

INTERGRUPPO PARLAMENTARE PREVENZIONE E RIDUZIONE DEL RISCHIO

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INTERGRUPPO PARLAMENTARE

Prevenzione e Riduzione del Rischio Cardiometabolico

- Obiettivo : ridurre il carico di eventi cardiovascolari a livello della popolazione
- Due strategie complementari: individuazione precoce e riduzione dei fattori di rischio causali
- Importanza della riduzione anche moderata ma mantenuta nel tempo

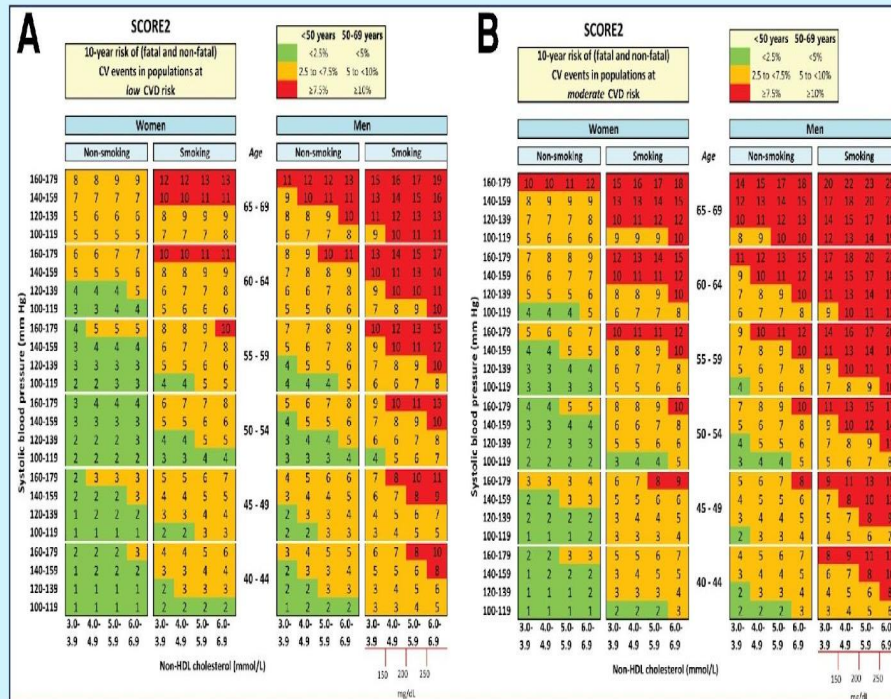
CV RISK ESTIMATION

10-year CV risk vs lifetime CV risk

A, B: SCORE2 charts for estimation of CVD risk in low (A) and moderate (B) CV risk people

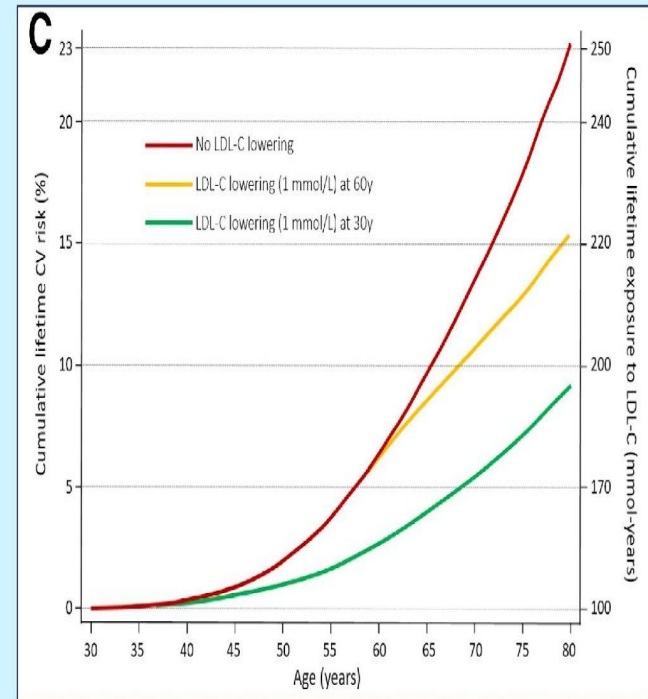
C: Effect of lowering LDL-C by 1 mmol/L beginning at 30 or 60 years of age

