National Survey of UK Consultant Surgeons’ Opinions on Surgeon-Specific Mortality Data in Cardiothoracic Surgery

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Background—In the United Kingdom, cardiothoracic surgeons have led the outcome reporting revolution seen over the last 20 years. The objective of this survey was to assess cardiothoracic surgeons’ opinions on the topic, with the aim of guiding future debate and policy making for all subspecialties.

Methods and Results—A questionnaire was developed using interviews with experts in the field. In January 2015, the survey was sent out to all consultant cardiothoracic surgeons in the United Kingdom (n=361). Logistic regression, bivariate correlation, and the χ² test were used to assess whether there was a relationship between answers and demographic variables. Free-text responses were analyzed using the grounded theory approach. The response rate was 73% (n=264). The majority of respondents (58.1% oppose, 34.1% favor, and 7.8% neither) oppose the public release of surgeon-specific mortality data and associate it with several adverse consequences. These include risk-averse behavior, gaming of data, and misinterpretation of data by the public. Despite this, the majority overwhelmingly supports publication of team-based measures of outcome. The free-text responses suggest that this is because most believe that quality of care is multifactorial and not represented by an individual’s mortality rate.

Conclusions—There is evident opposition to surgeon-specific mortality data among UK cardiothoracic surgeons who associate this with several unintended consequences. Policy makers should refine their strategy behind publication of surgeon-specific mortality data and possibly consider shift toward team-based results for which there will be the required support. Stakeholder feedback and inclusive strategy should be completed before introducing major initiatives to avoid unforeseen consequences and disagreements. (Circ Cardiovasc Qual Outcomes. 2016;9:414-423. DOI: 10.1161/CIRCOUTCOMES.116.002749.)

Key Words: consultants • demography • policy making • quality assessment • outcomes research

Since its inception in the 1960s, British cardiothoracic surgery has been at the forefront of media attention. In an already challenging job, this has put strain on a profession that is barely half a century old.

One of the specialties’ greatest achievements is its publication of mortality rates after surgery. The Society for Cardiothoracic Surgeons in Great Britain and Ireland (SCTS) has been reporting outcomes for named surgeons since 2005. Using the example of SCTS, National Health Service (NHS) England published outcome data from 10 other specialties on its MyNHS website in 2013.²

There has been significant debate within the surgical community as to whether these initiatives have been of benefit. Although proponents assert that it is associated with an improvement in transparency and quality of care, opponents claim a range of negative side effects, including risk-aversion, disruption of innovation, and gaming of data.³-⁶ Outcome reporting of isolated mortality in the United Kingdom counters movements in the United States, where the focus has shifted toward supplementing mortality rate with multidimensional composite measures of outcome based on morbidity and process measures.⁷ The rationale behind these shifts is that providing an increase in the number of functional outcome end points allows quality to be better statistically discriminated than if mortality (which is infrequent in elective surgery) rates were used alone.

Editorial, see p 345

The objective of this study was to survey UK consultant cardiothoracic surgeons’ opinions on surgeon-specific mortality data (SSMD) and related areas, with the aim of guiding future debate and policy making. Surprisingly, no major stakeholder feedback took place before NHS England rolling out its
WHAT IS KNOWN

- Over the last 20 years, there have been 6 published surveys assessing cardiovascular specialists’ opinions on surgeon-specific mortality data, the majority originating from North America.
- Primary issues around surgeon-specific mortality data raised in these surveys included the risk of misinterpretation by patients, the potential to induce risk-averse behavior by surgeons, preference for team-based (as opposed to individual-level) reporting, and concerns about the validity of the outcome metrics used.

WHAT THE STUDY ADDS

- This study builds on the methodology of these previous surveys and uses a more advanced instrument.
- There is increasing evidence in the United Kingdom and United States that cardiothoracic surgeons do not support publication of surgeon-specific mortality data in isolation. It is often not used by cardiologists in their decision-making, and there is accumulating evidence that it is associated with unintended consequences, such as risk-averse patient selection.
- The richness of the free-text responses in this study confirms that policy makers need to improve their grasp of behavioral psychology and obtain stakeholder support before initiating major reporting initiatives.

Methods

Survey Design

An online survey was designed based on 2 previous questionnaires used in New York3 and Chicago.8 These were developed further using literature search to discover themes not explored. Themes were developed and turned into questions through semistructured interviews with 10 experts in the field. The questionnaire was piloted, with feedback used to refine language used. Five-point Likert scales and free-text boxes were used to gather answers.

The final questionnaire was uploaded to an online platform (Qualtrics, UT). Anonymity was guaranteed to respondents, but they were given the option of providing their contact details. The online version of the survey can be viewed at http://imperial.eu.qualtrics.com/SE/?SID=SV_ewFsPdbUUJMTY6V

Study Design and Participants

In January 2015, a link to the online survey was e-mailed out to all practicing consultant cardiothoracic surgeons in the United Kingdom (n=361). A reminder e-mail was sent at 2 weeks, and the survey was closed after a month.

Statistical Analysis

Statistical analysis was performed (SPSS v.22, IBM, Armonk, NY) to assess whether there was a relationship between answers and outcome-reporting program in 2013. Therefore, the secondary objective of the survey is to provide guidance to other specialties which are developing outcome-reporting programs.

Table 1. Demographic Characteristics of Respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience as a consultant, y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–5</td>
<td>47</td>
<td>17.8%</td>
</tr>
<tr>
<td>5–10</td>
<td>51</td>
<td>19.3%</td>
</tr>
<tr>
<td>10–15</td>
<td>47</td>
<td>17.8%</td>
</tr>
<tr>
<td>15–20</td>
<td>52</td>
<td>19.7%</td>
</tr>
<tr>
<td>20+</td>
<td>44</td>
<td>16.7%</td>
</tr>
<tr>
<td>Unanswered</td>
<td>23</td>
<td>8.7%</td>
</tr>
<tr>
<td>Subspecialization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult cardiac</td>
<td>126</td>
<td>47.7%</td>
</tr>
<tr>
<td>Adult cardiothoracic</td>
<td>45</td>
<td>17.0%</td>
</tr>
<tr>
<td>Thoracic</td>
<td>37</td>
<td>14.0%</td>
</tr>
<tr>
<td>Pediatric</td>
<td>20</td>
<td>7.6%</td>
</tr>
<tr>
<td>Mixed adult and pediatric</td>
<td>13</td>
<td>4.9%</td>
</tr>
<tr>
<td>Unanswered</td>
<td>23</td>
<td>8.7%</td>
</tr>
<tr>
<td>Geographical location</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North East</td>
<td>15</td>
<td>5.7%</td>
</tr>
<tr>
<td>North West</td>
<td>28</td>
<td>10.6%</td>
</tr>
<tr>
<td>Yorkshire and the Humber</td>
<td>17</td>
<td>6.4%</td>
</tr>
<tr>
<td>West Midlands</td>
<td>22</td>
<td>8.3%</td>
</tr>
<tr>
<td>East Midlands</td>
<td>15</td>
<td>5.7%</td>
</tr>
<tr>
<td>South West</td>
<td>13</td>
<td>4.9%</td>
</tr>
<tr>
<td>South East</td>
<td>8</td>
<td>3.0%</td>
</tr>
<tr>
<td>South Central</td>
<td>16</td>
<td>6.1%</td>
</tr>
<tr>
<td>East of England</td>
<td>13</td>
<td>4.9%</td>
</tr>
<tr>
<td>London</td>
<td>52</td>
<td>19.7%</td>
</tr>
<tr>
<td>Wales</td>
<td>9</td>
<td>3.4%</td>
</tr>
<tr>
<td>Scotland</td>
<td>20</td>
<td>7.6%</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>6</td>
<td>2.3%</td>
</tr>
<tr>
<td>Republic of Ireland</td>
<td>4</td>
<td>1.5%</td>
</tr>
<tr>
<td>Unanswered</td>
<td>26</td>
<td>9.8%</td>
</tr>
<tr>
<td>Size of respondents unit (no. of cases per year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–500</td>
<td>35</td>
<td>13.3%</td>
</tr>
<tr>
<td>500–1000</td>
<td>111</td>
<td>42.0%</td>
</tr>
<tr>
<td>1000–1500</td>
<td>62</td>
<td>23.5%</td>
</tr>
<tr>
<td>1500+</td>
<td>28</td>
<td>10.6%</td>
</tr>
<tr>
<td>Unanswered</td>
<td>28</td>
<td>10.6%</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18</td>
<td>6.8%</td>
</tr>
<tr>
<td>No</td>
<td>222</td>
<td>84.1%</td>
</tr>
<tr>
<td>Unanswered</td>
<td>24</td>
<td>9.1%</td>
</tr>
</tbody>
</table>

Respondents’ mean risk adjusted mortality rate* 2.75±0.9%

SSMD indicates surgeon-specific mortality data.

*Calculated only from the 85 respondents who gave identifiable contact information.
Importance of SSMD in Assessing Ability of Surgeons and in Reflecting Quality of Care Given to Patients (Q3–4)

The majority of respondents feel that SSMD is important in assessing the overall ability of a surgeon (40.3% important, 33.4% not important, and 26.4% neither). Thoracic surgeons (P=0.040 versus adult cardiac surgeons) and those with higher RAM (P=0.023) were significantly more likely to oppose this view.

Opinion was split with regards to the importance of SSMD in assessing quality of care (38% important, 41.5% unimportant, and 20.5% neither). Respondents with a higher RAM were significantly more likely to feel that it was unimportant (P=0.005).

Impact of SSMD on Improvement in Outcomes in the United Kingdom and on Transparency and Accountability (Q5–6)

The majority of surgeons feel that SSMD has not contributed to improvements in outcomes seen over the last 10 years (44.5% not contributed, 35.0% contributed to improvements, and 20.5% neither). Those with higher RAM were significantly more likely to hold this opinion (P=0.030).

Most respondents feel that SSMD has improved transparency and accountability (43.7% improved, 30.3% made worse, and 26.0% about the same). Younger surgeons (P=0.038), thoracic surgeons (P=0.039), and those with higher RAM were significantly more likely to oppose this view (P=0.007).

Risk Aversion (Q7)

An overwhelming proportion of surgeons feel that SSMD has led to risk-averse behavior (86.6% yes, 5.5% no, and 7.9% maybe). Those in larger units were significantly more likely to hold this opinion (P=0.008).

Misinterpretation of SSMD by the Public and Referring Clinicians (Q8–9)

The majority of respondents feel that misinterpretation of SSMD by both patients (83.9% likely, 10.6% unlikely, and 5.5% undecided) and referring clinicians/cardiologists (65.8% likely, 21.6% unlikely, and 12.6% undecided) is likely. This opinion was significantly more likely in less experienced surgeons and significantly less likely in those involved in governance structures related to SSMD.

Training (Q10)

An overwhelming majority feels that training of juniors has worsened because of SSMD (74.7% worse, 5.9% better, and 19.4% same). Those with a higher RAM were more likely to feel that training had suffered (P=0.018).

Accuracy of Data Submitted to National Institute for Cardiovascular Outcomes Research and Definition of Chronic Obstructive Pulmonary Disease Question (Q11–12)

Most surgeons feel that information submitted to National Institute for Cardiovascular Outcomes Research is accurate (48.6% accurate, 33.2% inaccurate, and 18.2% neither). Those not involved in governance structures associated with SSMD felt the demographic variables listed in Table 1. Four tests were used: Pearson’s χ² test, bivariate correlation (Spearman’s with 2-tailed significance), and binomial logistic regression (both univ- and multivariable). For logistic regression, to convert the 5-point Likert Scale answers into a binomial coefficient, points 1 and 2 on the scale (eg, strongly oppose and somewhat oppose) were recoded into 1 and points 4 and 5 (eg, somewhat favor and strongly favor) were recoded into 0. The midpoint of scale was also recoded into 0 because this was felt to be the most conservative treatment of the neutral category. For the multivariable analysis, all 6 demographic variables were entered into the model because they were all felt to be relevant factors.

To graphically represent the factors influencing respondent’s answers, a heat map was created. Each demographic variable was allocated a color ranging from green to red depending on how many of the 4 tests performed were statistically significant for a given variable.

Thematic Analysis

Analysis of free-text responses was performed using NVivo v.10 for Macintosh (QSR International, Melbourne, Australia). Three of the authors individually explored the textual data inductively (grounded theory approach) using content analysis to generate categories and explanations.9 Resulting themes were then checked and refined by assessing for inter-rater reliability. All responses were assigned at least one theme and more than this if required (ie, making many points in the same paragraph).

Ethical Approval

The study was authorized at an institutional level (Imperial College London, reference JRCO/15IC2539).

Results

The overall response rate was 73% (n=264). Of these, 87% finished the survey, and mean time taken to completion was 10 minutes (±10.4).

Eighty-five respondents voluntarily gave identifiable contact information. This was used to extract individual’s risk-adjusted mortality rate (RAM) from the SCTS directory: http://scts.org/modules/surgeons/ (accessed in February 2015 and encompassed operations between 2010 and 2013).

Survey Answers

The demographic characteristics of responders are displayed in Table 1, demonstrating a representative sample in terms of subspecialization, years of experience, and geographical location. The full breakdown of questions and answers are listed in Tables 2 and 3. The breakdown of the statistical analysis of factors influencing answers to all questions is displayed in Supplement S1 in the Data Supplement.

