

Updates on Cardiology for 2022 and Beyond

Dr. David Barton MD FACC

Consultant Cardiologist - Preventative, Interventional and Structural Heart Disease

Director - Interventional & Structural Cardiology

Outline

1. Updates on Prevention/risk modification
2. Updates on Coronary disease
3. Updates on Structural Heart disease

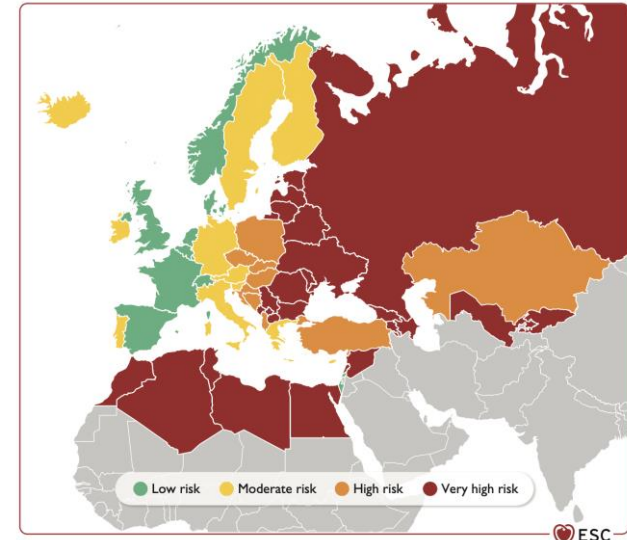
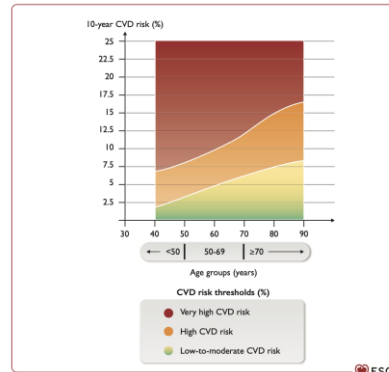
SCORE2

	<50 years	50–69 years	≥70 years ^a
Low-to-moderate CVD risk: risk factor treatment generally not recommended	<2.5%	<5%	<7.5%
High CVD risk: risk factor treatment should be considered	2.5 to <7.5%	5 to <10%	7.5 to <15%
Very high CVD risk: risk factor treatment generally recommended ^a	≥7.5%	≥10%	≥15%

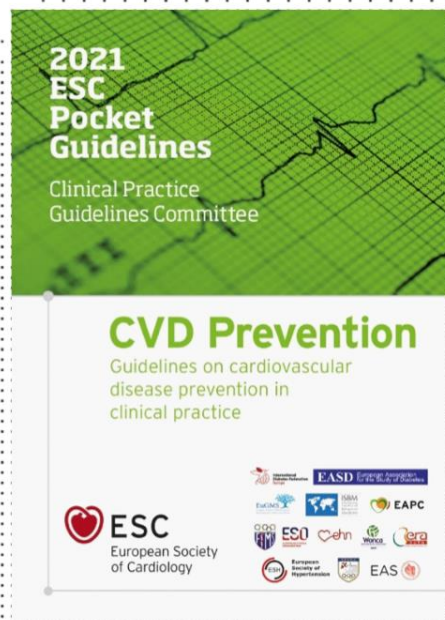
CVD = cardiovascular disease.

^aIn apparently healthy people ≥70 years old, the treatment recommendation for lipid-lowering drugs is Class IIb ('may be considered').

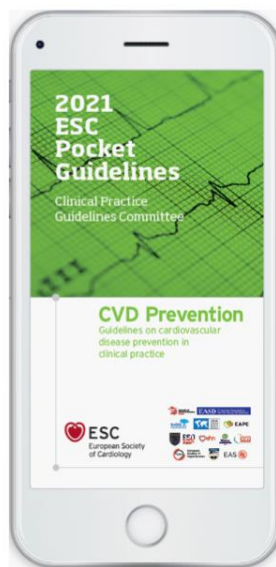
The division of the population into three distinct age groups (<50, 50–69, and ≥70 years) results in a discontinuous increase in risk thresholds for low-to-moderate, high, and very high risk. In reality, age is obviously continuous, and a sensible application of the thresholds in clinical practice would require some flexibility in handling these risk thresholds as patients move towards the next age group, or recently passed the age cut-off. *Figure 5* illustrates how a continuous increase in age relates to increasing risk thresholds, and may be used as a guide for daily practice.



