CVD risk assessment in primary care in England between 2013 and 2023

EPH213

View all Parexel's posters at ISPOR Europe 2024

A real-world evidence study using primary care data

Mateo Delclaux Rodriguez-Rey, Xinyu Yang, Sophie Young, Natalia Stelmaszuk, Jay Were, Jackie Vanderpuye-Orgle

Background

Cardiovascular disease (CVD) remains a significant health concern in England [1]. The NHS Health Check programme, implemented to address this issue, recommends CVD risk assessment every five years for individuals aged 40-74 without pre-existing conditions [2, 3]. The QRISK score, a key component of this assessment, estimates an individual's 10-year CVD risk based on factors such as age, sex, ethnicity, blood pressure, cholesterol levels, BMI, family history, and lifestyle [4, 5].

While the NHS provides clear guidelines for using the QRISK score, real-world implementation may vary due to factors like patient engagement and healthcare provider practices. Understanding the characteristics of the population assessed for CVD risk is crucial, and offers insights into the NHS Health Check programme's effectiveness, highlight disparities in risk assessment practices, and inform future prevention policies. This study aims to characterize the patient population assessed for CVD risk using the QRISK score within the last 10 years, and to provide a comprehensive picture of the QRISK score's real-world use in England.

Methods

This was a descriptive retrospective cohort study using secondary data from the Clinical Practice Research Datalink (CPRD) Aurum database. CPRD collects anonymized patient data from a network of GP practices across the UK. The Aurum database is comprised of routinely-collected data from primary care practices using EMIS Web® electronic patient record system software. CPRD Aurum contains data on demographics, medical history data entered on the GP system including symptoms, clinical measurements, laboratory test results, and diagnoses, and prescription data.

A random sample of 500,000 patients were selected from a total of 1,275,619 patients who had at least one record of QRISK assessment between 2013 to 2023. For patients who had multiple records of QIRSK assessment, the earliest record was selected to reflect the initial assessment.

A baseline of 12-month period prior to the date of QRISK assessment was used to evaluate the patient's characteristics.

Patients' QRISK score and corresponding risk category, demographics, clinical characteristics, and history of lipid testing at first QRISK assessment were described by patients assessed at each calendar year.

Results

- Amongst those who are newly assessed with the QRISK tool over the past 10 years, most of the demographic characteristics of the patients stay relatively consistent, however, there have been changes in age of patients, and the proportion of patients with lipid testing in the year prior.
- Age of the newly assessed patient steadily decreased, and overall, more patients had a prior lipid testing before their risk assessment.
- The QRISK score and risk categories obtained from the assessment showed changes over the years, with the overall risk scores decreased from 8 to 4.4.
- Most patients were in the low QRISK category at their initial risk assessment.