Public Release of Surgeon and Hospital-Specific Mortality Data (Q1–2)

The majority of respondents either strongly or somewhat oppose the public release of SSMD (58.1% oppose, 34.1% favor, and 7.8% neither). The experience of the surgeon responding was strongly predictive of opposition to SSMD. The 0 to 5 years of experience category was significantly more likely to oppose this view (P=0.007). Younger surgeons (P=0.005), thoracic surgeons (P=0.039), and those with higher RAM were significantly more likely to oppose this view (P=0.007).

Opinion was different with regards to the public release of hospital-specific mortality data, with respondents overwhelmingly favoring it (84.8% favor, 8.9% oppose, and 6.2% neither). No demographic variable was particularly predictive of respondent’s opinion.
<table>
<thead>
<tr>
<th>Question</th>
<th>No. of Responses</th>
<th>Answer, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you support the public release of risk-adjusted SSMD?</td>
<td>258</td>
<td>Strongly oppose 36.0% Somewhat oppose 22.1% Neither oppose nor favor 7.8% Somewhat favor 18.6% Strongly favor 15.5%</td>
</tr>
<tr>
<td>2. Do you support the public release of risk-adjusted hospital-specific mortality?</td>
<td>258</td>
<td>Not at all important 14.0% Unimportant 14.0% Neither important nor unimportant 26.4% Important 34.1% Extremely important 6.2%</td>
</tr>
<tr>
<td>3. How important is SSMD in assessing the overall ability of a surgeon?</td>
<td>258</td>
<td>Strongly disagree 19.0% Disagree 22.5% Neither agree nor disagree 20.5% Agree 33.7% Strongly agree 4.3%</td>
</tr>
<tr>
<td>4. How important is SSMD in reflecting the overall quality of care given to a patient?</td>
<td>258</td>
<td>Strongly disagree 20.5% Disagree 22.5% Neither agree nor disagree 20.5% Agree 33.7% Strongly agree 4.3%</td>
</tr>
<tr>
<td>5. Would you agree that public release of SSMD has contributed to the improvement in UK cardiac surgery outcomes seen over the last ten years?</td>
<td>254</td>
<td>20.5% 24.0% 20.5% 25.6% 9.4%</td>
</tr>
<tr>
<td>6. What impact has the public release of SSMD had on transparency and accountability of cardiac surgeons with regards to the general public?</td>
<td>254</td>
<td>Much worse 9.8% Worse 20.5% About the same 26.0% Better 31.9% Much better 11.8%</td>
</tr>
<tr>
<td>7. Do you think that public release of SSMD has led to risk-averse behavior within the specialty?</td>
<td>254</td>
<td>20.5% 24.0% 20.5% 25.6% 9.4%</td>
</tr>
<tr>
<td>8. What do you think the likelihood is of patients misinterpreting current forms of publicly available SSMD?</td>
<td>254</td>
<td>Very unlikely 4.7% Unlikely 5.9% Undecided 5.5% Likely 31.9% Very likely 52.0%</td>
</tr>
<tr>
<td>9. What do you think the likelihood is of cardiologists/referring clinicians misinterpreting current forms of SSMD?</td>
<td>254</td>
<td>Very unlikely 4.7% Unlikely 5.9% Undecided 5.5% Likely 31.9% Very likely 52.0%</td>
</tr>
<tr>
<td>10. What impact has SSMD had on the training of juniors?</td>
<td>253</td>
<td>Very inaccurate 38.7% Inaccurate 36.0% Neither inaccurate nor accurate 19.4% Accurate 5.5% Very accurate 0.4%</td>
</tr>
<tr>
<td>11. How accurate do you think information submitted by cardiac surgery units to NICOR is?</td>
<td>247</td>
<td>FEV1/FVC &lt;0.75 5.7% Room air PaO2 of &lt;9 kPa 27.5% Hyperexpansion on CXR 18.2% Acute bronchodilator therapy 42.5% Long-term bronchodilator use* 6.1%</td>
</tr>
<tr>
<td>12. Which one of the following criteria most accurately meets the EuroScore definition of chronic lung disease?</td>
<td>230</td>
<td>26.5% 4.8% 1.3% 3.0% 64.3%</td>
</tr>
<tr>
<td>13. Do you think any surgeons upcode (ie, game) patient disease status and comorbidities during data collection?</td>
<td>248</td>
<td>Definitely not 3.6% Probably not 11.7% Maybe 33.5% Probably yes 28.2% Definitely yes 23.0%</td>
</tr>
</tbody>
</table>

CXR indicates chest x-ray; FEV, forced expiratory volume; FVC, forced vital capacity; NICOR, National Institute for Cardiovascular Outcomes Research; and SSMD, surgeon-specific mortality data.

*This is the correct answer to this question.
were significantly more likely to feel that this information is inaccurate compared with those involved ($P=0.020$).

The correct answer to the definition of chronic obstructive pulmonary disease (as used in EuroSCORE) question is long-term bronchodilator use, which 64.3% of respondents answered correctly. Pediatric/thoracic surgeons ($P=0.0000$) and those not involved in governance structures related to SSMD were more likely to get this incorrect ($P=0.041$).

Gaming of Data (Q13)
The majority of respondents are of the opinion that gaming of patient disease status and comorbidities occur during data collection (51.2% yes, 15.3% no, and 33.5% maybe). No demographic variable was predictive of respondent’s opinion.

Opinion on Alternative Outcome Measures and Adequacy of Resources to Collect Data (Q14–15)
The overwhelming majority of respondents see benefit in public reporting of the outcome measures listed in Table 3. The significant majority, however, did not feel that their adult departments were adequately resourced to do this (60.2% adequately resourced, 33.2% not adequately resourced, and 6.6% maybe).

Heat Map
The demographic factors influencing answers to questions are represented as a heat map in Figure 1. The statistical analysis behind this is available in Supplement S1 in the Data Supplement. This heat map suggests that the 3 most powerful factors influencing surgeons’ opinion are their RAM (more negative opinions), whether they are involved in governance structures (more positive opinions), and how experienced they are (junior surgeons have more negative opinions).

Free-Text Answers
One hundred and thirty-seven respondents (52%) made at least one comment, resulting in a total of 14,826 words of free-text responses that were thematically analyzed. A total of 31 different themes emerged from the texts, which were mentioned a total of 464 times (mean of 3.4 themes mentioned per person in their free-text response). For ease of interpretation, these themes were categorized into positive reflections, negative reflections, specific recommendations, and other (Figure 2).

The 4 commonest themes mentioned by respondents were risk-averse behavior, criticism of data accuracy and risk adjustment models, opinion that quality of care is multifactorial, and expression of a preference for team-based outcome measures. Example quotes are given in Table 4. The unedited free-text answers and their assigned themes are available in Supplement S2 in the Data Supplement.

Discussion
This study is the first in-depth analysis of UK consultant cardiothoracic surgeon’s opinions on SSMD. The response rate was overwhelming, with 73% of practicing surgeons spending an average of 10 minutes on the survey. The collection of almost 15,000 words of free-text responses indicates the importance of the topic.

Fifty-eight percent of surgeons either oppose or strongly oppose public reporting of SSMD. This is more likely in young consultants and those with higher risk-adjusted mortality.
Thematic analysis of free-text responses suggests 3 reasons for this:

First, respondents feel that quality of care is multifactorial and not represented by individual mortality rate. This opinion may have been driven by evidence associating perioperative mortality with failure to rescue rather than individual surgeon error.10 This has been recognized by the Society of Thoracic Surgeons in the United States who have focused on team and hospital results in recognition of the increasingly team-based nature of modern healthcare.11 Their own measurement of individual surgeon performance involves a composite measure of 5 different morbidity outcomes in addition to mortality.

Second, the majority of respondents do not feel that SSMD has contributed to improvements in outcomes. This finding is supported by a recent Cochrane review, which was unable to find evidence of sufficient quality to associate SSMD with improved outcomes.12 The often quoted 40% reduction in mortality in New York after publication of results in 199113 is difficult to interpret because it is challenged by accusations of gaming of data, risk aversion, and outmigration of high-risk patients to other states. Similar reductions in mortality were seen in neighboring states and in other subspecialties without publication of results.14,15 Such observations may have influenced opinion of UK surgeons who seem to question the overall efficacy of SSMD.

Third, respondents associate SSMD with several negative side effects, the most important being risk-averse behavior and gaming of data. Eighty-seven percent of the respondents feel that SSMD has led to risk-averse behavior. This is consistent with opinion in Pennsylvania, where 59% of cardiologists had difficulty referring high-risk patients after public reporting of outcome data.16

Risk-averse or loss-averse behavior is concerning because it suggests that a surgeon may neglect the principle of beneficence and not offer an intervention that is in the best interest

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**Figure 1.** A heat map showing the distribution of factors that influence opinions. SSMD indicates surgeon-specific mortality data.

<table>
<thead>
<tr>
<th>Demographic Question</th>
<th>Years of experience as a consultant</th>
<th>Sub-specialization</th>
<th>Geographical location</th>
<th>Size of respondents unit</th>
<th>Involvement in governance structures related to SSMD</th>
<th>Respondents risk-adjusted mortality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Support of SSMD</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Support of hospital-specific mortality data</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Importance of SSMD - surgeon ability</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Importance of SSMD - overall care</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Agreement that SSMD has improved outcomes</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Impact that SSMD has had on transparency</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Risk-averse behavior</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Misinterpretation by patients</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Misinterpretation by cardiologists</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Training of juniors</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Accuracy of data</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Correct definition of COPD for EuroSCORE</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Gaming of data</td>
<td>Yellow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Adequacy of resources</td>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- No statistical association
- 1 significant statistical test
- 2 significant statistical tests
- 3 or more significant statistical tests
of a patient. Studies from diverse fields including psychology and behavioral science give insights into why surgeons in the United Kingdom may hold this opinion. Human behavior often departs from what is rational and what might be expected to get one the most utility. One of the reasons surgeons may be loss averse is that their marginal utility for reducing losses is greater than the marginal utility of increasing gains.17 In the current structure of the NHS, this issue of marginal utility is likely to be true because a surgeon will not receive significant reward for taking on a high-risk patient, but risks media attention and loss of job should a patient die. Risk aversion is also influenced by environmental factors such as peer-group behavior. When one’s peers are risk-averse, everyone in a unit is more likely to become so.18 Because cardiothoracic surgery is a tertiary service, units havig peer-group–induced risk-averseness may theoretically offer suboptimal treatment to a whole geographical region of patients because of the interaction of decision makers.

Prospect theory suggests individuals prefer a risky option to a certain one when choices are framed positively.19 When choices are framed negatively, the opposite is more likely. Thus, a surgeon with little likely reward (and significant punishment) for taking on a high-risk operation may see the decision as a negatively framed one. The theory also suggests that individuals overweight the probability of rare events and underweight common events.19 Death after elective cardiac surgery is uncommon, but given this behavioral phenomenon, surgeons may overweight its impact and are more likely to see high-risk decisions as negatively framed ones. These observed behavioral phenomenon have been confirmed in neurobiological correlates of risk aversion, providing further evidence that assessment of risk is encoded in the brain.20 Prolonged stress elevates cortisol levels that have been associated with anxiety, impaired learning, risk-averse behavior, and burnout.21,22 Policy makers need to understand these complex processes to avoid unintended consequences when introducing quality improvement measures.23

The majority of respondents to the survey were of the opinion that gaming of patient disease status and comorbidities occur during data collection. Accusations of gaming (to overpredict risk and thus reduce adjusted mortality) were aimed at New York surgeons in the 1990s.13 These findings may be indicative of surgeons under immense pressure with fear of the consequences of bad results. A recent cross-sectional survey of over 10000 physicians in the United Kingdom suggested that those who had undergone investigation were at higher risk of suicidal ideation and 77% more likely to be depressed.24 It is thus not unfeasible that surgeons may demonstrate abnormal behaviors in stressful environments as a method of coping. Although there is regional variation, the
current process for data entry in the United Kingdom involves submission of case data by an individual surgeon (or his/her junior) to an institutional database. At this point, there is a basic check for incomplete/missing data before submission to National Institute for Cardiovascular Outcomes Research on a yearly basis. National Institute for Cardiovascular Outcomes Research does not currently implement any method for a unit-based mortality reporting is likely to be caused by factors, but at the back of the surgeons’ mind, is the feeling that mortality in these particular patients may impact on surgeon-specific mortality data. Second opinions are not the solution, because even the other surgeons do not want to accept patients who have been turned down by someone else.”

Theme: Data entry should be performed by independent nonconflicted parties

“I strongly belief no clinician involved in care of patients should be taking part in entering data of risk adjustment scores into the data set. I think the NHS should fund enough number of independent staff to enter all the data to avoid the surgeons being accused of data manipulation as it has already sadly happened leading to an excellent surgeon to lose his job and reputation disappointedly without any support from SCTS.”

Theme: Nonspecific voicing of frustration

“looking forward to my retirement”

Remainder of free-text responses is available in Supplement S2 in the Data Supplement. AF indicates atrial fibrillation; NHS, National Health Service; NICOR, National Institute for Cardiovascular Outcomes Research; SCTS, Society for Cardiothoracic Surgeons in Great Britain and Ireland; and SSMD, surgeon-specific mortality data.

