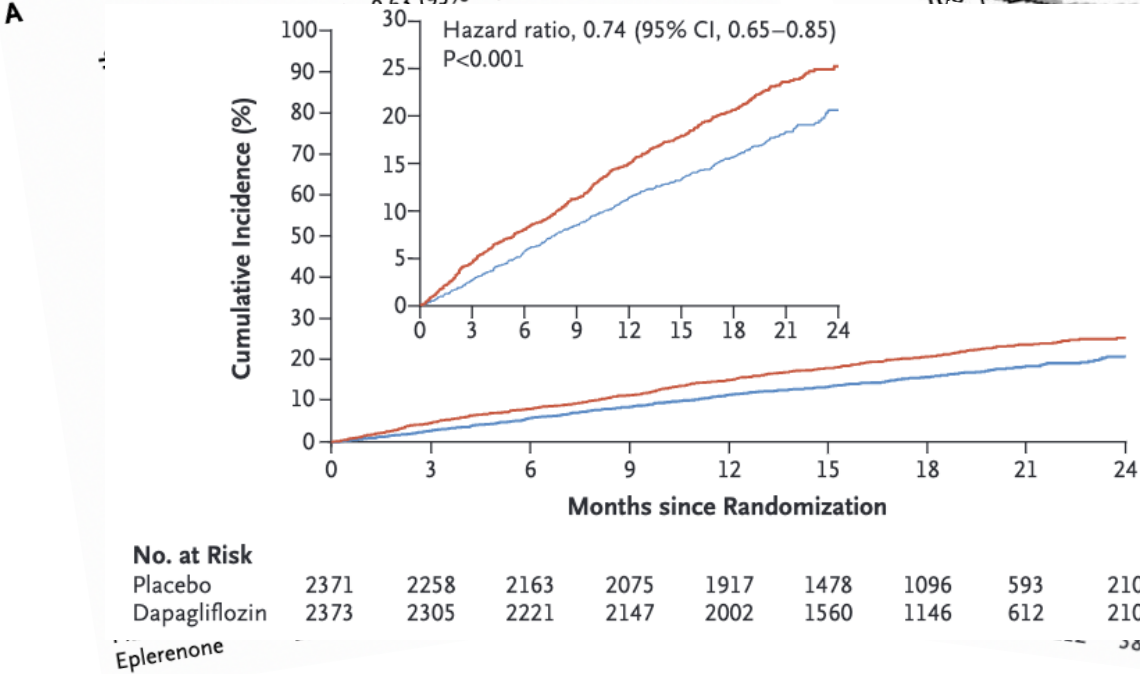
Stefan Koudstaal, MD PhD FESC FHFA

Groene Hart Ziekenhuis / Erasmus MC

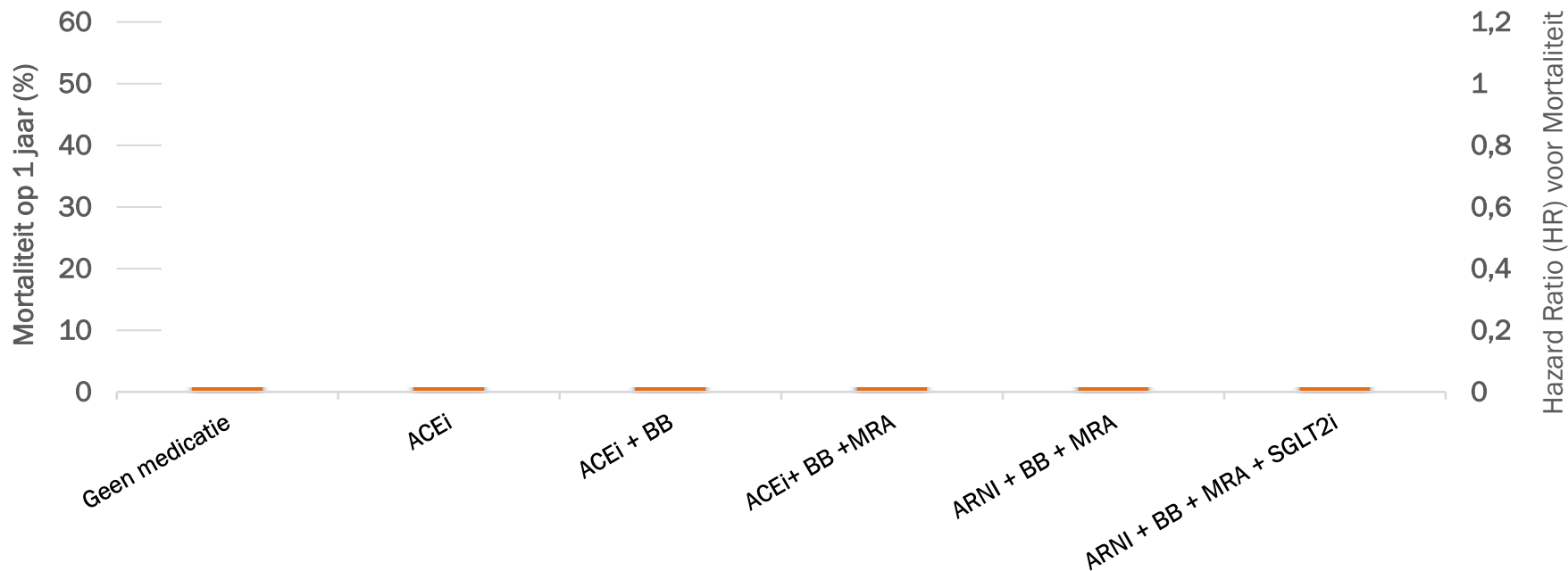
Disclosures

- Received unrestricted research grants or consultant fees from Haga Hospital, Bayer, Boehringer Ingelheim, Amgen, Amarin, Vifor, Novartis, Novo Nordisk, GSK.