10-YEAR CV RISK



LIFETIME CV RISK

Benefit is proportional to intensity and duration



Individuazione precoce del rischio

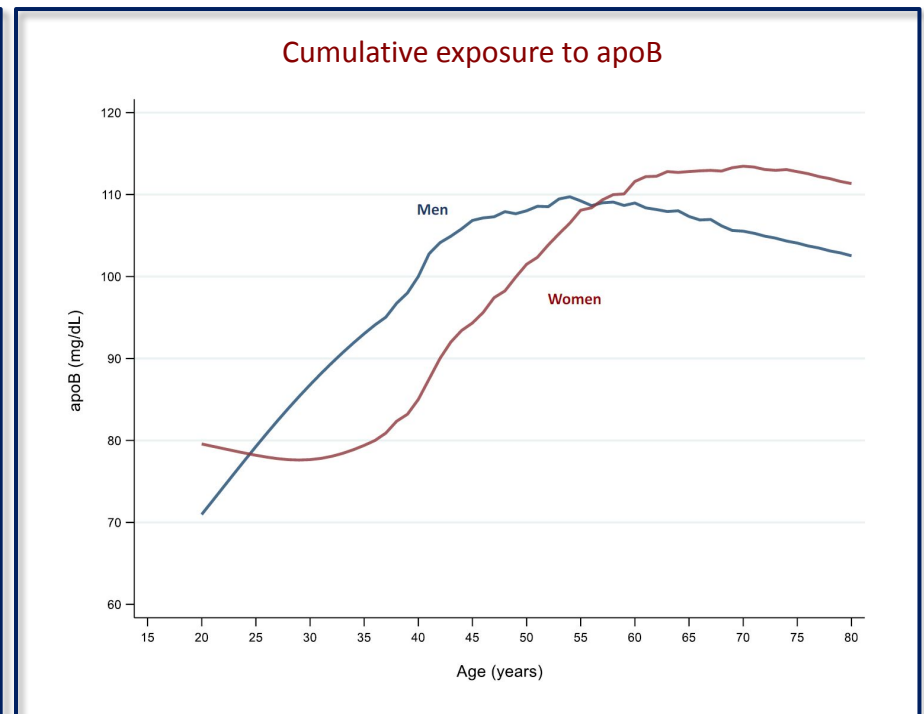
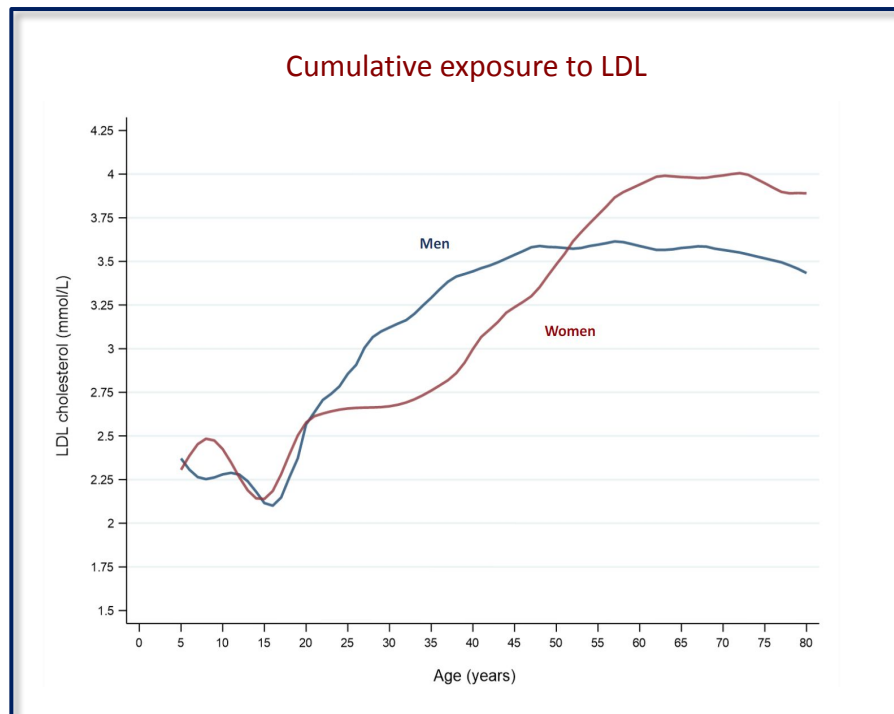
- Migliorare strumenti di stratificazione: SCORE2, genetica, biomarcatori, imaging
- Identificare aterosclerosi subclinica e traiettorie di rischio
- Integrare approcci omici, ambientali e digital health
- Attenzione a giovani, donne, minoranze etniche

