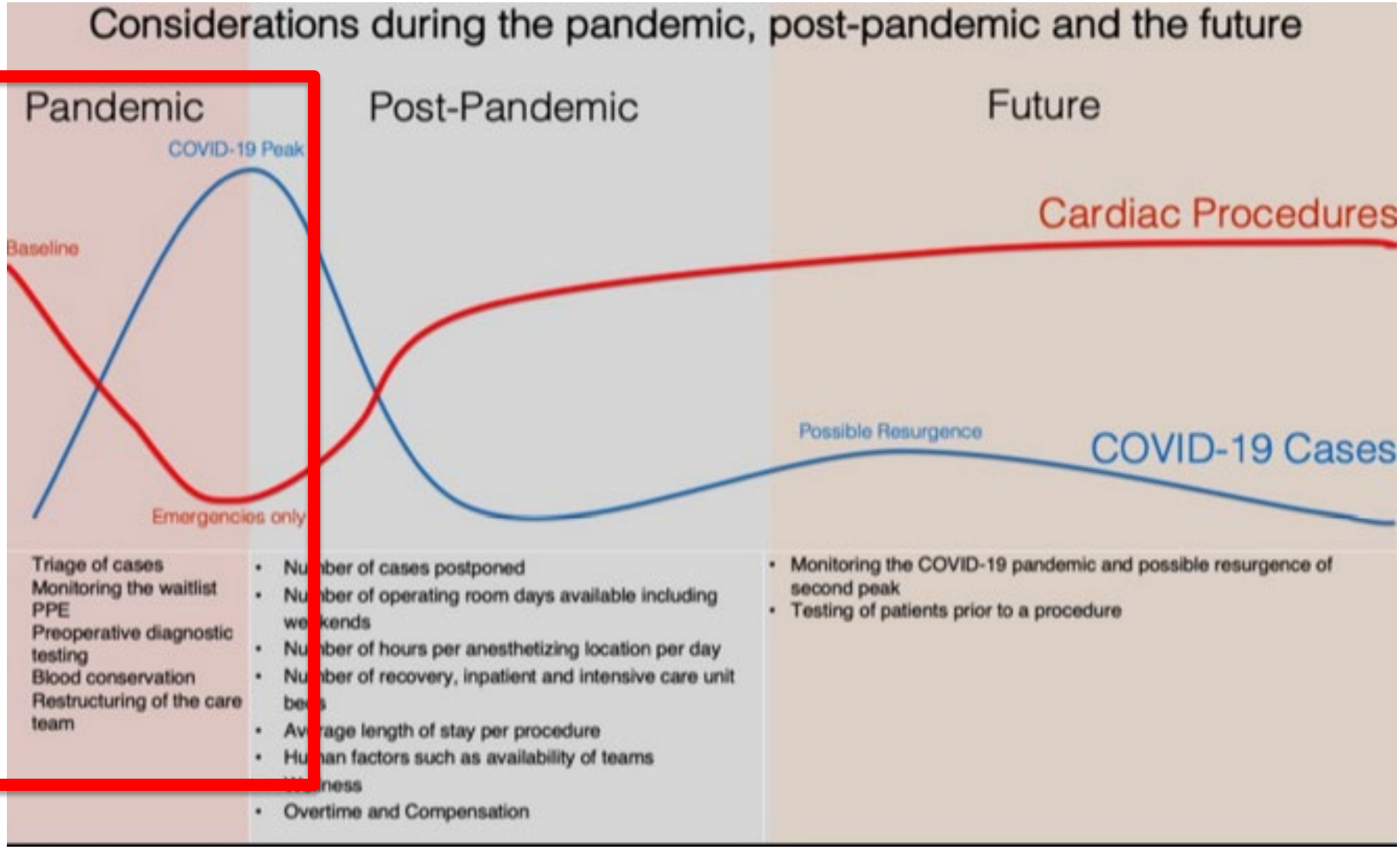
# Dealing with the Covid-19 backlog and restarting services: Will we ever catch up?

Chim Lang MF FRCP FRCPE FACC FESC

# Considerations for Cardiac Services



# Acute Phase of the Pandemic: So many Issues

- Severity and consequences of covid-19 cases
- Disruption to existing health and social care
- Critical care triages
- Strategies for testing and diagnosis;
- PPE for Health Care Personnel and patients;

London hospitals struggle to cope with coronavirus surge

NHS running short of critical care beds after thirteenfold 'explosion' in patients

Coronavirus - latest updates

See all our coronavirus coverage

▲ Northwick Park hospital in north-west London was forced to declare a "critical incident" after running out of critical care beds. Photograph: James Veysey/REX/Shutterstock

# Covid 19 and Pressure on the NHS Acute Pandemic Phase

- Enormous pressure on the NHS.
- New ways of working
- Many **staff re-deploye**d
- Non-Urgent CV care and ‘elective’ cases **put on-hold**

