NATIONAL ADULT CARDIAC SURGERY AUDIT

2019 SUMMARY REPORT (2015/16-2017/18 DATA)

NICOR

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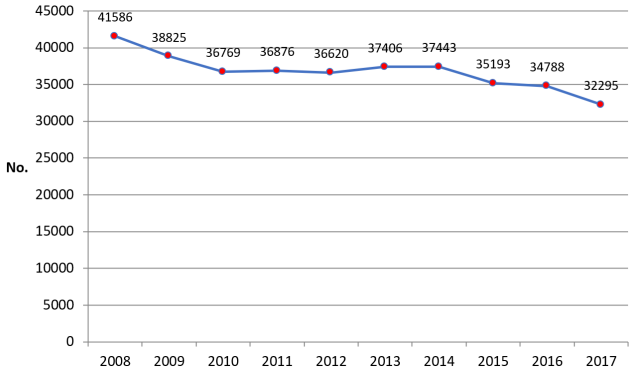
1. NATIONAL ADULT CARDIAC SURGERY – SUMMARY REPORT 2015/16-2017/18

This annual report looks at all adult cardiac surgery undertaken in the UK over the past 3 years - between 1st April 2015 and 31st March 2018. It is a summary of all the NHS hospitals around the UK, as well as five private hospitals and one hospital from the Republic of Ireland.

The total number of procedures submitted by the hospitals during this 3-year period was 102,276 cases. The commonest cardiac operations performed in the UK are coronary artery bypass grafting (CABG), followed by operations to replace the aortic valve (AVR) or a combination of an AVR with another procedure (usually CABG).

The number of cardiac operations performed in the UK has been steadily falling for the past decade and this trend is continuing over the past year. In 2008/9 there were 41,586 cases performed, compared to 32,295 in 2017/18 (a reduction of over 22% in 10 years) (See Table 1 and Figure 1)

Table 1 and Figure 1: *Cardiac Surgery Rates (All Cases) in UK – 10 year trend*

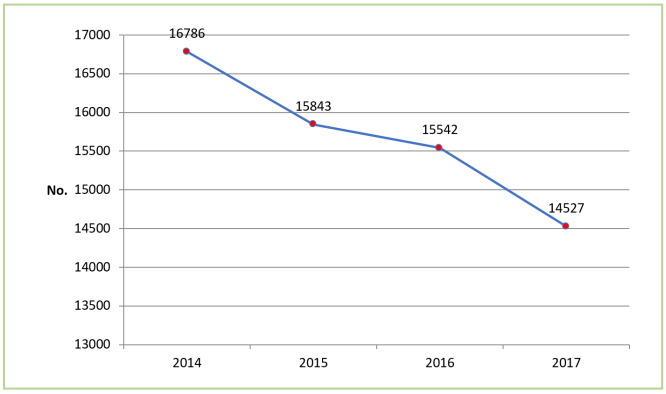


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
All procedures (including emergencies)	41586	38825	36769	36876	36620	37406	37443	35193	34788	32295

[Note: 2017 = financial year 2017/18 in this and all other graphs.]

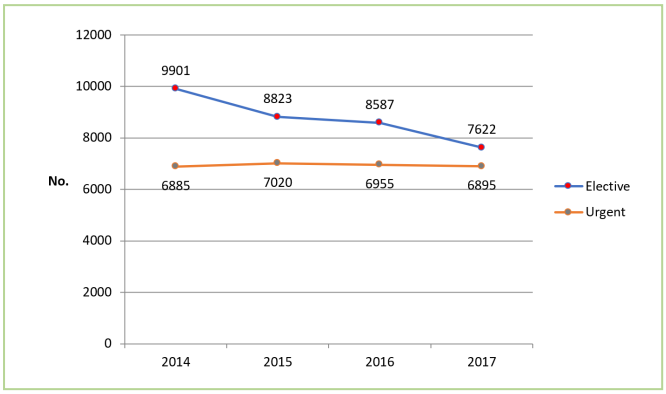
Coronary artery surgery (CABG) operations have also reduced. In 2014/15 there were 16,786 CABG compared to 14,527 in 2017/18 (a reduction of 13% in 4 years). This appears to be mainly due to a reduction in the numbers of elective cases, whereas the urgent cases of CABG have stayed largely unchanged. This reflects the trend to increasingly treat patients with coronary artery disease soon after their presentation with an acute coronary syndrome (heart attack) so as to try to prevent future complications (such as a further heart attack or death) (Tables 2 and 3; Figures 2 and 3).

