



RANDOX

BEYOND THE RISK SCORE

HOW LIPOPROTEIN(a) TESTING CAN
REVEAL HIDDEN CARDIOVASCULAR RISK

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Cardiovascular risk assessment has traditionally focused on factors including age, smoking, blood pressure, cholesterol, body mass index and medical history. These factors form the basis of established risk-prediction approaches such as QRISK3.

However, one important cardiovascular risk factor is not incorporated within QRISK3: **Lipoprotein(a), or Lp(a).**

Lp(a) is largely genetically determined and relatively stable throughout life. This creates the possibility that an individual can have an elevated Lp(a) concentration while maintaining an otherwise favourable conventional cardiovascular risk profile.

Research involving **14,848 participants from the Randox Health 2025 dataset** provides important real-world evidence of precisely this disconnect.

THE STUDY FOUND:



18.0% of participants had elevated Lp(a) concentrations above 125 nmol/L.



Only **9.6%** of the overall cohort had an estimated QRISK3 score ≥ 10 .



Only **89%** of people with elevated Lp(a) nevertheless had a QRISK3 score below 10%.

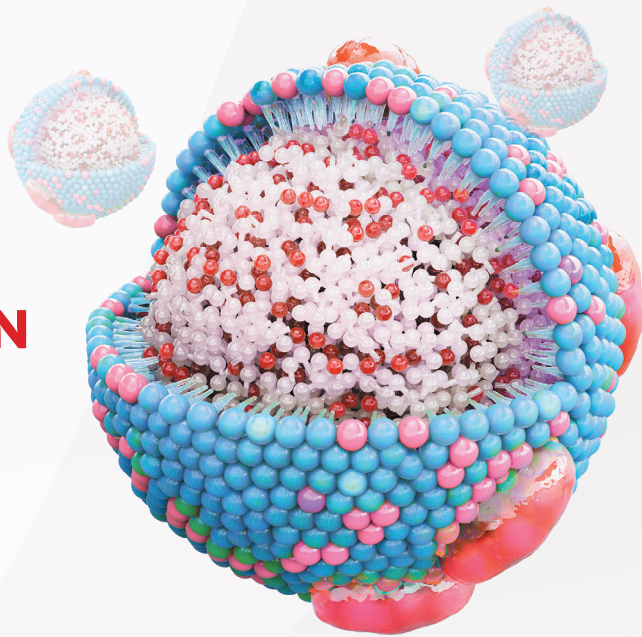


2,371 participants, representing **16% of the entire study population**, had elevated Lp(a) despite being categorised as low risk according to estimated QRISK3.



Only **2%** of the overall cohort had both elevated Lp(a) and QRISK3 $\geq 10\%$.

These findings demonstrate limited overlap between the two approaches and support the concept that Lp(a) and conventional cardiovascular risk assessment provide complementary rather than interchangeable information. A low conventional cardiovascular risk score does not necessarily mean an individual has low Lp(a).



THE CARDIOVASCULAR RISK WE MAY NOT BE SEEING

Effective cardiovascular prevention begins with identifying risk before disease manifests.

Risk calculators such as QRISK3 bring together multiple established factors to estimate an individual's 10-year likelihood of developing cardiovascular disease. But cardiovascular risk is multidimensional.

ONE FACTOR INCREASINGLY RECOGNISED AS IMPORTANT IS LP(A).

Unlike many conventional risk factors, circulating Lp(a) concentrations are largely genetically determined, relatively stable throughout life and minimally influenced by lifestyle modification.

THAT DISTINCTION IS IMPORTANT.

QRISK3 estimates cardiovascular risk over the next 10 years and is strongly influenced by age and accumulated conventional risk factors. Lp(a), by contrast, provides information about a genetically determined cardiovascular risk factor that may be present from an early stage of life.

This creates an important clinical question:

WHAT HAPPENS WHEN CONVENTIONAL RISK ASSESSMENT SAYS "LOW RISK", BUT LP(a) IS ELEVATED?

The Randox Health 2025 cohort provides new evidence to help answer that question.

NEW REAL-WORLD EVIDENCE FROM ALMOST NEARLY 15,000 INDIVIDUALS

Participants included in the study were aged 25 to 84 and had the measurements and variables required for Lp(a) and estimated QRISK3 assessment.