Riduzione dei fattori di rischio causali

- Controllo intensivo di LDL-C, pressione arteriosa, diabete, fumo, obesità
- Nuovi fattori: lipoproteina(a), lipoproteine ricche in trigliceridi, infiammazione, pollution
- Stili di vita: alimentazione, attività fisica, gestione dello stress
- Beneficio cumulativo anche con riduzioni moderate mantenute a lungo termine

Cumulative exposure to LDL: Tracking plaque progression in Plaque Years of LDL

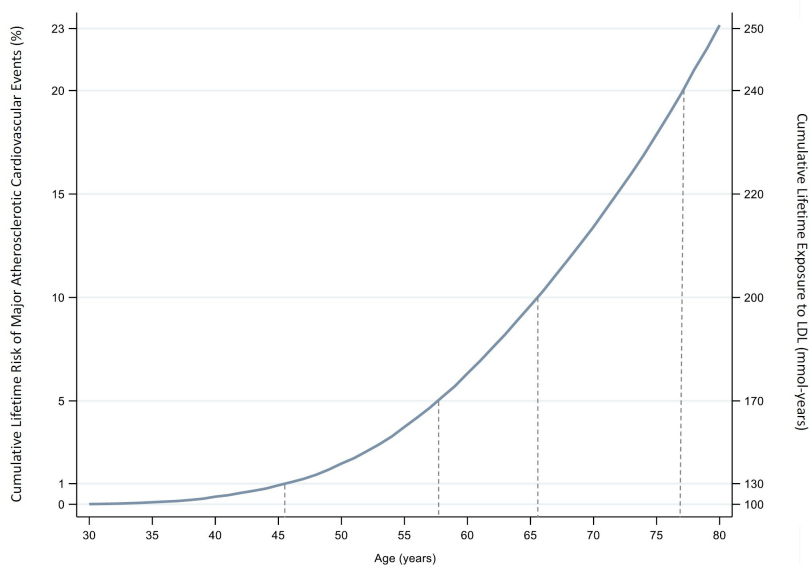
- Cumulative exposure to LDL is direct measure of number of atherogenic lipoproteins that have become trapped within artery wall
- Therefore, can be used to estimate size plaque burden, track rate of plaque progression, corresponding absolute risk of MACE



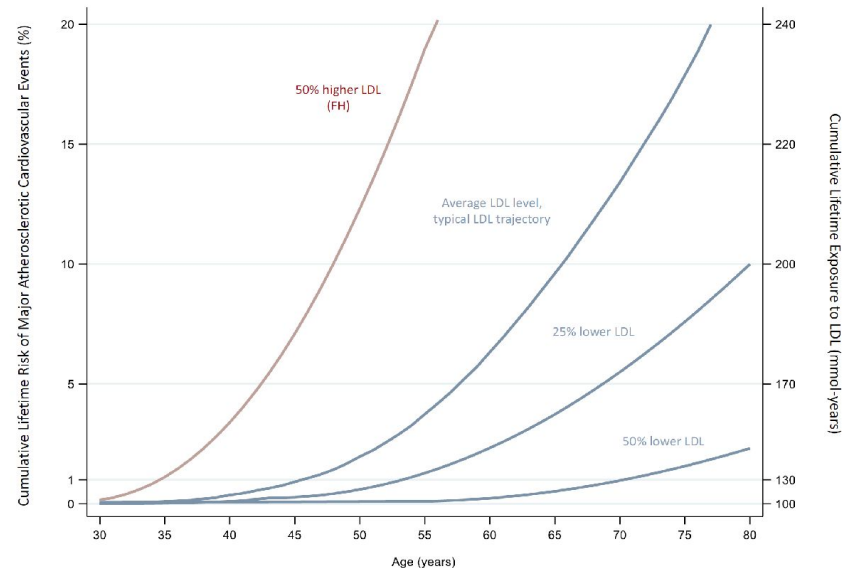
Using cumulative exposure to LDL estimate ASCVD Risk

