

2017 MID-ATLANTIC
CONFERENCE

7th *ANNUAL* CURRENT CONCEPTS IN
VASCULAR THERAPIES

2017



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April 21, 2017

**Should everyone have their carotid
IMT measured?**

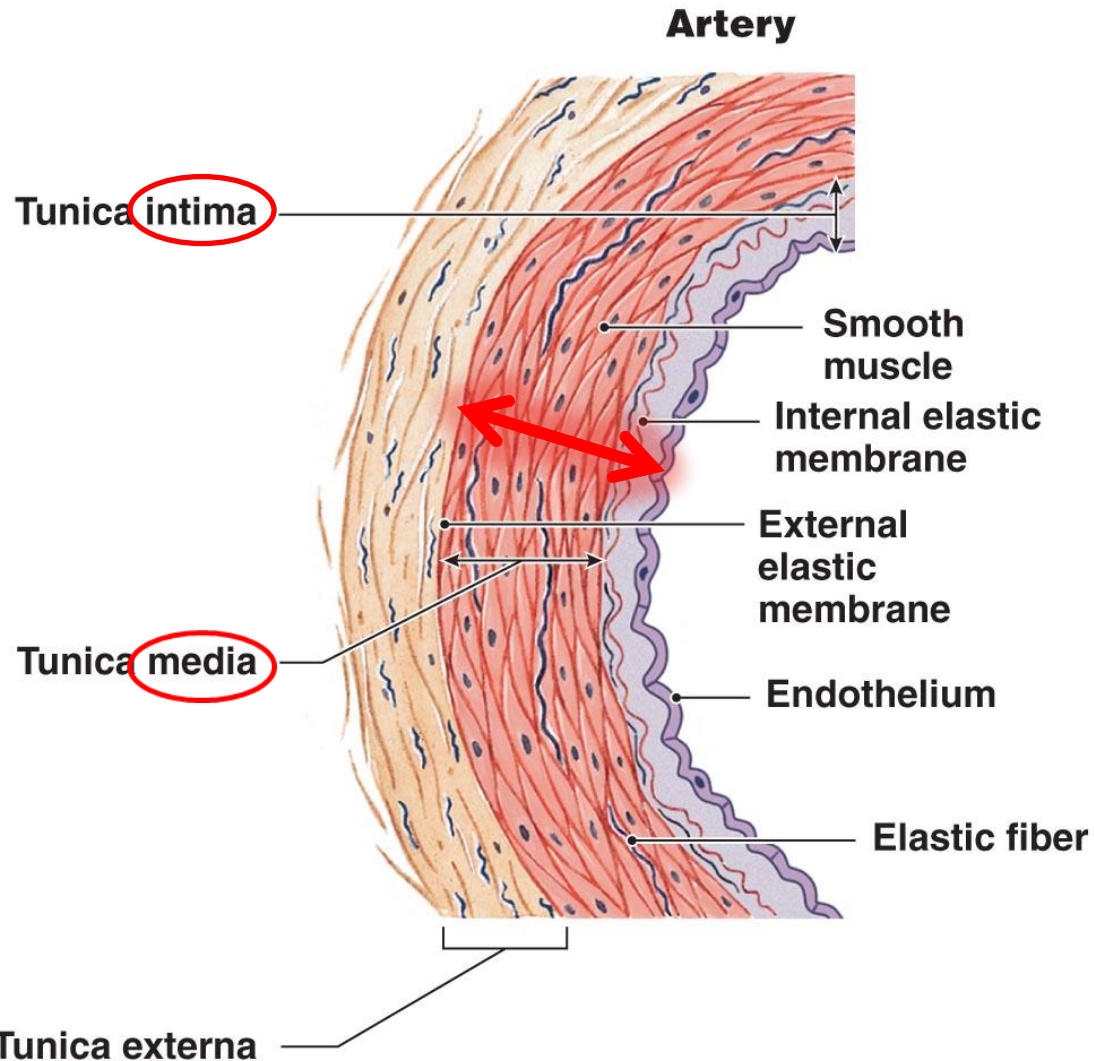
Contemplate the human body.