Table 2 and Figure 2: *Isolated CABG Rates in UK (non-emergency) – 4 year trend*



	2014/15	2015/16	2016/17	2017/18
Isolated first time CABG (overall cohort)	16786	15843	15542	14527

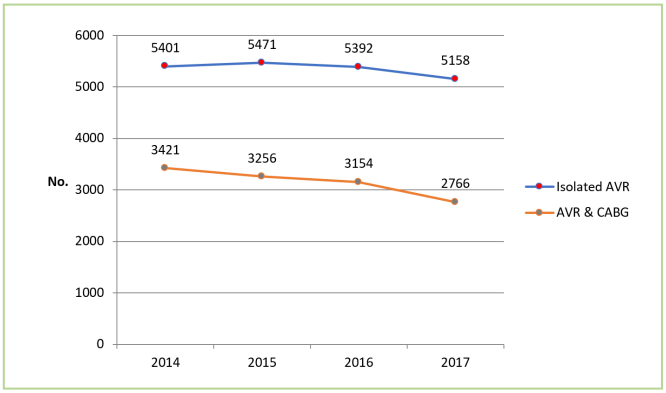
Table 3 and Figure 3: *Isolated CABG rates in UK (elective vs urgent) – 4 year trend*



	2014/15	2015/16	2016/17	2017/18
Isolated first time CABG (elective patients)	9901	8823	8587	7622
Isolated first time CABG (urgent patients)	6885	7020	6955	6895

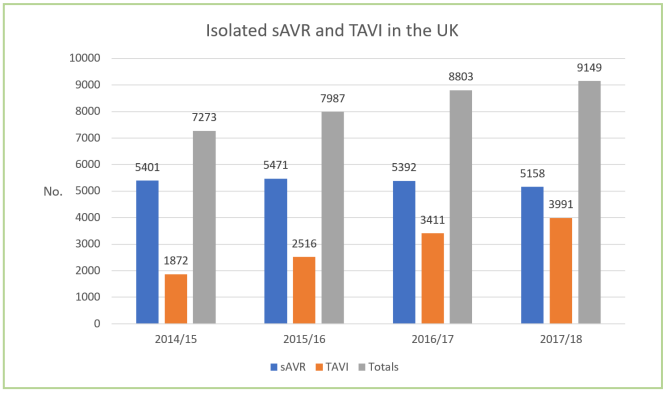
Aortic valve replacement (AVR) rates have largely remained stable over the last 4 years, although there is a slight reduction in 2017/18 (Table 4, Figure 4). This is most likely to be due to the increasing adoption of TAVI (transcatheter aortic valve implantation) in the UK to treat aortic stenosis (the commonest disease requiring AVR). There was an initial increase in the rate of surgical AVR after the introduction of TAVI, suggesting a higher referral rate of patients to be considered for treatment but, more recently, there has been a slight reduction in the numbers of surgical AVR as the number of TAVI procedures has increased (Figure 5).

Table 4 and Figure 4: *AVR Rates in UK (isolated and combined with CABG) – 4 year trend*



	2014/15	2015/16	2016/17	2017/18
Isolated first time AVR	5401	5471	5392	5158
Isolated first time AVR & CABG	3421	3256	3154	2766

Figure 5: *Treatments for aortic valve disease in the UK – isolated surgical AVR and TAVI rates (data courtesy of the Society for Cardiothoracic Surgery in Great Britain and Ireland and the British Cardiovascular Intervention Society)*



2. MORTALITY/SURVIVAL RATES FOLLOWING CARDIAC SURGERY

In-hospital mortality data are collected on all patients who died before being discharged from hospital. This includes patients who die during their procedure, or die after their operation but before they have been discharged home. This may be as a result of complications of the surgery or may be as a result of a separate disease or disorder.

The Adult Cardiac Surgery Audit also participates within the Clinical Outcomes Publication (COP) programme which publishes information on all hospitals and consultants undertaking adult cardiac surgery. It provides outcomes on in-hospital survival along with the total number of procedures performed. This information is published on the Society of Cardiothoracic Surgery website (www.SCTS.org) and is produced by NICOR after undergoing a thorough validation process.

In order to provide a more reliable analysis of outcomes, patients undergoing a small number of unusual or highly specialised procedures are excluded. In addition, patients undergoing surgery as an emergency are excluded, as these are more difficult to risk stratify. The excluded procedures were patients undergoing cardiopulmonary transplantation, implantation of primary ventricular assist devices, surgery for trauma, pericardiectomy or those having procedures following pre-operative ventilation on intensive care. After excluding these procedures, the total number of records used for outcomes analysis was 97,262.

The latest outcomes of individual hospitals and surgeons for the three years between 2015 and 2018 are available online here.