- Plotting cumulative lifetime risk of major cardiovascular events by cumulative exposure to LDL reveals the cumulative exposure thresholds at which acute cardiovascular events occur
- Changes LDL from static to a dynamic measurement (like SBP or HbA1c) – that can be used as a biomarker to monitor plaque progression, as a therapeutic target, and monitor response to selected intervention

Thresholds for Cumulative exposure to LDL

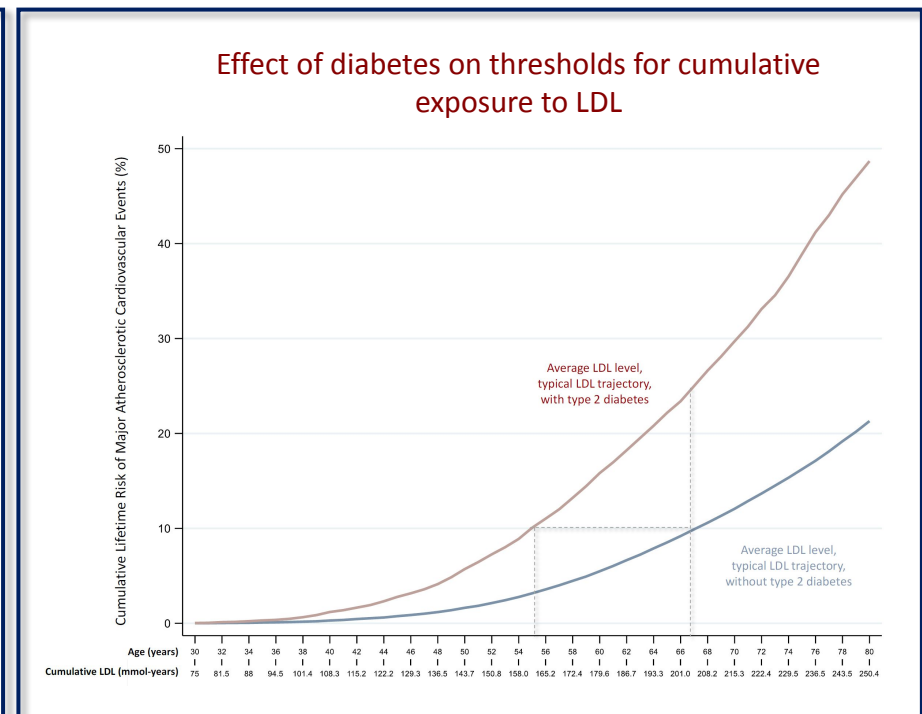
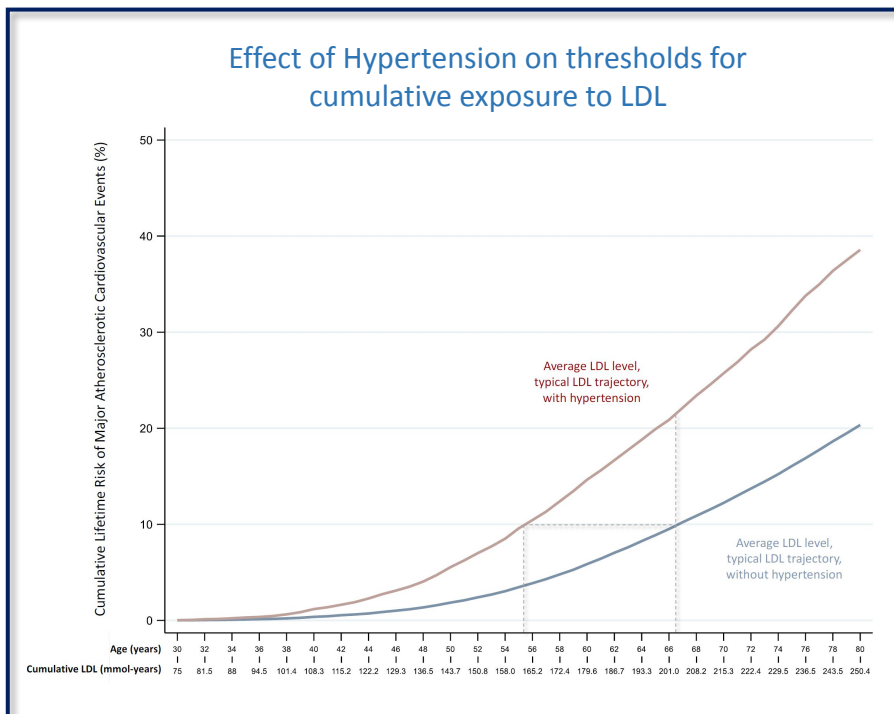