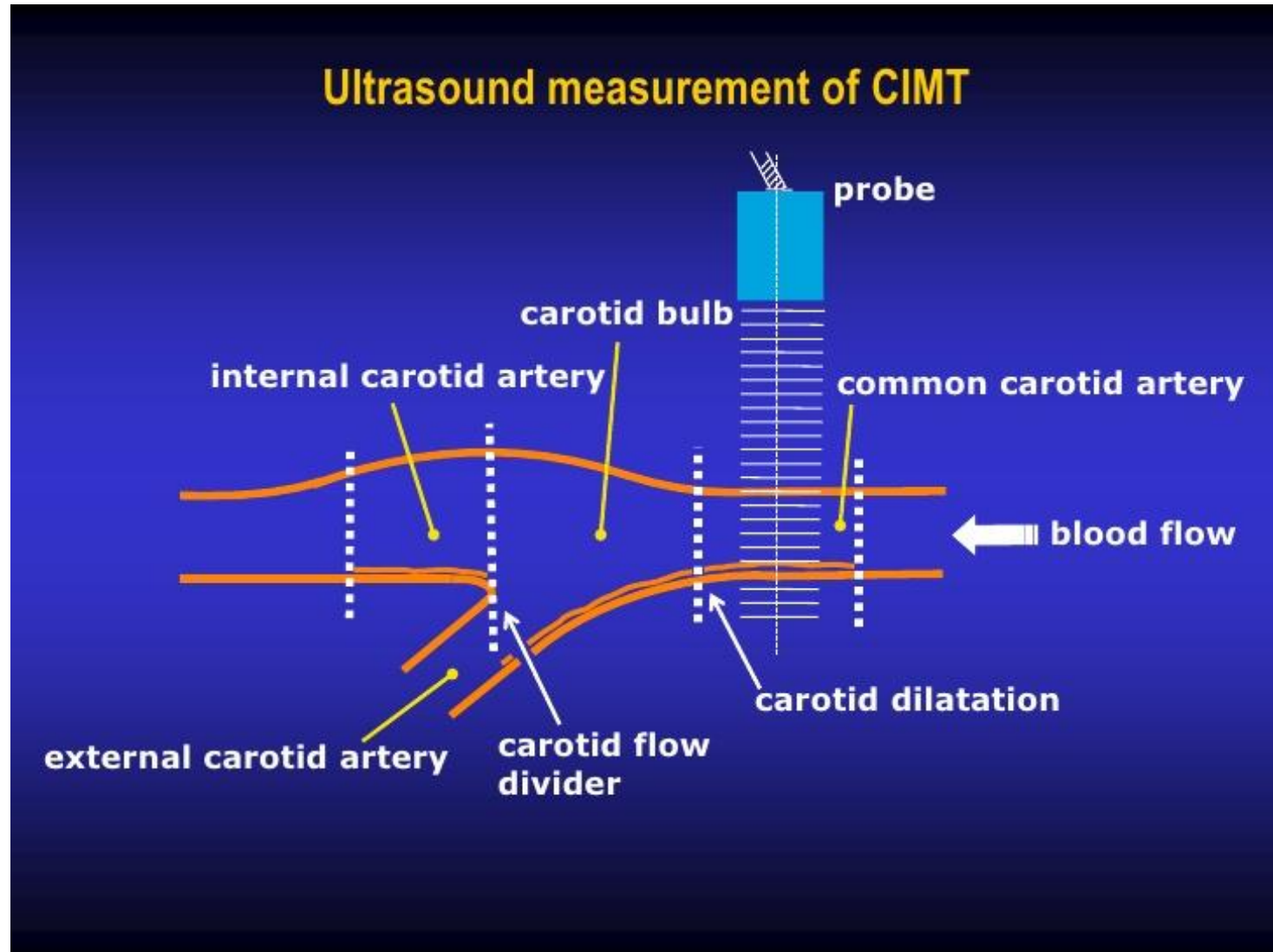
- We all age chronologically
- But, why do...
 - some with unhealthy habits live to an advanced age?
 - seemingly young and healthy appearing people have cardiovascular events?
- What is our *vascular age*?

CIMT – what is it?