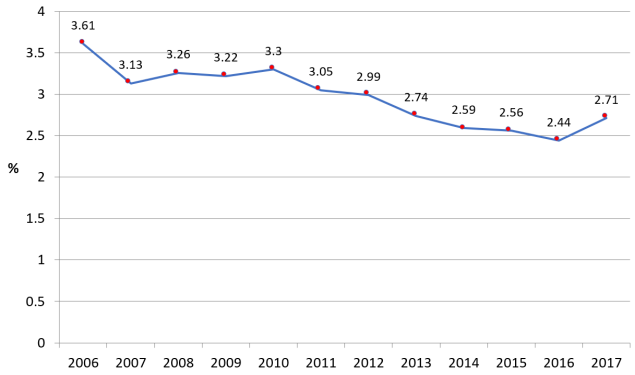
It is important to note that when reported in COP, in-hospital mortality is referred to as in-hospital survival rates. For example, where in-hospital mortality is reported as 2.5%, this would also be reported as a 97.5% survival rate within COP. This emphasises that the vast majority of patients having cardiac surgery in the UK are expected to survive their operation.

The in-hospital mortality rate for all elective and urgent operation types combined has been steadily decreasing over the past 10 years. For the 2015/16-2017/18 reporting period, the crude (unadjusted for operative risk) mortality rate is 1.82% (a survival rate of 98.18%), compared to 1.84% in 2014/15-2016/17. Likewise, the mortality rates have been steadily falling year on year when all patients, including the higher risk emergency cases, are included in the analysis. However, for the first time since 2010 the rate has risen slightly compared to last year, with a rate of 2.71% in 2017/18 (a survival rate of 97.29%). The change is small, and may just be random variation. Alternatively, it may reflect the increasing age and co-morbidity of the patients combined with an increase in the proportion of operations performed non-electively (Table 5 and Figure 6).

Mortality rates following CABG continue to be excellent across the UK – with only 0.99% dying. This means that on average more than 99% survive CABG when it is performed as a non-emergency procedure (Table 6 and Figure 7).

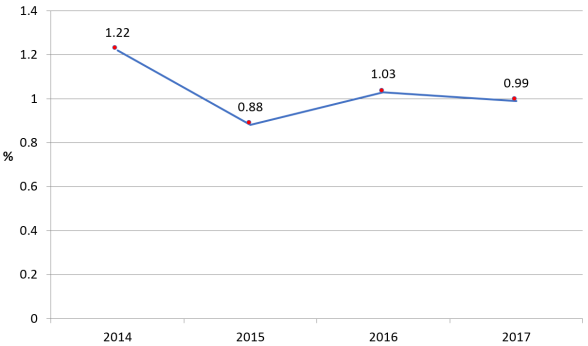
Contemporary mortality rates following AVR are also excellent. Mortality rates have continued to fall in the past 4 years, with 99% of patients now expected to survive a non-emergency AVR in UK (a mortality rate of 1.01% in 2017/18). It is expected that TAVI rates will continue to increase in the UK, but current AVR outcomes in the UK provide a benchmark for comparison for these newer treatments (Table 7 and Figure 8).

Table 5 and Figure 6: *Crude Mortality Rates following Cardiac Surgery in the UK (all cases) – past 11 years*



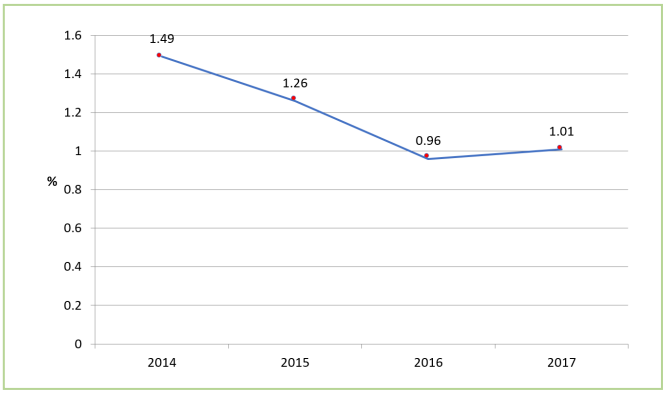
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Crude mortality (all procedures) (%)	3.61	3.13	3.26	3.22	3.3	3.05	2.99	2.74	2.59	2.56	2.44	2.71

Table 6 and Figure 7: *Crude Mortality Rates following Isolated CABG (non-emergency) in the UK – past 4 years*



	2014/15	2015/16	2016/17	2017/18
Crude mortality rate following isolated non-emergency CABG	1.22	0.88	1.03	0.99

Table 7 and Figure 8: *Crude Mortality Rates following isolated AVR (non-emergency) in the UK – past 4 years*



	2014/15	2015/16	2016/17	2017/18
Crude mortality rate following isolated AVR	1.49	1.26	0.96	1.01

For the purposes of outcomes monitoring within NACSA in-hospital mortality is used. This is defined as a death during the same admission to hospital as the surgical procedure took place. This has the advantage of being easily verifiable by the hospitals reporting the data. It is also a measure of whether a patient ever recovers sufficiently following their operation to be discharged home. The disadvantage is that a patient that stays in hospital for a long time may die of a condition that is not related to the heart surgery.