WCN's perspectief op hartfalen



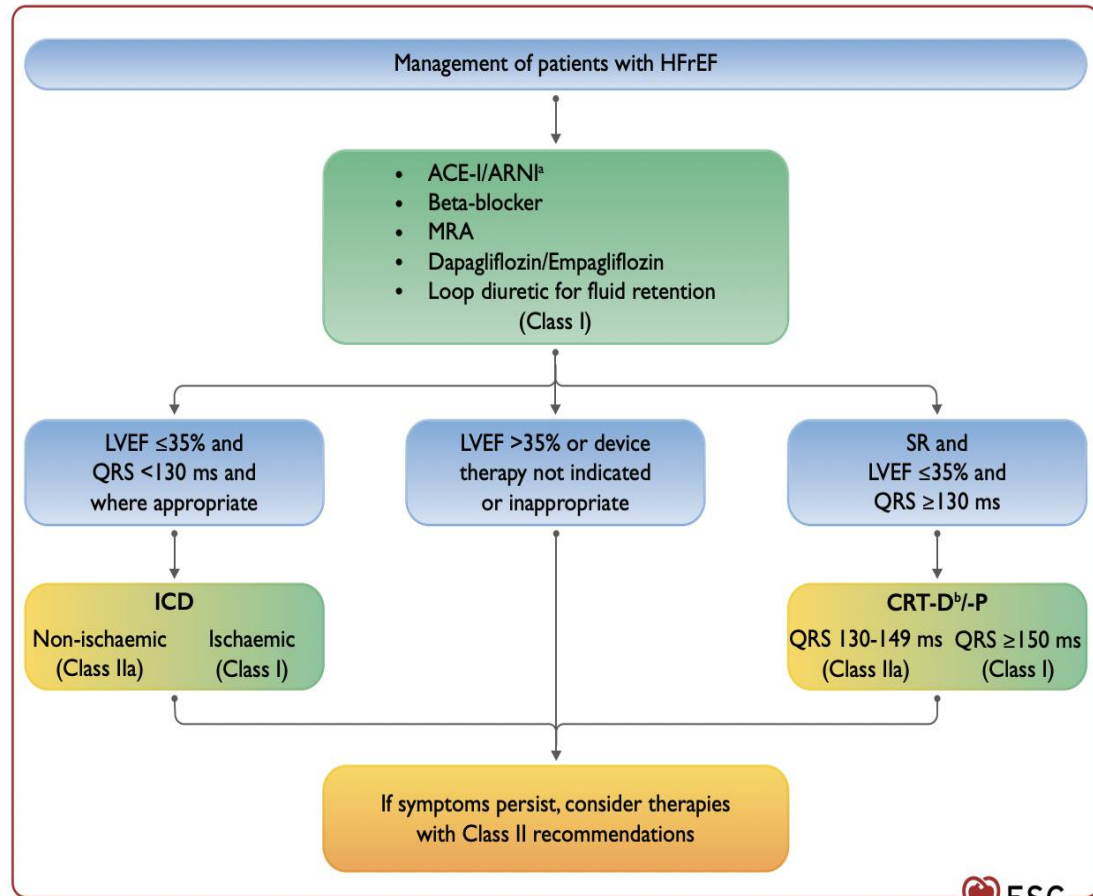
Cumulatieve Risico Reductie door combinaties van Hartfalen medicatie in HFrEF (LVEF < 40%)



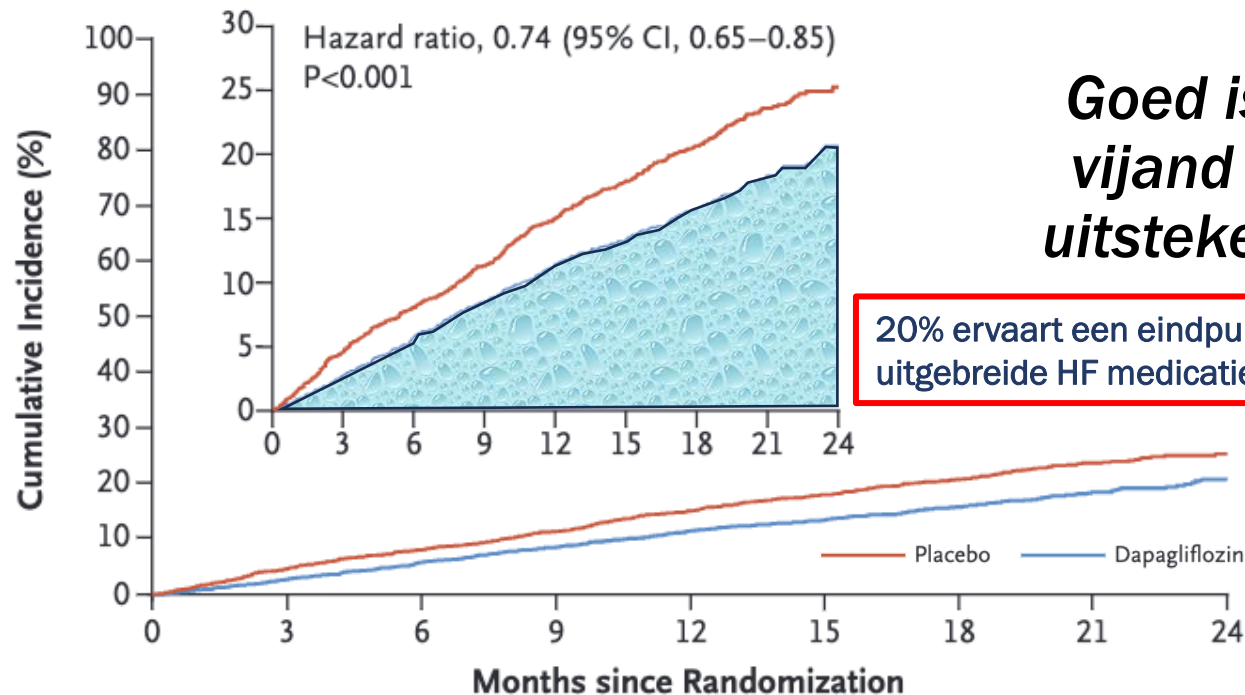
Tromp et al, JACC HF, 2022;10(2):73-84

Enorme ontwikkelingen in de behandeling van hartfalen

- Medicamenteuze behandeling
- Devices zoals CRT-P en/of ICD
- Interventies zoals klepinterventies, invasieve monitoring