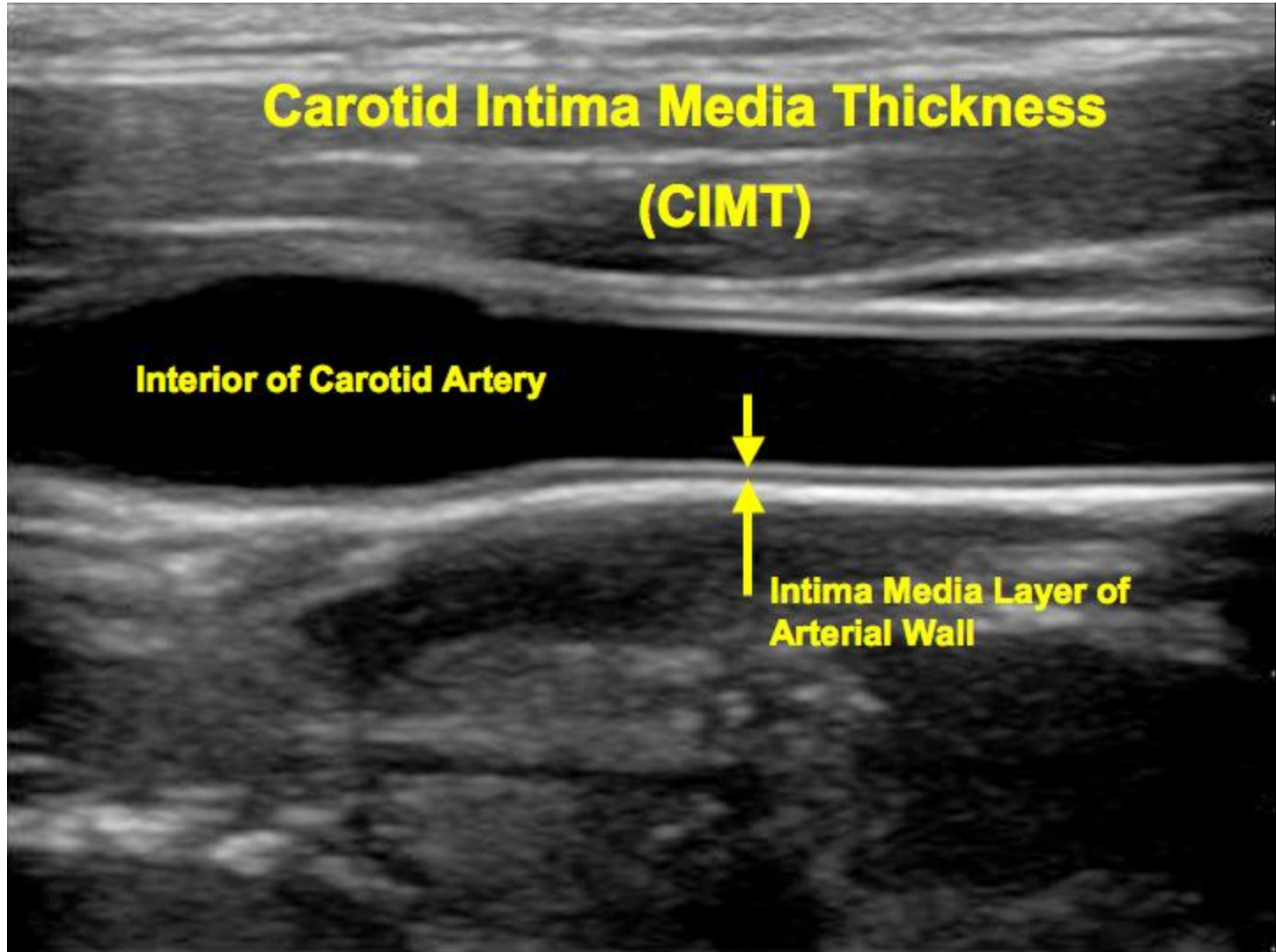
The structure of the wall of an artery



CIMT – what is it?