Reducing Cumulative slows progression of atherosclerosis & delays onset of events



LDL cumulative exposure thresholds depend on presence other exposures

- Cardiovascular events begin to occur at LOWER LDL cumulative exposure threshold, and the risk of acute atherosclerotic cardiovascular events is higher at all cumulative LDL levels (and corresponding accumulated plaque burden) – when other causes of injury to artery wall are present



Fattori emergenti e determinanti sociali

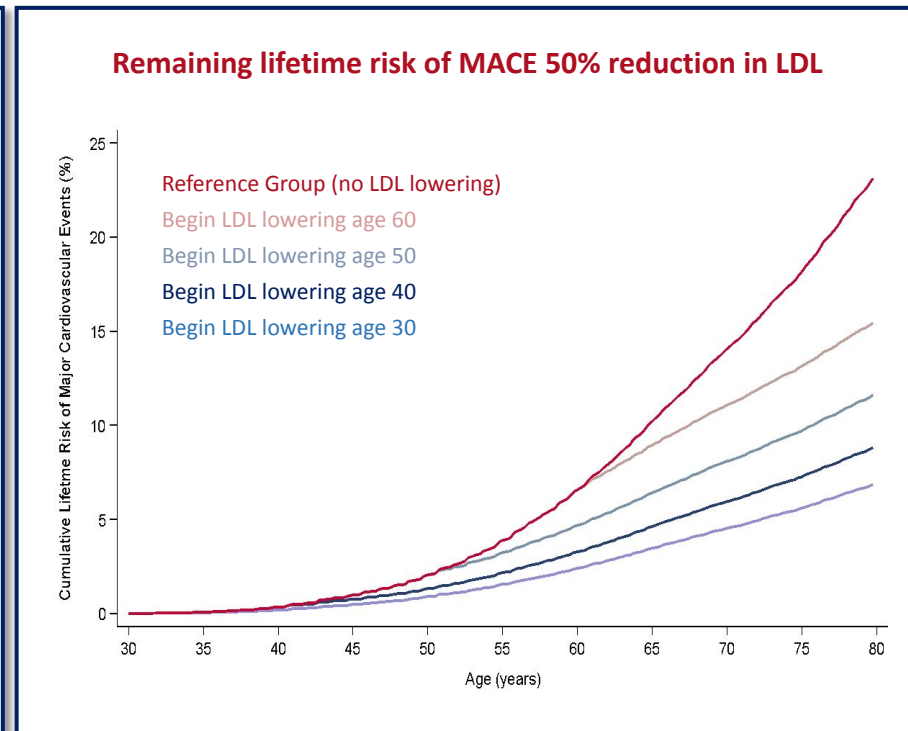
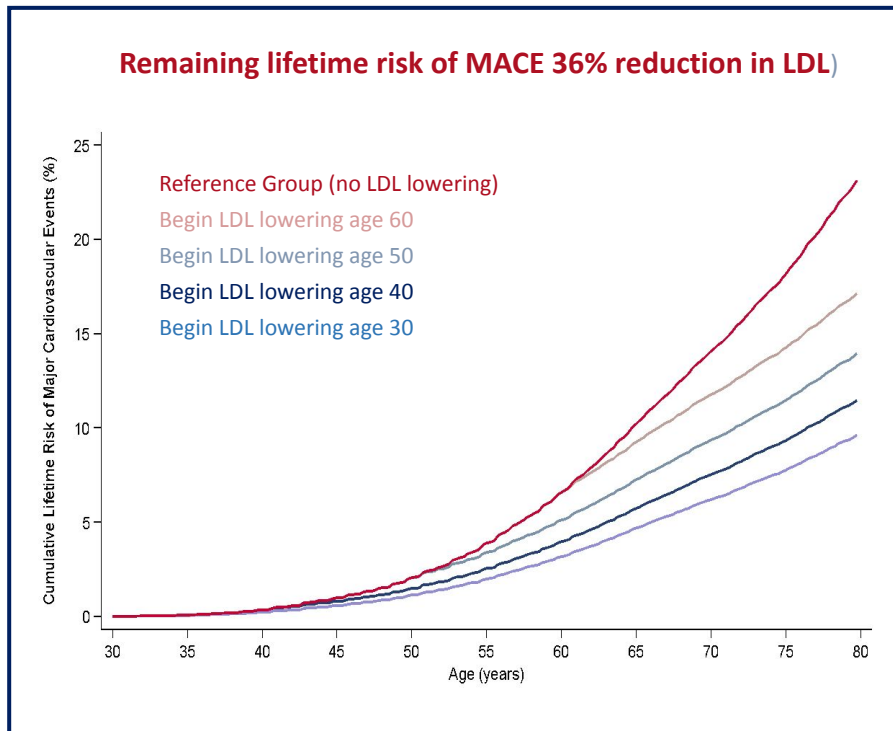
- Inquinamento atmosferico e ambientale
- Esclusione sociale e disuguaglianze sanitarie
- Livello di istruzione ed educazione sanitaria
- Determinanti psicosociali: stress, depressione, condizioni lavorative

