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PCI in the Older Patient

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Conflicts and disclosures – none

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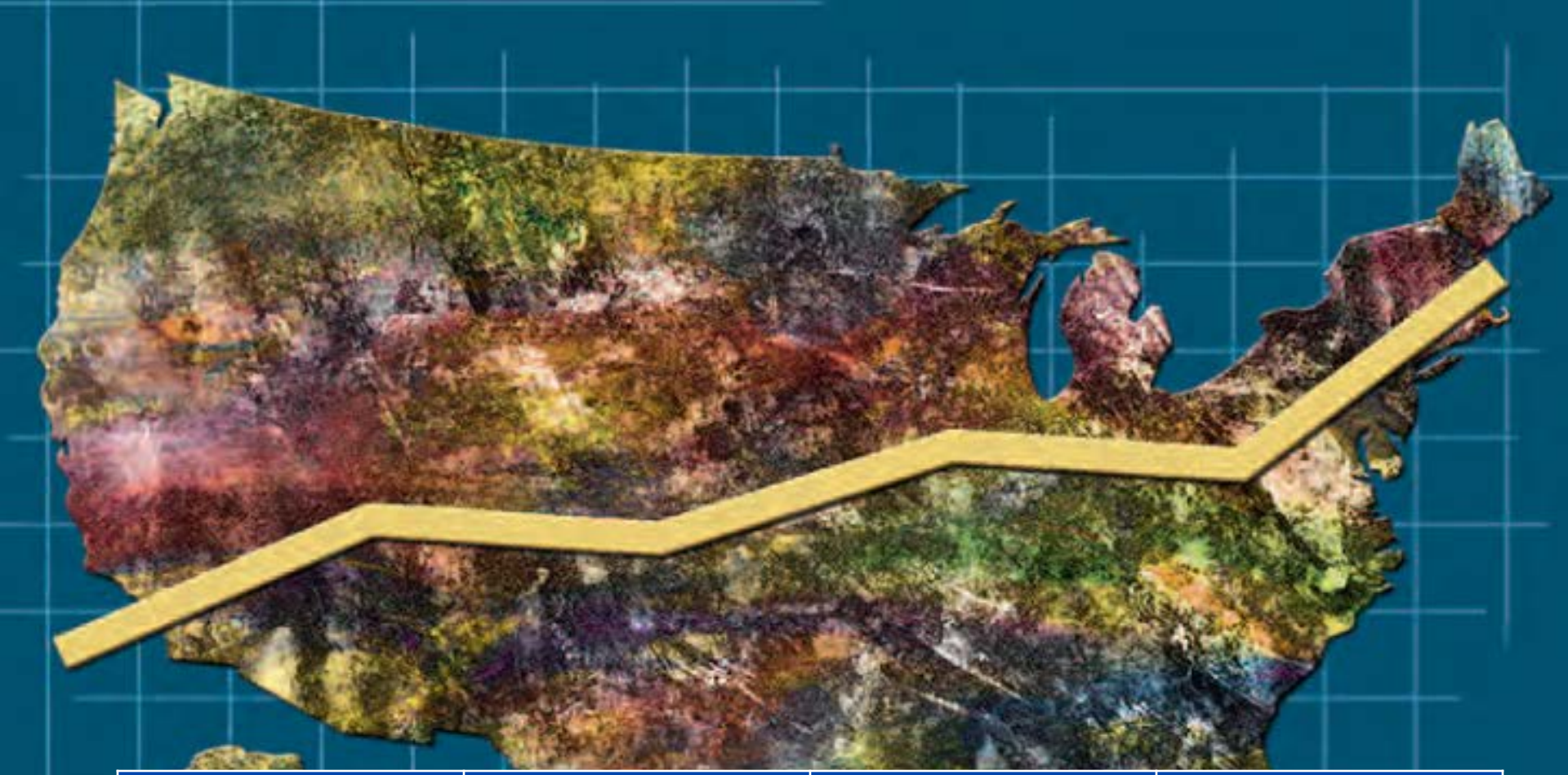
	Life expectancy at birth			Life expectancy at 60 yr		
	All	Female	Male	All	Female	Male
2013	83	85	80	25	27	23



	At Birth	At 65 yrs	At 75 yrs
Male	76	18	11
Female	81	20	13

US Dept H and HS, CDC 2013: National Center for Health Statistics

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MONACO
MONTE-CARLO
Super yachts
Super casinos
Super rich
…and…
Super old

CAD in Octogenarians and Nonagenarians

- High prevalence
- Diagnosis challenging
  - Atypical symptoms and comorbidities
  - Stress testing more difficult
- High prevalence of severe disease and LV dysfunction
- Medical therapy – side effects, multiple drugs
- Chronic kidney disease