Dapagliflozine in HFrEF: DAPA-HF trial



No. at Risk

Placebo	2371	2258	2163	2075	1917	1478	1096	593	210
Dapagliflozin	2373	2305	2221	2147	2002	1560	1146	612	210

McMurray, NJEM, 2019

Klinisch syndroom ≠ cardiomyopathie

Hartfalen fenotypes volgen beschikbare kennis en vice versa

ChatGPT ▾

Waar kan ik je mee helpen?

Bericht naar ChatGPT



Maak een afbeelding



Gegevens analyseren



Help met schrijven

Meer

ChatGPT kan fouten maken. Controleer belangrijke informatie.

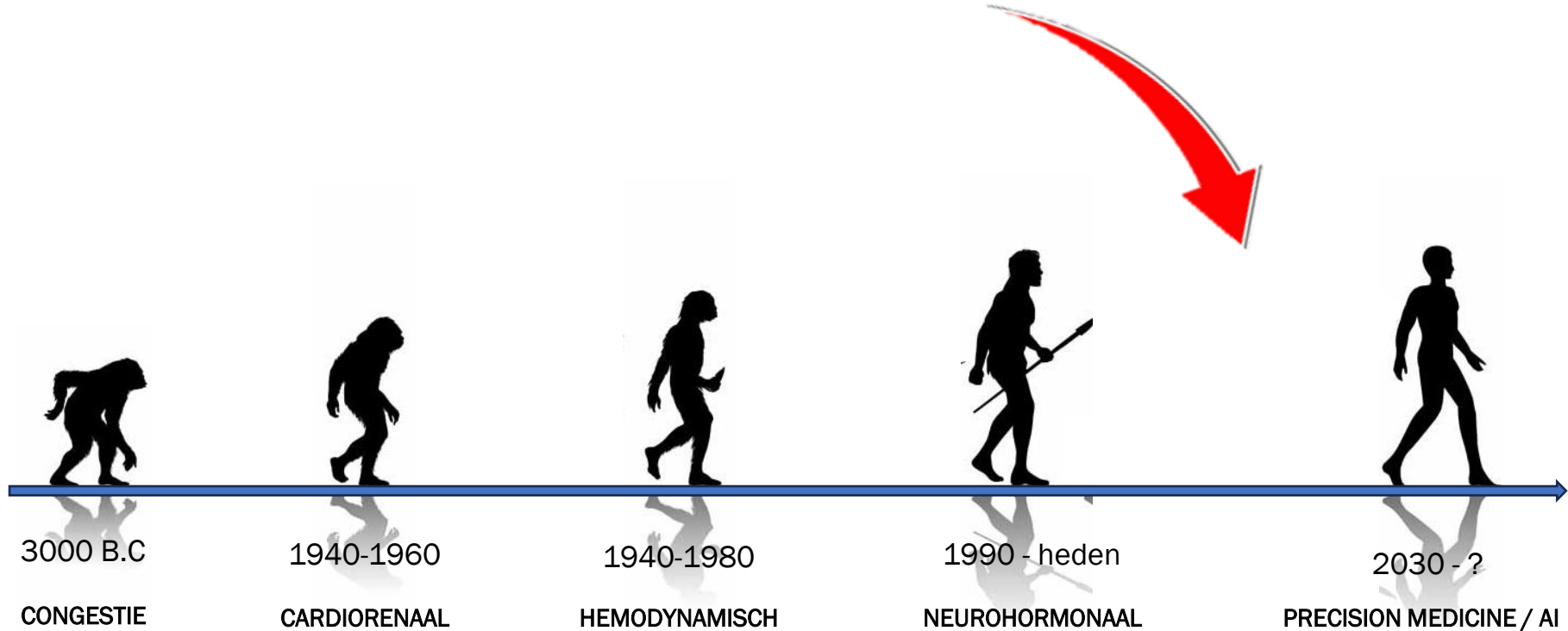
GOUDA | BODEGRAVEN | SCHOONHOVEN

Causes of Death in London - 1632

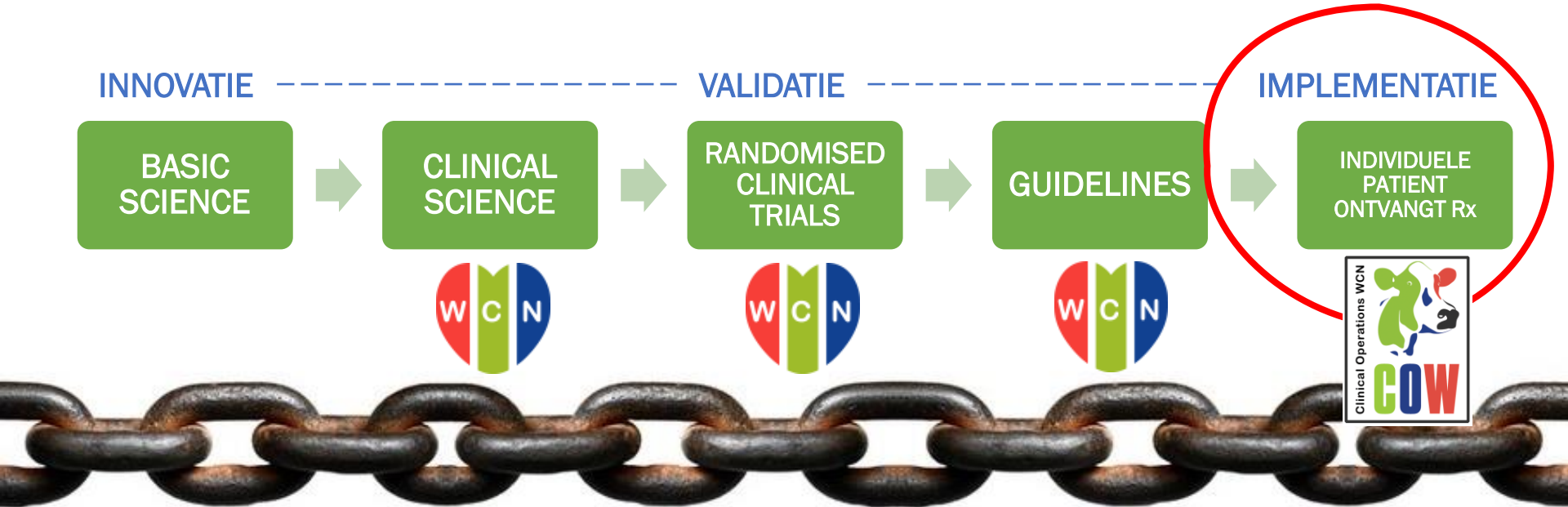
The Diseases, and Casualties this year being 1632.

A Bortive, and Stillborn ..	445	Grief	11
Affrighted	1	Jaundies	43
Aged	628	Jawfaln	8
Ague	43	Impostume	74
Apoplex, and Meagrom	17	Kil'd by several accidents..	46
Bit with a mad dog.....	1	King's Evil.....	38
Bleeding	3	Lethargie	2
Bloody flux, scowring, and flux	348	Livergrown	87
Brused, Issues, sores, and ulcers,	28	Lunatique	5
Burnt, and Scalded.....	5	Made away themselves....	15
Burst, and Rupture.....	9	Measles	80
Cancer, and Wolf.....	10	Murthered	7
Canker	1	Over-laid, and starved at nurse	7
Childbed	171	Palsia	25
Chrisomes, and Infants....	2268	Piles.....	1
Cold, and Cough.....	55	Plague.....	8
Colick, Stone, and Strangury	56	Planet	13
Consumption	1797	Pleurisie, and Spleen.....	36
Convulsion	241	Purples, and spotted Feaver	38
Cut of the Stone.....	5	Quinsie	7
Dead in the street, and starved	6	Rising of the Lights.....	98
Dropsie, and Swelling.....	267	Sciatica	1
Drowned	34	Seurvey, and Itch.....	9
Executed, and prest to death	18	Suddenly	62
Falling Sickness.....	7	Surfet	86
Fever	1108	Swine Pox	6
Fistula	13	Teeth	470
Flocks, and small Pox....	531	Thrush, and Sore mouth...	40
French Pox.....	12	Tympany	13
Gangrene	5	Tissick	34
Gout	4	Vomiting	1
		Worms	27

Welkom in het HFrEF interbellum



WETENSCHAPPENLIJKE ROUTEKAART



TITRATE-HF REGISTRATIE