The findings from this survey have several significant policy implications. Lee and Cosgrove recently commented that for healthcare improvements: “Doctors, of course, must be central players in the transformation: Any ambitious strategy that they do not embrace is doomed.”\textsuperscript{25} Based on its unpopularity, the publication of individual surgeon mortality rates should be reconsidered. The survey suggests that its introduction may have had several far-reaching consequences. Its introduction has introduced a significant layer of additional decision and risk making for surgeons, who under stress may be incapable of dealing with this.\textsuperscript{26} The alternative to SSMD would be a shift toward team-based mortality reporting for which there is significant support. There is also clear agreement from surgeons that they would accept publication of further complex multidimensional outcome measures (similar to that published by the Society of Thoracic Surgeons) at both an individual and institutional level. Although accountability is critical in improving performance and ensuring good medical practice, an increase in institutional accountability may
help offset some of the unintended consequences described by respondents in this survey. More important than specific policy changes is the engagement of policy makers with behavioral theory. This will allow them to better understand stakeholder’s autonomous motivations. They will then be able to identify the environmental contextual factors which make individuals more cooperative and more likely to engage with quality improvement measures.

When interpreting the findings of this survey, its limitations must be taken into account. Although there was a significant response rate, there may also be respondent bias, where individuals with more negative opinions respond in greater proportion and with greater ferocity. There has been a significant amount of media attention around SSMD, and this may have altered individual’s opinions transiently. Opinions are not proof of causation, and this survey is not proof that negative behaviors such as risk-averness or gaming of data actually occur. This survey is not representative of the situation outside of the United Kingdom, and we would urge international surgical societies to complete similar initiatives.

In summary, this survey has demonstrated a reasonable amount of opposition to SSMD by UK cardiothoracic surgeons. It associates it with a range of negative consequences, such as risk-averse behavior and gaming of data. This is a significant finding because the UK model is an example of an early adopter of publishing outcome data. Lessons that can be learnt should be applied to other medical and surgical subspecialties that will be facing similar challenges in the near future. Many of the concerns mentioned in this survey are surprising, original, and controversial. Most have not been raised in public before, and this is possibly because of individual’s fear of retribution. We recommend that other specialties create surveys to gain stakeholder feedback before quality initiative programs. This will give stakeholders an opportunity to speak out and give policy makers information with which to increase the chance of success.

Acknowledgments

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Disclosures

All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare no support from any organization for the submitted work; no financial relationships with any organizations that might have an interest in the submitted work in the previous 3 years; no other relationships or activities that could appear to have influenced the submitted work.

References


National Survey of UK Consultant Surgeons' Opinions on Surgeon-Specific Mortality Data in Cardiothoracic Surgery

Omar A. Jarral, Kamran Baig, Christopher Pettengell, Rakesh Uppal, David P. Taggart, Ara Darzi, Stephen Westaby and Thanos Athanasiou

on behalf of United Kingdom and Republic of Ireland Consultant Cardiothoracic Surgeons

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http://circoutcomes.ahajournals.org/content/suppl/2016/07/13/CIRCOUTCOMES.116.002749.DC1

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SUPPLEMENTAL MATERIAL

Contents

1. **Supplement S1**: Breakdown of the statistical analysis that was performed to create the heat map in Figure 1.
   
   Pages 2 – 8

2. **Supplement S2**: The unedited free-text responses from respondents in its entirety. These are listed under the themes generated during the thematic analysis.
   
   Pages 9 - 49
**SUPPLEMENT S1: Statistical analysis performed to produce Figure 1**

**Question 1: Support of SSMD**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df p-value</td>
<td>r p-value</td>
<td>OR (CI) p-value</td>
<td>OR (CI) p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>31.0 / 16 0.013 *</td>
<td>-0.139 0.031 *</td>
<td>2.4 (1.00-5.89)</td>
<td>0.049 ** NS -</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS -</td>
<td>- -</td>
<td>2.2 (1.01-4.87)</td>
<td>0.047 *** NS -</td>
</tr>
<tr>
<td>Geographical location</td>
<td>71.9 / 52 0.035 ****</td>
<td>- -</td>
<td>NS - NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS -</td>
<td>NS -</td>
<td>NS - NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS -</td>
<td>NS -</td>
<td>NS - NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>- -</td>
<td>0.293 0.006 *****</td>
<td>NS - NS -</td>
<td>NS -</td>
</tr>
</tbody>
</table>

df – degrees of freedom, OR – odds ratio, CI – 95% confidence interval, NS – not significant, RAM – risk adjusted mortality

**Interpretation**

* - Those with less experience are more opposed to SSMD

** - The 0-5 years group was significantly more opposed to SSMD (the OR is vs. the reference category of 20+ years experience) on univariable logistic regression

*** - Thoracic surgeons group significantly more opposed to SSMD (the OR is vs. the reference category of adult cardiac surgeons) on univariable logistic regression

**** - Some difference of opinion geographically based on chi-square test only

***** - Increasing opposition to SSMD with increasing respondent mortality rate, on spearman’s correlation only

**Question 2: Support of hospital-specific mortality data**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Chi-square / df p-value</td>
<td>r p-value</td>
<td>OR (CI) p-value</td>
<td>OR (CI) p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS -</td>
<td>-0.112 0.041*</td>
<td>NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS -</td>
<td>- -</td>
<td>NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS -</td>
<td>NS -</td>
<td>NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS -</td>
<td>NS -</td>
<td>NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS -</td>
<td>-0.108 0.048 **</td>
<td>NS -</td>
<td>NS -</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>- 0.034 0.379</td>
<td>NS -</td>
<td>NS -</td>
</tr>
</tbody>
</table>

**Interpretation**

* - Decreasing opposition to hospital-specific mortality data with more years of experience (negative correlation) on Spearman’s only

** - Decreasing opposition to hospital-specific mortality data in those involved in governance (negative correlation) on Spearman’s only
**Question 3: Importance of SSMD – surgeon ability**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
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<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>30.74 / 16</td>
<td>0.015 **</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>0.365</td>
<td>0.000 **</td>
</tr>
</tbody>
</table>

**Interpretation**

* Thoracic surgeons significantly more likely to think SSMD is unimportant in assessing surgeon ability. The OR is vs. reference category of adult cardiac surgeons.

** The higher the respondents risk-adjusted mortality, the more unimportant they think SSMD is in assessing surgeon ability (positive correlation on Spearman) and significant on uni and multivariable analysis

**Question 4: Importance of SSMD – overall care**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
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<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>27.3 / 16</td>
<td>0.035 **</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>0.298</td>
<td>0.003 ***</td>
</tr>
</tbody>
</table>

**Interpretation**

* 5-10 year experience group significantly more likely to feel that SSMD is not important in reflecting overall quality of care (OR is vs. reference category of 20+ years experience category). On multivariable log regression only.

** Paediatric and thoracic surgeons have a lower proportion who feel that SSMD is important in reflecting overall quality of care – only on Chi-square

*** The higher the respondents risk-adjusted mortality, the less important they feel SSMD is in assessing overall quality of care – significant on Spearman’s, uni and multivariable log regression.
### Question 5: Agreement that SSMD has improved outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>r</td>
<td>OR (CI)</td>
<td>OR (CI)</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>p-value</td>
<td>p-value</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>34.1 / 16</td>
<td>0.005 *</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>35.4 / 16</td>
<td>0.004 **</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Geographical location</td>
<td>70.1 / 52</td>
<td>0.048 **</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>10.67 (1.35 – 84.65)</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>0.283</td>
<td>0.004 ****</td>
<td>2.02 (1.07-3.82)</td>
</tr>
</tbody>
</table>

**Interpretation**

* Least experienced surgeons have a higher proportion who oppose the view that SSMD has improved outcomes – on chi-square only

** Some variation in opinion on this question based on sub-specialisation and geographical location, but only significant on chi-square

*** Those not involved in governance structures significantly more likely to feel SSMD has not improved outcomes (the OR is vs. the reference category of those involved in governance) on multivariable log regression only

**** Those with higher RAM more likely to oppose the view that SSMD has improved outcomes – on Spearman’s and multivariable log regression

### Question 6: Impact that SSMD has had on transparency

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>r</td>
<td>OR (CI)</td>
<td>OR (CI)</td>
</tr>
<tr>
<td></td>
<td>p-value</td>
<td>p-value</td>
<td>p-value</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>26.5 / 16</td>
<td>0.048 *</td>
<td>NS</td>
<td>0.38 (0.15-0.95)</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>28.1 / 16</td>
<td>0.031 ***</td>
<td>-</td>
<td>2.24 (1.04 – 4.81)</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>0.305</td>
<td>0.002 ****</td>
<td>2.86 (1.34-6.11)</td>
</tr>
</tbody>
</table>

**Interpretation**

* ‘5-10’ years of experience group have a higher proportion who do not feel SSMD has improved transparency – significant on chi-square

** The ‘15-20’ year group is significantly more likely to feel that SSMD has improved transparency (the OR is vs. ref category of 20+ years group), on univariable log regression only

*** Thoracic surgeons are significantly more likely to feel SSMD hasn’t improved transparency (OR is vs ref category of adult cardiac surgeons) on univariable analysis. Chi-square also suggests specialty variability.

**** Those involved in governance have a higher proportion who feel that SSMD has improved transparency on chi-square only

***** Those with a higher RAM more likely to feel that SSMD has not improved transparency on Spearman’s and multivariable log regression
### Question 7: Risk-averse behaviour

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>26.7 / 16</td>
<td>0.046 *</td>
<td>NS</td>
<td>-</td>
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<tr>
<td>Sub-specialisation</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>22.5 / 12</td>
<td>0.032 **</td>
<td>0.158</td>
<td>0.008 **</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>0.212</td>
<td>0.026 ***</td>
</tr>
</tbody>
</table>

**Interpretation**

* Some variation in opinion based on years of experience on chi-square only

** Those working at larger units have a higher proportion that feel SSMD has led to risk-aversion – on chi-square and Spearman’s

*** Those with higher RAM more likely to agree that SSMD has led to risk-aversion on Spearman’s only

### Question 8: Misinterpretation by patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>-</td>
<td>-0.164</td>
<td>0.011 *</td>
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<tr>
<td>Sub-specialisation</td>
<td>Ns</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>19.8 / 4</td>
<td>0.001 **</td>
<td>-0.033</td>
<td>0.615</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
</tbody>
</table>

**Interpretation**

* Negative correlation, i.e. those with less experience more likely to believe that patients may misinterpret SSMD

** Those not involved in governance structures more likely to agree that patients may interpret SSMD – on chi-square, uni and multivariable log regression (OR’s are vs. reference category of those involved in governance)

*** Those with a higher risk adjusted mortality rate more likely to feel that patients may misinterpret SSMD, on multivariable log regression only

### Question 9: Misinterpretation by cardiologists
<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson's chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OR (CI)</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>37.9 / 16</td>
<td><strong>0.002</strong> *</td>
<td>-0.322</td>
<td><strong>0.000</strong> *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>59.37 (1.78-1977.53) – 5-10’ years group</td>
<td>0.022*</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>9.6 / 4</td>
<td><strong>0.048</strong> ***</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>59.37 (1.78-1977.53) – 500-1000 cases group</td>
<td>0.022 **</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>0.266</td>
<td><strong>0.014</strong> ****</td>
<td>1.75 (1.17 – 2.611)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10.18 (2.04-50.68)</td>
<td>0.005****</td>
</tr>
</tbody>
</table>

**Interpretation**

* Less experienced surgeons more likely to believe referring clinicians may misinterpret SSMD. OR given is vs. reference category of 20+ years experience.

** Those in units of 500-1000 cases sig more likely to believe referring clinicians may misinterpret results (OR is given vs 2000+ cases group), but only on multivariable regression

*** Those not involved in governance structures significantly more likely to believe referring clinicians may misinterpret SSMD on chi-square and multivariable log regression.. OR given is vs. those who are involved in governance structures.

**** The higher respondents RAM, the more likely they are to believe that referring clinicians may misinterpret SSMD. – on Spearman’s and uni /multivariable log regression

**Question 10: Training of juniors**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson's chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OR (CI)</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>26.81 (1.74-412.32) – 5-10 year group</td>
<td>0.018 *</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>37.81 (2.12 – 673.95) – No group</td>
<td>0.013 **</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>0.288</td>
<td><strong>0.008</strong> ***</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2.91 (1.20 – 7.05)</td>
<td>0.018***</td>
</tr>
</tbody>
</table>

**Interpretation**

* More junior consultants are more likely to believe that training has got worse on multivariable log regression only. OR is vs. reference category of 20+ years experience

** Those not involved in governance significantly more likely to believe that training has suffered on multivariable log regression only. OR is vs. reference category of those involved in governance.

*** Those with higher RAM more likely to support the view that training of juniors has suffered due to SSMD. On Spearman’s and multivariable log regression.

**Question 11: Accuracy of data**
<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>0.148</td>
<td>0.022 **</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
</tbody>
</table>

**Interpretation**

* More junior consultants significantly more likely to believe that data is inaccurate vs. 20+ year group on multivariable log regression only.