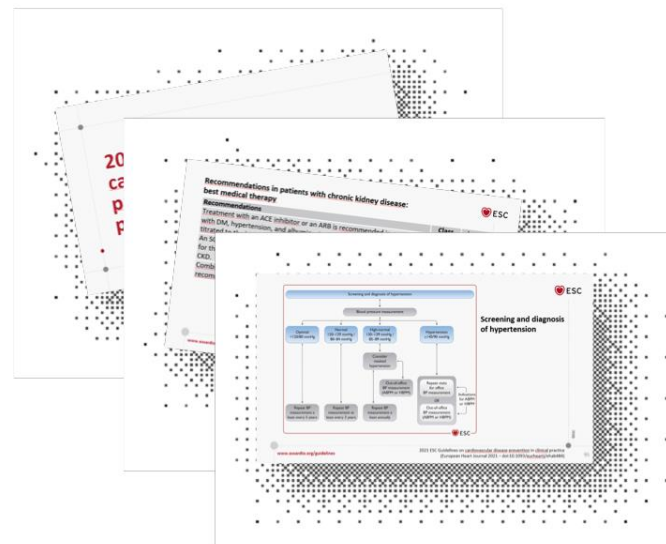
ESC Pocket Guidelines



ESC Pocket Guidelines App

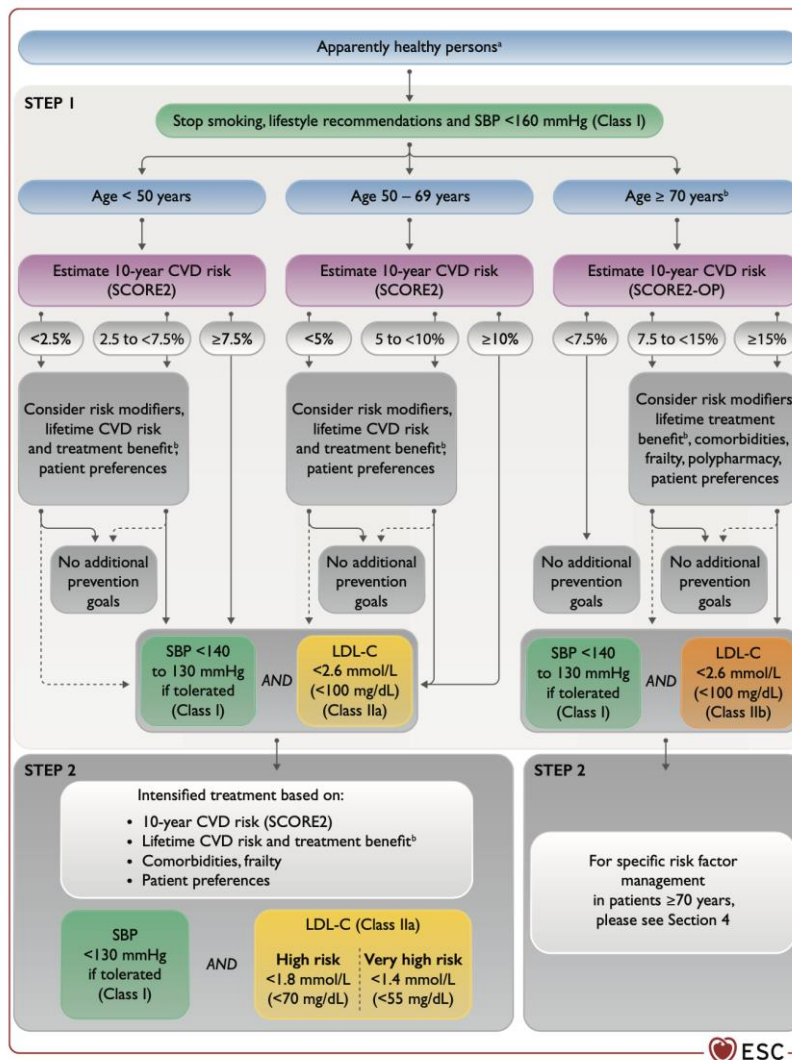


ESC Guidelines Official Slide-set



Prevention

2021 ESC guidelines on cardiovascular diseases prevention in clinical practice. *European Heart Journal* (2021) 42,3227-3337



Prevention

Intensity of lipid-lowering treatment	
Treatment	Average LDL-C reduction
Moderate-intensity statin	≈30%
High-intensity statin	≈50%
High-intensity statin plus ezetimibe	≈65%
PCSK9 inhibitor	≈60%
PCSK9 inhibitor plus high-intensity statin	≈75%
PCSK9 inhibitor plus high-intensity statin plus ezetimibe	≈85%

In patients with established ASCVD, lipid-lowering treatment with an ultimate LDL-C goal of <1.4 mmol/L (55 mg/dL) and a $\geq 50\%$ reduction of LDL-C vs. baseline is recommended.