- Prospectieve observationele registratie van patiënten met HF en LVEF <50%.
- Gehele titratie-fase tussen baseline en zes maanden is minitieus geregistreerd (dank jullie wel!).
- Tussen juni 2022 - februari 2024 zijn er 4288 patiënten geïnccludeerd, waarvan >90% door de WCN.

TITRATE-HF baseline

	De novo HF	Chronic HF	Worsening HF	p-value
Patients, <i>n</i>	1732	2240	316	
Age, years, median [IQR]	71.0 [62.0–77.0]	71.0 [63.0–78.0]	74.0 [67.0–79.0]	<0.001
Female sex, <i>n</i> (%)	539 (31.1)	629 (28.1)	79 (25.0)	0.028
Duration of HF at inclusion, months, median [IQR]	1.0 [0.4–1.9]	44.7 [14.1–105.0]	68.2 [27.8–131.8]	<0.001
EF category, <i>n</i> (%)				<0.001
HFrEF	1510 (87.2)	1604 (71.6)	256 (81.0)	
HFmrEF	222 (12.8)	282 (12.6)	36 (11.4)	
HFimpEF	0 (0.0)	354 (15.8)	24 (7.6)	
Non-ischaemic CMP, <i>n</i> (%)	1092 (63.8)	1202 (53.7)	153 (48.6)	<0.001
NYHA functional class, <i>n</i> (%)				<0.001
I	163 (9.6)	439 (19.7)	13 (4.2)	
II	1180 (69.2)	1463 (65.7)	141 (45.3)	
III	287 (16.8)	311 (14.0)	113 (36.3)	
IV	75 (4.4)	14 (0.6)	44 (14.1)	
BMI, kg/m ² , median [IQR]	26.0 [23.3–29.7]	26.8 [24.2–30.1]	26.5 [23.3–30.1]	<0.001
Systolic BP, mmHg, mean (SD)	127.5 (22.0)	124.0 (19.8)	120.9 (23.1)	<0.001
Diastolic BP, mmHg, mean (SD)	76.2 (13.1)	72.4 (11.3)	71.4 (12.2)	<0.001
Heart rate, bpm, median [IQR]	80.0 [68.0–94.0]	70.0 [62.0–80.0]	77.0 [67.0–89.0]	<0.001
Heart rhythm, <i>n</i> (%)				<0.001
SR	1187 (69.9)	1281 (62.9)	141 (45.2)	
AF	468 (27.5)	442 (21.7)	117 (37.5)	
PM	44 (2.6)	315 (15.5)	54 (17.3)	
LVEF, %, median [IQR]	30.0 [25.0–37.0]	35.0 [30.0–42.0]	30.0 [25.0–38.0]	<0.001
History of stroke, <i>n</i> (%)	149 (8.6)	231 (10.3)	41 (13.0)	0.029
History of hypertension, <i>n</i> (%)	917 (52.9)	1082 (48.3)	186 (58.9)	<0.001
History of hypercholesterolaemia, <i>n</i> (%)	623 (36.0)	1007 (45.1)	156 (49.4)	<0.001
Obesity, <i>n</i> (%)	387 (22.4)	584 (26.1)	73 (23.1)	0.022
History of diabetes, <i>n</i> (%)	362 (20.9)	567 (25.3)	104 (32.9)	<0.001