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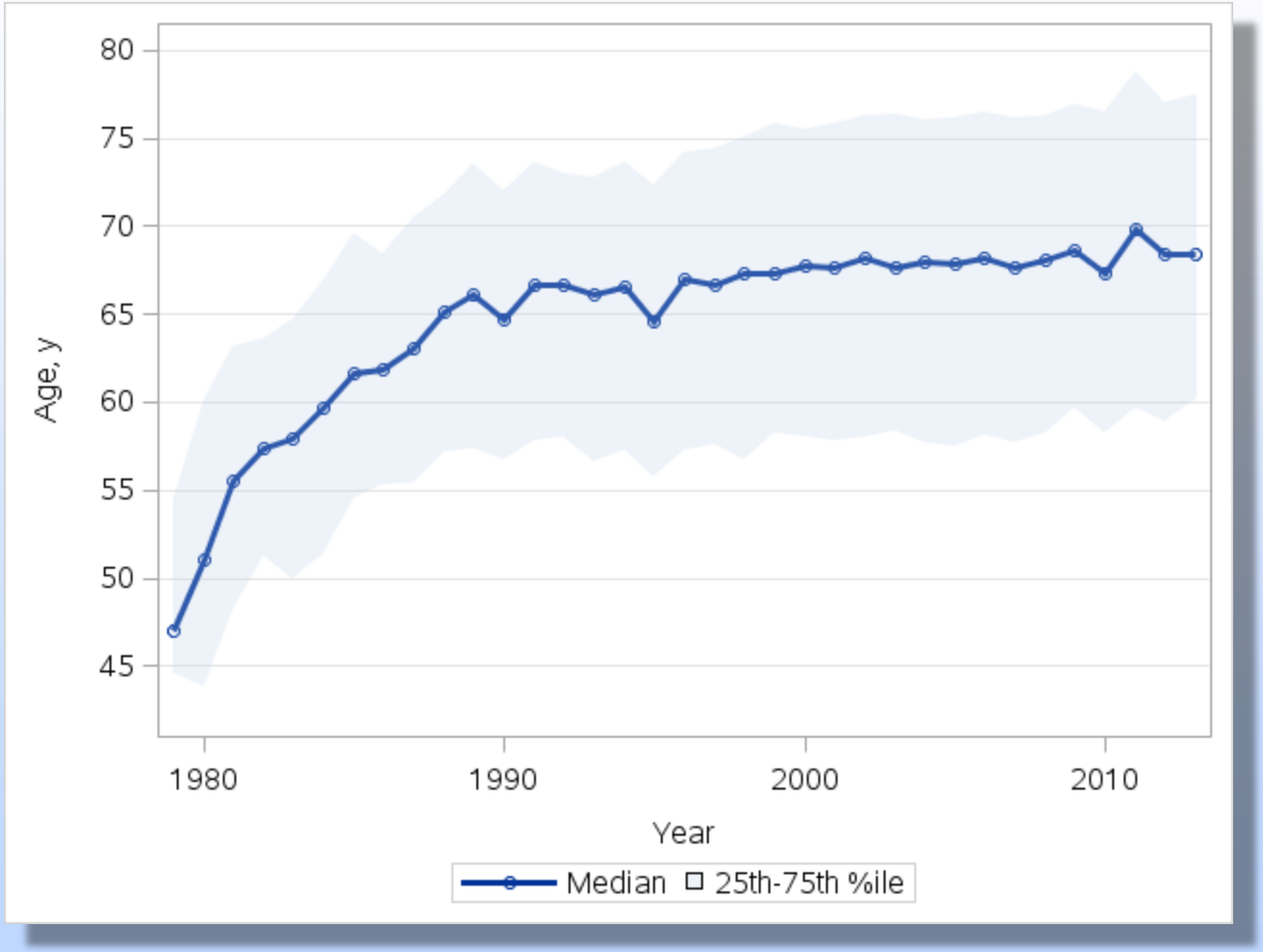
Mayo Clinic: Age of PCI Patients



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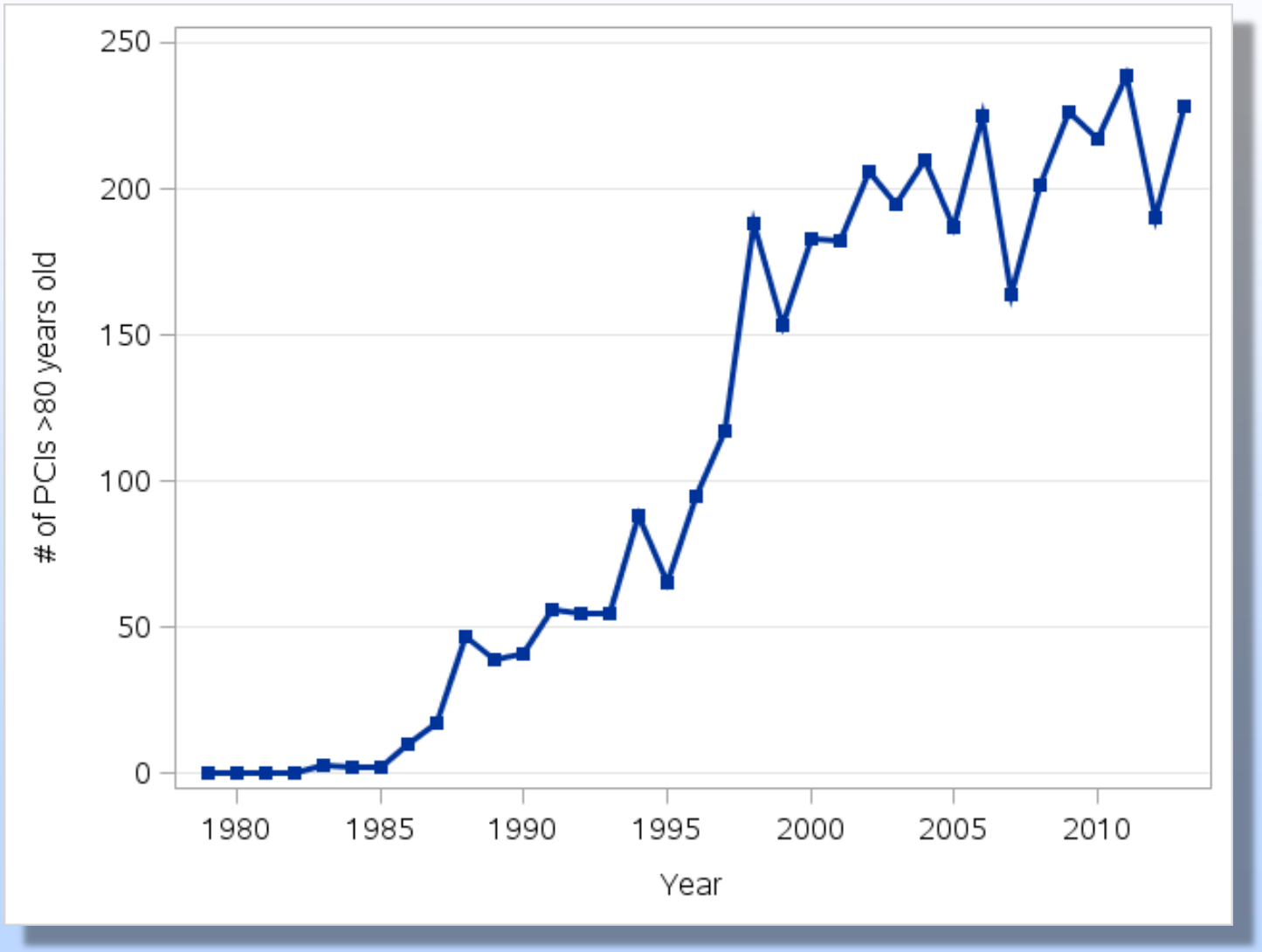
Mayo Clinic: PCI in Octogenarians