Benefici attesi

- Riduzione di infarto, ictus e mortalità cardiovascolare
- Miglioramento della qualità e dell'aspettativa di vita
- Riduzione dei costi sanitari e sociali
- Contributo agli obiettivi OMS

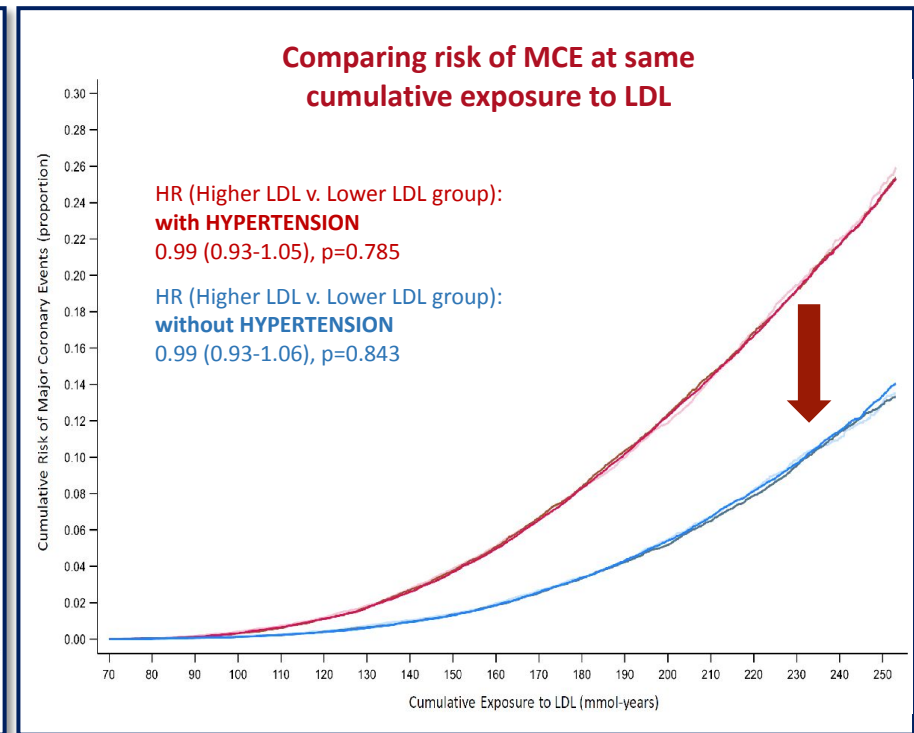
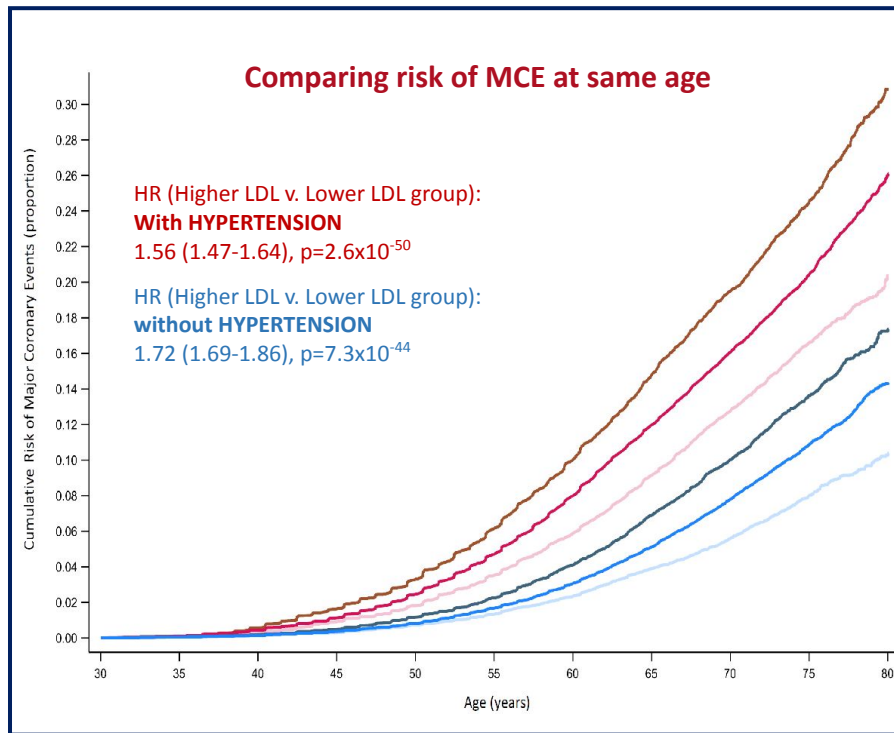
Increasing benefit of longer duration of lowering LDL