Malgie, EJHF, 2024

Table 2 Medical therapy prescription rates for de novo, chronic, and worsening heart failure

	De novo HF (n = 1732)	Chronic HF (n = 2240)	Worsening HF (n = 316)	p-value*
Guideline-directed medical therapy				
RASi	30% ^a	89% ^b	73% ^b	<0.001
BB	33% ^a	88%	78%	< 0.001
MRA	6% ^a	75%	71%	0.115
SGLT2i	3% ^a	64%	56%	0.005
Other medication				
Loop diuretics	56%	56%	82%	<0.001
Digoxin	11%	11%	17%	0.003
Ivabradine	2%	4%	2%	0.064
Amiodarone	5%	10%	21%	<0.001
Sotalol	2%	5%	3%	0.050
Anticoagulation, indication:	50%	63%	74%	<0.001
HF/LV thrombus	14%	18%	12%	
Atrial fibrillation/flutter	63%	61%	71%	
Mechanical heart valve	2%	4%	5%	
Pulmonary embolus/deep vein thrombosis	5%	3%	6%	
Unknown	16%	15%	6%	
Statin	45%	58%	52%	0.052

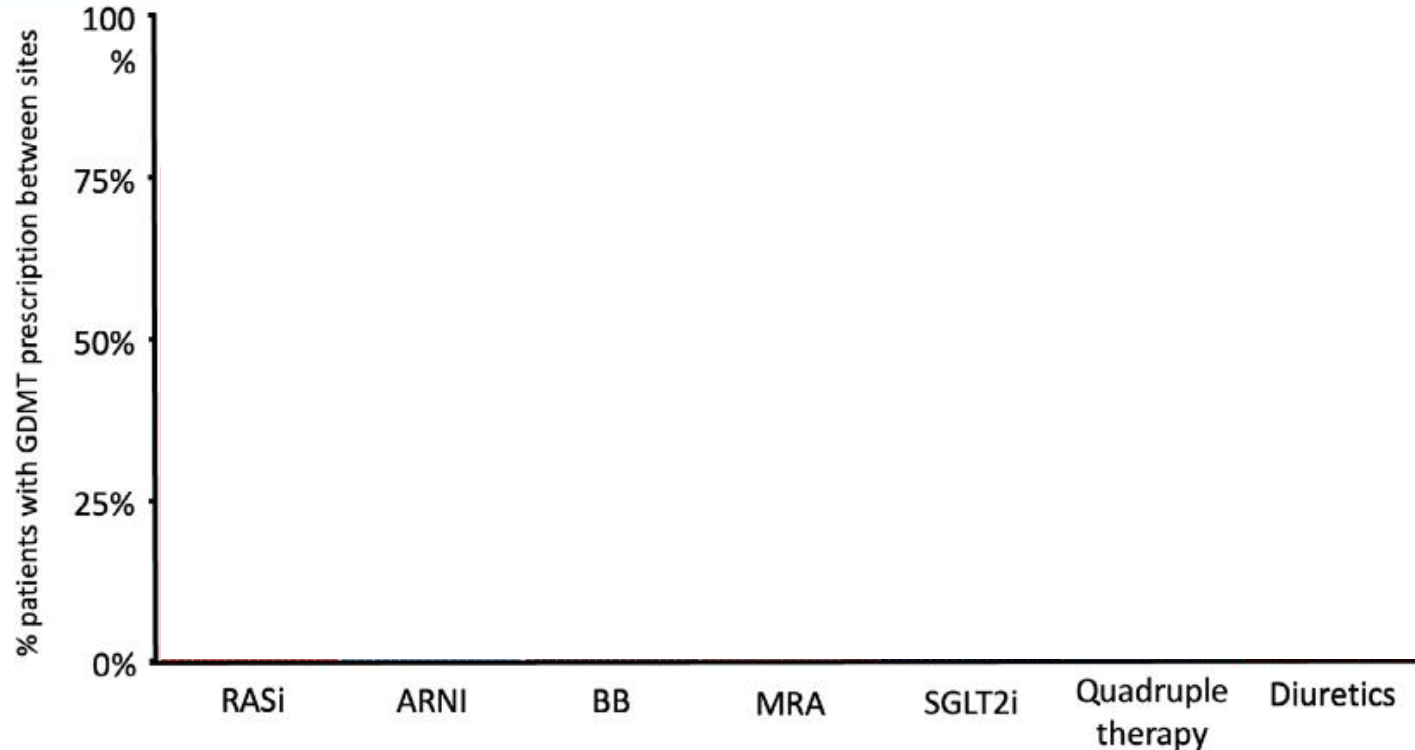
BB, beta-blocker; HF, heart failure; LV, left ventricular; MRA, mineralocorticoid receptor antagonist; RASi, renin–angiotensin system inhibitor; SGLT2i, sodium–glucose cotransporter 2 inhibitor.

^aIn use due to other indication than HF.

^bAngiotensin receptor–neprilysin inhibitor use is 57.9% in chronic HF, and 36.9% in worsening HF.