I

For secondary prevention patients not achieving their goals on a maximum tolerated dose of a statin and ezetimibe, combination therapy including a PCSK9 inhibitor is recommended.

I

An ultimate LDL-C goal of <1.4 mmol/L (55 mg/dL) and LDL-C reduction of $\geq 50\%$ from baseline should be considered in apparently healthy persons <70 years at very high risk.

IIa

An ultimate LDL-C goal of <1.8 mmol/L (70 mg/dL) and LDL-C reduction of $\geq 50\%$ from baseline should be considered in apparently healthy persons <70 years at high risk.

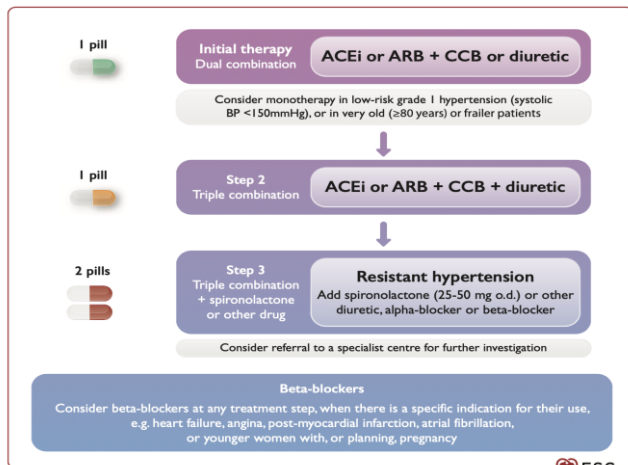
IIa

Table 18 Recommended office blood pressure target ranges. The first step in all groups is a reduction to systolic blood pressure <140 mmHg. The subsequent optimal goals are listed below.

Age group	Office SBP treatment target ranges (mmHg)				
	Hypertension	+ DM	+ CKD	+ CAD	+ Stroke/TIA
18 – 69 years	120–130	120–130	<140–130	120–130	120–130
	<i>Lower SBP acceptable if tolerated</i>				
≥70 years	<140 mmHg, down to 130 mmHg if tolerated				
	<i>Lower SBP acceptable if tolerated</i>				
DBP treatment target (mmHg)	<80 for all treated patients				

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CAD = coronary artery disease; CKD = chronic kidney disease; DBP = diastolic blood pressure; DM = diabetes mellitus; SBP = systolic blood pressure; TIA = transient ischaemic attack.



ESC

It is recommended that the first objective of treatment is to lower BP to <140/90 mmHg in all patients, and that subsequent BP targets are tailored to age and specific comorbidities.

In treated patients aged 18–69 years, it is recommended that SBP should ultimately be lowered to a target range of 120–130 mmHg in most patients.

In treated patients aged ≥70 years, it is recommended that SBP should generally be targeted to <140 and down to 130 mmHg if tolerated.

In all treated patients, DBP is recommended to be lowered to <80 mmHg.



Updates on Coronary Disease - Diabetes

- Strong indication now for first line use of GLP-1 and SGLT-2 inhibitors

In persons with type 2 DM and ASCVD, the use of a GLP-1RA or SGLT2 inhibitor with proven outcome benefits is recommended to reduce CV and/or cardiorenal outcomes.	I
In patients with type 2 DM and CKD, the use of an SGLT2 inhibitor is recommended to improve CVD and/or cardiorenal outcomes.	I
ACE inhibitors should be considered in CCS patients at very high risk of cardiovascular adverse events.	IIa
The sodium-glucose co-transporter 2 inhibitors empagliflozin, canagliflozin, or dapagliflozin are recommended in patients with diabetes mellitus and CVD.	I
A glucagon-like peptide-1 receptor agonist (liraglutide or semaglutide) is recommended in patients with diabetes mellitus and CVD.	I