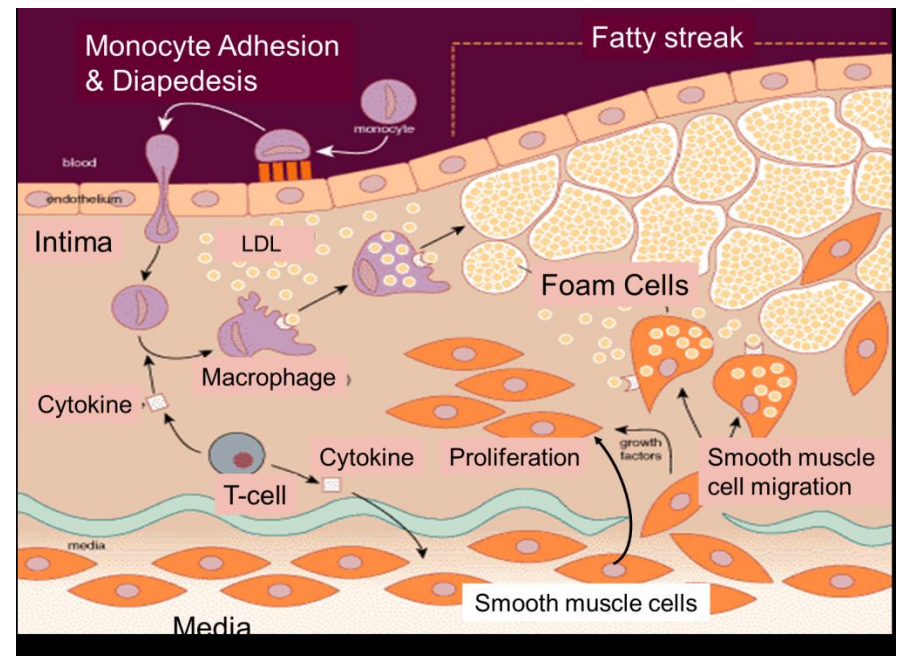
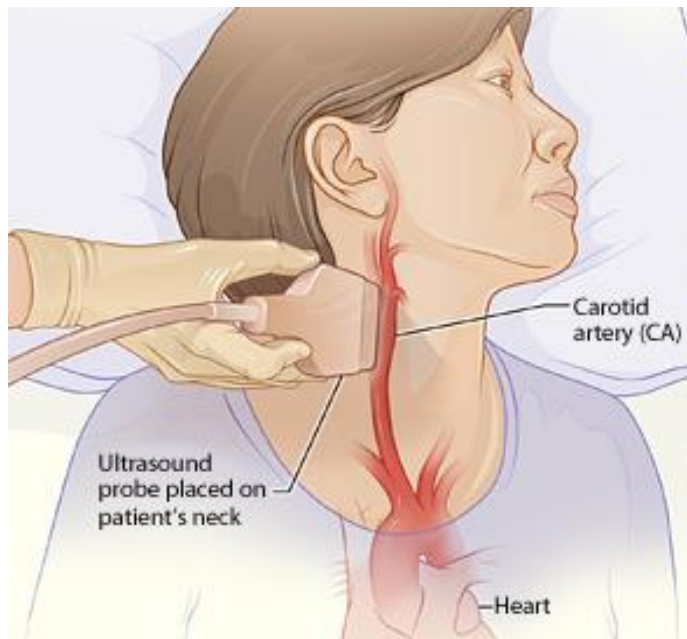


CIMT vs carotid PVL



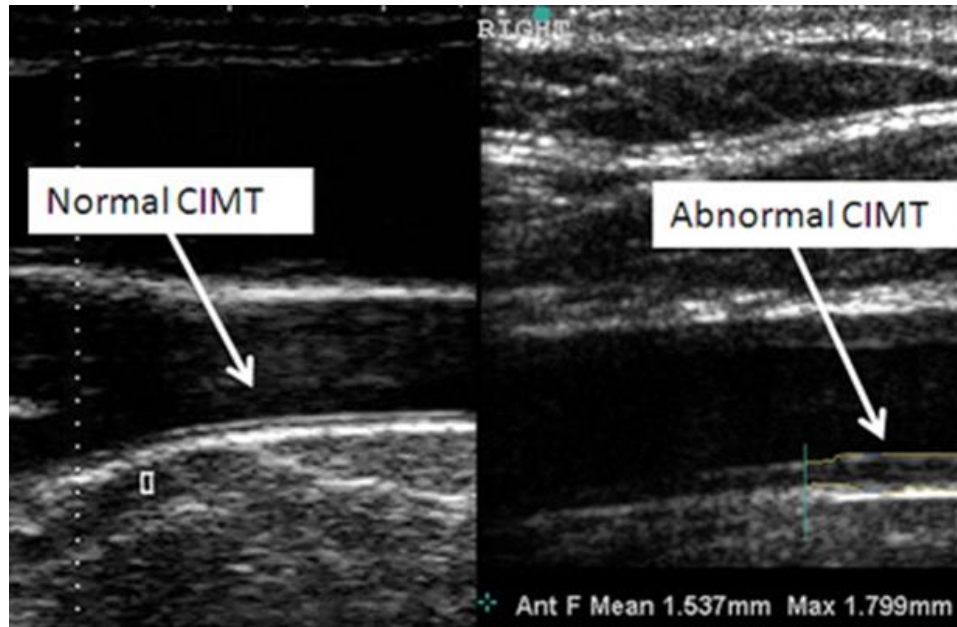
CIMT – why do this?