** Those not involved in governance significantly more likely to believe that data submissions are inaccurate vs. those involved in governance structures on Spearman and multivariable log regression (OR is vs. reference category of those involved in governance.

**Question 12: Correct definition of COPD for EuroSCORE**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>Ns</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>30.2 / 4</td>
<td>0.000 **</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>5.0 / 1</td>
<td>0.025 ***</td>
<td>-0.149</td>
<td>0.025 ***</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
</tbody>
</table>

**Interpretation**

* The 10-15 years group significantly more likely to answer this question incorrectly. OR given is vs. reference category of 20+ years experience.

** Thoracic surgeons significantly more likely to answer this question incorrectly. OR given is vs. reference category of adult cardiac surgeons.

*** Those not involved in governance structures significantly more likely to answer question incorrectly. OR is vs. ref category of those involved in governance.

**Question 13: Gaming of data**
<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson's chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>0.216</td>
<td>0.049 **</td>
</tr>
</tbody>
</table>

**Interpretation**

* Those not involved in governance significantly more likely to believe there is gaming of data, OR is vs. ref category of those involved in governance – on multivariable log regression only

** Positive correlation i.e. those with higher RAM more likely to support the belief that ‘gaming’ of data occurs – significant only on Spearman’s

**Question 15: Adequacy of resources**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson’s chi-square test</th>
<th>Spearman’s correlation</th>
<th>Univariable logistic regression</th>
<th>Multivariable logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-square / df</td>
<td>p-value</td>
<td>r</td>
<td>p-value</td>
</tr>
<tr>
<td>Years of experience as a consultant</td>
<td>NS</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
<tr>
<td>Sub-specialisation</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Geographical location</td>
<td>70.4 / 52</td>
<td>0.045 *</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Size of respondents unit (no. cases per year)</td>
<td>NS</td>
<td>-</td>
<td>-0.132</td>
<td>0.043 **</td>
</tr>
<tr>
<td>Involvement in governance structures related to SSMD</td>
<td>NS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Respondents mean risk adjusted mortality rate</td>
<td>-</td>
<td>-</td>
<td>NS</td>
<td>-</td>
</tr>
</tbody>
</table>

**Interpretation**

* Some variation in answers based on geographical location, only on chi-square

** Negative correlation, i.e. those working at units of bigger size more likely to believe that there are inadequate resources for expansion of outcome reporting. Significant only on Spearman’s

*** Those not involved governance structures more likely to believe that there are inadequate resources for expansion of outcome reporting (OR is vs. reference category of those involved in governance), only on multivariable log regression.

**SUPPLEMENT S2:** Free text responses from respondents
**CATEGORY: POSITIVE REFLECTIONS (5 THEMES)**

**THEME: ‘Open publication of SSMD improves transparency and accountability’ (11)**

Reference 1: 0.23% coverage
However, SSMD as used by individual units and the SCTS to identify and assist potential 'outliers' should be invaluable: to the individual surgeon; to each centre; to the benefit of patients as a whole.

Reference 2: 0.30% coverage
The outcomes should be available to public but there should be a way round in getting better manpower to equip the hospitals to maintain good standard of care. no point in looking at surgical outcomes where there are so many short comings in the staffing and skill mix levels.

Reference 3: 0.31% coverage
Unit specific mortality is a useful metric. I think, however, that in a properly constructed context SSMD is a reasonable better option. The NHS is suffused with a diffusion of responsibility and patients would reasonably wish to know their individual consultants outcomes.

Reference 4: 0.50% coverage
I don't feel that the options for the last 2 questions are appropriate. Clearly SSMD is rarely a direct reflection of surgical ability but outcome measures cannot be ignored. In the same way resection rate does not directly assess ability of a surgeon, more reflects the population they serve, and availability of alternative treatments. However in the current climate it is difficult to argue that SSMD should not be available given it is collected.

Reference 5: 0.23% coverage
SSMD is important, not just because of the impact of the surgery itself on a patient's final outcome, but because of our role as the patient's advocate in helping to improve the service within a hospital.

Reference 6: 0.39% coverage
SSMD will be useful in the context of individual surgeons for identifying dangerous performers. Information that directly applies to this should be released to the public, but unless training is poor, this should be infrequent. It should, however, be used by the surgeon and his trust to assess systematic and individual factors that determine it.

Reference 7: 0.11% coverage
SSMD should be gathered by trusts for internal performance management but HSMD should be published.

Reference 8: 0.40% coverage
We surgeons have not been very good at altering the behaviour of colleagues with poor results as the feeling is that a "Consultant" is perfectly capable of all things when appointed. I don't subscribe to that and if we don't put internal mechanisms for achieving good patient outcomes in place, I for one, am happy for surgeon specific data to be published.

Reference 9: 0.29% coverage
In general I favour. Most of the surgeons who have been highlighted past and present have had issues with results. Public do, however, need to know how to interpret data as there is probably not a great deal of difference between the surgeons with 3.2 and 1.2%.

Reference 10: 0.12% coverage
The current data is averaged over 3 years and so is high level - small variations will not make a difference.

Reference 11: 0.04% coverage
The more transparent we are the better.

**THEME: ‘Publication of results is demanded by patients’ (8)**

Reference 1: 0.10% coverage
The public simply will not accept that a surgeon does not need to know his/her mortality data.

Reference 2: 0.29% coverage
Outcome data are a good thing and are here for good, that is accepted by most surgeons but the way that the SCTS has gone about it has been an unmitigated disaster. It has not benefited patients and it has caused enormous distress and stress to many good surgeons.
Reference 3: 0.37% coverage
I believe the general population has accepted and recognised there is a mortality associated with heart surgery - there is very little difference between units and trust and confidence in the system is high. It is time to move on - the cat is out of the bag and will never be put back. Let us start publishing other quality markers for units.

Reference 4: 0.10% coverage
SSMD is a reality and demanded by the public. One will not be able to set the clock back.

Reference 5: 0.24% coverage
These are very surgeon focussed questions designed to get a specific answer. The purpose of publication is public assurance and demonstrating of excellence. Keogh did a similar survey in 2003. This will not go away.

Reference 6: 0.13% coverage
Nonetheless I have found that many patients have been greatly reassured by the ability to see my results online.

Reference 7: 0.39% coverage
there is no point trying to fight against the inevitable. It is with us to stay. Grow up and accept the fact. Stop trying to fudge risk prediction to make it 100% accurate. It won't ever be as it is "prediction". Leave risk stratification with ES2 and let that be the end of it. Stop making everyone's lives more difficult by adding in correction factors.

Reference 8: 0.44% coverage
Sadly we cannot go back as we have travelled too far along this road. The concept was politically driven and we did not fully comprehend the potential damage to surgeons, their practice and the service delivery to high risk patients. It is legacy that future generation of surgeons will have to endure. This survey and any amount of debate is not now going to prevent the future release of SSMD!

**THEME: ‘SSMD prevents reckless decision making by surgeons’ (4)**

Reference 1: 0.23% coverage
Rather than causing risk averse practice if the surgeon and cardiologists work together for the best interest of the patient it will probably prevent reckless surgeons from doing inappropriate surgery.

Reference 2: 0.56% coverage
Our surgical patients are older, more frail with more co-morbidities. There are less straightforward cases to offer training for junior trainees. There is risk averse behaviour - but at the same time it is good that the high risk cases are taken on by the right surgeon. The important thing is that no patient should be denied care if they themselves want to take the risk of an operation and there is a surgeon prepared to do it - in the same unit or even transferring to another unit for further opinions.

Reference 3: 0.09% coverage
it made some surgeons paying little more attention to patient care (at least)

Reference 4: 0.20% coverage
Risk averse behavior is not necessarily a bad thing. Training of surgeons in my view is much tighter with respect to appropriate delegation since this agenda has been introduce.

**THEME: ‘Publication of SSMD has improved outcomes for patients in the UK’ (4)**

Reference 1: 0.16% coverage
The attribution of patient outcomes to a named consultant did have a positive impact on cardiac surgery mortality in the UK when it was introduced.

Reference 2: 0.76% coverage
The improvement of outcomes has been influenced by SSMD and some of this is purely a direct effect of collecting the data. It is also the case that risk averse behaviour means that some higher risk patients (particularly if the surgeon believes that the calculated Euroscore is lower than the actual risk) have not been offered surgery. In addition I understand that some of the Euroscore definitions have been changed (eg no palpable foot pulse can be counted as peripheral vascular disease) in recent times (without this being universally known) which will have pushed up the Euroscore and therefore the risk against which results are measured for similar cohorts of patients.

Reference 3: 0.13% coverage
although mortality has improved, this has been at the cost of possibly denying high-risk patient a surgical option.
smd has definitely made the process safer for patients. by an individual taking ownership, rather than the institution there is probably more accountability. i think cardiologist can assess smd without difficulty and i dont believe that training has been adversely effect, perhaps training has been enhanced.

**THEME: ‘Data collection and publication is a ‘journey’ and will improve in time’ (1)**

Reference 2: 0.07% coverage
We are on a journey with data collection and improving outcomes

**CATEGORY: NEGATIVE REFLECTIONS (17 THEMES)**

**THEME: ‘Publication of SSMD has caused risk-averse behaviour’ (61)**

Reference 1: 0.15% coverage
In order to deter risk averse behaviours, also patients not operated on should be counted, so that the denominator is also assessed.

Reference 2: 0.54% coverage
In Thoracic Surgery the mortality rate reflects the patient co-morbidities to a much greater extent than surgeon or surgical team competence, and the number of index cases per year is low. Reporting mortality will result in older or less fit patients with lung cancer being denied their only potentially curative treatment option. Patients will die unnecessarily as a result of this process, and it is extremely unlikely that it will accurately detect any underperforming surgeons.

Reference 3: 0.23% coverage
SSMD makes surgeons risk averse, even hospital specific data makes teams risk averse. I have seen a three year old die waiting for an MVR because the surgeon was too chicken to operate as the patient was high risk

Reference 4: 0.27% coverage
We should not be abandoning high risk cardiac surgical patients so as to keep our results looking good. This is what is currently happening across the UK. We have become experts at running away from difficult cases rather than tackling them

Reference 5: 0.38% coverage
Those who have been responsible for the decisions about data collection and publication over the last decade have failed patients. They have failed to provide patients with useful information about quality of care and promoted an atmosphere of risk aversion amongst surgeons depriving some patients of the choice of higher risk surgery.

Reference 6: 0.49% coverage
Comparison on outcomes should therefore be based on the package of care and outcomes the institution provides as only that way a fair comparison will be made and risk-adverse behaviour which occurs in most people's practices to a lesser or greater extent can be abrogated by compensation within the clinical governance of the institution rather than the penal system of individual patient outcomes being ascribed to individual surgeons.

Reference 7: 0.39% coverage
SSMD are based on flawed methodology and result in risk averse behaviour, misinform the public, harm patients, hamper innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons.

Reference 8: 0.29% coverage
It is the High risk patients who need the operation, pay the penalty and continue downhill and cost NHS more as Heart failure patients. Naturally the mortality is going to be high for surgeons who take on these patients. refer to Pro Westaby's article in BMJ.

Reference 9: 0.11% coverage
Cardiologists need surveying on the number of their patients being denied life saving treatment

Reference 10: 0.50% coverage
I know of many instances where high-risk patients have been denied surgery. The reasons given in the documentation are always other patient-related factors, but at the back of the surgeons' mind, is the feeling that mortality in these particular patients may impact on surgeon-specific mortality data. Second opinions are not the solution, because even the other
surgeons do not want to accept patients who have been turned down by someone else.

Reference 11: 0.91% coverage
It is only if you have the overall patient profile of the surgeon's / hospital's patient profile pre- and post-implementation of the release of the data that you can see if the patient / unit is "gaming it" by shying away from high-risk patients. If you take these out of the equation then results will look better. The other risk is that this will go the same way as targets for lung cancer - as everybody ups their gain the target moves up the scale and it becomes harder and harder to meet the target without some form of gaming. In the case of mortality, as everybody "gets better" the mean / median drop and people are perversely encouraged to game more and more and soon even moderately high risk patients will find themselves denied surgery. This is not progress, and there is already evidence to show that this risk is real.

Reference 12: 0.16% coverage
a truly awful situation. encourages gaming, coding creep and decanting. high risk patients are being denied surgery that they would benefit from

Reference 13: 0.29% coverage
Surgical management of a patient is only a part of the overall care, much of it is also dependent on other medics and allied health professionals. This data leads to comparisons and this is grossly unfair as undoubtedly some are more risk averse than others.

Reference 14: 0.28% coverage
Promotes risk avoidance. Will be one of the ways trusts will stop us doing higher risk patients, as they will be able to use the excuse of higher risk on surgeon mortality data, when the actual meaning is the higher risk patients actually cost too much!!

Reference 15: 0.50% coverage
As a specialty, it has taken a decade for us to start to work in multidisciplinary teams, with shared responsibility for decision-making. It is absolutely clear that this has been of huge benefit to patients, and has improved overall care and decision-making in cardiac units. SSMD is in direct opposition to this beneficial change in our culture - it is illogical, regressive, and leads to schism within teams and risk-averse decision-making.

Reference 16: 0.08% coverage
No point hanging surgeon for system failure, he will stop take my risk.