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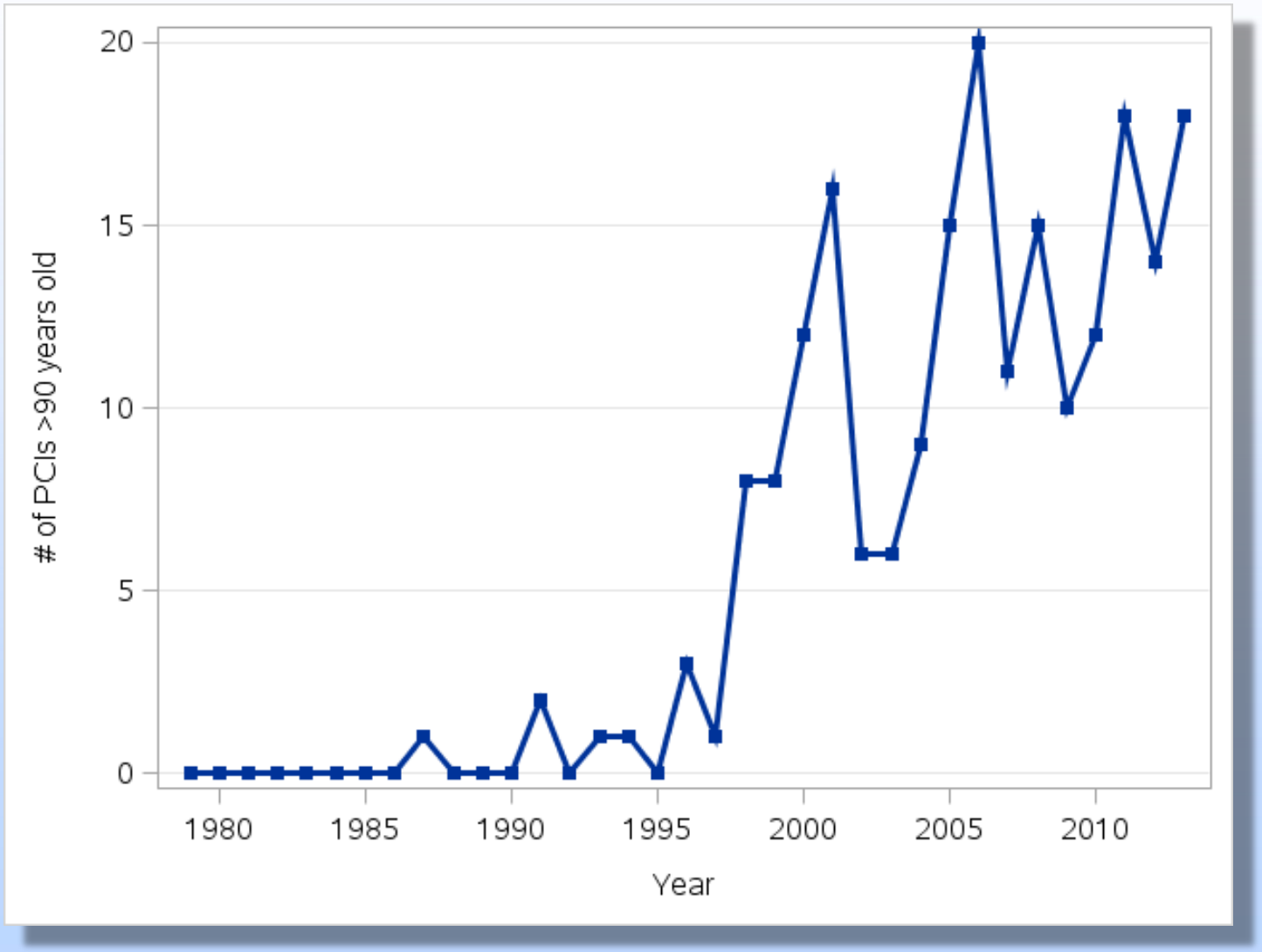
Mayo Clinic: PCI in Nonagenarians



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Coronary Artery Disease in Older People

- Underrepresented in randomized trials
- Underutilization of revascularization and best medical therapy
- Sufficient data show that optimal medical therapy and revascularization effective in majority

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PCI in Older Patients

	Evidence for Benefit
Elective PCI	☑
NSTEMI	☑
STEMI	☑
Shock	?