- Detect earliest presence of atherosclerotic systemic disease prior to the formation of plaque.
- Track the regression, arrest, or progression of CIMT over time.



CIMT – history

- Pignoli (1984) – first proposed



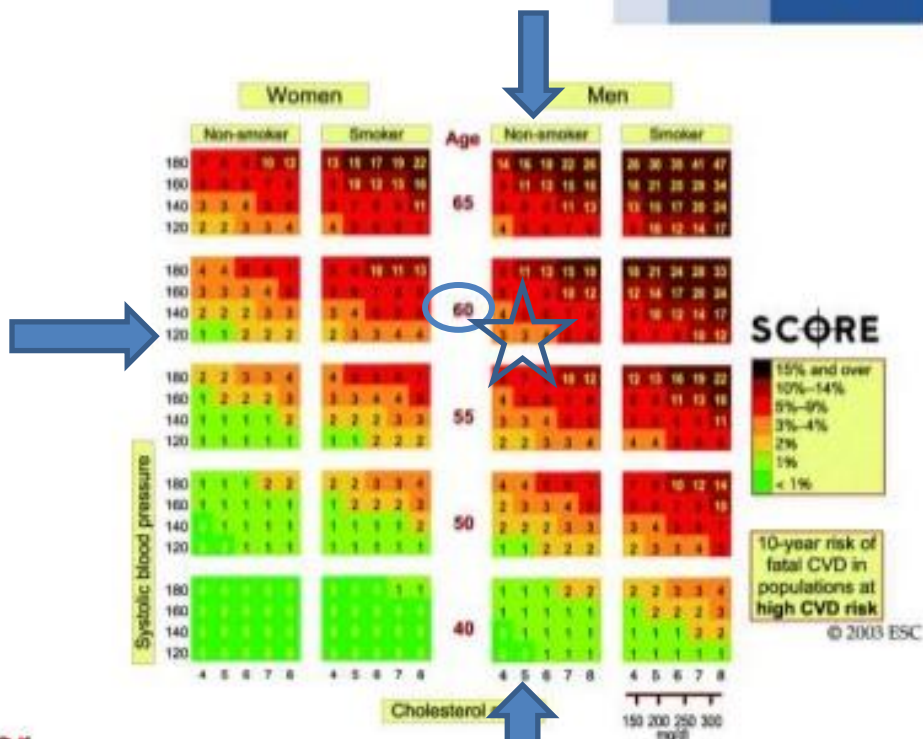
- Use increased in the 1990's
- Predictive of future cardiovascular events