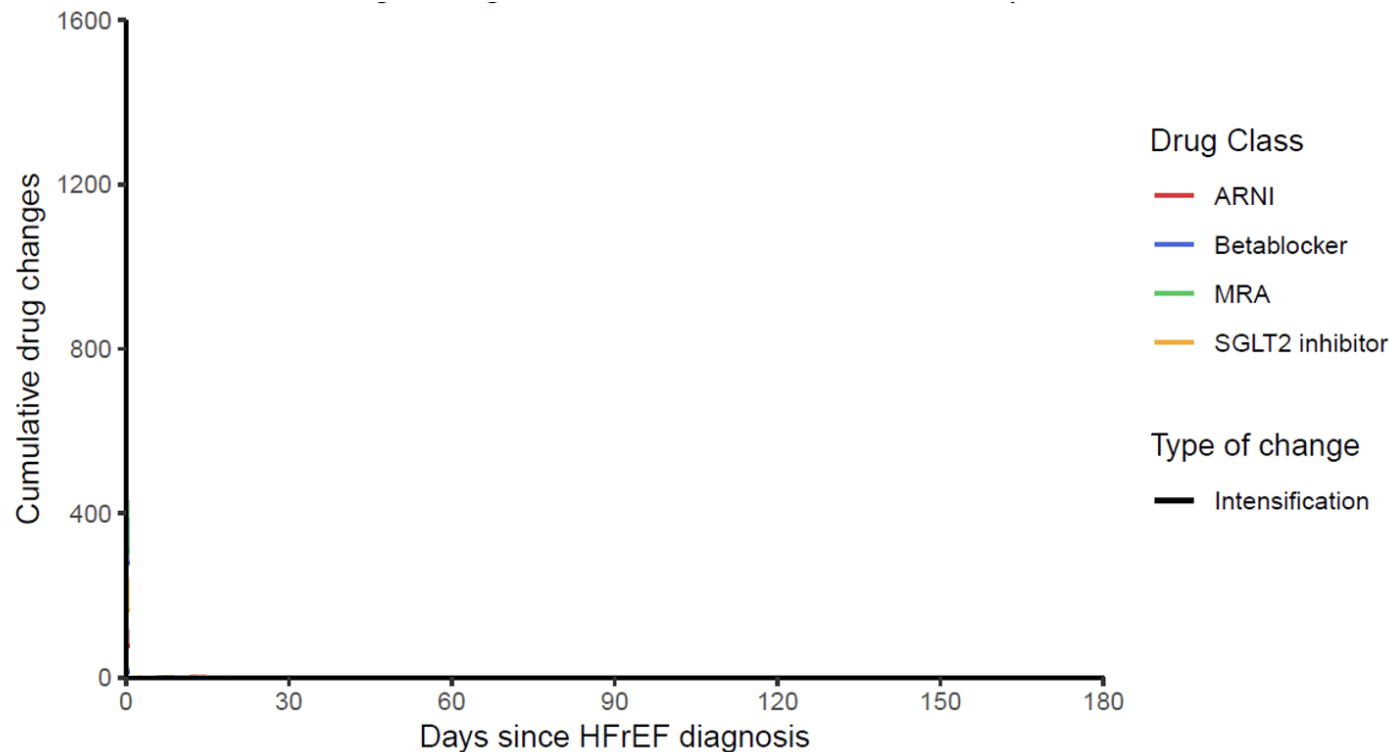
*p-value for the difference between chronic and worsening HF.

Grote onderlinge verschillen tussen HF klinieken zonder plausibele verklaring



Malgie, EJHF, 2024

Hoe vaak veranderen we medicatie?



Malgie, EHJ, in revision

Sequenties van HF Rx initiëren; wat gebruiken we wanneer?