In many audits and research studies mortality within 30 days of an operation (or treatment) is often used. This limits recording deaths to just those that occur close to the operation and within a standardised timeframe. It also captures deaths that occur soon after discharge home, which may or may not have been related to surgery. It has the disadvantage of being harder to accurately collect (as hospitals may not be notified of every death once a patient has been discharged). These data can be crosschecked against death certificates (via ONS), but often this takes many months, or some cases years (if an inquest is held), to be accurately recorded.

For comparison purposes, Table 8 shows the mortality rates at different time points (in hospital, 30 day and 1 year) for all non-emergency cardiac operations over the past 3 years. It also has the predicted mortality rates using EuroSCORE logistic and the modified EuroSCORE logistic (calibrated by NICOR) and used for auditing unit and surgeon outcomes within COP. EuroSCORE

logistic clearly overestimates the risk of death for modern surgical procedures (although it was very good at the time it was devised). The audit now collects data for calculating EuroSCORE II – but data were not sufficient for the entirety of the 3 year audit cycle.

Table 8: *Crude Mortality Rates following Cardiac Surgery in the UK (all cases) – past 11 years*

Total UK cases (after exclusions) 2015/18	In-hospital deaths (2015/18)	In-hospital mortality (%)	30 day mortality (ONS)	30 day mortality (ONS) (%)	1 year mortality (ONS)	1 year mortality (ONS) (%)	Predicted In-Hosp mortality ES-log1-raw	Predicted In-Hosp mortality ES-calibrated
97262	1760	1.81%	1457	1.5%	3659	3.76%	6.05%*	1.75%*

[mean of means]*

3. WAITING TIMES FOR CORONARY ARTERY (CABG) SURGERY

The time spent waiting for a procedure is a particularly contentious issue. It is a balance between ensuring that there is sufficient time for the medical team to perform all the necessary tests and pre-operative assessments, in order to optimise the patient's clinical condition (including stopping or changing any medications), versus the administrative problems of operating slot and intensive care bed availability.

Last year we reported the waiting times for both elective and urgent CABG for the first time. For the audit we have defined waiting times as the time from the angiogram to the date of operation. This is easily measured and it is also the portion of the patients' pathway over which surgical teams have control. It does, however, ignore the time patients spend waiting to be investigated prior to referral for surgery. Emergency patients were excluded, as these patients are defined as receiving their operation on the same day as the decision to operate, and this is usually straight away, within minutes or hours of the diagnosis being made. The numbers of patients receiving an emergency CABG in the UK are small.

Patients admitted, diagnosed as having coronary artery disease (with an angiogram), and referred for surgery all during the same admission are designated as 'urgent' cases. This is usually after presenting to hospital with an acute coronary syndrome (a heart attack). On admission to hospital two anti-platelet (blood thinning) drugs are usually given to prevent further attacks. If the patient subsequently needs a CABG operation these need to be stopped so as to reduce the risks of post-operative bleeding. The ideal time for surgery is therefore usually 5 days following diagnosis (with an angiogram) and cessation of anti-platelet drugs. The CQUIN (Commissioning for Quality and Innovation) target has been set that all urgent CABG operations should be performed within 7 days of diagnosis, with Trusts given incentives to achieve this target (https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2015/01/a10-spec-adlt-cardiac-surgry.pdf). It does, however, mean that the window of time that is 'ideal' to perform urgent surgery is small, making achieving this in 100% of cases challenging.

Previously we have reported the mean time waiting for urgent CABG. This year we also report the proportion of cases treated within 7 days. The mean time waiting for urgent CABG in 2017/18 was 10 days in the UK (no change from 10 days in 2016/17). Six hospitals had a mean time ≤6 days, but 8 had a mean time ≥14 days. The proportion treated within 7 days was only 34% in the UK. Only four hospitals managed to treat >50% within 7 days with the best being North Staffordshire hospital with 59% (see Case Study 1).

Elective CABG patients are admitted from home for planned surgery. The mean waiting time in the UK in 2017/18 was 96 days (with little change compared to 95 days in 2016/17). The rates in the 4 nations in 2017/18 were England 95 days (vs 96 for 2016/17); Scotland 104 days (vs 84); Wales 112 days (vs 97); Northern Ireland 113 days (vs 134). Elective waiting times are largely unchanged in England, improved in Northern Ireland, but have worsened in Wales and Scotland. Ten hospitals (only 4 NHS) had waiting times ≤69 days but 10 (all NHS) had times ≥114 days (upper and lower interquartile ranges).

The audit results for waiting times for CABG at the UK, National and Hospital levels are available here.

