VSQIP VASCULAR SERVICES QUALITY IMPROVEMENT PROGRAMME

National Vascular Registry (NVR)

**What has been changed on the NVR IT System in September 2015?**

A number of changes and improvements have been made to the NVR IT system in the release in September 2015.

Access to follow-up for Hub and Spoke Networks
We have made changes to the NVR IT system to allow patient records to be completed by a different consultant from the one that carried out the procedure. This was designed to be used in situations where vascular surgical procedures take place in the hub hospital of a vascular network, but then patients have their follow-up appointment at another hospital, which may be one of the network spoke hospitals. Currently, unless a consultant was named as a vascular specialist involved in the procedure, they would not see the patient's record appear in their episode search list, and would not be able to complete the follow-up information for the patient.

The changes in the IT system now create the ability to transfer patient records between consultants.

When a user has become the responsible clinician for a transferred patient, they can locate patient's record by using a new menu item under the Search tab, which is entitled 'National Search.'
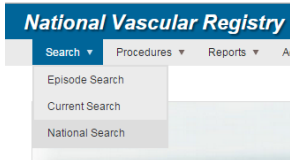
Upon selecting 'National Search', it is possible to use any of the patient identifiers to find the record.
Once a record has been found, and accessed, a 'shared record' symbol will appear next to it in the episode search screen.

You will then have access to this record and will also be able to see it in your standard episode search list.

It is possible to 'break' a user's access to these records if this is no longer required, or if the record has been accessed by mistake. This is done by clicking on the icon or by contacting your local NVR administrator.

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Current Search

There is another new menu item in the Search heading – current search. This will enable a user to return to the same set of results generated by the last search. For example, if you have searched for all incomplete AAA repair procedures carried out between April 2014 and June 2014 and you complete one of the records, selecting this function will reload the search results and will stop you from having to run it again.

This feature only works within a 'session' on the NVR IT system. The previous search won't be retained when you logout.

Discharge Status now shown in Search Results

We have added a column entitled D/S to the episode search screen. This shows the current discharge status of the patient using the following symbols:

A – patient discharged alive

D – died in hospital

? – discharge status question not completed

Changes to NVR datasets

- All procedures – two new answer options have been added to the pre-operative medication question: antibiotic prophylaxis and DVT prophylaxis.

- Angioplasty procedure – the question on ASA grade has been made non-mandatory.

- Angioplasty procedure – the label for 'stenosis' within the lesion question in the procedure section has been changed to read 'stenosis/aneurysm.'

- Amputation procedure – haemoglobin level has been added to the risk scoring section.

- Amputation procedure – glucose level has been added to the risk scoring section.

- Amputation procedure – a new question has been added in the procedure section entitled 'was consultant surgeon present in theatre?'

- AAA repair procedure – the question on whether an intervention for endoleak was successful or not is hidden if no intervention was carried out.

Run Charts

A new set of run charts for continuous performance monitoring have been added to the NVR IT system. They are situated within the Reports menu and then the Graphs submenu. Currently, they have just been made available for elective infra-renal AAA repair and carotid endarterectomy. The charts can be used to look at the sequence of outcomes for all procedures, the last 200 procedures, or the last five years.

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The new chart consists of two graphs. In both cases, each point in the data series is an individual patient, with the patients ordered by operation date.

The top graph is based on a risk-adjusted exponentially weighted moving average (EWMA) run chart. The green line shows the average outcome rate of surgery, based on an exponentially-weighted moving average of the previous sequence of outcomes. The blue line shows the average predicted risk for the sequence of patients, given their patient characteristics. Each time there is an adverse outcome (inpatient death for AAA repair, inpatient death/stroke for CEA), the green line will spike up. It will fall if a patient is discharged alive (AAA repair) or discharged alive with no post-operative stroke (CEA). This gives it a characteristic "sawtooth" appearance. The blue line will rise if the cohort of patients becomes more high-risk and will fall if the cohort becomes less high-risk.

The lower graph is a risk adjusted double-sided CUSUM chart. The CUSUM chart uses a probability testing procedure that sequentially assesses whether the observed adverse outcome rate is consistent with the expected baseline rate. In statistical terms, the plotted value in the upper part of the CUSUM chart is the log likelihood of detecting a doubling in the odds of an adverse outcome. The value plotted in the lower part of the CUSUM chart is the log likelihood of detecting a halving in the odds of an adverse outcome. The graph suggests there has been an increase in the postoperative outcome rate if the CUSUM value in the upper section of the chart crosses the control limit. If the CUSUM value in the lower section crosses the control limit, it suggests there has been a decrease in the postoperative rate.

Both the EWMA chart and the CUSUM chart take into account the predicted risk of the operation for the patient. Both the EWMA and CUSUM charts use the same risk model. These are based on the models used in the consultant outcomes publication. It has been necessary to adapt them, however, to deal with records that contain missing values. If a record has a risk factor with missing data, the patient is assigned a value associated with the least risk level on that risk factor.

The control limits have been set to be more sensitive than the ones in the funnel plots used in our public reporting. This is because this online graph is designed to flag up a potentially deteriorating situation in time for an appropriate review. This should prevent situations in which results are flagged as being an outlier.