Shanmugasundaram M: Tex Heart Inst J 2011

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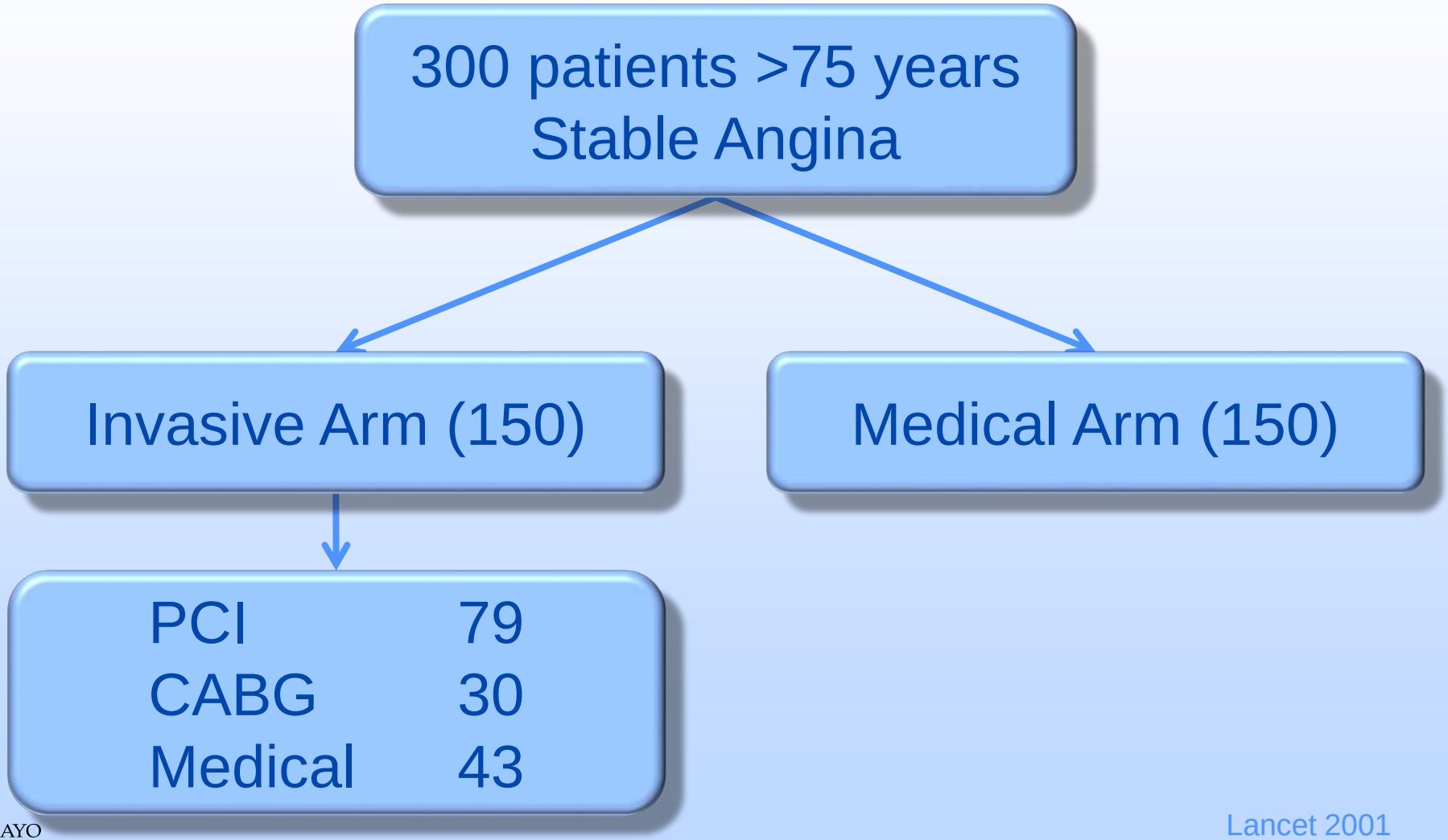
Swiss “TIME” Trial in 2001



Lancet 2001

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Swiss “TIME” Trial

MACE dramatically reduced in Invasive Arm
(Readmissions for ACS, MI and revascularization)

Initial medical treatment:
>50% chance of later hospitalization or revascularization

Lancet 2001; JAMA 2003; Circulation 2004

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Case 1

- 85 yr old previously well male
- Presents with NSTEMI
- GFR 50 ml/hr
- Medications initiated:
  - ASA and Ticagrelor
  - Statin
  - Metoprolol

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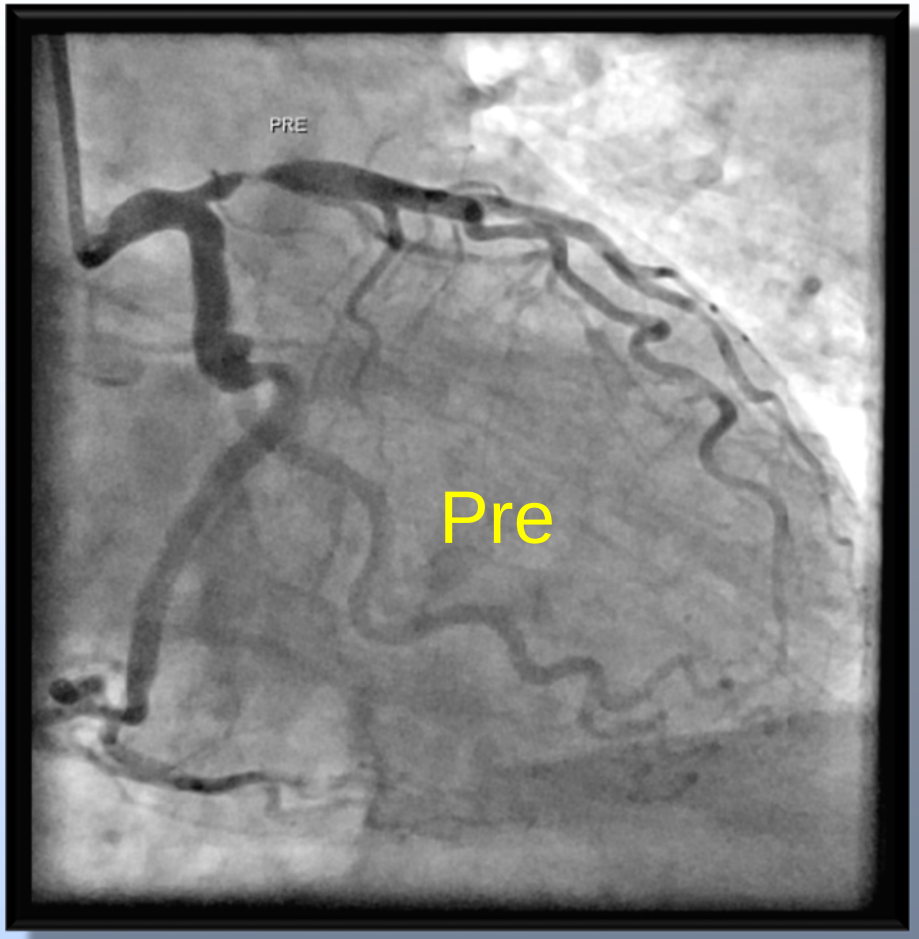