# ‘Elective’ cardiac care is a misnomer

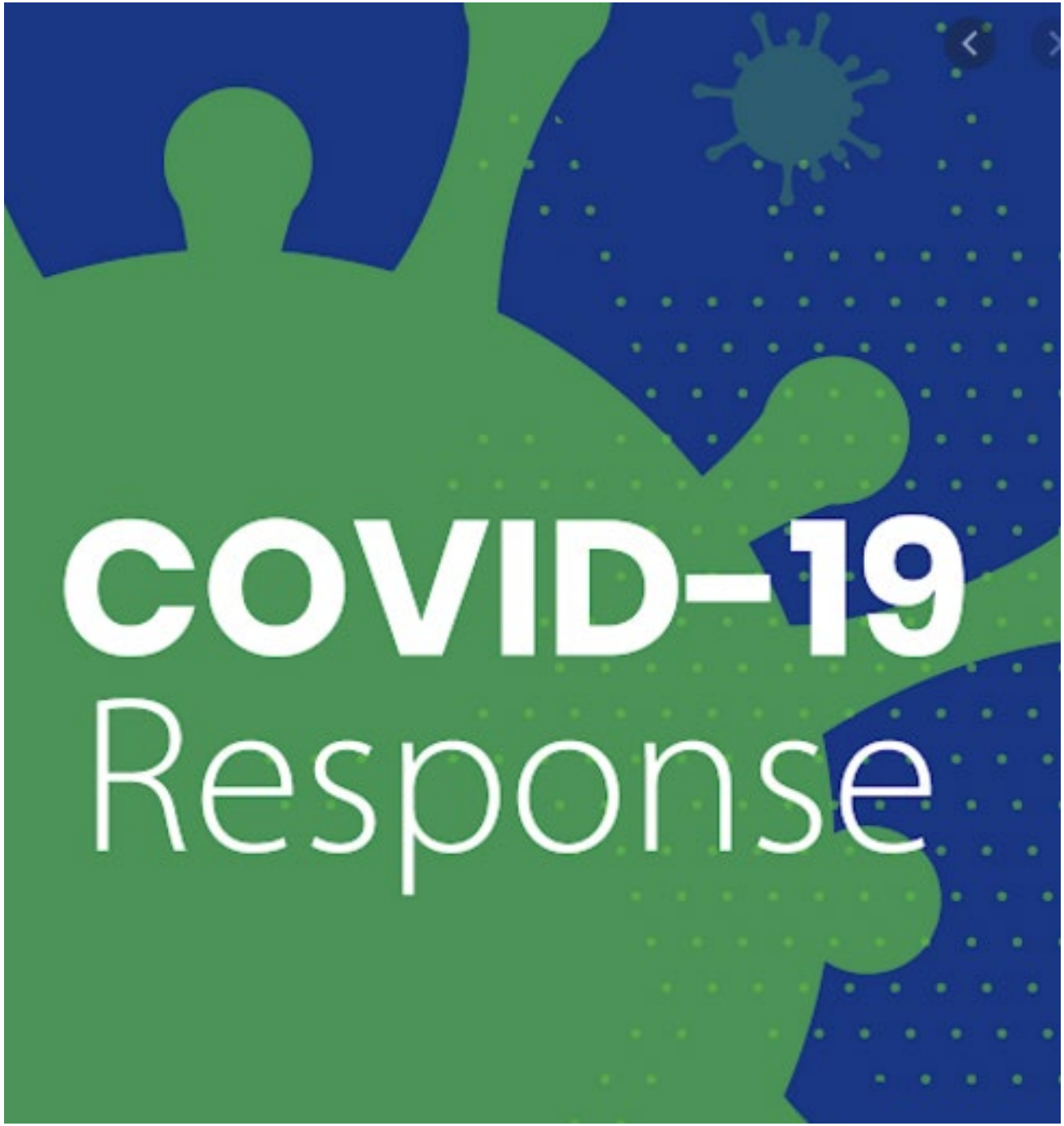

Elective CV cases fall somewhere between **vital preventive measures** and **essential surgery (e.g., CABG)**

# Switch to Digital Consultation

- Patients in a ‘virtual waiting room’
- Clinic consultations
  - ‘Telephone’ consultations; ‘Near me’ consultations; Prioritised ‘face to face’ meetings
- How safe? Diagnostic errors
  - Loss of verbal and non-verbal cues
- How acceptable?
- Fair to all patients?
  - Articulate patients with digital tools, access and competence
    - ? Elderly and Mental issues

# Covid 19 and Pressure on the NHS
# **Specific cardiovascular** challenges

- **Cardiac manifestations of SarsCoV2** (thrombotic complications/heart failure)
- **Delayed presentation** of patients with acute cardiac events: Myocardial infarctions, decompensated heart failure
- **Delayed diagnoses** of cardiac conditions
  - Echo waiting list (>20months)
  - Delayed commencement of evidence based therapies
- **No/little up-titration of therapies**


COVID-19
Response

In the Chinese language, the word "crisis" is composed of two characters, one representing danger and the other, opportunity.

John F. Kennedy

危機

Danger Opportunity

HEART FAILURE HUB SCOTLAND

# NHS Scotland Heart Failure Transition and Recovery Plan in response to COVID-19 (25th May 2020)

**Level 3 (emergency): Severe pandemic related system pressure**
**Priority to highest-risk patients**

**Level 2 (transition/planned recovery): Moderate pandemic related system pressure**
**Priority to intermediate and highest-risk patients**

**Level 1 (reinstatement): Little or no pandemic related system pressure**
**Full service**

## Key recommendations

1. NHS Scotland Boards advised to **retain key specialist HF staff** in order to continue to deliver essential HF services across Scotland to those at highest risk.
2. Recommended and nationally agreed **'minimum criteria' for essential HF service provision** in Scotland during the emergency phase of COVID-19.
3. Guidance for Scottish HF teams regarding **risk stratification** and delivery of care to patients at highest risk.
4. Identification of a **lead HF clinician** within each NHS Scotland Board

## Successes to date

The response from NHS Scotland Boards and Scottish HF teams during the emergency phase of COVID-19 has been outstanding. Delivery of care to those at highest risk has been provided across Scotland. Rapid transformation of services has taken place and new adaptive ways of working have been quickly developed and implemented. Key priorities have focused on patient safety and the delivery of remote and ambulatory care pathways, in order to avoid hospital attendance or admission wherever possible.

# HEART FUNCTION DAILY CHECK TOOL

**GREEN**

- Breathlessness no worse than usual
- Daily weights stable
- No obvious swelling feet, ankles, legs or abdomen
- No increased difficulty sleeping
- No increase of fatigue level

- **No action required**

**AMBER**

- Noting increased breathlessness
- Daily weights up 3-4lbs in 3 days
- More swelling of feet, ankles, legs or abdomen
- Harder to breathe lying down
- Needing to sleep upright / chair
- Dizziness
- Reduction in physical activity
- Increased fatigue

- **Take urgent action: Phone HF Nurse or GP**

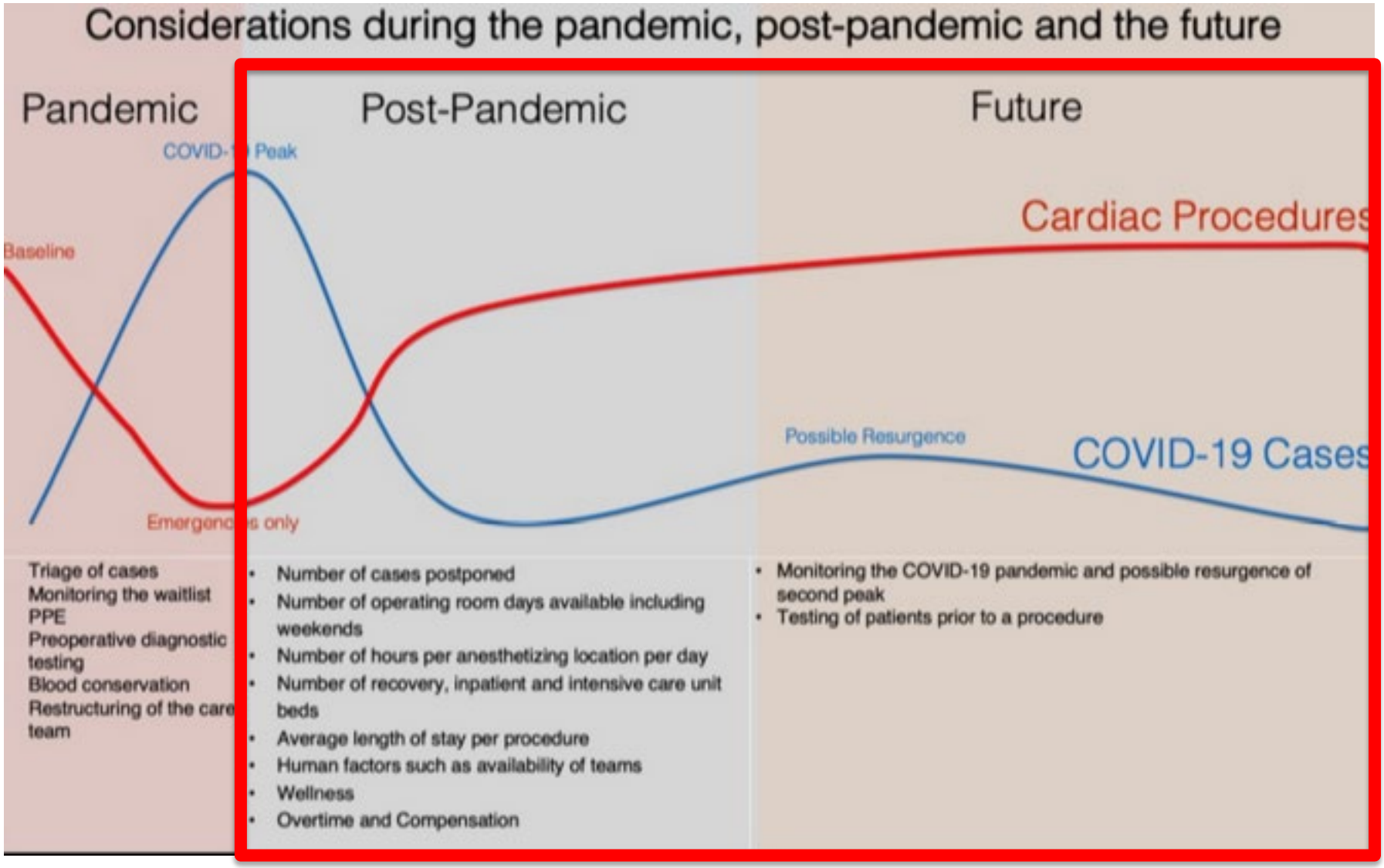
**RED**

- Struggling to breathe or chest pain despite GTN etc
- Unrelieved shortness of breath when sitting still