Reference 17: 0.57% coverage
This will punish an put more pressure on select surgeons in every unit who continue to take on high risk patients after proper discussion and informed consent. We also feel that data should be entered independently so that those consistently operating at lower risk should be questioned rather than those operating higher risk victimised. We fully support SCTS stand on not publishing surgeon specific data. Support of patient groups in this will be critical to educate people why it will be counterproductive.

Reference 18: 0.43% coverage
Mortality in cardiac surgery is now very low. SSMD publication has more negative than positive aspects. It has created a hostile environment for surgeons to work in. Unfortunately the NHS cannot deal with outlying surgeons in a reasonable fashion. If I was a cardiac surgeon I would not take on any high risk cases for fear of being hung out to dry by the NHS should I be unlucky with outcomes.

Reference 19: 0.49% coverage
insisting on publication will transform our specialty to defensive practice, and we will have no expertise to do the difficult cases. Those with zero mortality are as bad as 5% mortality, as it means they chicken out from anything that is life-threatening. We are supposed to do what it takes to help patients as long as we are transparent and explain to them the risks in an honest way. We also have to abide by the duty of candour at all times.

Reference 20: 0.39% coverage
Surgeon specific mortality data is of limited use. Some of the best surgeons I know, whom I would let operate on my family, have highish mortality rates on the funnel plots that get published on the society web site because they get sent the most challenging cases. It encourages risk averse behaviour which is not in the best interests of the patient.

Reference 21: 0.89% coverage
Despite what the data seems to show (according to the interpretation given by Ben Bridgewater) there are several cases of risk-averse behaviour only due to SSMD being collected and analysed in a way that still has many faults (again despite the reassurance BB gives!) The sickest pt are the ones who could benefit the most from surgery but also the ones that die if the care delivered isn't perfect at all stages. SSMD introduces an inevitable bias in decision making. It was created as a way to improve results. Figures are certainly much better but are they real? I think it doesn't serve pts. Performance analysis isn't true
science. The amount of statistical solutions needed is such that few people apart from Ben can manage to understand. As such, statistics departs more and more from reality.

Reference 22: 0.16% coverage
Whether we acknowledge it or not the publication of SSMD has had a negative impact on case selection and risk adverse behavior is widespread.

Reference 23: 0.07% coverage
Blaming everything on the surgeon only leads to risk avoidance.

Reference 24: 0.43% coverage
It all rests on how robust the risk adjustment is - poor or absent risk adjustment leads to data which is at best misleading, and probably harmful to patient and surgeon / hospital, and will discourage surgeons from taking on higher risk cases, to everyone's loss; carefully risk adjusted data is a useful part of appraising a surgical service as a whole more than an individual operator,

Reference 25: 0.29% coverage
Release of data is necessary and relevant but should not hinder the provision of appropriate care to the public - risk aversion will reduce access and skew referral -- good outcome surgeon who achieves by risk aversion will be referred more patients to turn down!!

Reference 26: 0.07% coverage
The potential for risk-averse behaviour by surgeons is clear.

Reference 27: 0.16% coverage
I would be more infavour if the press could resist the urge to sensationalise and produce league tables which will only drive risk-averse practice

Reference 28: 1.90% coverage
SSMD is a mistake and is resulting in gaming of the system, and risk-averse behaviour. This is detrimental to patients, as those with high risk operations will now be turned down. When previously surgeons would have been willing to 'give it a go', on a patient who was certain to die, as there was 'nothing to lose', now will be quite concerned there is quite a lot to lose. My own practice has been to take on anyone, who if operating gives them the best chance, then I would operate, regardless of risk. Having heard a few recent deaths, I will not continue this, and will have to be more selective, as I do not want to receive an alert letter from the Society, or worse appear on the front pages of the Tabloids. Rather than cave in to media pressures, the Society needs to recognise that ultimately risk averse behaviour is going to actually have a negative impact for patients. They need to make a strong stand and refuse to be party to this. Arguing that Dr Foster and such-like bodies will 'put the data out there anyway, and we might as well control it' is a very poor excuse. If the SCTS categorically rejects the quality of data of such bodies, and refuses to party up to it, then they have no credibility whatsoever. After one or 2 media stories, met by robust rejection by the Society, the media will stop following Dr Foster for Cardiac data. The Society should take control and publish data in a helpful and meaningful way, such as Dept/Hospital based data, which does not hold individual surgeons out to meet the chop. The SCTS need to be equally robust at standing up to the Government, who seem hell-bent on pursuing their own agenda. The SCTS Exec is doing a very poor job of representing its members and patients.

Reference 29: 0.53% coverage
Anyone with knowledge that understands Cardiac surgery will deduce that the surgeon's involvement in the overall result is only a part of the complete care. There are some units that have variable ITU cover, some with highly aggressive PCI services and some with older colleagues that are quite risk averse. Comparisons are therefore rendered meaningless. No doubt internal inspection of any outliers is absolutely necessary to ensure standards of care are maintained.

Reference 30: 0.16% coverage
Likely to lead to defensive practice and ultimately poorer outcomes for patients, especially high risk who could benefit most from surgery.

Reference 31: 1.39% coverage
The SSM terminology itself is flawed and is misunderstood by some members of the public and media to be mortality that is directly related to a surgeon or his operation, whereas in truth the statistic that is being used could be more accurately described as "all cause mortality under an individual Consultant Surgeon inpatient episode (of patients who had an operation)". Whilst these statistics have been shared with the media I'm not sure that the public have been fully informed as to what the weaknesses of the data are and we are all discovering the consequences that this scrutiny is having on our colleagues as time goes by. The reality is that the actual cause of death of a patient following surgery is not recorded in any of the databases that are used to look at surgeon outcome data and that it is currently not possible to study the mode of death of a population of patients undergoing cardiac surgery in the UK. There are extremely important weaknesses with SSMD that
need to be communicated to the public very very clearly. In my opinion the current system is not fit for purpose, it is driving risk averse behaviour as surgeons select the patients with the physiological reserve to survive any complication and avoid very high risk cases.

Reference 32: 0.30% coverage
The SSMD for a surgeon does not help identify problem areas, but misleadingly focuses on one small facet that influences outcome. The unintended consequence is to build a culture of blame, and lead to risk adverse behaviour which is overall detrimental to public health.

Reference 33: 0.44% coverage
few mortalities over a short time pushes the % mortality very high and imparts bad reputation. The public does not appreciate risk adjustment, all they know is that the surgeon they were refered to had high mortality compared to others, and therefore decline treatment. Surgeons who take low risk cases would have longer waiting lists and bold surgeons who take high risk cases will be jobless.

Reference 34: 0.41% coverage
In thoracic surgery there is no adequate risk model. Mortality is often random. Lung cancer causes massive mortality in the UK. Resection rates and MDT have been shown to improve survival. Any blunt instrument such as SSMD may adversely impact rates of resection. Without proper evidence of it being of benifit, we should not just publish dat that may be unhelpful.

Reference 35: 0.04% coverage
Risk averse behaviour is a real problem

Reference 36: 0.14% coverage
We could get some completely anonymised data from surgeons about how many cases they turn down/yr that are influenced by SSMD

Reference 37: 0.05% coverage
Risk averse behaviour is rife in our specialty.

Reference 38: 0.56% coverage
Our surgical patients are older, more frail with more co-morbidities. There are less straightforward cases to offer training for junior trainees. There is risk averse behaviour - but at the same time it is good that the high risk cases are taken on by the right surgeon. The important thing is that no patient should be denied care if they themsleves want to take the risk of an operation and there is a surgeon prepared to do it - in the same unit or even transferring to another unit for further opinions.

Reference 39: 0.44% coverage
Why is the need for transparency and accountability limited to cardiac surgeons and does not apply to any other members of the team? The same level of transparency and accountability can be achieved and be bettered by publishing hospital or institutional mortality rates. SSMD does not address accountability and transparency with regard to patient selection and risk averse behaviour.

Reference 40: 1.10% coverage
I strongly believe that SSMD is bad for patients. It DOES cause risk aversion. Decisions have become about protecting me, not about what is best for the patient; this is a terrible form of medicine to practice. There is no dignity at end of life, with surgeons delaying inevitable adverse outcomes in the hope of a miracle, or transferring patients to other units so that they don't count in the figures. The delivery of so many warnings is causing huge stress for individual surgeons, the vast majority of whom are performing with great proficiency. Training is inhibited. Innovation is inhibited. Teamworking is undermined. The speciality has become highly unattractive, as can be witnessed by the quality of applicant at National Selection. The screw is being continually tightened - on our speciality only. This is not happening else in the medical profession. Why? Why is the Society allowing / promoting this? This is the main reason that Society membership isn't higher.

Reference 41: 0.13% coverage
There is no doubt that some surgeons avoid high risk cases and this has a knock on effect on training and patient care

Reference 42: 0.30% coverage
Lower death rates do not equate to better outcomes if some patients are denied surgery because surgeons are incentivised to avoid high risk cases. Most surgeons will not avoid high risk patients systematically, but all will selectively if they have a run of deaths.

Reference 43: 0.76% coverage
The improvement of outcomes has been influenced by SSMD and some of this is purely a direct effect of collecting the data. It is also the case that risk averse behaviour means that some higher risk patients (particularly if the surgeon believes that the
calculated Euroscore is lower than the actual risk) have not been offered surgery. In addition I understand that some of the Euroscore definitions have been changed (eg no palpable foot pulse can be counted as peripheral vascular disease) in recent times (without this being universally known) which will have pushed up the Euroscore and therefore the risk against which results are measured for similar cohorts of patients.

Reference 44: 1.30% coverage
I have no doubt the publication of SSMD has lead to risk averse behavior. The number of patients who are refused surgery because of being deemed unfit for surgery by surgeons concerned about their results do not come into our statistics of mortality and that is why our results in UK are better than our counterparts in USA and many West European countries who have much better resourced units than we do. If we believe that is because we are much better surgeons we are fooling ourselves at the detriment of our patients for whom we are supposed to do our best. I am sure if a family loses a loved one following cardiac surgery they would want to know the accurate reasons of cause of death and not a scapegoat called the surgeon. No surgeon should be forced to be Jesus Christ taking the sins of others on his shoulders in this day and age neither by the politicians nor by SCTS. I believe strongly that training has suffered as the result of publication of SSMD.

Unfortunately, those surgeons who are keen on training often do not have the right case mix to use for training purpose. The cardiologist know the surgeons who are risk averse and do not refer high risk patients to them

Reference 45: 0.62% coverage
The notion that SSMD has improved outcomes despite the surgeons operating on worse patients is absurd. This is another example of politician-surgeons using the statistics for self promotion. The surgical profession should be driven by science and not by politics. The improvement in outcomes is likely to be multifactorial and is a phenomenon observed in all advanced countries due to improvements in technology and medicine. Also careful patient selection due to risk aversion is taking place and is not reflected in the Euroscore of these patients.

Reference 46: 0.14% coverage
As risk averse behaviour becomes the norm training will inevitably suffer at some point. risk aversion/avoiding training

Reference 47: 0.13% coverage
although mortality has improved, this has been at the cost of possibly denying high-risk patient a surgical option.

Reference 48: 0.29% coverage
If publication of SSMD has improved surgical outcomes, it would only be due to reduced levels of high risk surgery. Often we, as specialists, struggle to understand much of the data presented - it is inevitable that non-specialists will misinterpret it.

Reference 49: 0.11% coverage
Clinical outcome data has improved only because of case selection due to risk adverse behaviour

Reference 50: 0.63% coverage
There are undoubtedly many reasons for improved results however no hospital I know of records the patients being turned down or referred for other procedures, often with little or no evidence, just to avoid surgery. Why risk your future income when it's easier to say no? Training is a serious concern. Cardiac surgery is not an attractive option for trainees. I am all for transparency and accountability but believe this should be at hospital level- better measure of the patient journey than blaming an individual surgeon for an event outwith his control.

Reference 51: 0.97% coverage
Even though SSMD may have led to improvement in introspective capacity of theee surgeons, I am not convinced the UK population is better treated, even though overall mortality number are down. This may be due to general improvements and is certainly due to risk adverse attitudes resulting in severe patient selection which leaves many severe patients without treatment options. This risk adverse attitude is transmitted to the trainees which are also perceived as a risk to the patient and not given much to do. Paradoxically, the surgeons who try to push the boundaries of care and help the sickest patients end up singled out. I think this is leading to level the specialty to its lowest safest denominator leaving patients in need untreated and leaving unrealistic expectations as to what medicine and surgery can achieve through misleading short term SSMD.

Reference 52: 0.28% coverage
Self protection is absolutely essential in any profession. Losing a patient through no fault of your own gets alarm bells ringing. Thereafter high risk cases are deemed non surgical and registrars are used purely as assistants. That is natural.