Figure 1. Change in QRISK category and median score over years

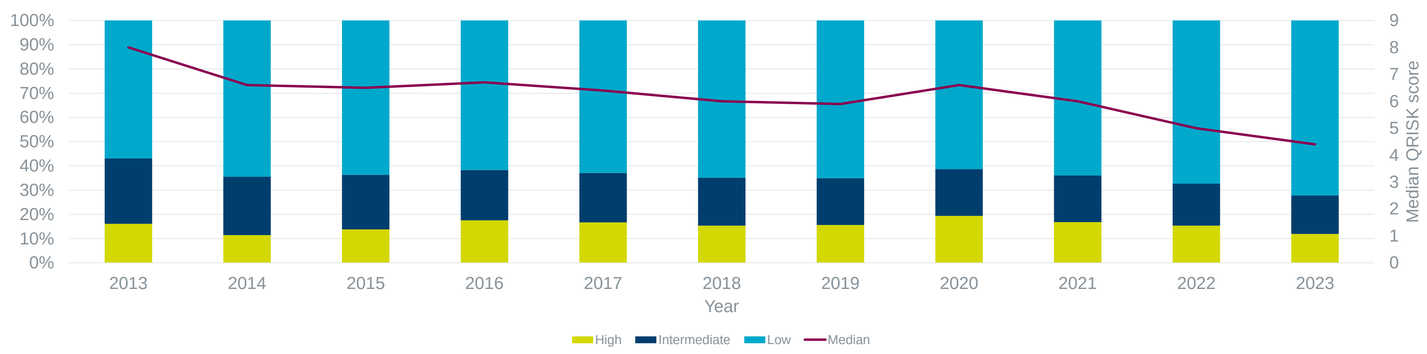

Figure 2. Proportion of patients with lipid tests over time

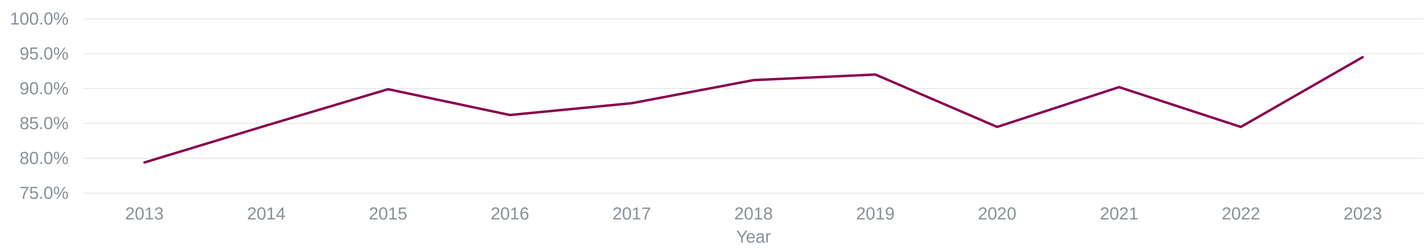

Figure 3. Change in mean age of patients with QRISK over time

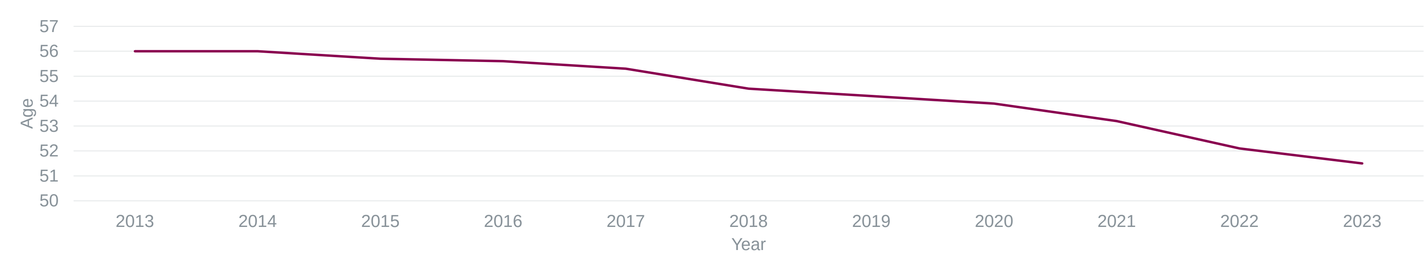

Table 1. Characteristic of patients screened in 2023

Variable		2023 (N = 26,228)
Age	mean (SD)	51.5 (12.8)
	median (Q1 - Q3)	49.5 (42-60.4)
	min - max	18 - 98
Gender	Male, n (%)	12,330 (47%)
	Female, n (%)	13,898 (53%)
Region	London, n (%)	6092 (23.2%)
	South East, n (%)	9511 (36.3%)
	South West, n (%)	230 (0.9%)
	East of England, n (%)	233 (0.9%)
	Midlands, n (%)	8108 (30.9%)
	North West, n (%)	1965 (7.5%)
	North East and Yorkshire, n (%)	89 (0.3%)
Ethnicity	White, n (%)	10451 (53.2%)
	Asian, n (%)	1292 (6.6%)
	Indian, n (%)	968 (4.9%)
	Black, n (%)	294 (1.5%)
	Arab, n (%)	90 (0.5%)
	Mixed, n (%)	4616 (23.5%)
	Any other ethnic group, n (%)	1944 (6.9%)
	Unknown/missing	*6,573*
QRISK category	High, n (%)	3,104 (11.9%)
	Intermediate, n (%)	4,127 (15.9%)
	Low, n (%)	18,775 (72.2%)
	Unknown/missing	*222*
QRISK score	mean (SD)	8.4 (10.3)
	median (Q1 - Q3)	4.4 (1.7-11.2)
	min - max	0 - 98
BMI	Underweight, n (%)	258 (1.3%)
	Healthy, n (%)	5445 (27.8%)
	Overweight, n (%)	6769 (34.6%)
	Obese, n (%)	5865 (30%)
	Severely obese, n (%)	1222 (6.2%)
	Unknown/missing	*6,669*
BMI value	mean (SD)	28.9 (6.5)
	median (Q1 - Q3)	27.8 (24.4-32.1)
	min - max	13.18 - 64.9
Current smoker	Yes, n (%)	3,593 (13.7%)
Prior lipid testing	Yes, n (%)	24,797 (94.5%)

Conclusions

- The results from this study suggested improvements in the application of the QRISK assessment in primary care. Patients are screened at a younger age, at a lower level of risk, and with prior lipid testing. This presents potential for improved patient care as higher risk patients are identified earlier. Further research is required to understand whether there are underrepresented groups who are not assessed due to their level of risk, or health seeking behaviour.
- Limitations
  - Data quality and completeness can vary between practices and over time, with some clinical information potentially missing or incompletely recorded. Variations in coding practices and changes in coding systems may affect data consistency.
  - As CPRD Aurum contains primary care data, information from secondary care is not considered in the study.
  - Selection bias may occur, as frequent GP visitors might be overrepresented, while patients who are not assessed due to their level of risk or health-seeking behaviour may be underrepresented.

REFERENCES

[1] Bhatnagar P, Wickramasinghe K, Wilkins E, Townsend N. Trends in the epidemiology of cardiovascular disease in the UK. Heart. 2016;102(24):1945-1952. doi:10.1136/heartjnl-2016-309573

[2] Public Health England. NHS Health Check: our approach to the evidence. 2013. https://www.gov.uk/government/publications/nhs-health-check-our-approach-to-the-evidence

[3] NHS England. NHS Health Check. https://www.nhs.uk/conditions/nhs-health-check/

[4] Hippisley-Cox J, Coupland C, Brindle P. Development and validation of QRISK3 risk prediction algorithms to estimate future risk of cardiovascular disease: prospective cohort study. BMJ. 2017;357:j2099. doi:10.1136/bmj.j2099

[5] Collins GS, Altman DG. An independent external validation and evaluation of QRISK cardiovascular risk prediction: a prospective open cohort study. BMJ. 2009;339:b2584. doi:10.1136/bmj.b2584