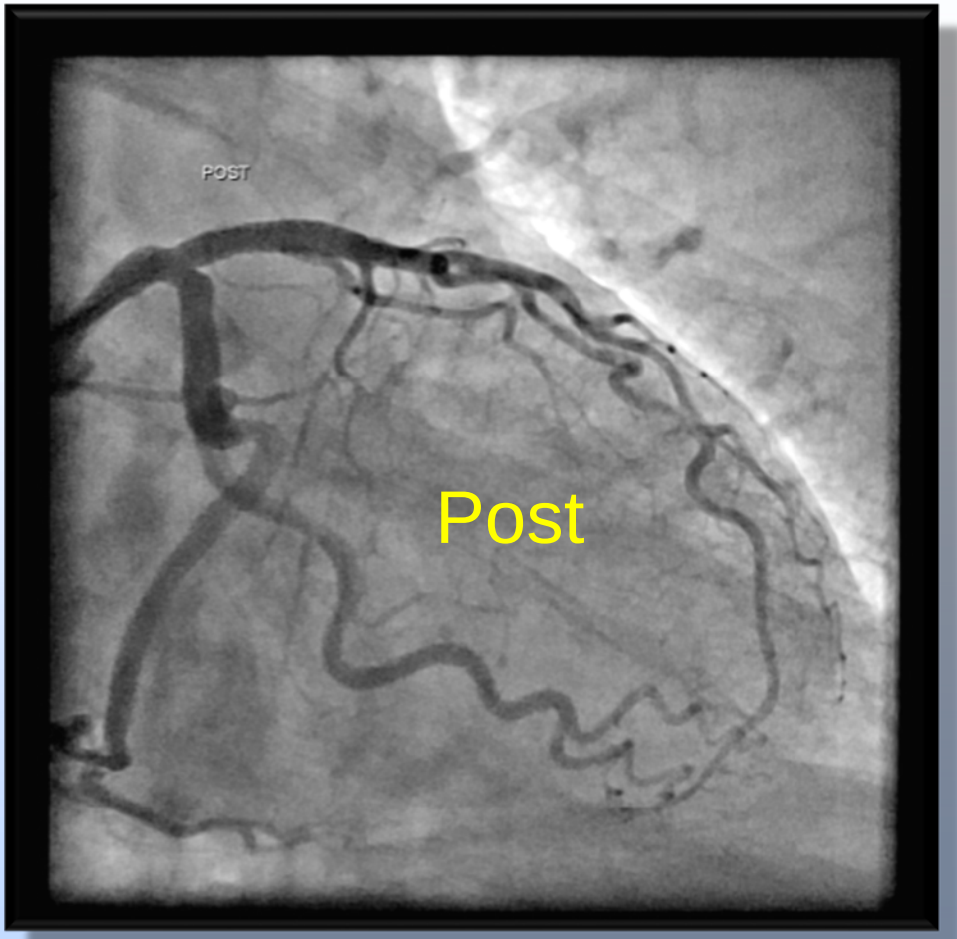

Trans-radial with DES; no complications; home <24 hs

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Case 2

90 yr old retired radiologist with severe nocturnal chest pain unrelieved by NTG who presents to the ER with ongoing chest pain

PMHx includes:

- Type 2 diabetes mellitus with vascular disease, neuropathy and nephropathy
- Stable angina for many years but worse over last few months – always relieved by NTG

Social Hx:

- Lives independently. Uses cane for walking. Plays golf. Code status is DNR/DNI

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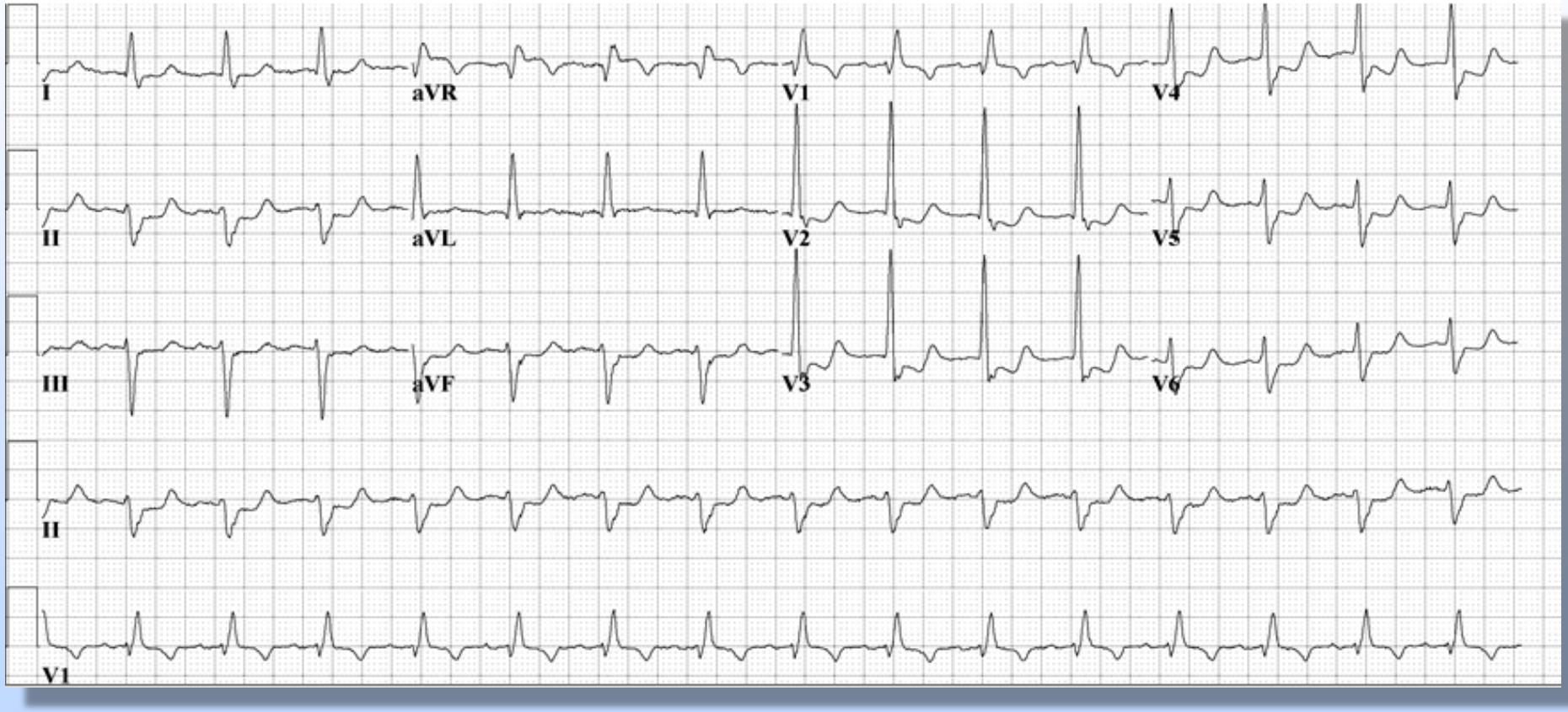
On arrival in Emergency Department