Case Study 1: Reducing waits for urgent CABG

University Hospital of North Midlands, Stoke: Mr Christopher Satur (Consultant Cardiothoracic Surgeon)

Rationale:

Optimising timing of definitive care for patients with NSTEMI

CQUIN target

Reduce waiting times for surgery

Case study:

An optimised pathway for patients requiring urgent cardiac surgery following inter-hospital transfer was developed.

The importance of excellent communication between our unit and Consultant Cardiologists of referring hospitals was emphasised.

Active pre-operative assessment and optimisation of co-morbidity was undertaken through nurse-led clinics. Occult infection is identified and treated early, diabetes is optimised, and smoking cessation introduced.

Nurse coordinators ensure that patients were transferred in good time to UHNM, sufficient to allow pre-operative assessment and evaluation to be confirmed and modified if necessary. On transfer a named Consultant Surgeon is identified to ensure that treatment and investigations have been optimised for each patient.

Whilst it is the aim that the named consultant will provide surgical treatment, a shared approach to maximise utilisation of theatre sessions is practised. Transfer of care to another consultant with a vacant operating session is therefore encouraged.

In 2017/18, 59% of patients referred for urgent CABG at the University Hospital of North Midlands underwent their surgery within 7 days of referral (top performer in the UK).

Tips:

A locally designed pathway, specifically targeting inpatients referred for CABG, can help reduce waiting times.

Use of nurse coordinators and pre-operative optimisation can help reduce cancellations for medical reasons (such as stopping certain pre-operative medications in a timely manner – especially anti-platelet drugs, treating diabetes, etc.).

Whilst a named consultant can help optimise pre-operative decision making, to avoid vacant operating slots it is sensible to transfer care to a consultant with the soonest available operative space.

4. DEEP STERNAL WOUND INFECTION (FOLLOWING CABG)

Serious wound infection is one of the most feared complications following cardiac surgery. Infection within the breastbone (sternum), or the tissues around the heart, usually requires a prolonged stay in hospital and can significantly delay recovery from surgery. Treatment usually requires further surgery – to either debride infected tissues, or to perform reconstructive surgery (often with the aid of teams skilled in plastic surgery). For the purpose of this audit, Deep Sternal Wound Infection (DSWI) is defined as when a patient requires a return to the operating theatre to treat it. This definition will therefore miss many cases of more minor infections.

The DSWI rate in the UK was 0.3% for 2017/18 (compared to 0.26% in 2016/17). The levels of serious sternal wound infection have risen marginally in the past year, but are relatively low, and unlikely to reflect a significant change. However, from a patient perspective a serious wound infection can be devastating, and so Trusts should actively monitor and seek to minimise their own rates of infection.

In England the DSWI rate for 2017/18 was 0.27%, Scotland 0.39%, Wales 0.49% and Northern Ireland 1.22%. The result in Northern Ireland is from single unit, so care is needed in interpretation due to the relatively small number of patients. Overall seven hospitals report rates of DSWI >0.5% following CABG (for the 3 years combined: 2015/16-2017/18). Three units have reported rates <0.1% during the past 3 years, one of which was the Royal Papworth Hospital (see Case Study 2).

The audit results for DSWI rates at the UK, National and Hospital levels are available here.

Case Study 2: Reducing Deep Sternal Wound Infections

Royal Papworth Hospital, Cambridge: Philippa Clark (Tissue Viability Nurse), Kunal Bhakhri (Specialist Registrar), David Jenkins (Clinical Director)

Rationale:

DSWI can be a devastating complication post Cardiac Surgery.

DSWI can significantly increase length of hospital stay, uses considerable additional resources and is also associated with an increased risk of death.

Case Study:

Whilst the risk of surgical site infection (SSI) can never be completely eradicated, we aimed to eliminate deep sternal wound infections (DSWI) with a multidisciplinary approach over the last 5 years, based on the best available evidence.

During the audit period of 2015-18 the rate of DSWI, serious enough to require surgical debridement or reconstruction, following CABG surgery at Papworth was 0.046% (approximately 1 in 2100 cases).

We also participated in national SSI infection audits to benchmark with peers. In the prospective GIRFT audit from November 2016 for cardiac and thoracic surgery we had only 15 confirmed SSI from 2393 procedures, 0.62% infection rate.

Tips:

Pre-operative swabs for MRSA at pre admission clinic or in the community to check status before admission for elective surgery.

Decolonisation of skin pre-operatively with antimicrobial wash the night before and the morning of surgery.

IHU patients awaiting cardiac surgery have been found to be at an increased risk of developing SSI. IHU patients therefore also washed daily in antimicrobial wash whilst waiting as inpatients, to reduce colonisation.

Attention to antibiotic prophylaxis, ensuring drug given early enough so blood levels appropriate at "Knife to Skin" time, and additional doses given at end of cardiopulmonary bypass during longer operations.