Risk of death from a cardiac event

Framingham Risk Calculator



- Age
- Gender
- Smoker
- Total cholesterol
- HDL-C
- Systolic BP
- HTN Rx



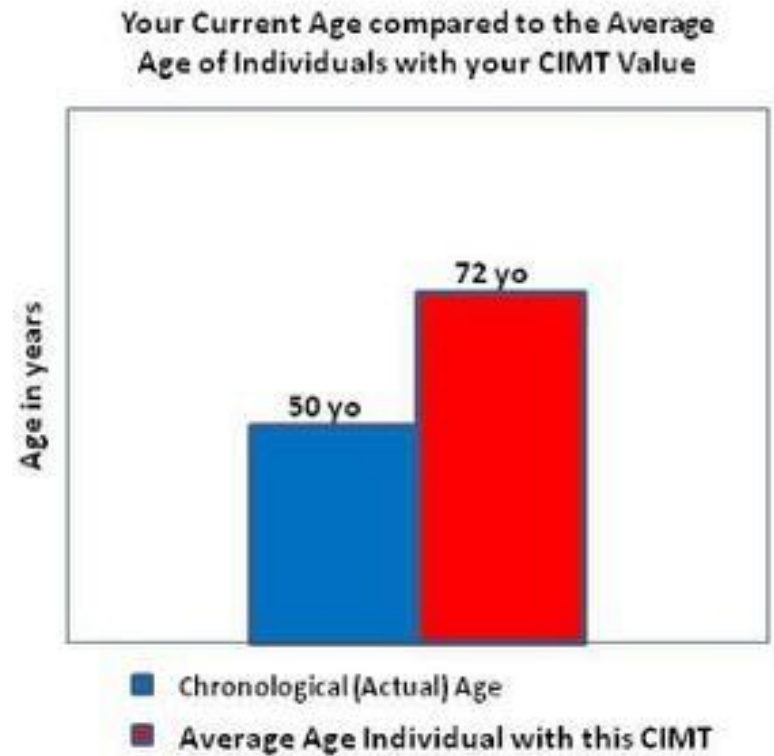
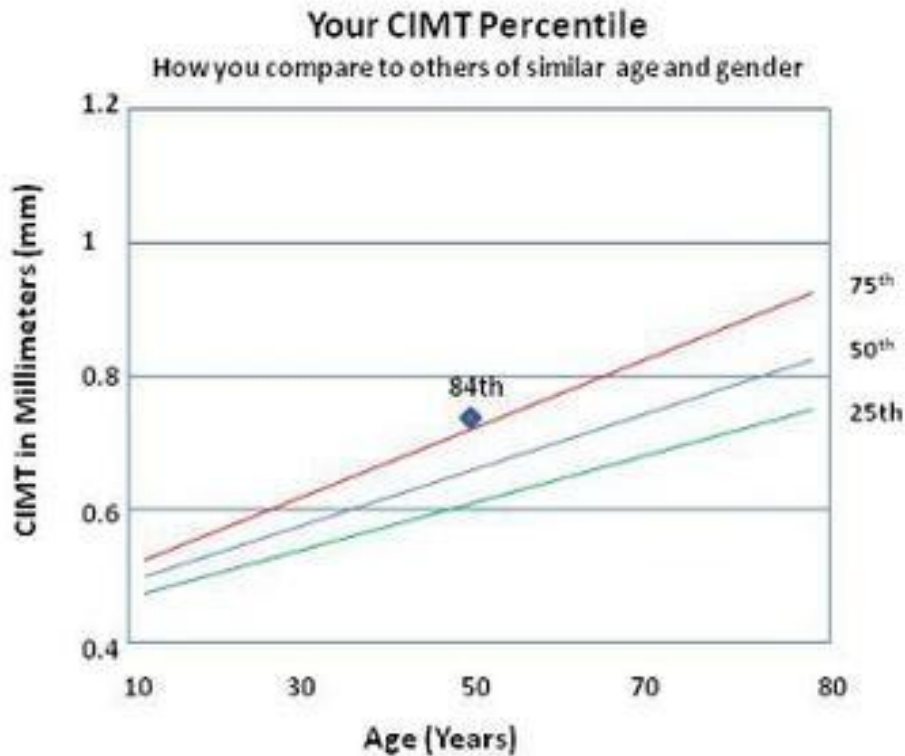
Calculates 10-year risk for CHD death or nonfatal MI

High risk: > 20%
 Intermediate risk: 10-20%
 Low risk: < 10%

Screening for Heart Attack Prevention and Education Task Force Report

- Current risk factor prediction is inaccurate
 - >80% of events occur in low & intermediate risk
- Measure early atherosclerosis changes directly
 - Find the “vulnerable patient”
- Treat risk factors aggressively
- Measure efficacy of treatment over time

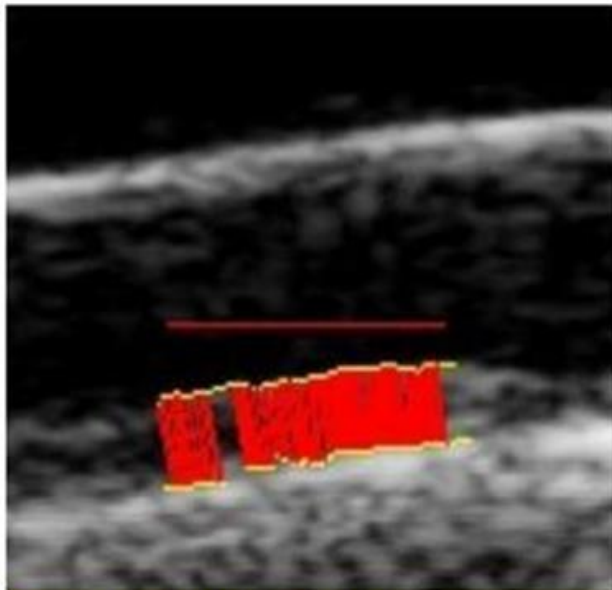
CIMT – “arterial age”