Patient refuses coronary angiogram

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Admission to General Cardiology Service

Labs:

Hb	11.4 g/dL
Troponin T	0.03 then 0.26 ng/dL 3 hours later
Creatinine	1.4 mg/dL (GFR = 46 ml/min)

Progress:

ASA and clopidogrel, heparin and IV-NTG

Continued chest pain

…….*what to do?*

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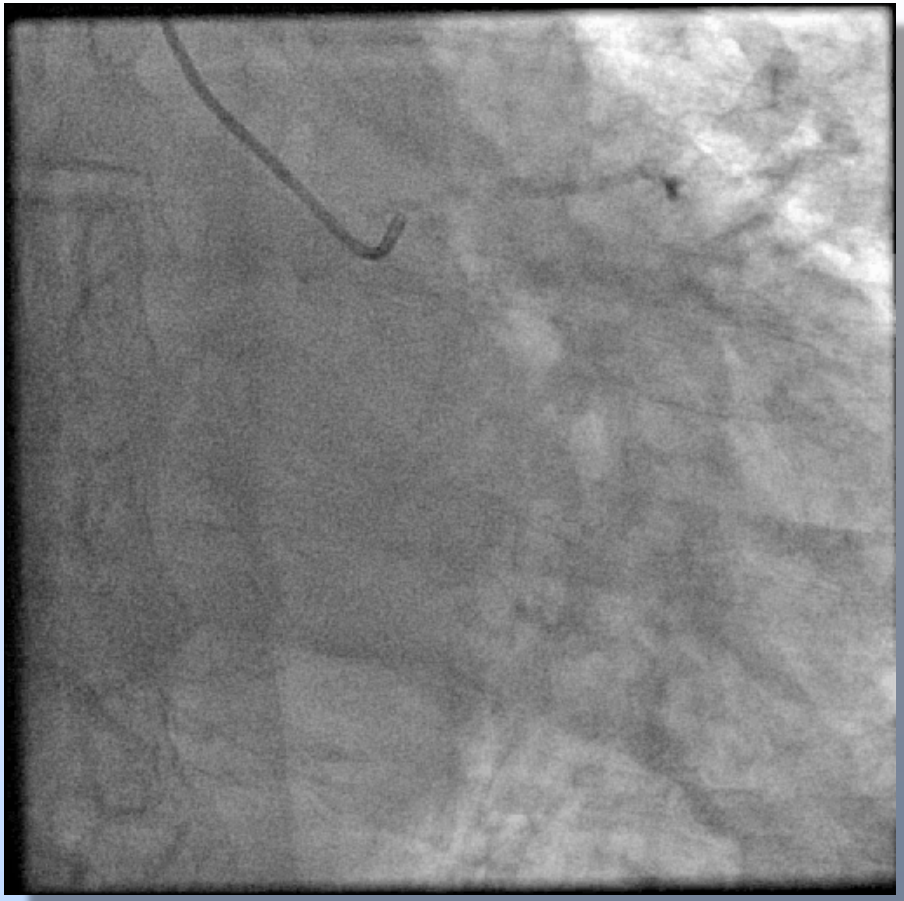