Meticulous prepping/draping in theatres, with standardised technique, chlorhexidine based, and 3 minute time out to allow drying.

Continuous surveillance of SSI, keeping profile high, with feedback of rates to surgeons, surgical care practitioners and ward areas quarterly.

The use of NPWT (negative pressure wound therapy) in early management instigated by a pro-active Tissue Viability Nurse team; supported by a nurse-led wound review clinic.

5. RE-OPERATION FOR BLEEDING (FOLLOWING CABG)

Cardiac surgery requires cutting into the main blood vessels of the heart, as well as the suturing of blood vessels together. In most cases it also requires the stopping of the heart and use of a heart-lung machine to keep the patient alive. Powerful drugs are given to prevent the blood from clotting during the surgery and within the heart-lung machine. At the end of surgery further drugs are given to promote blood clotting, as well as the surgeon taking care to ensure that all the suture lines are not bleeding. Despite this, bleeding following cardiac surgery is a relatively common, albeit an undesirable, complication of surgery. It can necessitate blood transfusions and, in more serious cases, a need to return to the operating theatre for re-exploration.

The re-operation for bleeding (following CABG) rate in the UK for 2017/18 was 2.57%, compared to 2.47% in 2016/17. For the past year (2017/18) the rates were very similar for England (2.5%), Scotland (2.23%) and Wales (2.44%). Northern Ireland had a much higher rate (6.08%), but is a single unit with relatively low numbers so care is needed in interpretation. Nine hospitals had re-operation for bleeding rates >3% following CABG (for 3 years combined: 2015/16-2017/18 data). Three hospitals achieved rates of <1%. One of these was the John Radcliffe Oxford (see Case Study 3).

The audit results for re-operation for bleeding following CABG surgery at the UK, National and Hospital levels are available here.

Case Study 3: Reducing post-operative bleeding following CABG

John Radcliffe Hospital, Oxford: Mario Petrou (Consultant Cardiac Surgeon)

Rationale:

Bleeding is relatively common following cardiac surgery.

Re-opening for bleeding has been associated with poorer outcomes for patients.

The treatment for bleeding is expensive (blood transfusion costs, prolonged ITU stays, repeat visits to the operating theatre, etc.).

Case study:

Over the last 3 years of the audit (2015/16-2017/18), Oxford has been one of only three units in the UK with re-opening for bleeding rates <1%.

The following initiatives were introduced around 3 years ago for all cardiac operations (not just CABG) and have probably helped reduce the re-opening rate that we have seen:

- Aggressive treatment of pre-operative anaemia for all elective cases, including administering intravenous iron therapy when needed.
- Autologous blood priming of the bypass circuit to minimise haemodilution.
- Routine use of cell salvage intra-operatively.
- Use of Aprotinin for selected high-risk cases, such as type A aortic dissection, endocarditis, and complex re-do surgery.
- Two consultants scrubbed to share the burden of cases requiring prolonged haemostasis.

Tips:

Taking measures to maximise haemoglobin pre- and peri-operatively may reduce the need for subsequent re-openings.

In difficult cases, team working may help haemostasis, possibly reducing fatigue at the end of the case.

6. POST-OPERATIVE STROKE (FOLLOWING CABG)

Strokes can present in many ways and with a very wide variation of symptoms and severity, which can make deciding whether a stroke has occurred post-operatively not as straightforward as it may seem. Strokes are one of most serious of the post-operative complications and devastating for the patient if they don't resolve. For this audit a transient stroke is defined as a stroke where the symptoms fully resolve with 24 hours of their onset. A permanent stroke is when the symptoms persist for more than 24 hours – even if they subsequently fully resolve.

The stroke rate following CABG in the UK in 2017/18 was 0.61%. This compares to 0.88% in 2016/17. The rate in England (2017/18) was 0.63%, Scotland 0.39%, Wales 0.99%, and Northern Ireland 0% (care needed with interpretation due to small numbers of patients, as only one hospital). Eight hospitals achieved rates of <0.45% (lower interquartile range) for post-operative stroke (2015/16-2017/18) but 8 had rates ≥1.1% (upper interquartile range). The data completeness for stroke is generally good at 90.8%, although some care is needed comparing hospitals due to the variations in how carefully strokes are recorded, especially with the difficulty definitively diagnosing strokes in some patients. For example, good hospitals may appear to have higher rates of stroke if they are more actively seeking to make the diagnosis, with the aid of CT brain scans and expert neurology input.

The audit results for post-operative stroke following CABG surgery at the UK, National and Hospital levels are available here.