- **Take immediate action: Phone HF Nurse/GP or if distressed, 999**

REFERENCE: adapted from NHS Tayside CHSS daily checklist tool

# Considerations for Cardiac Services



# Back logs

- Number of cases postponed
- Waiting lists for investigations, procedures and treatment
- Number of recovery and inpatient beds
- Increased average time of each procedure
  - Decreased capacity
- Increased GP workload
- Growing patient backlog with delays for non-covid conditions that can potentially worsen health of patients

# COVID-19 and the workforce: returning to normal with concerns about patients

**The fifth survey of RCP fellows and members shows that doctors are concerned for patients as practice and rotas return to normal.**

As the first wave of COVID-19 reaches its end, on 21-22 July the RCP conducted its fifth survey tracking the impact of the pandemic on the workforce. The first four surveys took place on 1–2 April, 22–23 April, 13–14 May and 3-4 June.



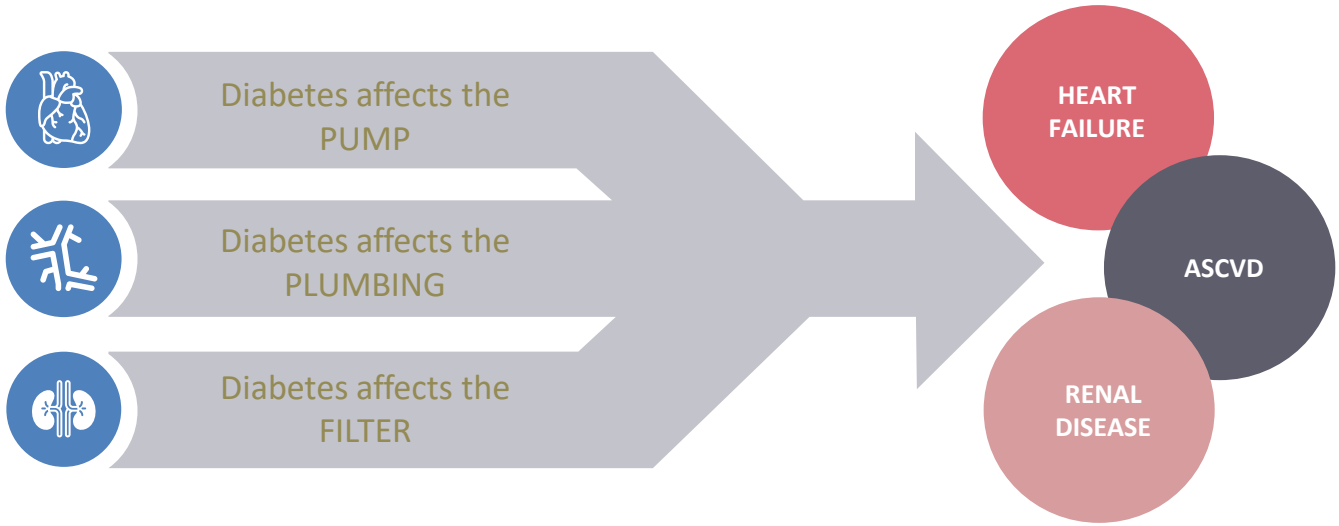