- There is a step wise increase in the reduction in MACE for the same magnitude of LDL lowering with each decade earlier that LDL lowering is started – confirming that the benefit of lowering LDL depends on magnitude & duration of LDL lowering



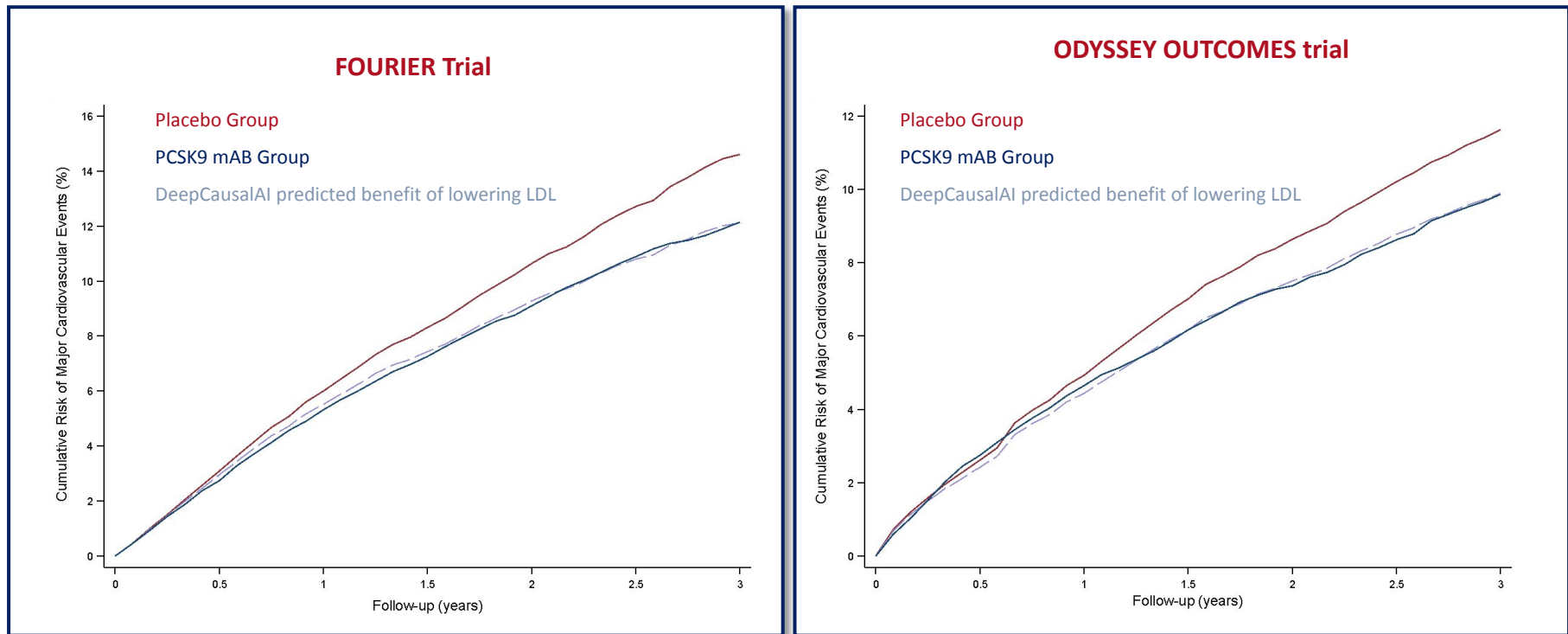
Benefit of lowering LDL & SBP (preventing HTN)