Reference 53: 0.20% coverage
It is a fallacy to believe that by publishing outcomes surgeons will operate better. It is either risk aversity or loading of risk factors that have caused the statistical change

Reference 54: 0.75% coverage
"Risk averse" behaviour is supposedly not happening. To quote Clare Marx, RCS President in her comments about the
evidence from cardiac surgery "To date there is no evidence of risk-averse behaviour that could be detrimental to patients". My observation is that when patients are discussed at MDT meetings, the information presented is just sufficient to obtain the "decision" that the presenter wished to obtain. These patients are potentially denied treatment without the benefit of a formal medical second opinion consultation. I worry that the MDT process, which is increasingly encouraged, is actually providing a structure for "risk averse" behaviour

Reference 55: 0.45% coverage
Reporting long-term mortality would be detrimental, as surgeons would start looking at the longer term survival chances of patients, when they are considering recommending surgery. The current databases are not adequate for collecting all the factors that can contribute to mortality. trust shirk their responsibilities and hang the surgeon and colleagues use this to get back (stab) colleagues

Reference 56: 0.59% coverage
Re-operation for bleeding is an interesting one. Personally I reopen almost anyone with ICU concerns about blood loss. They are invariably extubated the following morning and have a normal stay. Others who leave patients might get away with it but often discharge is delayed. Occasionally they are re-opened in a hurry due to tamponade when earlier intervention might have prevented it. Who is the better surgeon then? I would hate to see a patient nor re-opened because someone was concerned about their re-opening rate.

Reference 57: 0.21% coverage
One needs to take care not to drive adverse behaviour, like sitting on bleeders in the hope it will stop with loads of products rather than an early take back which doesn't affect outcomes

Reference 58: 0.82% coverage
Public ignorance is one thing - ignorance of the president of the RCS, our medical directors and chief executives is quite another. None of them have a real grasp of the impact of SSMD on the individual surgeons. Consultant surgeons need confidence when they scub for a case. This confidence has been systematically eroded by the blame-culture stimulated by SSMD. Stress levels have escalated, impacting training and leading to risk averse behaviour. I for one will not be working in this specialty up to my new retirement age of 67! Furthermore, I have a real problem with trying to enthuse medical students and junior doctors to join our profession. SSMD has already destroyed our profession - now we need to re-build it......fast.

Reference 59: 0.26% coverage
Congratulations on your excellent initiative. The surgeons need to regain a lot of lost ground... Another unintended consequence is risk-averse behaviour and lack of innovation. Or even adopting innovation from elsewhere.

Reference 60: 0.12% coverage
I feel it is moderate risk adverse behaviour for index cases rather than true adverse high risk behaviour

Reference 61: 0.25% coverage
Audit is good SSMD is wrong and misleading and leads to risk adverse behaviour which is probably more detrimental to patients and to training and will definitely impact recruitment of the best and brightest for this specialty

**THEME: ‘Criticism of current data accuracy and risk adjustment models’ (50)**

Reference 1: 0.06% coverage
Data has to be accurate and audited, at present it is not

Reference 2: 0.10% coverage
You need to make sure that any risk adjustment is by Internationally recognised measures.

Reference 3: 0.26% coverage
Hospital data is better than surgeon specific because it measures the whole team, but the risk adjustment needs to be accurate the current PRAiS system we use in paediatric cardiac surgery doesn't come close to being a good system.

Reference 4: 0.18% coverage
High risk patients must be analysed as a different group. Risk-adjustment cannot capture a significant number of conditions which make patients high-risk
There is widespread inconsistency across the UK and even within units as to how cases are classified on databases (and even as to how they are reclassified according to whether the patient subsequently died or not) so as to favourably alter the "adjusted mortality rate". It would be much better just to publish unadjusted mortality including transplantation cases whether or not they were salvage, emergency, urgent or elective in nature. As it stands at present surgeons have a "license to kill" emergency cases. Unadjusted mortality would at least be an honest figure which it would be difficult to argue about. It would also take away SSMD as a measure of performance.

It is very important for our specialty to have a good risk adjusted mortality system to be used in each unit filled and run by independent staff who are not involved in care of patients.

SSMD are based on flawed methodology and result in risk adverse behaviour, misinform the public, harm patients, hamper innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons.

SSMD is only important if the surgeon and the surgical team at the unit have the ability to assess contemporary performance against the national benchmarks using the same methodology that will be used to determine the risk adjustment. Team mortality is at least as important if not more so than individual surgical performance.

My concern is that the risk adjustment model has not been appropriately published and validated by independent scientific reviewers.

I fear we do not understand this data as well as we might. It does not reflect on the quality of an itu, if an itu costs a surgeon 2 cases a year that shouldn't have a problem, as opposed to one that pulls 2 people out of the fire, that has a devastating affect on a surgeons figures. I also think with 30 years maturity this data may show us there are some high risk referral bases, rather than there are high risk surgeons. A Euroscore of 10 in gloucester may be a very different patient to a eurosore 1- patient in glasgow. Unit data may show high risk regions due to population rather than a poor bunch of surgeons or a poor itu. We also include patients with a high euroscore, and it only takes a couple of those with non cardiac oriented mortalities to really punish a good surgeon. I think we will look back on this and find like capital punishment, we have really hurt some good surgeons, and have no way to repair the damage.

Despite what the data seems to show (according to the interpretation given by Ben Bridgewater) there are several cases of risk-averse behaviour only due to SSMD being collected and analysed in a way that still has many faults (again despite the reassurance BB gives!) The sickest pt are the ones who could benefit the most from surgery but also the ones that die if the care delivered isn't perfect at all stages. SSMD introduces an inevitable bias in decision making. It was created as a way to improve results. Figures are certainly much better but are they real? I think it doesn't serve pts. Performance analysis isn't true science. The amount of statistical solutions needed is such that few people apart from Ben can manage to understand. As such, statistics departs more and more from reality.

Data which is 2 years old is probably not useful.

it all rests on how robust the risk adjustment is - poor or absent risk adjustment leads to data which is at best misleading, and probably harmful to patient and surgeon / hospital, and will discourage surgeons from taking on higher risk cases, to everyone's loss; carefully risk adjusted data is a useful part of appraising a surgical service as a whole more than an individual operator,

Furthermore, risk adjustment is not yet reliable enough and current 30 day mortality does not reflect the real post procedural mortality (it should be mortality at discharge home). analysis of quality of care is important and I support it, but SSMD is misleading.

The SSM terminology itself is flawed and is misunderstood by some members of the public and media to be mortality that is directly related to a surgeon or his operation, whereas in truth the statistic that is being used could be more accurately described as "all cause mortality under an individual Consultant Surgeon inpatient episode (of patients who had an
operation). Whilst these statistics have been shared with the media I’m not sure that the public have been fully informed as to what the weaknesses of the data are and we are all discovering the consequences that this scrutiny is having on our colleagues as time goes by. The reality is that the actual cause of death of a patient following surgery is not recorded in any of the databases that are used to look at surgeon outcome data and that it is currently not possible to study the mode of death of a population of patients undergoing cardiac surgery in the UK. There are extremely important weaknesses with SSMD that need to be communicated to the public very very clearly. In my opinion the current system is not fit for purpose, it is driving risk averse behaviour as surgeons select the patients with the physiological reserve to survive any complication and avoid very high risk cases.

Reference 16: 0.96% coverage
Because of statistical variations there will always be a small number of surgeons with "results" outside the chosen confidence limits. This makes it easy for the press to construct a league table of "performance" which is really is damaging to surgical performance and therefore makes things worse, especially when the publication is out of date with contemporaneous practice. Inevitably these surgeons protect themselves by avoiding cases that are at higher risk of complications and patients suffer. By far the best way to improve transparency and performance of doctors and nurses is by publication of the outcomes of the team, i.e. the hospital where the surgery is carried out. It should be up to each hospital, not HQIP or the SCTS to be responsible for the performance of the members of the team, i.e. the consultant surgeons and their collegaues

Reference 17: 0.39% coverage
there is no point trying to fight against the inevitable. It is with us to stay. Grow up and accept the fact. Stop trying to fudge risk prediction to make it 100% accurate. It wont ever be as it is "prediction". Leave risk stratification with ES2 and let that be the end of it. Stop making everyone's lives more difficult by adding in correction factors.

Reference 18: 0.34% coverage
We work as teams unfortunately the responsibility of a bad outcome is assigned to surgeon alone. The outcome is not correlated with the resources available. There is a diparity in allocation of resources. / Data sets in paediatric cardiac surgery do not collect data that enables risk stratification

Reference 19: 0.42% coverage
Mortality can rarely be blamed on one individual. While some deaths are unavoidable, others are the result of systemic rather than individual failings. Furthermore, the volumes of procedures done by individual surgeons is relatively low, giving rise to wide error bars on analysis of mortality rates. Hospital-specific data is fairer, more robust and more relevant.

Reference 20: 0.27% coverage
The Data must be robust, accurate and validated before publication, otherwise it is absolutely meaningless or even dangerous in the wrong hands, derogatory to the 'wronged' individual and thereby defamatory if not representing true facts.

Reference 21: 0.86% coverage
I am very grateful that you have asked the membership for its views. I strongly suspect that the quality of data input to the national database is extremely poor. Garbage in leads to garbage out. If this information is to be used to dictate a surgeons ability to continue in practice then it needs to be done properly. At present it is a very amateur affair. It should not be possible for Consultants to enter their own data as this is an immediate conflict of interest. Each unit in the UK would need to have dedicated data entry clerks who would track the patients. Even then there is likely to be "editorial control" over the final version that is submitted by at least one clinician who could make "last minute adjustments" to favour his own outcomes. This should not be allowed.

Reference 22: 0.76% coverage
The improvement of outcomes has been influenced by SSMD and some of this is purely a direct effect of collecting the data. It is also the case that risk averse behaviour means that some higher risk patients (particularly if the surgeon believes that the calculated Euroscore is lower than the actual risk) have not been offered surgery. In addition I understand that some of the Euroscore definitions have been changed (eg no palpable foot pulse can be counted as peripheral vascular disease) in recent times (without this being universally known) which will have pushed up the Euroscore and therefore the risk against which results are measured for similar cohorts of patients.

Reference 23: 0.20% coverage
It is a fallacy to believe that by publishing outcomes surgeons will operate better. It is either risk aversity or loading of risk factors that have caused the statistical change

Reference 24: 0.23% coverage
The definitions should be strict and strictly adhered to, and should only be changed with universal application. Field definitions cannot be changed retrospectively. Data validation should be mandatory.

Reference 25: 0.24% coverage
I don't think surgeons are dishonest - but they will use the 'worse' data to 'enhance' the risk profile of the patient. ie If there are two measurements of LV function then they are more likely to use the lower value.

Reference 26: 0.34% coverage
I believe the data from my unit is accurate as we have multiple processes to cross check but I accept that not all units have the same support and funding. Accuracy requires dedicated surgical oversight as well as good data managers and funding as well as a trust that supports and understands the process.

Reference 27: 0.28% coverage
I don't think surgeons up code the data - per se. But it is undoubtedly true that a much more careful history is taken preop in order to capture all possible risk factors - which I think has led to risk score inflation compared to when EuroSCORE was invented.

Reference 28: 0.48% coverage
No blame culture for data entry inaccuracies exists in some units. In others (eg Birmingham) it leads to dismissal. We should have consistency across the UK, but if we were all made to do it the Birmingham way then there would be no cardiac surgeons left. The best thing would be to have dedicated, autonomous data entry clerks or just publish unadjusted mortality. The public have a right to know that some operations are high risk.

Reference 29: 0.25% coverage
It is difficult to have much confidence in the accuracy of the risk factors entered as shown by the distribution of risk factors nationally. Often data entry is delegated to trainees who have an incomplete understanding.

Reference 30: 0.16% coverage
Nicor should make sure its getting the accurate data respective clinical leads should discuss the data at monthly audits for completeness of data.

Reference 31: 0.41% coverage
Which one of the following criteria most accurately meets the Euroscore definition of chronic lung disease? - Long term use of bronchodilators or steroids for lung disease is the Euroscore definition but this does not reflect current risk of lung disease in patients undergoing surgery There need to be robust systems of validation and verification of data entry.

Reference 32: 0.66% coverage
There are many patients who are discharged from the tertiary referral centre to district general hospital and then die before being discharged home. These are not captured in the mortality data. There are some hospitals which have better access to such DGHs where they can discharge patients to. Their results will therefore be slightly better than the smaller units who do not have access to DGHs where they can discharge patients. Their numbers will therefore look worse. The only reason why I place the data myself is that this achieves highest accuracy in terms of completeness of data.

Reference 33: 0.18% coverage
NICOR has made errors with data collection and transmission. As much as I collect the data, it is not always 100% accurate. Definitions are easy to misinterpret.

Reference 34: 0.44% coverage
Up coding can happen without intention for example - SPR or junior doctors history has documented COPD as a yes then it is impossible to check whether it is true or false. Carotid disease status is not documented in every patient and in fact we may be down coding few patients. Data entry by perfusionists is not done in ANY department although they are responsible equally for what they do similar to us.

Reference 35: 0.81% coverage
The SCTS and NICOR have lost an opportunity to lead in creating clear and transparent definitions for the fields of the risk adjustment. They have created ambiguity which leads to a fertile ground for inaccuracy or even gaming. There have been several changes in the system which is unclear how they have been developed and implemented (i.e lack of consensual transparent process). There have been several conflicts of interests not declared or identified (e.g. lack of split roles SCTS, NICOR, HQ UIP). There has been little working with units to develop a mutual protocol for data validation and as a result of this the Registry data raises significant doubts and thus undermines the validity and credibility of the process.