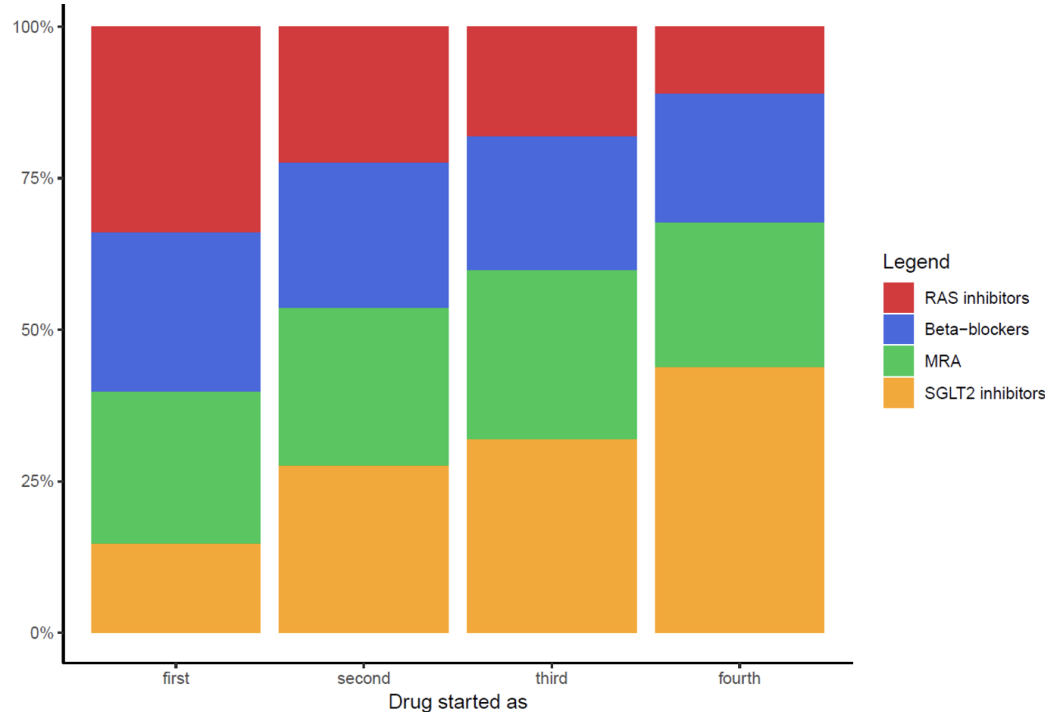
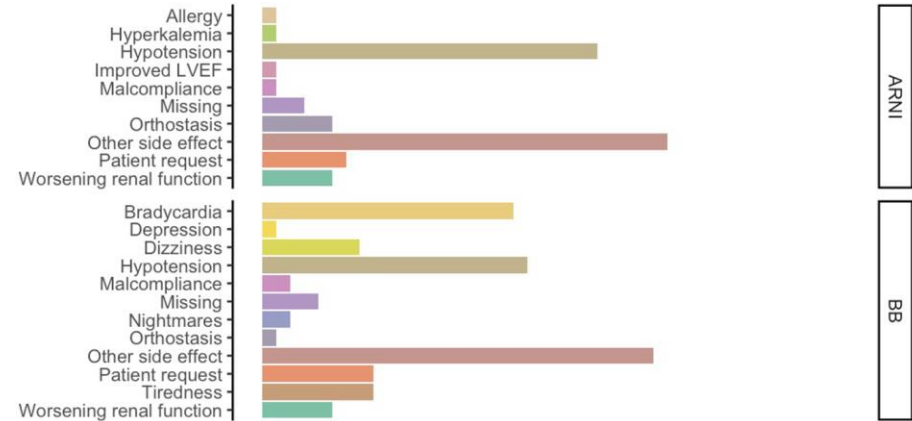
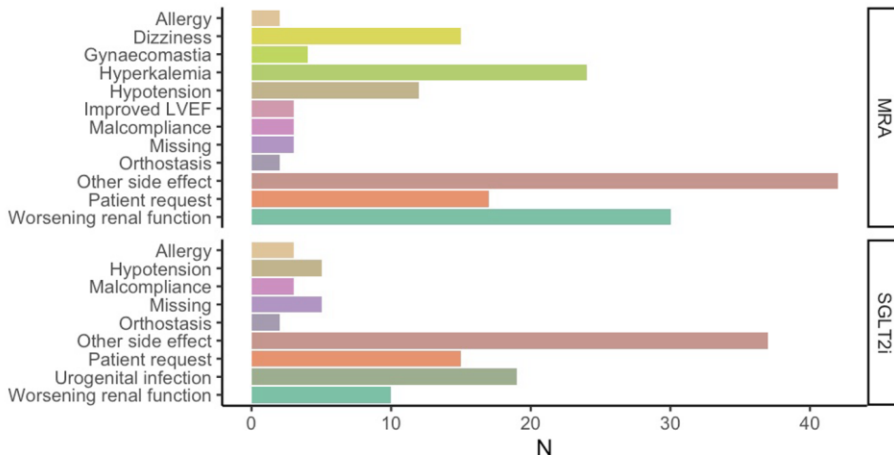


Figure 1. Sequencing order in GDMT naïve de novo HFrEF patients.

Meest voorkomende reden van discontinueren zijn onduidelijke 'bijwerkingen'; oftewel is de patiënt wel voldoende gemotiveerd?



Het geheime ingrediënt:

Hoe kan je een zorgverlener en patiënt
en motiveren over zijn prognose en
medicatie?

 ESC
European Society
of Cardiology

European Journal of Heart Failure (2023) 25, 1962–1975
doi:10.1002/ehfj.3028

Informeren

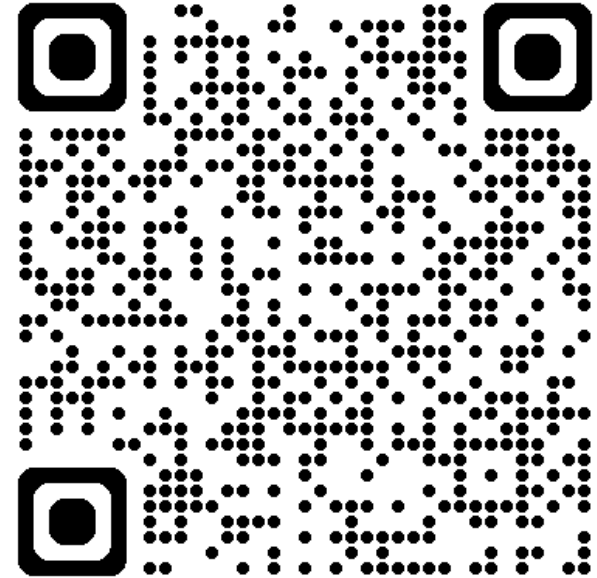
RESEARCH ARTICLE

Personalized lifetime prediction of survival and treatment benefit in patients with heart failure with reduced ejection fraction: The LIFE-HF model

Pascal M. Burger¹✉, Gianluigi Savarese^{2†}, Jasper Tromp^{3,4†}, Carly Adamson^{5†},
Pardeep S. Jhund⁵, Lina Benson², Camilla Hage², Wan Ting Tay⁶,
Scott D. Solomon⁷, Milton Packer⁸, Xavier Rossello⁹, John W. McEvoy¹⁰, Dirk De
Bacquer¹¹, Adam Timmis¹², Panos Vardas¹³, Ian M. Graham¹⁴, Emanuele Di
Angelantonio¹⁵, Frank L.J. Visseren¹, John J.V. McMurray^{5‡}, Carolyn S.P. Lam^{6,16‡§},
Lars H. Lund^{2‡}, Stefan Koudstaal^{17‡}, Jannick A.N. Dorresteyn^{1‡},
and Arend Mosterd^{18*‡}, in collaboration with the European Society of Cardiology's
Cardiovascular Risk Collaboration (ESC CRC)