- LDL and SBP have independent effects on risk of Major Cardiovascular Events (MCE)
- Preventing HTN (lowering SBP) reduces the amount of LDL lowering needed to effectively prevent MCE



Using DeepCausalAI to estimate the benefit of lowering LDL in RCTs

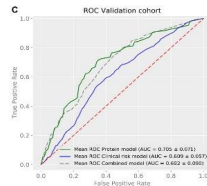
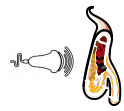
- The deep learning AI algorithm that encodes the biological effect of LDL in discrete time-units of exposure also accurately predicted the benefit of lowering LDL with a PCSK9 mAB at every month of follow-up in two large RCTs



Plasma proteomics improves the shortcomings of current atherosclerotic cardiovascular disease (ACVD) risk assessment in general populations

Primary ACVD prevention presence of carotid atheroma

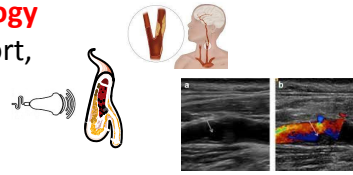
PLIC cohort,
Milan



Hoogeveen RM *Eur Heart J* 2020

Primary ACVD prevention, Carotid plaque multi-focality and morphology

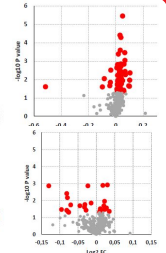
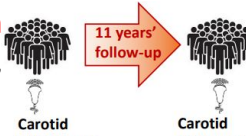
PLIC cohort,
Milan



Baragetti A *et al.* 2023 under review

Primary ACVD prevention carotid atheroma progression

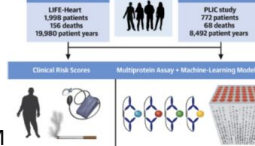
PLIC cohort,
Milan



Baragetti A *Stroke* 2022

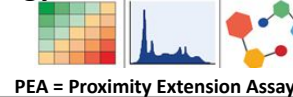
All cause mortality

LIFE-Heart cohort, Leipzig
PLIC cohort
Milan



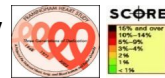
Unterhuber M
J Am Coll Cardiol 2021

Targeted, high sensitive PEA technology

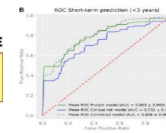


Primary ACVD prevention according to clinical algorithms

EPIC-Norfolk study
PLIC cohort, Milan

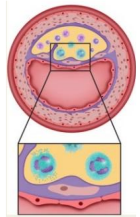


Hoogeveen RM *Eur Heart J* 2020



Secondary ACVD prevention CVD re-occurrence

SMART cohort
Athero-Express cohort



Nurmohamed N *Eur Heart J*
2022

Ruolo del gruppo di lavoro

- Elaborare raccomandazioni per clinici e policymakers
- Produrre documenti di indirizzo basati sulle evidenze scientifiche e con riflessi pratici sulla popolazione
- Favorire collaborazione interdisciplinare
- Promuovere formazione e sensibilizzazione