Updates on Coronary Disease - Investigation & Revascularisation

Non-invasive functional imaging for myocardial ischaemia or coronary CTA is recommended as the initial test for diagnosing CAD in symptomatic patients in whom obstructive CAD cannot be excluded by clinical assessment alone.	I
It is recommended that selection of the initial non-invasive diagnostic test be based on the clinical likelihood of CAD and other patient characteristics that influence test performance, local expertise, and the availability of tests.	I
Functional imaging for myocardial ischaemia is recommended if coronary CTA has shown CAD of uncertain functional significance or is not diagnostic.	I
Invasive angiography is recommended as an alternative test to diagnose CAD in patients with a high clinical likelihood and severe symptoms refractory to medical therapy, or typical angina at a low level of exercise and clinical evaluation that indicates high event risk. Invasive functional assessment must be available and used to evaluate stenoses before revascularization, unless very high grade (>90% diameter stenosis).	I

- **Always in conjunction with medical therapy never as alternative**
- **Individualised to each patient however shown to be superior when compared to medical therapy alone:**
 - **Reduce symptom burden**
 - **Improve quality of life**
 - **Improve exercise tolerance**
 - **Need for urgent revascularization/Spontaneous MI **Reduces Mortality when**
- **In the absence of symptoms patients with the following should be considered for Revascularization:**
 - **90% stenosis**
 - **FFR ≤ 0.80 or iwFR ≤ 0.89**
 - **LVEF $\leq 35\%$**

DES 2/CABG

Updates on Coronary Disease

Coronary Microvascular Dysfunction/Small Vessel Disease

Investigations in patients with suspected coronary microvascular angina

Recommendations	Class ^a	Level ^b
Guidewire-based CFR and/or microcirculatory resistance measurements should be considered in patients with persistent symptoms, but coronary arteries that are either angiographically normal or have moderate stenoses with preserved iwFR/FFR. ^{412,413}	IIa	B
Intracoronary acetylcholine with ECG monitoring may be considered during angiography, if coronary arteries are either angiographically normal or have moderate stenoses with preserved iwFR/FFR, to assess microvascular vasospasm. ^{412,438–440}	IIb	B
Transthoracic Doppler of the LAD, CMR, and PET may be considered for non-invasive assessment of CFR. ^{430–432,441}	IIb	B

CFR = coronary flow reserve; CMR = cardiac magnetic resonance; ECG = electrocardiogram; FFR = fractional flow reserve; iwFR = instantaneous wave-free ratio; LAD = left anterior descending; PET = positron emission tomography.

^aClass of recommendation.

^bLevel of evidence.

Recommendations for investigations in patients with suspected vasospastic angina

Recommendations	Class ^a	Level ^b
An ECG is recommended during angina if possible.	I	C
Invasive angiography or coronary CTA is recommended in patients with characteristic episodic resting angina and ST-segment changes, which resolve with nitrates and/or calcium antagonists, to determine the extent of underlying coronary disease.	I	C
Ambulatory ST-segment monitoring should be considered to identify ST-segment deviation in the absence of increased heart rate.	IIa	C
An intracoronary provocation test should be considered to identify coronary spasm in patients with normal findings or non-obstructive lesions on coronary arteriography and a clinical picture of coronary spasm, to diagnose the site and mode of spasm. ^{412,414,438–440}	IIa	B

