

Measuring cardiovascular (CVD) Risk

The National Institute for Care Excellence (2014) recommends the level of CVD risk should be estimated using an appropriate risk calculator such as the QRISK®.

QRISK®2

Explaining annual updates

The providers release a new version of QRISK®2 every spring, usually in April.

Annual updates are required because of:

- Changes in population characteristics - for example, incidence of cardiovascular disease (CVD) is falling; obesity is rising; smoking rates are falling;
- Changes in requirements for how the risk prediction scores can be used, e.g. changes in age ranges.
- Improvements in data quality - for example the recording of exposures and also clinical outcomes becomes more complete over time. This is especially true for recording of ethnicity data which is becoming more complete. All 1243 practices in England currently contributing to the QResearch® database (version 40) now have data linked at patient level to the Hospital Episode Statistics (HES) database. This means it is possible to identify patients who have been admitted to hospital for cardiovascular disease where this information is not already recorded on the GP record or linked mortality record from the Office of National Statistics (ONS). Both HES and ONS mortality data linkages extend back to 1997.

These factors require them to remodel the QRISK®2 algorithm to the latest version of the QResearch® database each year to ensure the algorithm keeps up to date. If the algorithm is not re-calculated, then its performance would gradually decay and its clinical value would diminish as a result. They have therefore re-fitted the algorithm using a three quarter random sample of the QResearch® practices and incorporated this into the annual update of the software.

The 2017 update

They updated the coefficients for the QRISK®2-2017 algorithm using the latest version of the QResearch® database available at the time. The annual update documentation linked from the 2017 part of the site shows details of how risk factor recording and CVD incidence rates have changed over time.

In summary, CVD rates continue to decline and there continues to be an improvement in recording of self-assigned ethnicity over time.

The improvement in recording of ethnicity has resulted in more accurate estimation of risk for the different ethnic groups as it's based on a much larger sample size. The practical result is an increase in the weighting applied to the non-white ethnic groups which will result in a small increase to the corresponding risk scores.

As with any re-calibration, there are other changes to the relative risks given to the various input parameters. This is just what happens when a model is fitted to new data.

Still using QRISK[®]2-2016 or QRISK[®]2-2015

That's just fine. They both work very well. The providers recommend that those who integrate QRISK[®]2 into their own systems move to the QRISK[®]2-2017 score by the autumn -- this means that they have the freedom to schedule the work needed into a convenient point of their release cycle.

Where are the calculators?

Here is

- [the QRISK2-2017 calculator](#),

and here are

- [the QRISK2-2016 calculator](#), and
- [the QRISK2-2015 calculator](#).

QRISK[®]3

QRISK[®]3 was published in the BMJ on 23rd May 2017. You can find the calculator here:

- [the QRISK3-2017 calculator](#).

What is the difference between QRISK[®]3 and QRISK[®]2?

QRISK[®]3 includes more factors than QRISK[®]2 to help enable professionals to identify those at most risk of heart disease and stroke.

These are

- Chronic kidney disease, which now includes stage 3 CKD
- Migraine
- Corticosteroids
- Systemic lupus erythematosus (SLE)
- atypical antipsychotics
- severe mental illness
- erectile dysfunction
- a measure of systolic blood pressure variability

Has QRISK[®]3 been validated?

Yes. QRISK[®]3 has been validated on a separate group of practices from that used to develop the score and the performance is very good.

Why change the name from QRISK[®]2 to QRISK[®]3?

It's the same science and team behind the score, and the way that the providers intend it to be used remains exactly the same. In many ways it is very similar to our usual annual updates -- however, they thought that as they are introducing several new parameters, they would upgrade its major version number.

What will now happen to QRISK®2?

QRISK®2-2017 will be the last version of QRISK®2 that will be produced. QRISK®3 will be the standard version of QRISK® shipped in the software development kits in 2018, so all implementations will become QRISK®3 in due course.

National Institute for Health and Care Excellence. (2014). Cardiovascular disease: risk assessment and reduction, including Lipid Modification. <https://www.nice.org.uk/guidance/cg181>