# UK COVID-19 Update: NHS '2 Year' Backlog

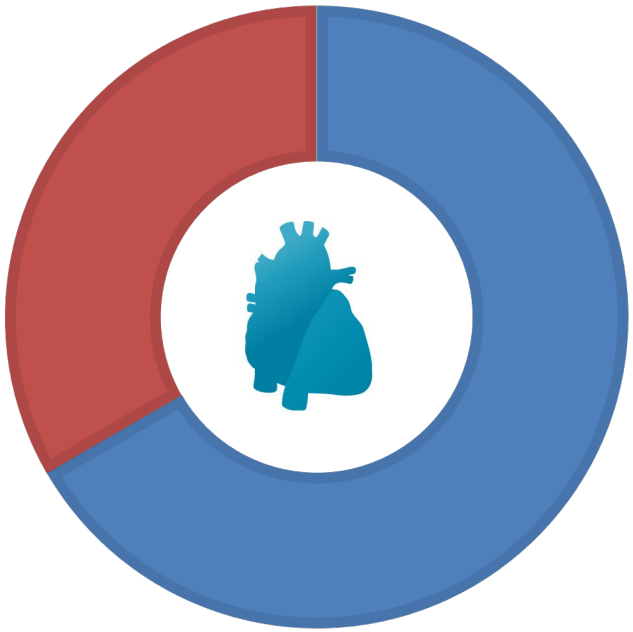
Tim Locke

June 30, 2020

# Diabetes affects both the pump and the plumbing



# Diabetes and cardiovascular disease

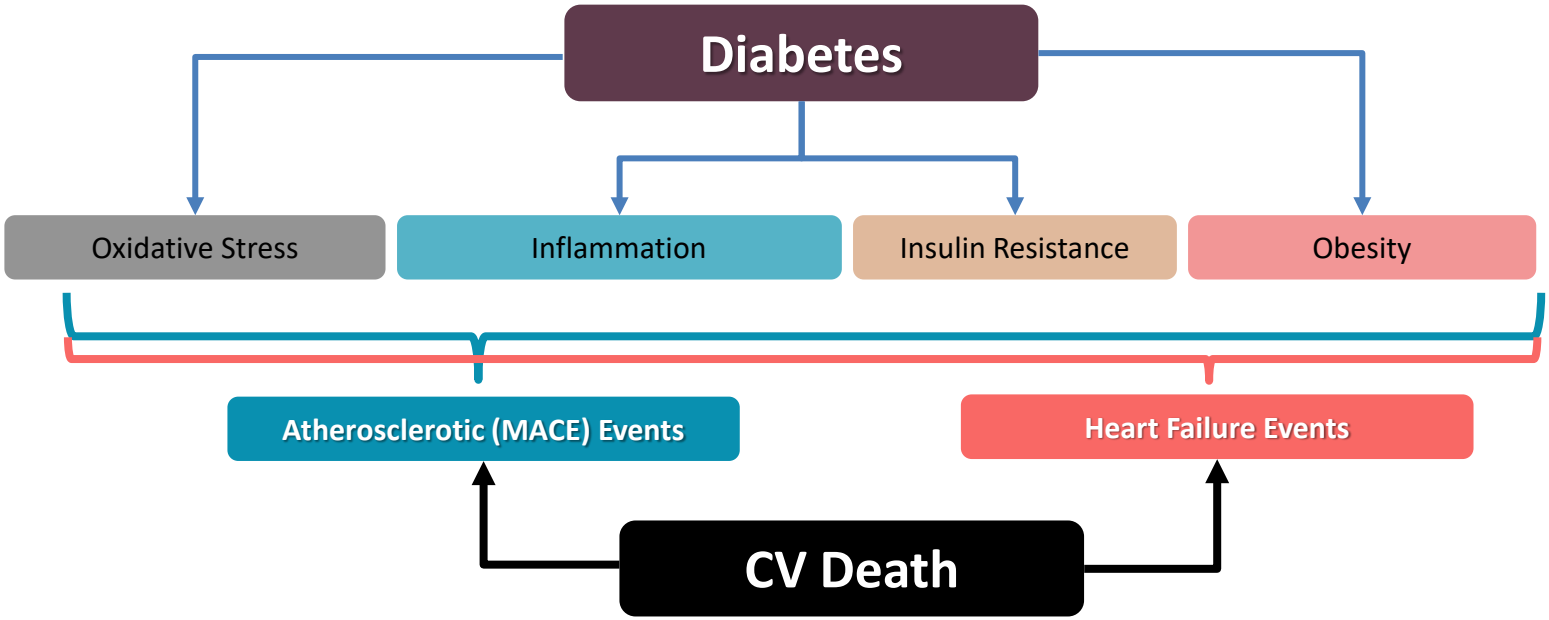


**2/3 of deaths**

in diabetes are attributable to cardiovascular disease

Low Wang CC et al. Circulation. 2016;133(24):2459-502.

# Pathophysiology of CVD in diabetes



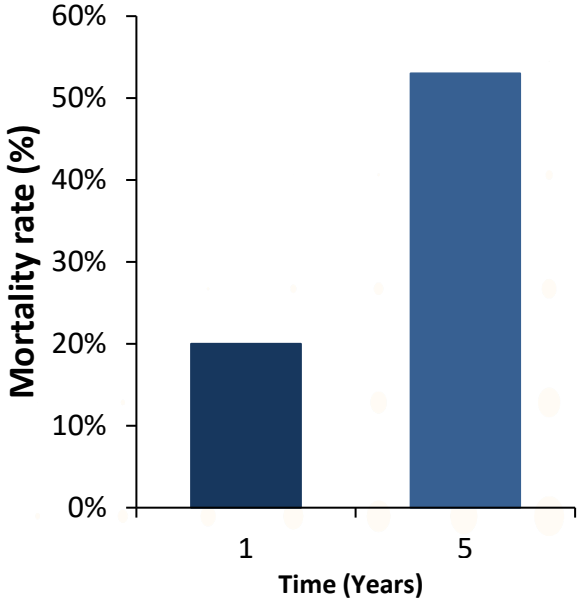

CV, cardiovascular; CVD, cardiovascular disase; MACE, major adverse cardiovascular events.

# The unmet need in HF is deceptively high and continues to grow

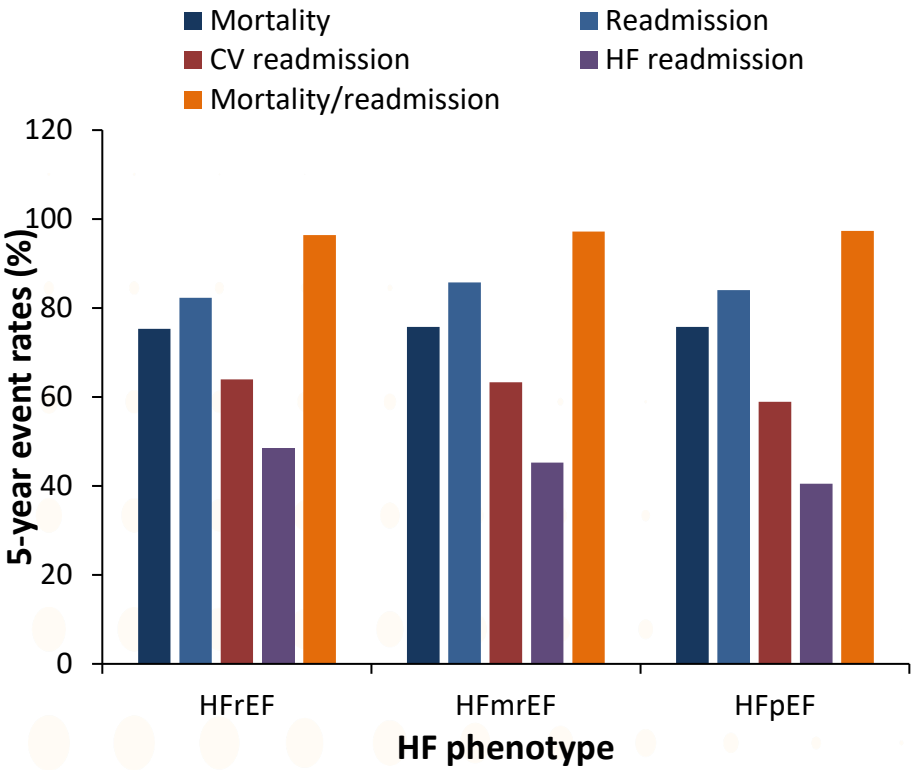
*Driven by extraordinary morbidity & mortality*

HARMONY

**Mortality rates for HF at 1 and 5 years after diagnosis[1]**




**Prognosis for patients according to HF phenotype[2]**



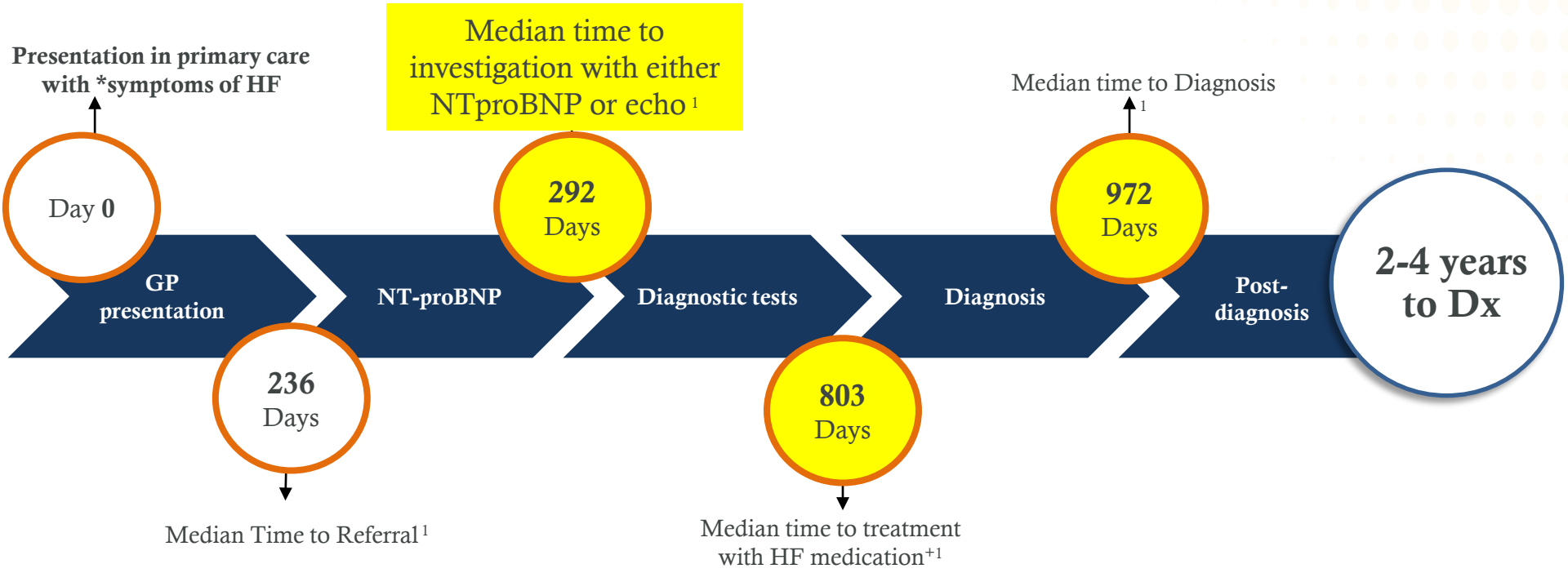

CV, cardiovascular; HF, heart failure; HFmrEF, heart failure with mildy reduced ejection fraction; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction

1. Gerber Y, et al. JAMA Intern Med 2015;175:996–1004; 2. Shah KS, et al. JACC 2017;70:2476–2486

# Observational evidence suggests it can take up to 4 years from first symptoms to be formally diagnosed with HF.

HARMONY

**A UK observational study of 42K patients diagnosed with HF between 2010 and 2013**




*Breathlessness, Fatigue or Ankle Swelling. + ACEi/ARB and HF-Specific Beta Blocker. Dx, diagnosis; HF, heart failure; NTproBNP, n-terminal pro b-type natriuretic peptide; RWE, real-world evidence;

1. Hayhoe B et al. *Heart*. 2019;105(9):678-685.

# Early identification of HF is key to effective management

## *But diagnosis can be challenging, especially in primary care*

HARMONY

1

**~75%**

of patients receive their first HF diagnosis following an unplanned hHF[1,2]

2

**37%**

of Px diagnosed in acute setting had previously reported HF symptoms to GP[1]

3

**76%**

do not follow the appropriate, NICE diagnostic pathway[1,2]

4

**50%**

have symptoms for up to 5 years prior to diagnosis[1]

hHF, hospitalisation for heart failure; HF, heart failure; GP, general practitioner; Px, patient;
1. Bottle A, et al. *Heart* 2018;104:7:600–605, 2. Lawson CA et al. Lancet Public Health. 2019;4(8):e406-420

In the Chinese language, the word "crisis" is composed of two characters, one representing danger and the other, opportunity.