Conclusies

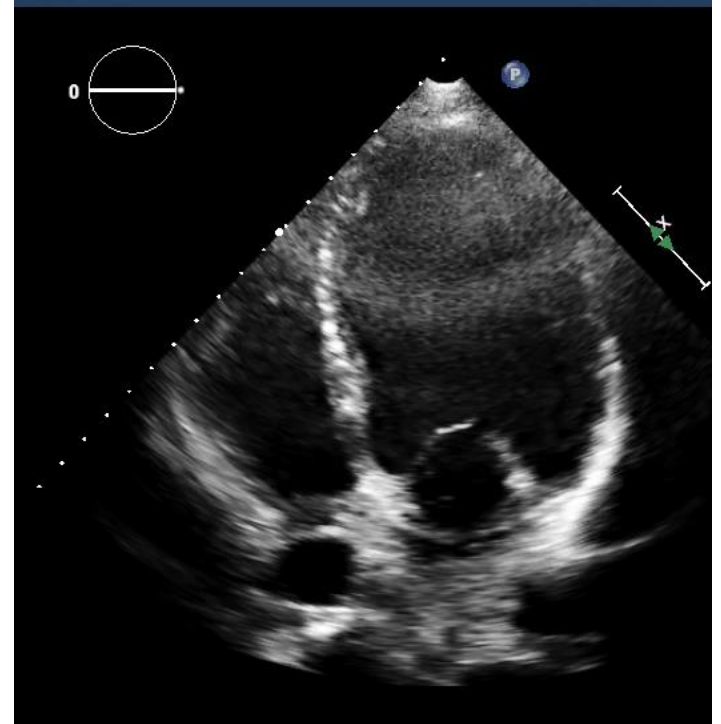
- Klinische trials en implementatie strategieën zijn complementair
- TITRATE-HF biedt unieke inzicht in de reden waarom veel patiënten nog steeds niet alle medicatie blijven gebruiken
- Vanuit HF zorg zijn er verschillen onderling tussen sites; vanuit patiënten wordt het vaakst Rx gestopt zonder duidelijke reden
- Overbrengen van je enthousiasme over levensreddende therapie kan helpen om de patiënt te motiveren



LIFE HF model:
<https://lifehf.uprevent-nonmdr.nl/>

Casus

- 57 jarige vrouw
- Voorgeschiedenis: hypertensie
- Rx/ Enalapril 1dd 10mg, amlodipine 1dd 5mg
- 2 maanden progressieve dyspnoe d'effort en perifeer oedeem
- Bij lichamelijk onderzoek HV gering verhoogd, 126/86mmHg, Pols 89/min, zachte I, II, geen III/souffles, Pulm VAG bdz, malleolair oedeem



Personal Risk Profile

 Life-HF model

Geographic region 

Western Europe

Central Europe

North America

Latin America

Asia/Pacific

Gender

Male

Female

Age

40 - 85

years

Diabetes mellitus



Prior hospitalization for heart failure





Extracardiac vascular disease 



NYHA class

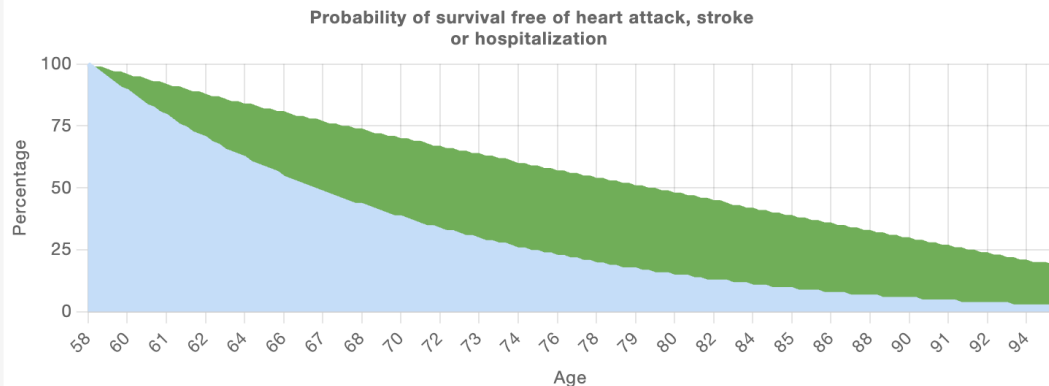


I or II

III or IV

CVD-free life-years

CVD-free and hospitalization free life-years



58

Age start treatment ⓘ

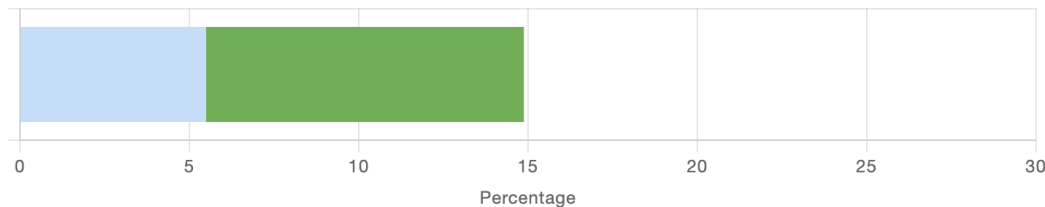
80

CVD-free life-expectancy ⓘ

13.1

CVD-free years gained ⓘ

Current 2-year risk of myocardial infarction, stroke, cardiovascular death or hospitalization for heart failure



14.9%

Current risk ⓘ

9.4%

Reduction with treatment ⓘ

11

2-years NNT ⓘ

Future treatment ⓘ

Intervention start age ⓘ

58

years

ACE inhibitors (ACEi) or angiotensin receptor blockers ⓘ

(ARB)

Angiotensin receptor/neprilysin inhibitor (ARNI)

Beta blocker

Mineralocorticoid receptor antagonist (MRA)

SGLT2 inhibitor

Digoxin

Ivabradine

Vericiguat

Reset

Print

Copy