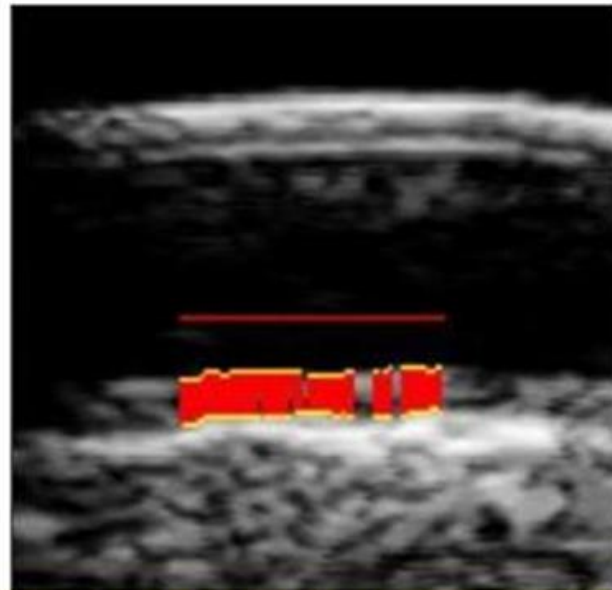
- Result compared to C.I.T. database of 15,000 patients of same age and gender to determine the “arterial age”

CIMT - utility

- Changes in IMT over time - +/- CV events?
- Used in clinical trials to assess drug efficacy



Age 50: CIMT 2.043mm
591% greater risk
than others his age



Age 60: CIMT 1.021mm
50% decrease with
aggressive treatment

CIMT – endorsements?

- US Preventative Services Task Force – review evidence based, no support routine use to stratify patients who are intermediate risk.
- European Society of Hypertension – European Society of Cardiology (2003): regarding the management of HTN, recommended IMT in high-risk patients to help identify target organ damage.
- AHA (2010) – use IMT in intermediate risk patients if usual risk classification not satisfactory.

CIMT – issues

- Epidemiological and clinic studies show increased CIMT associated with the following risk factors:
 - T2DM
 - familial hypercholesterolemia / HDL / TG
 - Rheumatoid arthritis
 - Non-alcohol fatty liver disease
 - Air pollution

Case study

- 50 y.o.: + FH for early death from MI
 - Executive physical neg (non smoker, wnl: Chol, BP, Glu, EKG, CRP, P-Thal, CACa+2 score, carotid PVL)
- Had MI while running
 - CIMT: arterial age of 81 years
- Aggressive medical therapy
 - CIMT reduced by 50% over 10 years



CIMT – appropriate use

- Appropriateness review
 - Society of Atherosclerosis Imaging and Prevention & International Atherosclerosis Society
- Appropriate
 - Intermediate risk, metabolic syndrome, elderly
- Inappropriate
 - Low and high risk patient, serial testing
- J. Atherosclerosis: January 2011

Screening for Heart Attack Prevention and Education Task Force Report

- Who really needs IMT?
- Intermediate risk patient
 - MD unsure how aggressive to treat
 - Measuring efficacy of treatment
- Positive family history of early CAD
- To “motivate” patients who are high risk or who resist treatment

Screening for Heart Attack Prevention and Education Task Force Report

- When to re-study:
 1. Moderate risk: CIMT<1mm/50-75% & no plaque
 - LDL<100, re-screen in 3 years
 2. High risk: CIMT>1mm/75% & <50% plaque
 - LDL<70, re-screen in 2 years
 3. Very high risk: CIMT>1mm/95% & >50% plaque
 - Stress test, LDL<70, HDL>50, screen family, re-screen in 1 year

CIMT - Summary

- Current health care culture promotes preventative care initiatives – CIMT is one part of the cardiovascular assessment.
 - BUT... is not reimbursed by payers.
- Unique feature: CIMT is a direct anatomic examination of a vascular structure without utilizing ionizing radiation.
- CIMT is a surrogate for the risk of death from coronary atherosclerotic disease in the future.

Wishing for young arteries!
Good luck!