Lp(a) concentrations were classified into three groups:

LP(A) CONCENTRATION	CLASSIFICATION
≤ 75 nmol/L	Low risk
76–125 nmol/L	Intermediate / grey zone
> 125 nmol/L	High risk

Participants were also divided according to estimated QRISK3:

- ✓ **<10%:** LOW ESTIMATED 10-YEAR CARDIOVASCULAR RISK
- ✓ **$\geq 10\%$:** ELEVATED ESTIMATED 10-YEAR CARDIOVASCULAR RISK

The Randox Lp(a) assay used in the study was calibrated in nmol/L and traceable to WHO/IFCC reference material.

18% Had Elevated Lp(a) - One of the most immediately striking findings was the prevalence of elevated Lp(a).

Of the 14,848 participants: **2,670 individuals, or 18%, had Lp(a) concentrations > 125 nmol/L**

Meanwhile: **1,426 individuals, or 9.6%, had an estimated QRISK3 score ≥ 10**

The comparison begins to illustrate that the two approaches do not identify identical populations.

- ✓ **9.6%** Estimated QRISK3 $\geq 10\%$
- ✓ **16.0%** High Lp(a) but QRISK3 $< 10\%$

The Key Finding: 89% of People with Elevated Lp(a) Were Below the QRISK3 Threshold.

This is perhaps the most compelling finding from the research.

DIFFERENT MEASURES. DIFFERENT DIMENSIONS OF RISK.

Why is there such limited overlap? The answer lies in what each measure represents.

QRISK3

QRISK3 brings together multiple established variables to estimate **10-year cardiovascular risk**. These include age, smoking status, systolic blood pressure, BMI, cholesterol measurements, family history, medical conditions and medication use.

Lp(a)

Lp(a), in contrast, is largely **genetically determined** and is associated with lifetime cardiovascular risk. An otherwise healthy younger adult could therefore have: **Low short-term estimated cardiovascular risk** while simultaneously having: **Elevated Lp(a)**.

The study demonstrated that median estimated QRISK3 scores increased across Lp(a) categories, from **1.4% in the low-Lp(a) group to 1.8% in the high-Lp(a) group**, but the absolute difference was modest.

This supports an important shift in thinking: Lp(a) should not be viewed as a replacement for conventional cardiovascular risk assessment. It can provide additional information alongside it.

MOVING TOWARDS MORE COMPLETE CARDIOVASCULAR RISK ASSESSMENT

The results have an important implication for cardiovascular prevention.

Rather than asking whether Lp(a) or QRISK3 is the “better” measure, the evidence suggests they answer **different questions**. A combined approach could provide a broader view of cardiovascular risk by considering both conventional and inherited risk factors.

THE STUDY DESCRIBES SEVERAL DISTINCT PROFILES:

✔ LOW QRISK3 + LOW LP(a)

Conventional and Lp(a)-based assessment are concordant.

✔ LOW QRISK3 + ELEVATED LP(a)

Low estimated 10-year risk despite the presence of a recognised inherited cardiovascular risk factor.

✔ HIGH QRISK3 + LOW LP(a)

Elevated estimated cardiovascular risk primarily driven by conventional risk factors.

✔ HIGH QRISK3 + ELEVATED LP(a)

Elevated estimated risk alongside coexisting conventional and Lp(a)-associated cardiovascular risk factors.

The published authors stress that this framework is intended to aid interpretation and **should not be regarded as a management algorithm**. Prospective outcome studies are required to establish whether combining Lp(a) and QRISK3 improves prediction or clinical decision-making.

CONCLUSION

Cardiovascular risk is more complex than a single number.

The analysis of 14,848 participants within the Randox Health 2025 cohort identified significant discordance between elevated Lp(a) and estimated QRISK3 risk. Although 18% had Lp(a) concentrations above 125 nmol/L, **almost nine in ten of those individuals remained below the QRISK3 10% threshold**.

These findings highlight an important opportunity for more comprehensive cardiovascular risk assessment.

Lp(a) does not replace established cardiovascular risk prediction. Instead, measuring it can reveal inherited risk information that conventional algorithms may not capture.

By looking beyond traditional risk factors, healthcare professionals can build a more complete picture of cardiovascular risk.

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