John F. Kennedy

危機

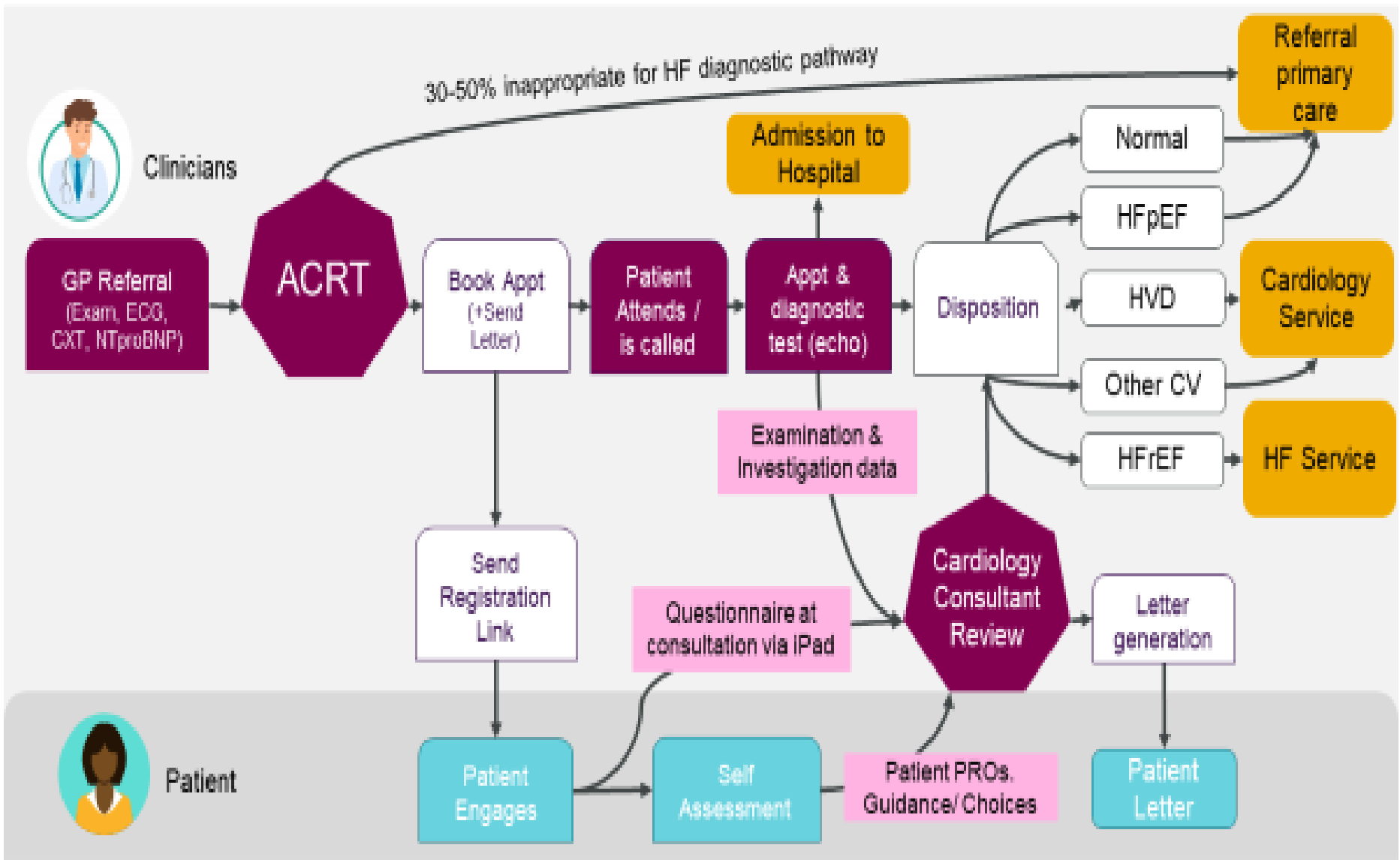
Danger Opportunity

Europe/UK Artificial Intelligence

# AI used to rank NHS patients in order of urgency to clear COVID-19 backlog

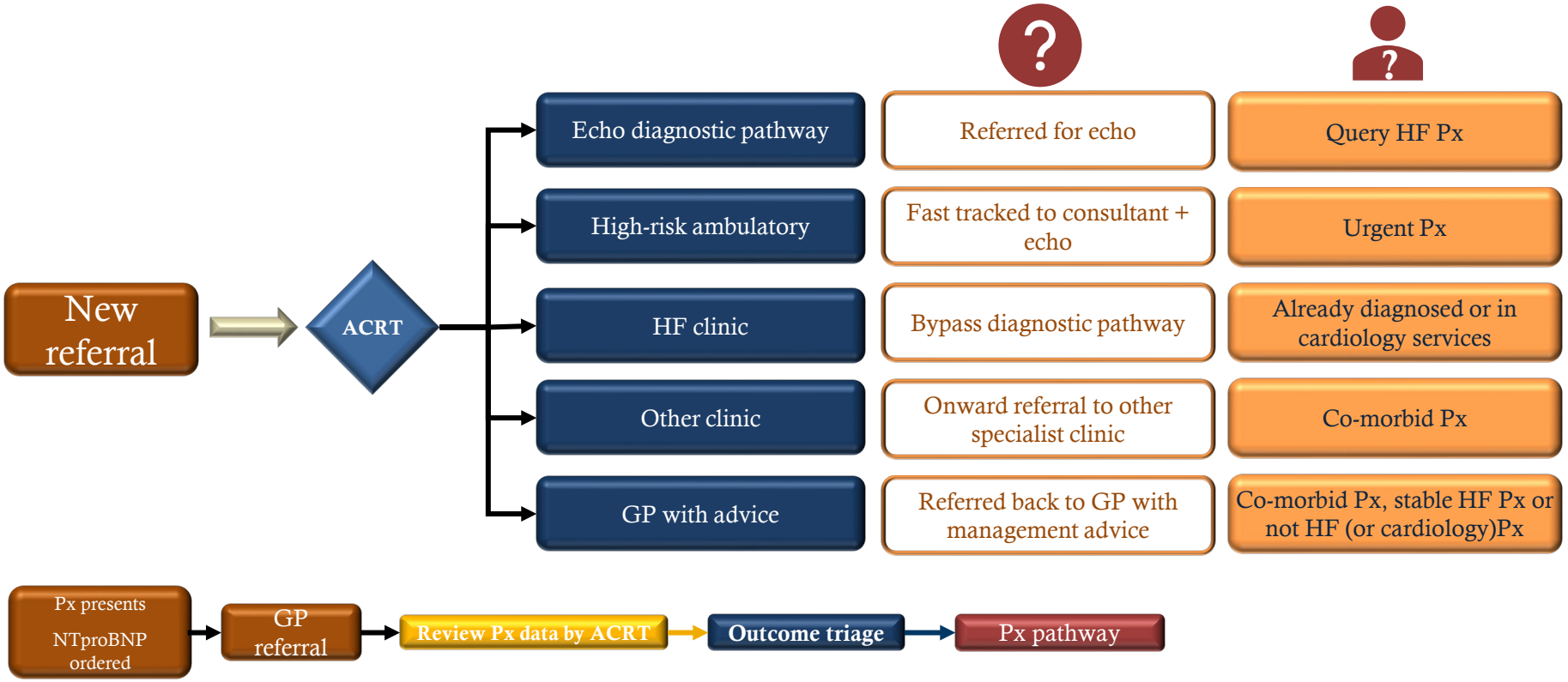
NHS hospitals are using AI to prioritise urgent appointments with a scoring system, as number waiting for treatment could reach 10 million by Christmas.

# HF diagnostic pathway & management platform used in project OPERA




Reproduced with permission from Dr Clare Murphy, OPERA Principal Investigator

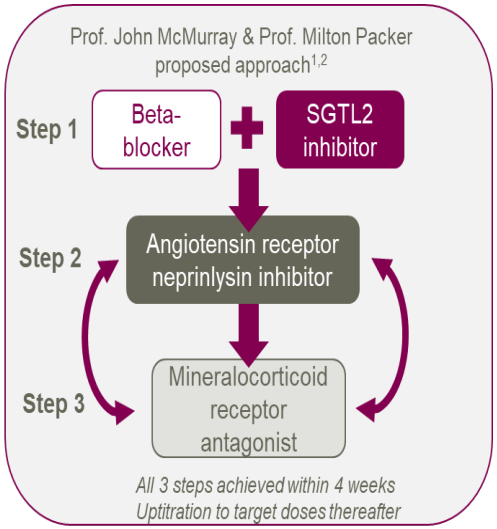
# Active clinical referral triage (ACRT) can reduce echo list by up to 50%



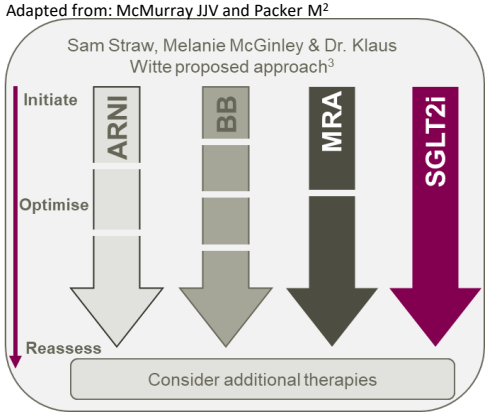

HF, heart failure; NTproBNP, n-terminal pro b-type natriuretic peptide; Px, patient
Source: Modern Outpatient Programme, Scottish Government, TURAS

# Accelerated Combined-Therapy (ACT) Strategy

Potential to improve the initiation and effective implementation of treatments that reduce morbidity and mortality in patients with HFrEF[1,2]




Adapted from: McMurray JJV and Packer M[2]




Adapted from: Straw S et al[3]

**Proposed ACT Strategies represent two possibilities that can be individualised, according to your patient, and are based on 4 principles[1,2]**

1. Morbidity and mortality benefits are rapid: Start all four foundational treatments within 2-4 weeks.
2. Class efficacy is independent: Treatment benefit of each drug class is independent of that produced by other agents.
3. Low starting doses of foundational therapies have substantial therapeutic benefits: This approach should take precedence over uptitration of any individual drug class to target doses.
4. Certain drugs can influence the tolerability of other foundational agents: Appropriate sequencing can enhance the tolerability of agents started later in the sequence.

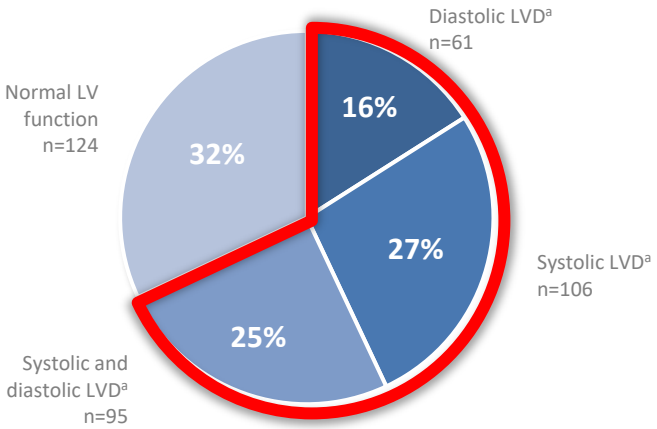
**Achieving rapid initiation of all four foundational therapies within 4 weeks; up-titration follows thereafter[1,2]**

ARNI, angiotensin receptor-neprilysin inhibitor; BB, beta blocker; HFrEF, heart failure with reduced ejection fraction, MRA, mineralocorticoid receptor antagonist; SGLT2i, sodium-glucose transport protein 2 inhibitor

1. Packer M, McMurray JJV. *Eur J Heart Fail.* 2021. Online ahead of print. 2. McMurray JJV, Packer M. *Circulation.* 2021 Mar 2;143(9):875-877. 3. Straw S, et al. *Open Heart* 2021;8:e001585.

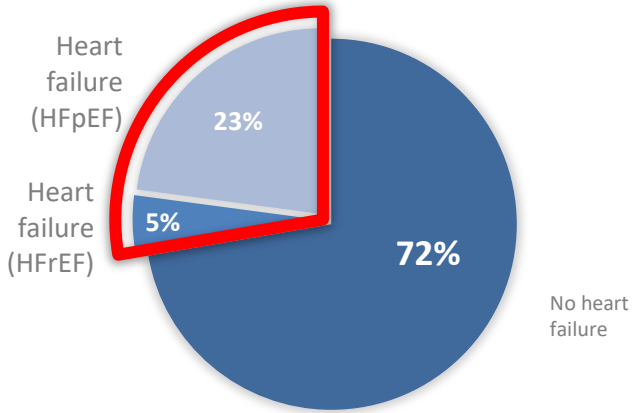
# Aymptomatic Stage B Cardiomyopathy: Choice of antidiabetic agent

68% of patients (N=386) had evidence of asymptomatic LV dysfunction ~5 years after T2D diagnosis[1]




Patients had no evidence of inducible ischemia

Undiagnosed HF was detected in 28% of patients[b] with diabetes (N=581) during cardiac screening[2]




**HF is an early and forgotten complication in T2D patients[1,2]**

[a] Asymptomatic; [b] Western European cohort ≥60 years of age.