7. POST-OPERATIVE RENAL FAILURE (FOLLOWING CABG)

Kidney (renal) failure is a major complication after heart surgery and may result from pre-existing reduced kidney function, or reduced cardiac output in the peri-operative period. For the purpose of this audit it is defined as the need for post-operative renal support therapy (with either dialysis or haemofiltration). This is nearly always performed in the Intensive Care Unit whilst the patient is recovering from surgery.

The rate of renal failure following CABG in the UK for 2017/18 was 1.63%. This is compared to 1.36% in 2016/17. In England the rate was 1.6%, Scotland 1.17%, Wales 2.04%, and Northern Ireland 3.34% (care needed with interpretation due to small numbers of patients, as only one hospital). Nine hospitals achieved rates of ≤0.65% (lower interquartile range) for the past 3 years (2015/16-2017/18) but 9 had rates ≥2.26% (upper interquartile range).

The audit results for post-operative renal failure following CABG surgery at the UK, National and Hospital levels are available here.

8. DATA COMPLETENESS AND ACCURACY

Data quality is essential for meaningful comparisons to be made within any audit or research. Recording of in hospital mortality is excellent by most units. In order to encourage complete data submission it is assumed, for the analysis of outcomes, that a failure to record that the patient was alive on discharge means that the patient has died (even if it is not recorded as a death). Only the following units had missing data for mortality.

A useful marker of data quality is completeness of the records submitted (although this does not ensure that the data is accurate). Overall reporting of 4 non-mortality outcomes measures was between 90-93% on average across the UK. Table 10 highlights (in green) units that submitted >99% complete data for each individual outcome measure. Seventeen units (out of the 40) had excellent data submission rates – measured by >99%

completeness for all 4 outcome measures. For future reports this is the target that all units should aim to achieve.

Table 9: *Deaths (completeness of recording of in hospital mortality by unit); all other units – data complete.*

	Total deaths	Missing mortality data
CBS. Spire Southampton Hospital	<3	<3
CRO. Cromwell Hospital	<3	<3
ERI. Royal Infirmary of Edinburgh	36	1
GJH. Golden Jubilee Hospital	47	2
PLY. Derriford Hospital	51	3
RIA. Aberdeen Royal Infirmary	42	1

Data are suppressed where case numbers are less than three and secondary suppression has been applied where applicable. This process was conducted for data protection reasons, to ensure anonymity of the patient data included in reporting.

Where data completeness is less than 50% for a metric, these centres have not been included in the graphics shown in the main aggregate report.

Table 10: *Data completeness rates (%) for outcomes other than mortality - for UK as a whole and by unit.*

Unit	DSWI (%)	Reopening for Bleeding (%)	Any CVA (%)	Renal failure (%)	Data >99% for all 4 outcomes
UK	92.5	92.5	90.8	93.4	
ANT		99.1		99.5	
BAL	99.9	99.9	99.8	99.7	Y
BAS	95.7	95.7		100.0	
BHL	99.7	99.7	99.7	99.7	Y
BRI	99.9	99.9		34.7	
CBS	99.2	99.2		99.2	
CHH		99.9	99.9	99.8	
CHN		100.0	100.0	100.0	
ERI		92.7	100.0	100.0	
FRE	99.8	99.8	99.4	99.8	Y
GEO	100.0	100.0	100.0	100.0	Y
GJH	100.0	100.0	100.0	100.0	Y
GRL	100.0	100.0	100.0	100.0	Y
HAM	99.9	99.9		99.9	
HH	99.1	99.1	98.5	98.8	
HHW		100.0		100.0	
HSC		100.0	100.0		
KCH	75.6	75.6	61.6	62.0	
LBH	99.5	99.5	99.5	99.5	Y
LGI	99.6	99.6	100.0	99.6	Y
MOR	91.5	91.5	89.9	87.4	
MRI	100.0	100.0	100.0	100.0	Y
NCR	100.0	100.0	100.0	100.0	Y
NGS		99.8			
NHB	99.9	99.9		99.9	
PAP	100.0	100.0	100.0	100.0	Y
PLY	2.3	2.3	100.0	100.0	
QEB	99.4	99.4	99.1	99.4	Y
RAD	100.0	100.0	90.5	91.8	
RIA	98.4	98.4	99.5	99.8	
RSC	100.0	100.0	99.9	100.0	Y
RVB	100.0	100.0	99.9	100.0	Y
SCM	100.0	100.0	100.0	100.0	Y
SGH	100.0	100.0	99.8	99.8	Y
STH	97.1	97.1	97.3	97.3	
STO	99.8	99.8	99.2	97.3	
UHW	84,8	84.8	84.4	84.0	
VIC	99.9	99.9	99.9	99.8	Y
WAL	98.8	98.8	75.7	75.3	
WYT		10.2	44.8		

[DSWI – deep sternal wound infection; CVA – stroke). Green for >99% data completeness; Red for <90%.]

Find hospital codes here.