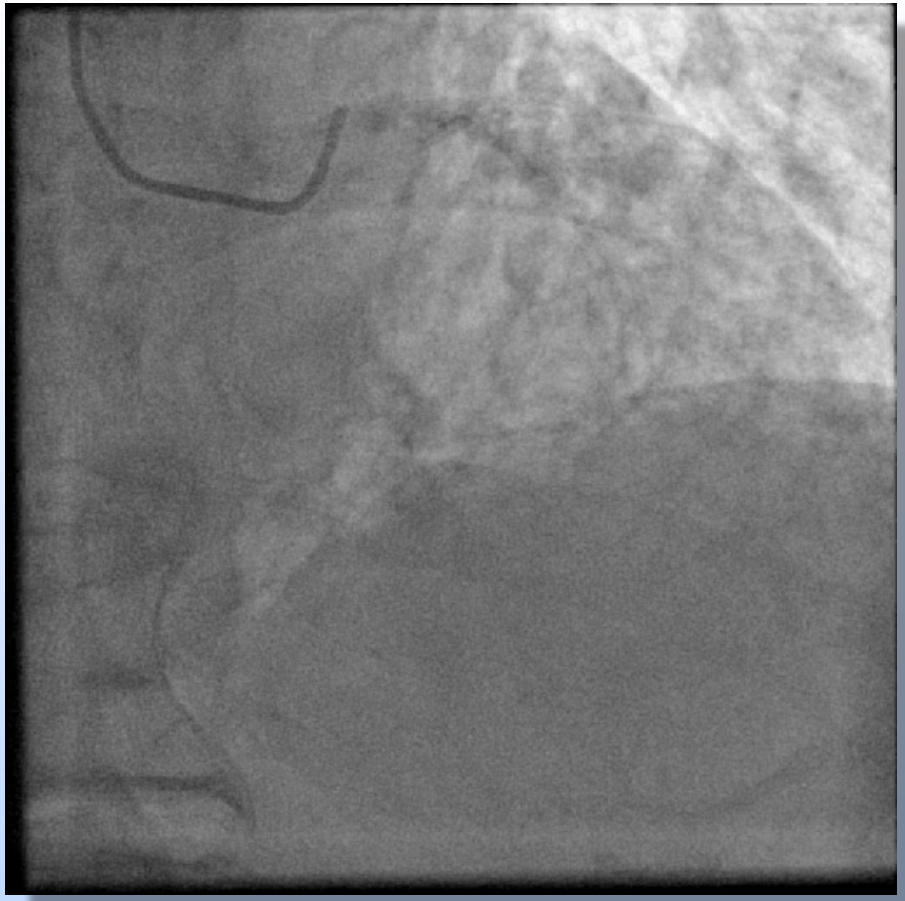

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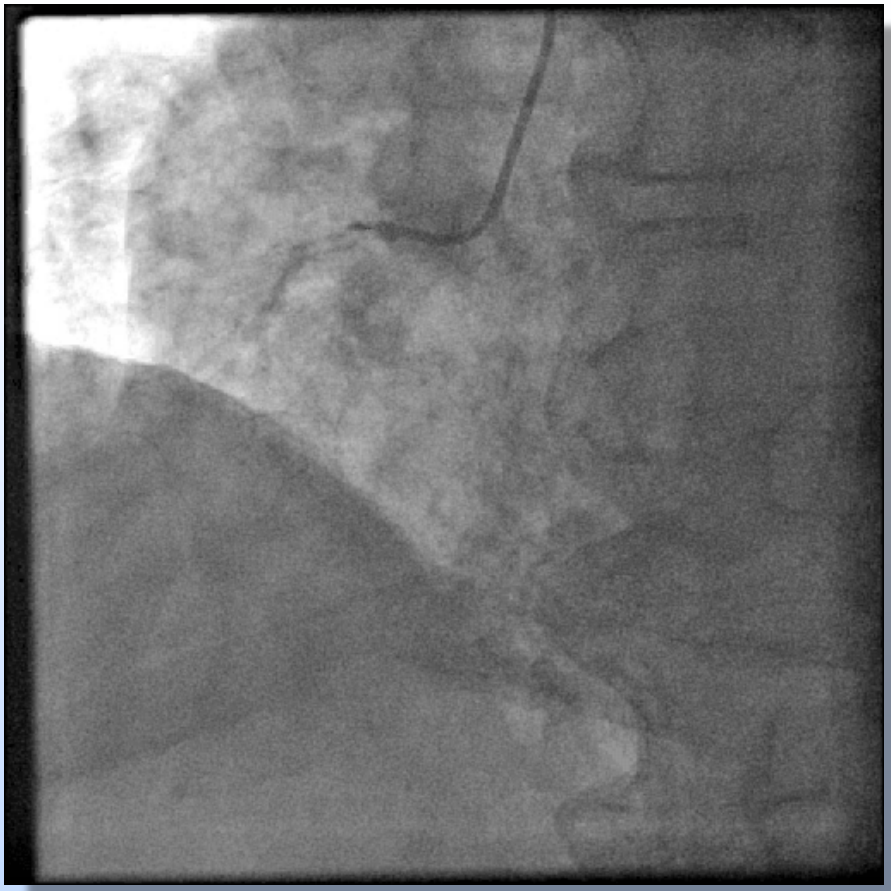