HF = heart failure; HFpEF = heart failure with preserved ejection fraction; HFrEF = heart failure with reduced ejection fraction; LV = left ventricular; LVD = left ventricular dysfunction; T2D = type 2 diabetes.

1. Faden G et al. *Diabetes Res Clin Pract*. 2013;101:309-316; 2. Boonman-de Winter LJ et al. *Diabetologia*. 2012;55:2154-2162.

# BNP and Troponin T to pick up silent heart disease

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Preventive Cardiology

## Improving the Primary Prevention of Cardiovascular Events by Using Biomarkers to Identify Individuals With Silent Heart Disease

M. Adnan Nadir, MD,* Sushma Rekhraj, MB,* Li Wei, PHD,† Tiong K. Lim, MD,* John Davidson, MB,‡ Thomas M. MacDonald, MD,† Chim C. Lang, MD,* Ellie Dow, PHD,§ Allan D. Struthers, MD*

*Dundee, United Kingdom*

**Objectives** The aim of this study was to examine whether biomarkers can identify silent cardiac target organ damage (cTOD) in a primary prevention population.

**Background** One possible way to improve primary prevention of cardiovascular events is to identify those patients who already harbor silent cTOD (i.e., myocardial ischemia, left ventricular hypertrophy, systolic dysfunction, diastolic dysfunction, or left atrial enlargement). This might be possible by screening with a biomarker (e.g. high sensitivity cardiac troponin T [hs-cTnT] or B-type natriuretic peptide [BNP]).

**Methods** We prospectively recruited 300 asymptomatic individuals already receiving primary prevention therapy. Transthoracic echocardiography, stress echocardiography, and/or myocardial perfusion imaging were performed to identify silent cTOD.


# Heart Failure: An Underappreciated Complication of Diabetes. A Consensus Report of the American Diabetes Association

*Rodica Pop-Busui,[1] James L. Januzzi,[2] Dennis Bruemmer,[3] Sonia Butalia,[4] Jennifer B. Green,[5] William B. Horton,[6] Colette Knight,[7] Moshe Levi,[8] Neda Rasouli,[9] and Caroline R. Richardson[10]*

*https://doi.org/10.2337/dci22-0014*

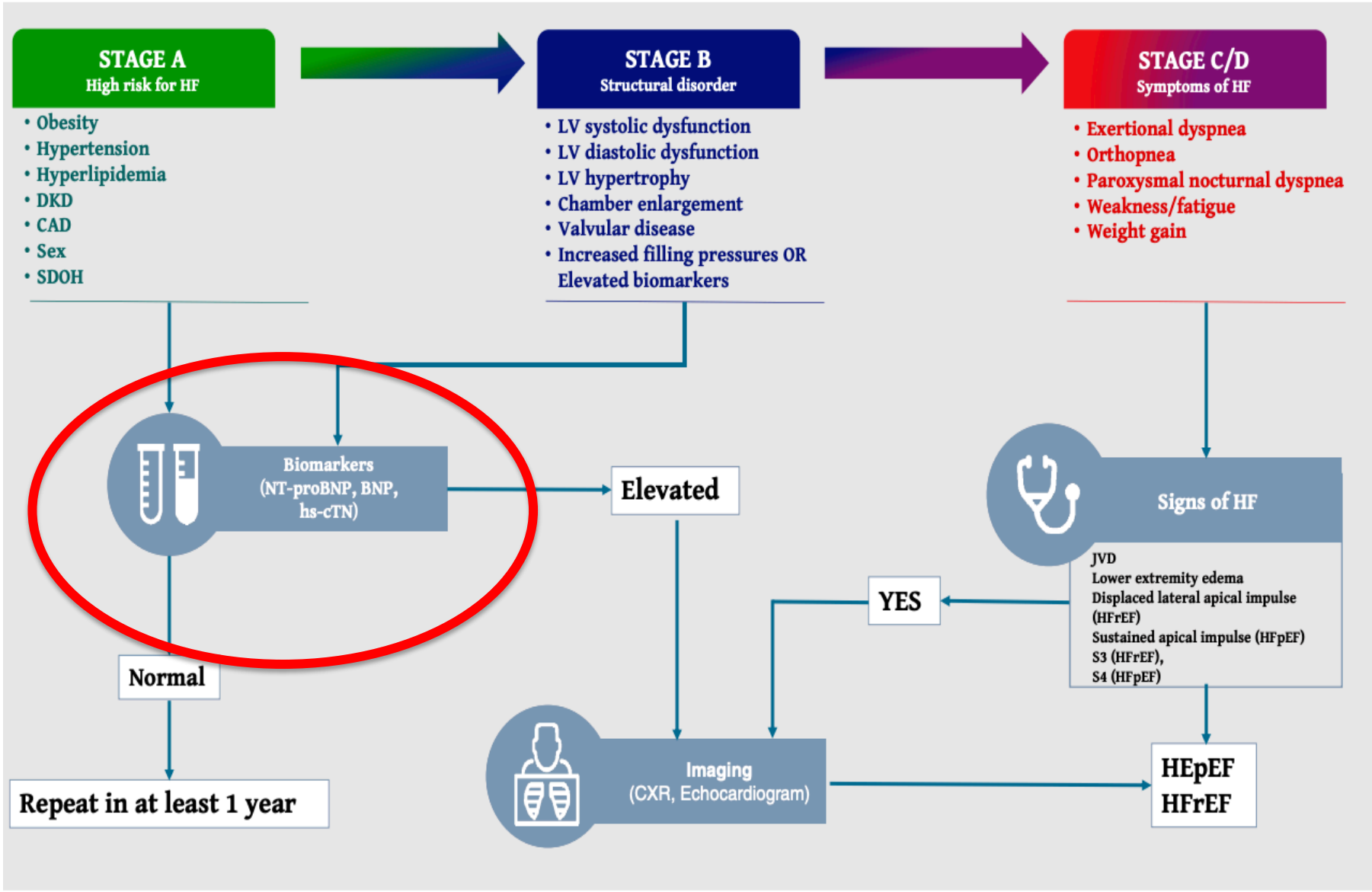
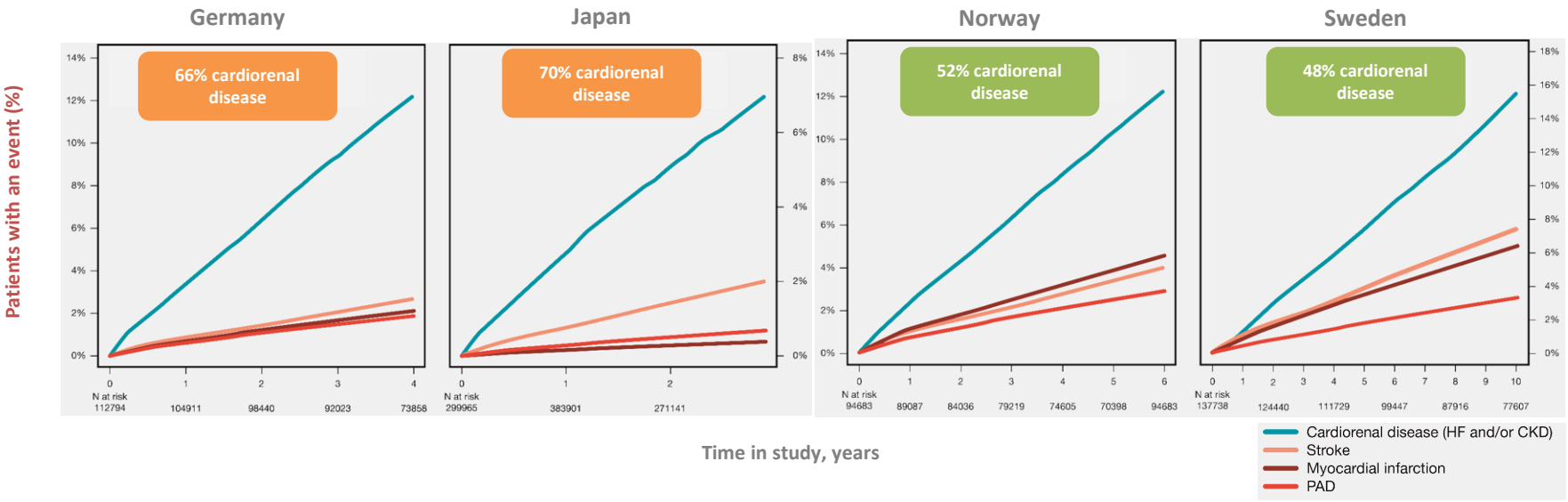