9. PLANS FOR FUTURE AUDITING OF VERY HIGH-RISK NON-EMERGENCY CASES WITHIN NACSA

The publication of unit and surgeon results in cardiac surgery has coincided with a significant fall in mortality rates over the past 10 or more years in the UK. Whilst it is impossible to prove that the national audit is the cause of this, in general, audit of results in most areas of clinical practice usually shows improvements in performance of the issue being audited.

Balanced against the beneficial effects of audit there has been concern amongst some surgeons that some high risk patients may be denied surgery in cases where this may adversely affect an individual surgeon's results – so called 'risk averse' behaviour. This is particularly an issue for operations which are known or thought to be high risk, but in which the established pre-operative risk scoring models (such as EuroSCORE) do not adequately predict this risk.

The risk profile of patients undergoing cardiac surgery in the UK has continued to rise over the past 10 years, which suggests that many surgeons are prepared to undertake surgery in higher risk cohorts. However, some level of risk averse behaviour may influence results. Surveys of consultant surgeons have suggested anecdotes of cases that they have witnessed risk avoidance occurring in their Units. As a result, one of the recommendations from the GIRFT report for Cardiothoracic Surgery last year, https://gettingitrightfirsttime.co.uk/wp-content/uploads/2018/04/GIRFT-Cardiothoracic-Report-1.pdf, was that NICOR and SCTS should introduce a means to exclude some very high risk cases from the analysis of outcomes for individual surgeons. However, this should continue to be audited in the outcomes of the Units where the surgery is performed.

The counter-argument to not including some of these high risk cases in an individual surgeon's reported results is that it may encourage 'cavalier' behaviours in some surgeons – in effect the opposite of risk averse behaviour. Ultimately, however, the guiding principle should be that the national audit should not be set up in such a way as to potentially discourage an operation on a patient who would benefit from surgery. Likewise, it is incumbent on units to have processes in place which prevent unnecessary or unwarranted high risk cases being performed where patients may suffer as a result.

From April 2019 it has therefore been agreed that for the small number of complex or very high risk elective cases, if an appropriately constituted MDT has pre-determined, and documented the decision pre-operatively, then just the unit should take responsibility for the outcome of the case (rather than an individual surgeon). It is expected that a minimum of 2 consultants should be involved (and scrubbed) in the actual performance of the case. NICOR will continue to collect the data on which surgeon performs these cases (in order to evaluate the change), but will not publish the outcomes of these cases at an individual surgeon level.

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This report is available online https://www.nicor.org.uk/national-cardiac-audit-programme/adult-cardiac-surgery-surgery-audit/

2019 Healthcare Quality Improvement Programme (HQIP)

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NATIONAL INSTITUTE OF CARDIOVASCULAR OUTCOMES RESEARCH (NICOR)

NICOR is a partnership of clinicians, IT experts, statisticians, academics and managers who, together, are responsible for six cardiovascular clinical audits (the National Cardiac Audit Programme – NCAP) and a number of new health technology registries, including the UK TAVI registry. Hosted by Barts Health NHS Trust, NICOR collects, analyses and interprets vital cardiovascular data into relevant and meaningful information to promote sustainable improvements in patient well-being, safety and outcomes. It is commissioned by the Healthcare Quality Improvement Partnership (HQIP) with funding from NHS England and GIG Cymru /NHS Wales, and additional support from NHS Scotland. Funding is being sought to aid the participation of hospitals in Northern Ireland, the Republic of Ireland and the private sector.

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SOCIETY OF CARDIOTHORACIC SURGEONS IN GREAT BRITAIN & IRELAND

The SCTS is an affiliated group of the Royal College of Surgeons of England and has charitable status. The Charity's objects are to enable surgeons to achieve and maintain the highest standards of surgical practice and patient care.

www.scts.org

BARTS HEALTH NHS TRUST

With a turnover of £1.5 billion and a workforce of around 17,000, Barts Health is a leading healthcare provider in Britain and one of the largest NHS Trusts in the country. The Trust's five hospitals – St Bartholomew's Hospital in the City, including the Barts Heart Centre, The Royal London Hospital in Whitechapel, Newham University Hospital in Plaistow, Whipps Cross University Hospital in Leytonstone and Mile End Hospital – deliver high quality compassionate care to the 2.5 million people of east London and beyond.

THE HEALTHCARE QUALITY IMPROVEMENT PARTNERSHIP (HQIP)

HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement in patient outcomes, and in particular, to increase the impact that clinical audit, outcome review programmes and registries have on healthcare quality in England and Wales. HQIP holds the contract to commission, manage and develop the National Clinical Audit and Patient Outcomes Programme (NCAPOP), comprising around 40 projects covering care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual projects, other devolved administrations and crown dependencies. www.hqip.org.uk/national-programmes

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