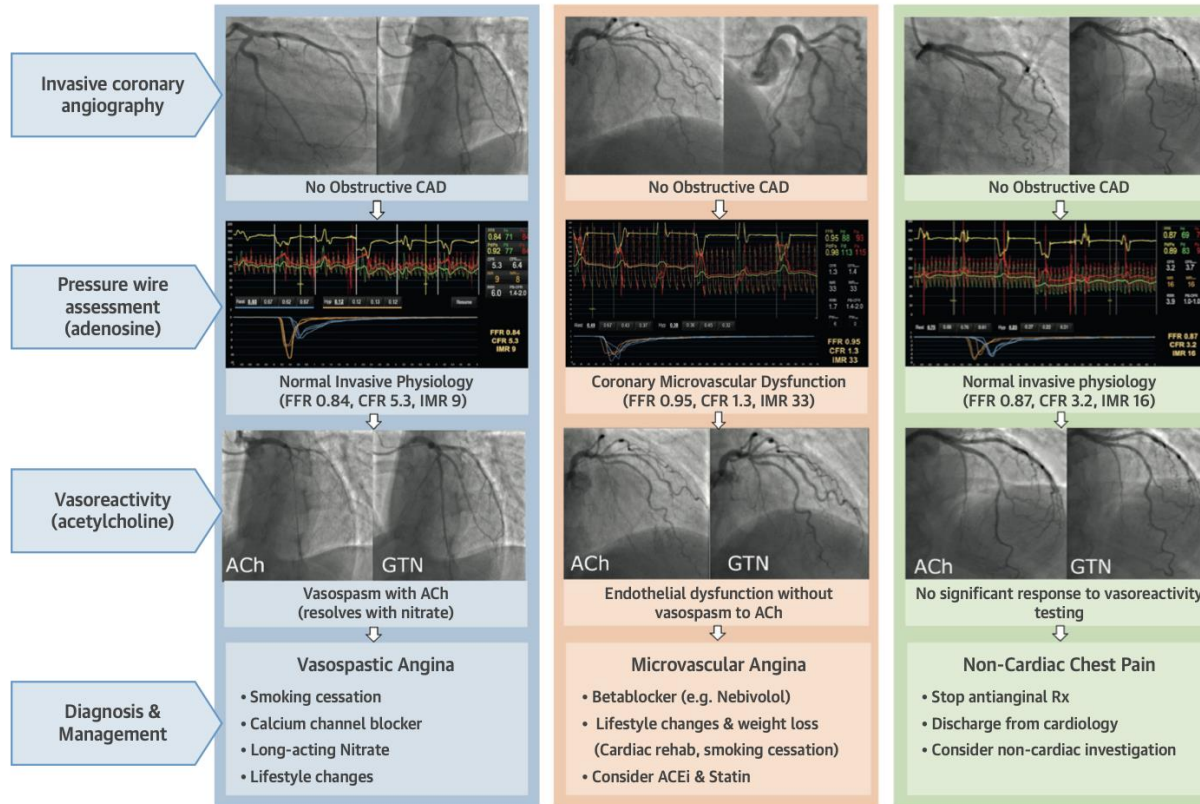
CTA = computed tomography angiography; ECG = electrocardiogram.

^aClass of recommendation.

^bLevel of evidence.

Coronary Disease - Coronary Microvascular Dysfunction/Microvascular Angina

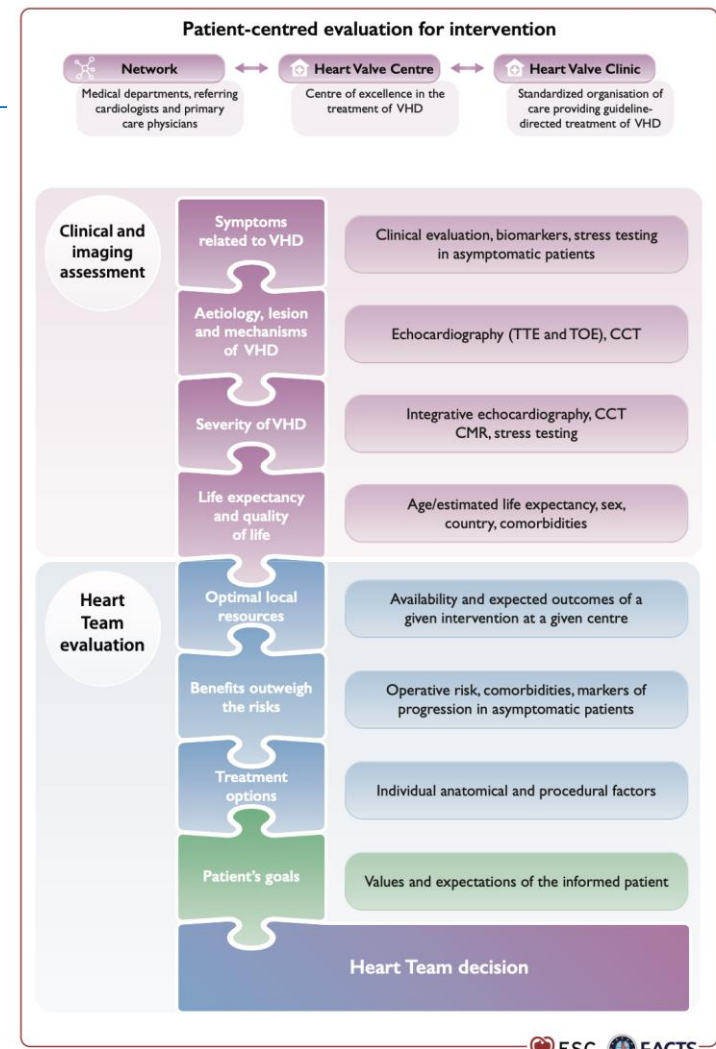
FIGURE 1 Stratified Medical Therapy Guided by an IDP in Patients With Angina but No Obstructive CAD