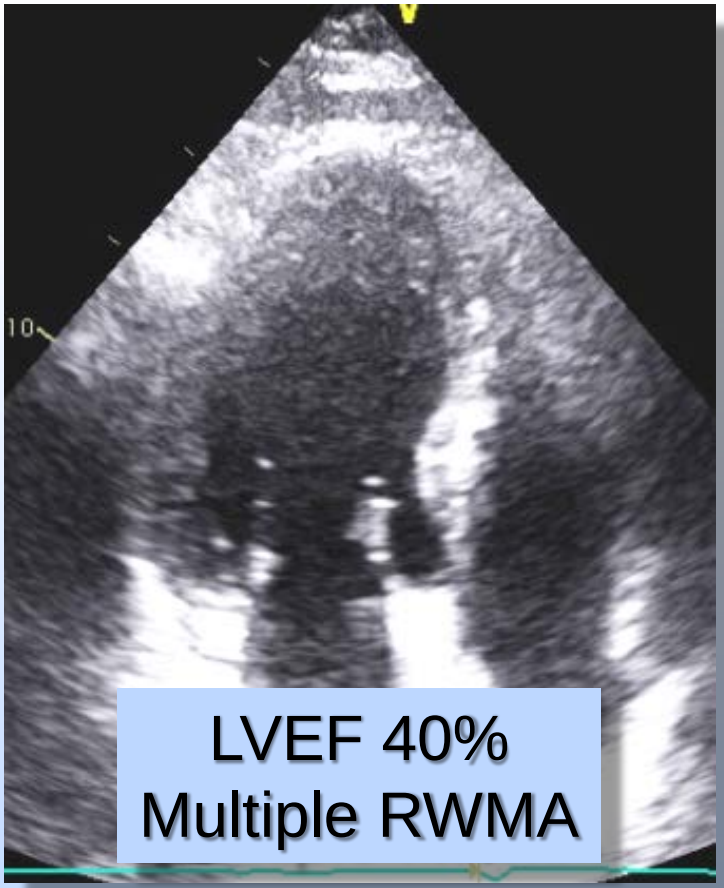

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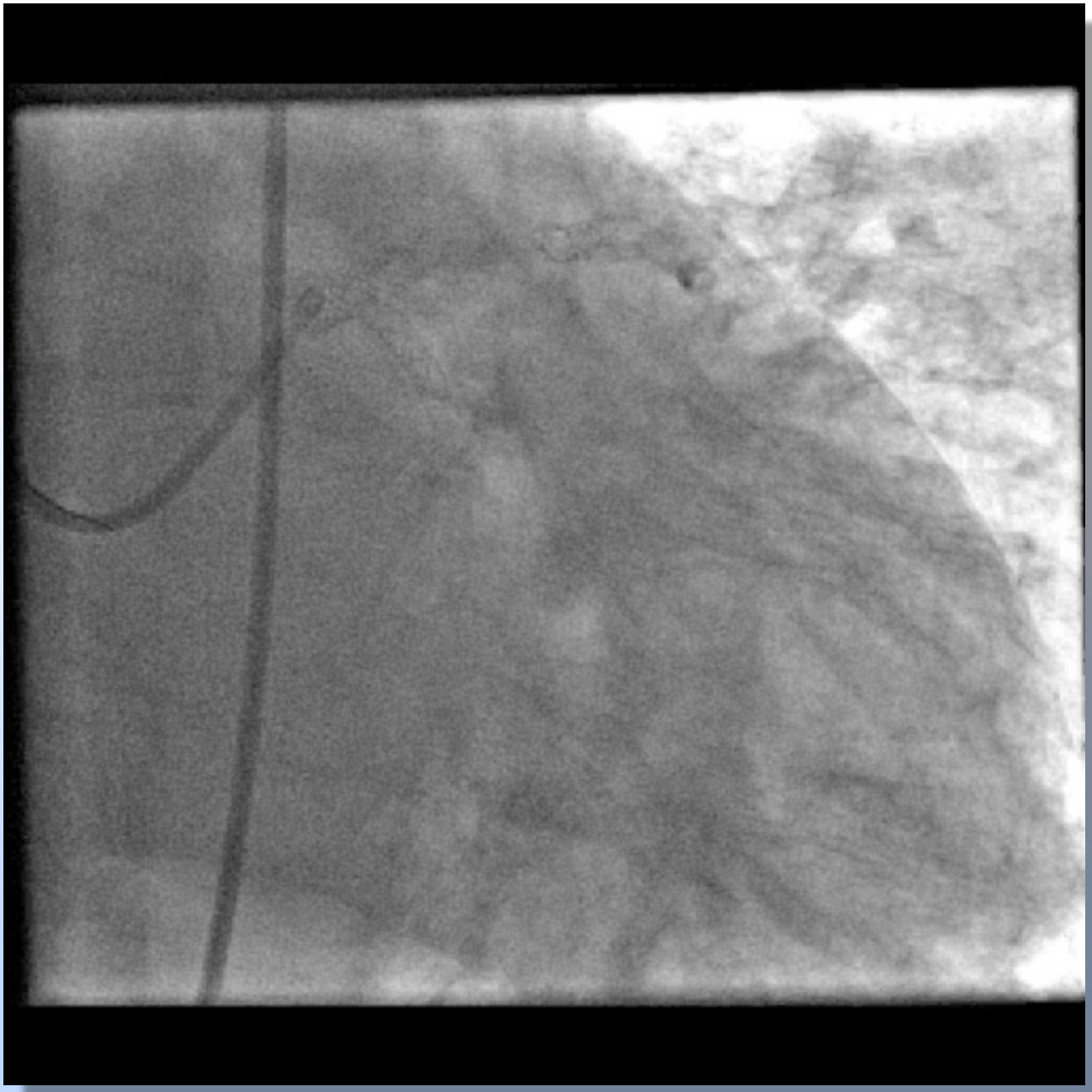

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STEMI in Nonagenarians at Mayo Clinic

Increasing frequency

Total of 70 since 2003

- 17 in shock (10 deaths)
- 77% discharged alive
- 59% alive at one year

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STEMI in 33,644 Nonagenarians

PCI use

Mortality reduction 53%

NNT <10 patients

Mandawat A: JACC 2013

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Risks of PCI in Older Patients

Stroke

- Low risk but 1% in STEMI

Bleeding

- Radial superior to femoral approach*
- DAPT – more bleeding**
- Oral anticoagulants

Renal failure

- The major predictor of mortality
- Staged PCI?

* Louvard Y (OCTOPLUS study): AJC 2004; Jaffe R: CCI 2007; Achenbach S: CCI 2008.
**Capodanno D: JACC 2010

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Case 3

90 year old male with NSTEMI transferred as "emergency" to Mayo Clinic for PCI

- Hemodynamically stable and now pain free
- Troponin T = 0.38 increasing to 0.56 ng/mL
- Creatinine = 2.5 mg/dL (GFR 18 mL/min)
- GRACE score = 155

Proceed with invasive approach?

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Stage 4 or 5 Chronic Kidney Disease

Invasive approach – poor outcome:

STEMI and PCI…….. 37% dead at 1 year

NSTEMI…… 50% dead at 1 year

Saltzman AJ: JACC CV Int 2011; Szummer K: Circ 2009

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Misery of Hemodialysis

Older patients

- Poor QoL in majority
- Very high mortality
- Withdrawal in 1/3
- Many lack decision making capacity at time of withdrawal
- End of life issues and regrets

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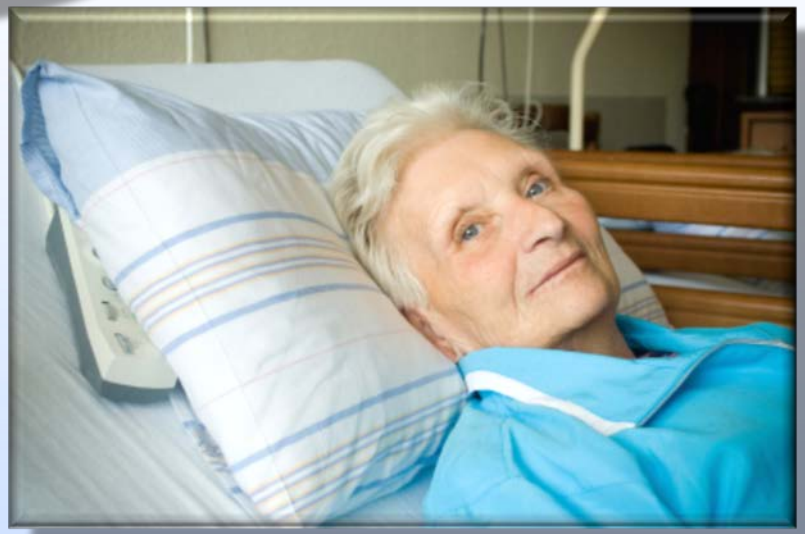
Guidelines

Patient preferences



Trial data

Real world (comorbidities)

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“You are only as old as you feel”

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Age Stereotypes
Recovery from Disability in Older People

Beliefs about old people

Decrepit  Spry

Those with positive age stereotypes were almost 50% more likely to recover from severe disability than negative age stereotypes

Stewart T: JAMA 2012

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Conclusions about PCI in Older Patients

When feasible and appropriate:

- Effective and better than medical therapy
- Risks can be minimized with careful planning
- Shared decision-making with patient

Age should not be used as the single criterion for selection of PCI

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