Reference 36: 0.62% coverage
The system for Congenital has clearly demonstrated high inaccuracy rates in even closely validated data. To blame surgeons is wrong. Data accuracy requires a properly supported data system with proper administrative support and systematic checks at every level. For surgeons to be held individually responsible for data accuracy os againa profoundy unjust and ill informed. I strongly reject teh idea taht just because surgeons enter data themselves it will therefore be accurate unless they are lying. Intrinsic inaccuracy rates are at 10 to 20%.

Jarral et al. - National survey of UK consultant surgeons’ opinions on surgeon-specific mortality data in cardiothoracic surgery
I don't think many surgeons change numbers or declare the false in data collection. But I believe many fields are so open to interpretation that when in doubt, people would choose "YES" and increase the ES. Example: stroke. Although preop def is easier to use, the level of disability could be variable. And postop: what is a stroke?

We in the SCTS should be clearer about definitions like the STS.

There is so much data that has to be entered, and no way of checking/validating. The recent HQIP Consultant Outcomes Project highlight how inaccurate the LUCADA database actually is in just one field.

The accuracy of data varies hugely between units. The transfer of data to NICOR is also suspect and there is no verification process.

NICOR definitions are vague and when challenged directly they cannot give a straight answer. A good example is respiratory disease where it is not clear if it is an "and / or" definition or a "and ".

Look at the alleged validation done by units and NICOR; it has changed only 1 field: unstable angina/use of IVI nitrates. This has been done by NICOR probably. No transparency.

Easy to do, but we have no mechanism for checking.

If anything, I probably underscore patients.

Euro score is out of date.

My 2010-2013 data were entered incorrectly into the NICOR database. 127 out of 342 entries were wrong, mostly underscoring my EuroSCORE. After my objection they were corrected. I was told that this is a "local issue". To this day, I don't know whether my Audit Department or NICOR had faulty "computer programs" over the past 5 (???) more years.

Reporting long-term mortality would be detrimental, as surgeons would start looking at the longer term survival chances of patients, when they are considering recommending surgery. The current databases are not adequate for collecting all the factors that can contribute to mortality. Trust shirk their responsibilities and hang the surgeon and colleagues use this to get back (stab) colleagues.

We have tried to publish one outcome (Mortality) which is well defined and this has been shown to be inaccurate. If we were to publish several outcomes, the validity of the data would be questionable. Hospital LOS depends on so many variables - thus may not reflect the Unit performance.

Back again to my comment of accuracy and robustness of any collated data which depends on: 1. Honesty of submission (no gaming) 2. Availability & intelligence of Data managers.

I am all for publishing Surgeon Specific data ONLY if accurate.

**THEME: ‘Opinion that quality of care is multifactorial and not represented by SSMD’ (47)**

Reference 1: 0.12% coverage
Care is very multifactorial and outcomes have minimal reflection on the technical ability of a surgeon

Reference 2: 0.43% coverage
The surgeon needs to be accountable as an individual for their decisions and their actions - so it is appropriate there is some measure of their quality outcomes. At the same time there is much quality that is not in the control of an individual surgeon - the frailty of the patient, the cardiology assessment, the post operative care on ITU etc - and this should be attributed to the whole team.

Reference 3: 0.39% coverage
The surgeon specific mortality data is important in assessing the ability of the surgeon and the quality of care provided by the surgeon. But it ignores the contribution of the whole wider team who also impact significantly on mortality and other outcomes. Focusing on SSMD ignores the impact of the hospital infrastructure on patient outcomes.

Reference 4: 0.17% coverage
Patients will die unnecessarily as a result of this process, and it is extremely unlikely that it will accurately detect any underperforming surgeons

Reference 5: 0.89% coverage
High mortality doesn't reflect someone's ability to operate. It suggests possible issues with someone's performance which could be related to bad cases selection. For example a young patient with BMI 48 may have nearly 0% mortality risk but he has extremely high risk not calculated for wound and lung complications which may lead to death. There shouldn't be a comparison between surgeons operating in different population with different races and even different facilities including ICU care. Coronaries on an Asian patient are not the same with an elderly white British from Winchester or a male person from Wales. Socioeconomic and racial differences in the background of the patients can have major impact on someone's performance. On the other hand extremes should be investigated

Reference 6: 0.25% coverage
Rarely is the surgeon the problem alone. Outcomes depend on team performance, yet for example a poor anaesthetist is not called to account. The surgeon is instead. How does that help the surgeons confidence or patient's care?

Reference 7: 0.34% coverage
SSMD is only relevant to operative aspects. Hospital outcome reflects the performance of the whole team in the institute that one works in and team one surrounded with. Best operative outcomes can be undone in a dysfunctional, poorly resourced unit and this surely cannot reflect surgeon's performance.

Reference 8: 0.25% coverage
Performance in surgery has nothing to do with mortality unless it can be demonstrated that death resulted from medical error. In my experience it is extremely rare for a patients death to have anything to do with medical error.

Reference 9: 0.13% coverage
Outcomes after cardiac surgery are determined by the performance of the whole clinical team and should be unit based.

Reference 10: 0.12% coverage
but attributing outcomes solely to the judgement and skill of a single individual is simply scapegoating

Reference 11: 0.25% coverage
Mortality alone is a poor reflection of quality of care and its use demonstrates laziness. It is used mainly because it is very easy to measure. Surgeons are held responsible by this methodology for the entire package of care.

Reference 12: 0.99% coverage
Hospital specific risks are very important Multiple factors other than surgeon creates mortality. We should incorporate outcome data dependent on qualitative measures such as SSI infection rates, length of stay, etc. Cardiac surgery is a team approach and results should be based on a team, the reality is that most of the time the only constant member of a supposedly F1 team is the driver consultant cardiac surgeon supported by locum anaesthetist, locum perfusionist and locum general nurses. The patient is then transferred to an ITU where the consultant has very little input with the decision making process by the intensivists but carries all the responsibility if the outcome is poor. The whole situation needs to be addressed to factor in these inconsistencies in the NHS. This survey will help highlight the difficulties especially for new consultants in Cardiac Surgery.

Reference 13: 0.74% coverage
The whole pathway of care, from work-up, decision-making, pre-operative evaluation, intra-operative management, post-operative ICU and ward management are very dependent on the quality of the healthcare system that the surgeon works within. Too many unaccounted variables, both clinical ie other clinicians and infra-structurally ie hospital facilities and
referring hospital facilities influence the outcomes of an individual patient and an individual surgeon's performance is only a small part, although important one in this. It is therefore intellectually and morally wrong to penalise an individual rather than the whole system he works in

Reference 14: 0.08% coverage
Surgeons alone should not be held accountable for the care of the team

Reference 15: 0.23% coverage
Mortality is not exclusively linked to the surgeon but rather to the team and facilities as a whole. Sports matches are decided by the overall score of the team rather than the individual score of one member

Reference 16: 0.50% coverage
I don't feel that the options for the last 2 questions are appropriate. Clearly SSMD is rarely a direct reflection of surgical ability but outcome measures cannot be ignored. In the same way resection rate does not directly assess ability of a surgeon, more reflects the population they serve, and availability of alternative treatments. However in the current climate it is difficult to argue that SSMD should not be available given it is collected.

Reference 17: 0.46% coverage
Surgeon specific mortality data does not reflect the surgical skills and abilities of the surgeons. There are many factors which play a role in mortalities, and the technical skills of the surgeon is a minor portion. Other more important factors are patient related (even the most sophisticated risk stratification system cannot properly account for these in real-life situations), and organisational

Reference 18: 0.24% coverage
Cardiac surgeon mortality is a crude measure of patients outcome, as it is a team effort. Unfortunately, the anaesthetist involved in each case it not tagged to outcomes, which on occasion does influence results.

Reference 19: 0.28% coverage
SSMD is part of the assessment of a surgeon quality-of-care provided. For example, incomplete revascularisation (LIMA to LAD let's say OPCAB) is usually associated with low mortality but with the current evidence-base is not recommended practice.

Reference 20: 0.09% coverage
It is a complicated process involving multiple disciplines. SSMD do not make sense

Reference 21: 0.50% coverage
Surgical management of a patient is only a part of the overall care, much of it is also dependent on other medics and allied health professionals. This data leads to comparisons and this is grossly unfair as undoubtedly some are more risk averse than others.

Reference 22: 0.29% coverage
Cardiac surgery is a complex and quintessential team effort. Therefore, there is no clinical or logical sense in skewing the accountability for its outcomes only on one individual.

Reference 23: 0.50% coverage
Cardiac surgery is a complex and quintessential team effort. Therefore, there is no clinical or logical sense in skewing the accountability for its outcomes only on one individual.

Reference 24: 0.50% coverage
As a specialty, it has taken a decade for us to start to work in multidisciplinary teams, with shared responsibility for decision-making. It is absolutely clear that this has been of huge benefit to patients, and has improved overall care and decision-making in cardiac units. SSMD is in direct opposition to this beneficial change in our culture - it is illogical, regressive, and leads to schism within teams and risk-averse decision-making.

Reference 25: 1.01% coverage
I fear we do not understand this data as well as we might. It does not reflect on the quality of an itu, if an itu costs a surgeon 2 cases a year that shouldn't have a problem, as opposed to one that pulls 2 people out of the fire, that has a devastating affect on a surgeon's figures. I also think with 30 years maturity this data may show us there are some high risk referral bases, rather than there are high risk surgeons. A Euroscore of 10 in gloucester may be a very different patient to a euroscore 1- patient in glasgow. Unit data may show high risk regions due to population rather than a poor bunch of surgeons or a poor itu. We also include patients with a high euroscore, and it only takes a couple of those with non cardiac oriented mortalities to really
punish a good surgeon. I think we will look back on this and find like capital punishment, we have really hurt some good
surgeons, and have no way to repair the damage.

Reference 26: 0.75% coverage
Cardiothoracic surgery is done by a team to treat cardiothoracic disease. The only meaningful outcomes are intention to treat
outcomes from time of presentation. In my view data gathered should include all presenting patients and their therapeutic
pathway, whether they were referred to MDT and whether they were rejected for surgery at any stage and by whom. No
patient should be refused surgery on the word of a single clinician if surgery is contemplated but considered risky it must go
to MDT and those refused surgery documented. Higher intervention thresholds will lead to higher operative mortality but
better overall survival in all three subspeciality areas

Reference 27: 0.42% coverage
Whilst surgeon operates, he is not the only person who can influence the patient's outcome. Intra-operatively the involvement
of the anaesthetist and equally the post operative care is influenced significantly by CICU staff (nurse practitioners, nurses
and registrars). Things may alter quite quickly and significantly while surgeon is away on annual/study leave.

Reference 28: 0.37% coverage
For too long, cardiac surgery has failed to recognise the influence of the system on cardiac surgical outcomes, and instead put
all responsibility of outcome on the surgeon. This is dangerous as it ignores the system factors that affect outcome. SSMD
needs to be more robust before it is used as an important marker of quality of care.

Reference 29: 0.44% coverage
The mortality of a group of patients is the result of a treatment by a whole team, which starts with the timely referral,
appropriate treatment pathway chosen at multidisciplinary team meeting, appropriate delivery of treatment by the whole team
per and postoperatively. The surgeon, a component of all this and not always the leader, is not and cannot be held responsible
for this whole pathway.

Reference 30: 0.53% coverage
Anyone with knowledge that understands Cardiac surgery will deduce that the surgeon's involvement in the overall result is
only a part of the complete care. There are some units that have variable ITU cover, some with highly aggressive PCI
services and some with older colleagues that are quite risk averse. Comparisons are therefore rendered meaningless. No doubt
internal inspection of any outliers is absolutely necessary to ensure standards of care are maintained.

Reference 31: 0.23% coverage
The outcome of a patient is the result of the care delivered at every stage of the journey from admission to discharge, by
nursing staff, allied health professionals, junior doctors as well as consultants.

Reference 32: 0.09% coverage
SSMD alone is unimportant to assess the surgeons ability. There are many factors.

Reference 33: 0.10% coverage
Even though the surgeon plays a major role, there are many factors that influence mortality

Reference 34: 0.30% coverage
A number of times, surgeon can/may have done a fantastic operation and patient develops post op complications completely
unrelated to the operation itself. However, on the current system, this is logged in as surgeon specific complication/outcome
which is unfair.

Reference 35: 0.19% coverage
In today's terms Surgical treatment of any condition is a team effort. The surgeon is only a cog in the wheel. The organisations
resources play a major role in the outcome too

Reference 36: 0.12% coverage
I think that all of those factors are part of an overall picture but no single factor has over-riding importance

Reference 37: 0.12% coverage
institutional factors, quality of support services and personnel and demographics are major factors

Reference 38: 0.42% coverage
SSMD diverts the public's attention from system failure - product of "NHS reforms" / Publishing Unit results against "UK
profile" will encourage Medical Directors to review local practice and ALL TEAM MEMBERS performance. / Individual
Surgeon's performance is best reflected by Risk Adjusted Mortality Ratio, which has nothing to do with "UK profile" or UK
mean mortality.
We work as teams unfortunately the responsibility of a bad outcome is assigned to surgeon alone. The outcome is not correlated with the resources available. There is a disparity in allocation of resources. Data sets in paediatric cardiac surgery do not collect data that enables risk stratification.