Updates on Structural Heart Disease

- All patients with valvular heart disease require Heart team evaluation/Seen at Heart Valve Center
- Evaluation involves Basic testing, TTE/TOE, CT, CMR and coronary angiography
- Large population of under/non-treated patients with valvular heart disease

2021 ESC/EACTS guidelines for the management of valvular heart disease. European Heart Journal 2021;00,1-72



Updates on Structural Hearts Disease - Surveillance

- All patients with **new** or previously **non-evaluated murmur** should have ECHO/cardiology RV
- In patients with valvular heart disease not warranting intervention - **routine surveillance/cardiology review** necessary depending on severity/location

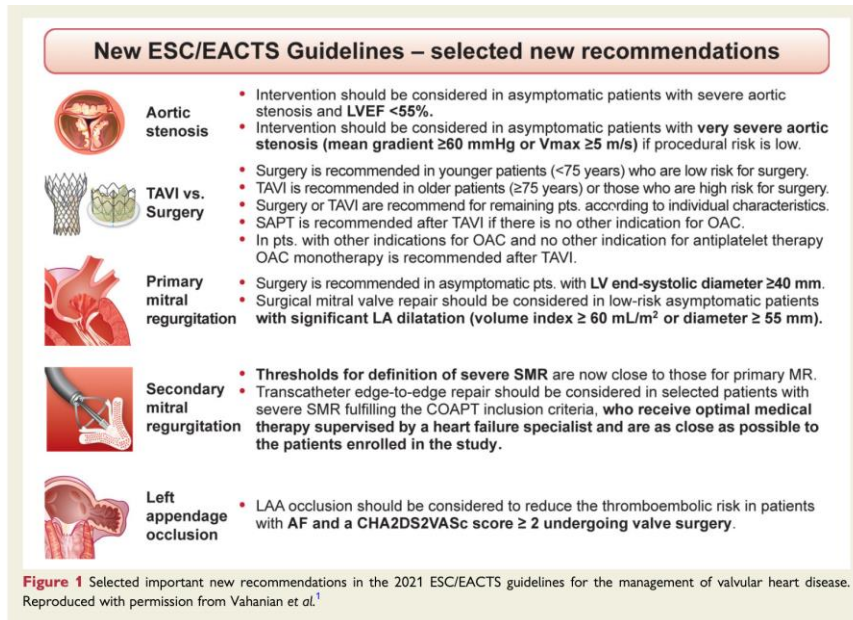
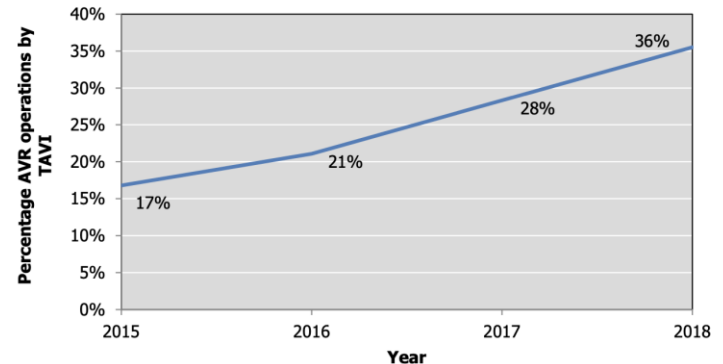


Figure 3.2 Proportion of aortic valve replacement procedures that were undertaken as TAVI in Ireland, 2015 to 2018



Take Home Points

- Risk stratification is Evolving
- In Patients with diabetes and CAD think GLP agonist/SGLT2i
- In Patients with continued chest pain with evidence of ischemia despite normal angiogram/reassuring alternative evaluations – Consider CMD/Spasm
- Percutaneous Valvular heart disease therapies are potentially available to all patients regardless of age and co-morbid status