**Figure 1**—Stepwise approach for screening and diagnosis across HF stages. CXR, chest X-ray; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; hs-cTN, high-sensitivity cardiac troponin; JVD, jugular vein distension; LV, left ventricle.

# Cardiorenal disease (CKD and/or HF) is an under-recognized, early, common, and serious complication of T2D[1-3]

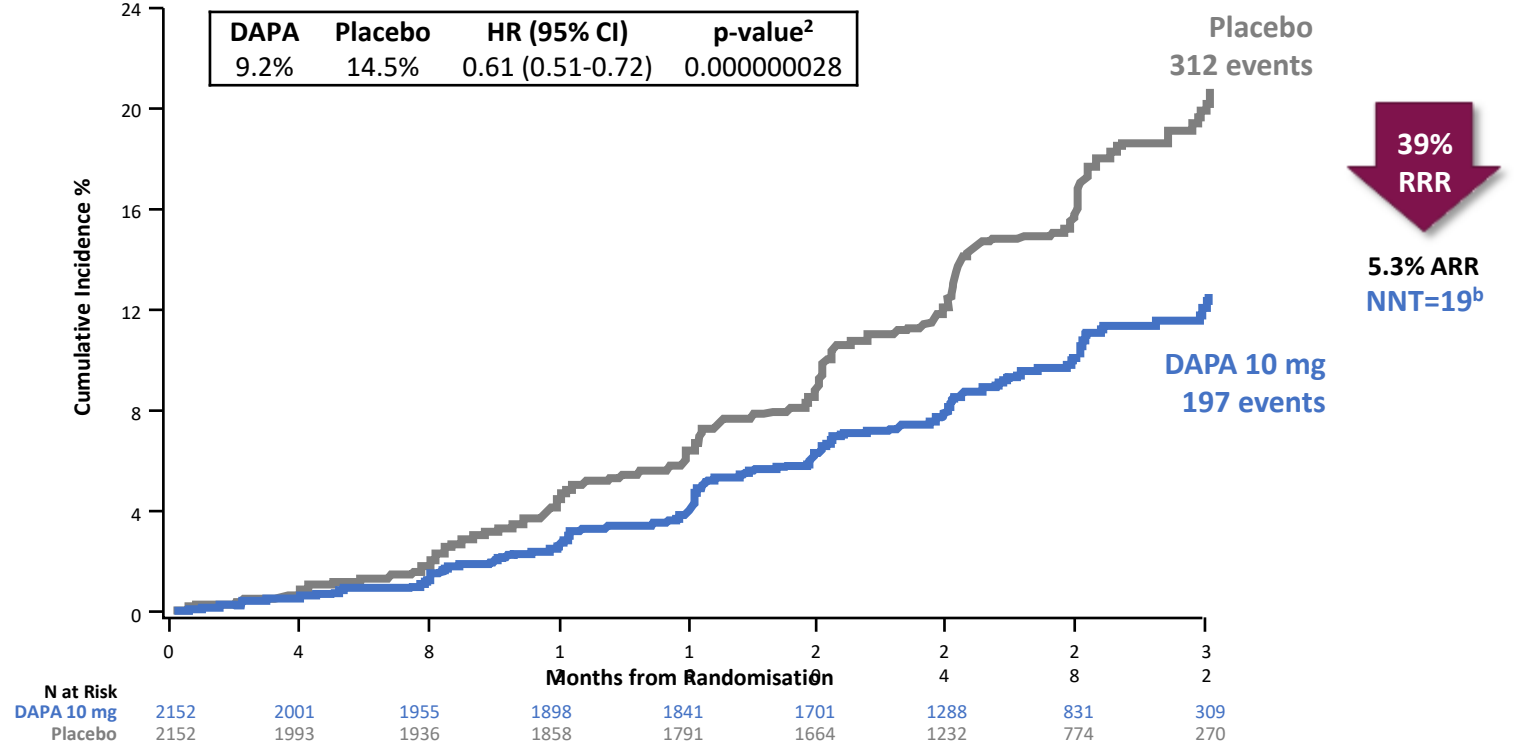
**Multinational observational cohort study including 645,180 comorbidity-free T2D patients**
**(mean follow-up of 4.3 years)**




CKD = chronic kidney disease; HF = heart failure; MI = myocardial infarction; PAD = peripheral artery disease; T2D = type 2 diabetes.

1. Stevens LA et al. *J Am Soc Nephrol*. 2005;16:2439-2448; 2. Boonman-de Winter LJM et al. *Diabetologia*. 2012;55:2154-2162; 3. Birkeland KI et al. Poster presented at: ADA 79th Scientific Sessions; June 7-11, 2019; San Francisco, CA. Poster 206-LB.

# Dapa CKD
# Primary Composite Outcome:
# Sustained ≥50% eGFR Decline, ESKD, Renal or CV Death[a,1]




[a]ESKD defined as the need for maintenance dialysis (peritoneal or hemodialysis) for at least 28 days and renal transplantation or sustained eGFR <15mL/min/1.73m$^2$ for at least 28 days. Renal death was defined as death due to ESKD when dialysis treatment was deliberately withheld for any reason.[3]; [b]95% CI, 15 to 27.

ARR = absolute risk reduction; CV = cardiovascular; DAPA = dapagliflozin; eGFR = estimated glomerular filtration rate; ESKD = end-stage kidney disease; HR = hazard ratio; ; NNT = number needed to treat; RRR = relative risk reduction.

1. Heerspink HJL et al. *N Engl J Med*. 2020; 383:1436-1446; 2. Heerspink HJL. Presented at: ESC Congress – The Digital Experience; August 29 – September 1, 2020;

3. Heerspink HJL et al. *Nephrol Dial Transplant*. 2020;35:274–282.

In the Chinese language, the word "crisis" is composed of two characters, one representing danger and the other, opportunity.

John F. Kennedy

危機

Danger Opportunity

# Conclusions

- **Recovery plans**
  - Consistent, Transparent, Bias-aware algorithms
- **Digitalisation**
  - Cited as temporary, now **likely to be retained**
- **Expand capacity by transitioning to outpatient care**
- ? Form **dedicated teams to improve efficiency**
- **Improved Diagnosis in these challenging times**
- **Better Treatment in these challenging times**