Mortality can rarely be blamed on one individual. While some deaths are unavoidable, others are the result of systemic rather than individual failings. Furthermore, the volumes of procedures done by individual surgeons is relatively low, giving rise to wide error bars on analysis of mortality rates. Hospital-specific data is fairer, more robust and more relevant.

Surgery is only one aspect to the treatment delivered to a patient by any institution. Therefore SSMD is only accounting one person ie the surgeon for the responsibility for the patient care. I believe it should be an institutional care mortality rate rather than SSMD due to complexity of patient care which involves many teams.

Why is the need for transparency and accountability limited to cardiac surgeons and does not apply to any other members of the team? The same level of transparency and accountability can be achieved and be bettered by publishing hospital or institutional mortality rates. SSMD does not address accountability and transparency with regard to patient selection and risk averse behaviour.

By making the Surgeon take all the responsibility for outcomes which they are only partially responsible for, if at all, we have created a fundamental injustice at the heart of the system. Surgeons are scapegoated and patients left to die. In the realpolitik of units the surgeons are, from the patients perspective, dangerously disempowered. Cardiologists, managers, intensivists and anaesthetists. Nurses and juniors. All have unfair leverage. Consultants are scapegoated. I cannot train juniors for fear of the audit.

In-Hospital mortality varies according to the ability of some hospitals to decant longer term patients compared to regions where this is extremely limited and therefore not a uniform indicator. Data collection is mixed - preop by preadmission staff, operative data by myself, and post op by junior doctor. Some data definitions are unclear to everyone entering data and not in accord with other Society definitions.

There are many patients who are discharged from the tertiary referral centre to district general hospital and then die before being discharged home. These are not captured in the mortality data. There are some hospitals which have better access to such DGHs where they can discharge patients to. Their results will therefore be slightly better than the smaller units who do not have access to DGHs where they can discharge patients. Their numbers will therefore look worse. The only reason why I place the data myself is that this achieves highest accuracy in terms of completeness of data.

Waiting times are long here, the cancellation rate is very high. Readmission rate to ITU is high. Unit mortality is more pertinent rather than individual data. Individual deviation from acceptable standards should be investigated locally, not by someone trying to further his career. Teams, not individuals, should be held accountable for clinical outcomes of a quintessential team effort.

I am concerned that a surgeon may do a case and then goes on holidays, he case is managed by others and dies. The death is attributed to a surgeon who is not in the country and the data released to the public. There may be a legal issue here (surgeon’s human rights?) which should be explored. We emphasise the team management but lay all the blame on surgeons if any other component of the team fails.

**THEME: SSMD is difficult to interpret and/or misleading (25)**

The quality of care given to an individual patient cannot be reflected nor predicted by mortality and survival of another patient. Just as mortality risk can not always be appreciated by patients, and we cannot predict which 1 of a hundred patients will not survive.

SSMD are based on flawed methodology and result in risk averse behaviour, misinform the public, harm patients, hamper
innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons.

Reference 3: 0.05% coverage
Public understanding of risk is more crucial

Reference 4: 0.30% coverage
Surgeon specific data should still be collected as it may form part of an analysis of high mortality rates but its publication is damaging and fails to reflect problems and solutions. It suggests sanction against the surgeon solves the problem when it may perpetuate it

Reference 5: 0.21% coverage
Although superficially an attractive concept, SSMD if fraught with problems and on balance is not best in the public domain where it has been clearly demonstrated that it is not understood.

Reference 6: 0.24% coverage
SSMD are misunderstood and misused. The work of S Westaby and colleagues proves the point well. Other countries have not made the mistake of going down this route. Quality improvement initiatives is a smarter way.

Reference 7: 1.01% coverage
I fear we do not understand this data as well as we might. It does not reflect on the quality of an itu, if an itu costs a surgeon 2 cases a year that shouldn’t have a problem, as opposed to one that pulls 2 people out of the fire, that has a devastating affect on a surgeons figures. I also think with 30 years maturity this data may show us there are some high risk referral bases, rather than there are high risk surgeons. A Euroscore of 10 in gloucester may be a very different patient to a euroscore 1- patient in glasgow. Unit data may show high risk regions due to population rather than a poor bunch of surgeons or a poor itu. We also include patients with a high euroscore, and it only takes a couple of those with non cardiac oriented mortalities to really punish a good surgeon. I think we will look back on this and find like capital punishment, we have really hurt some good surgeons, and have no way to repair the damage.

Reference 8: 0.23% coverage
While the public should be reassured that the service they receive in any hospital in the UK is safe and up to date, the publication of individual data is still difficult for most to interpret and compare.

Reference 9: 0.48% coverage
Mortality is only one measure of outcome; it is an unsophisticated descriptor of patient experience as a whole, and cannot be used without also examining 'softer' measures of quality, as well as the experience of patients referred for but not undergoing surgery for whatever reason (capture turn-downs, waiting list deaths etc) thus taking a true intention-to be-treated population, and not the I-chose-to-treat population.

Reference 10: 0.30% coverage
Furthermore, risk adjustment is not yet reliable enough and current 30 day mortality does not reflect the real post procedural mortality (it should be mortality at discharge home). analysis of quality of care is important and I support it, but SSMD is misleading.

Reference 11: 1.39% coverage
The SSM terminology itself is flawed and is misunderstood by some members of the public and media to be mortality that is directly related to a surgeon or his operation, whereas in truth the statistic that is being used could be more accurately described as “all cause mortality under an individual Consultant Surgeon inpatient episode (of patients who had an operation)”. Whilst these statistics have been shared with the media I’m not sure that the public have been fully informed as to what the weaknesses of the data are and we are all discovering the consequences that this scrutiny is having on our colleagues as time goes by. The reality is that the actual cause of death of a patient following surgery is not recorded in any of the databases that are used to look at surgeon outcome data and that it is currently not possible to study the mode of death of a population of patients undergoing cardiac surgery in the UK. There are extremely important weaknesses with SSMD that need to be communicated to the public very very clearly. In my opinion the current system is not fit for purpose, it is driving risk averse behaviour as surgeons select the patients with the physiological reserve to survive any complication and avoid very high risk cases.

Reference 12: 0.30% coverage
The SSMD for a surgeon does not help identify problem areas, but misleadingly focuses on one small facet that influences outcome. The unintended consequence is to build a culture of blame, and lead to risk adverse behaviour which is overall detrimental to public health.

Reference 13: 0.44% coverage
few mortalities over a short time pushes the % mortality very high and imparts bad reputation. The public does not appreciate risk adjustment, all they know is that the surgeon they were refered to had high mortality compared to others, and therefore decline treatment. Surgeons who take low risk cases would have longer waiting lists and bold surgeons who take high risk cases will be jobless.

Reference 14: 0.29% coverage
In general I favour. Most of the surgeons who have been highlighted past and present have had issues with results. Public do, however, need to know how to interpret data as there is probably not a great deal of difference between the surgeons with 3.2 and 1.2%.

Reference 15: 0.27% coverage
The Data must be robust, accurate and validated before publication, otherwise it is absolutely meaningless or even dangerous in the wrong hands, derogatory to the 'wronged' individual and thereby defamatory if not representing true facts.

Reference 16: 0.44% coverage
Sadly we cannot go back as we have travelled too far along this road. The concept was politically driven and we did not fully comprehend the potential damage to surgeons, their practice and the service delivery to high risk patients. It is legacy that future generation of surgeons will have to endure. This survey and any amount of debate is not now going to prevent the future release of SSMD!

Reference 17: 0.14% coverage
Public have difficulty understanding this. Watch the BBC1 'One show' from December 2014 and see how public do not understand.

Reference 18: 0.29% coverage
If publication of SSMD has improved surgical outcomes, it would only be due to reduced levels of high risk surgery. Often we, as specialists, struggle to understand much of the data presented - it is inevitable that non-specialists will misinterpret it.

Reference 19: 0.16% coverage
Public have great difficulty in understanding this data, which is unsurprising as most surgeons have problems interpreting it themselves!!!!!!

Reference 20: 0.41% coverage
Medical Directors have been misinterpreting SSMD with catastrophic consequences, so it's likely that referring clinicians will do as well. I don't think that general public is interested in SSMD at all (1 patient of mine in the past 10 years) Training of junior surgeons is very poor for different reasons - European time directive, recruitment, assessment etc.

Reference 21: 0.83% coverage
Pts would follow the advice of the cardiologists and tend to have surgery in the nearest unit. They want to know if having their surgery at that hospital is broadly OK. They understand very well that every patient is different. They understand very well that a senior surgeon would take on more complex cases and his results may be not as good when compared to a more junior surgeon. What they fail to understand is the immense complexity if one was to compare the two surgeons equally. Hospital or System's quality measures are far more informative of the quality of the work done. But cannot be left to CQC or similar bodies. SCTS should start providing leadership having tried one avenue (SSMD) and understood it isn't in pt's best interest to go there.

Reference 22: 0.15% coverage
Softer outcome measures eg bleeding/infection/renal support will depend on the threshold at each unit so will be harder to interpret.

Reference 23: 0.82% coverage
Public ignorance is one thing - ignorance of the president of the RCS, our medical directors and chief executives is quite another. None of them have a real grasp of the impact of SSMD on the individual surgeons. Consultant surgeons need confidence when they scub for a case. This confidence has been systematically eroded by the blame-culture stimulated by SSMD. Stress levels have escalated, impacting training and leading to risk averse behaviour. I for one will not be working in this specialty up to my new retirement age of 67! Furthermore, I have a real problem with trying to enthuse medical students and junior doctors to join our profession. SSMD has already destroyed our profession - now we need to re-build it......fast.

Reference 24: 0.46% coverage
SSMD has led to usage of data for unprofessional reasons. The Ian Wilson affair needs to be clarified by the Society. Have SSMD been used inappropriately for reasons other than patient safety and performance? The way SSMD are currently displayed is complicated, the public gets the wrong message and the over simplistic interpretation of performance has resulted in unfair termination of professional careers.
Reference 25: 0.25% coverage
Audit is good SSMD is wrong and misleading and leads to risk adverse behaviour which is probably more detrimental to patients and to training and will definitely impact recruitment of the best and brightest for this specialty

**THEME: ‘Gaming’ of data entry is common (18)**

Reference 1: 0.62% coverage
Gaming in Euroscores is rife and high risk patients are being denied surgery. This of course is widely denied, cardiac surgeons are intelligent people and can be very savvy in the way they practice. The data and presentation are beyond the comprehension of many hospital managers, many medical directors and certainly beyond the comprehension of many in the media. These sentiments are supported by countless cardiac surgeons who have made their feelings very clear on many occasions. Time for a rethink SCTS, come up with something better please.

Reference 2: 0.91% coverage
It is only if you have the overall patient profile of the surgeon's / hospital's patient profile pre- and post-implementation of the release of the data that you can see if the patient / unit is "gaming it" by shying away from high-risk patients. If you take these out of the equation then results will look better. The other risk is that this will go the same way as targets for lung cancer - as everybody ups their gain the target moves up the scale and it becomes harder and harder to meet the target without some form of gaming. In the case of mortality, as everybody "gets better" the mean / median drop and people are perversely encouraged to game more and more and soon even moderately high risk patients will find themselves denied surgery. This is not progress, and there is already evidence to show that this risk is real.

Reference 3: 0.16% coverage
a truly awful situation. encourages gaming, coding creep and decanting. high risk patients are being denied surgery that they would benefit from

Reference 4: 1.90% coverage
SSMD is a mistake and is resulting in gaming of the system, and risk-averse behaviour. This is detrimental to patients, as those with high risk operations will now be turned down. When previously surgeons would have been willing to 'give it a go', on a patient who was certain to die, as there was 'nothing to lose', now will be quite concerned there is quite a lot to lose. My own practice has been to take on anyone, who if operating gives them the best chance, then I would operate, regardless of risk. Having had a few recent deaths, I will not continue this, and will have to be more selective, as I do not want to receive an alert letter from the Society, or worse appear on the front pages of the Tabloids. Rather than cave in to media pressures, the Society needs to recognise that ultimately risk averse behaviour is going to actually have a negative impact for patients. They need to make a strong stand and refuse to be party to this. Arguing that Dr Foster and such-like bodies will 'put the data out there anyway, and we might as well control it' is a very poor excuse. If the SCTS categorically rejects the quality of data of such bodies, and refuses to party up to it, then they have no credibility whatsoever. After one or 2 media stories, met by robust rejection by the Society, the media will stop following Dr Foster for Cardiac data. The Society should take control and publish data in a helpful and meaningful way, such as Dept/Hospital based data, which does not hold individual surgeons out to meet the chop. The SCTS need to be equally robust at standing up to the Government, who seem hell-bent on pursuing their own agenda. The SCTS Exec is doing a very poor job of representing its members and patients.

Reference 5: 0.08% coverage
Absolutely scandalously, and widespread gaming is still occurring

Reference 6: 0.04% coverage
the gaming will stop if we stop SSMD

Reference 7: 0.17% coverage
Gaming is an inevitable result of SSMD, even it is done subconsciously. As soon as a surgeon enters his own risk scoring data, it must be regarded as invalid.

Reference 8: 0.03% coverage
discrete gaming is rampant

Reference 9: 0.18% coverage
Highly unlikely, it is a dangerous thing to do. But if surgeons are not terribly engaged from fear of 'gaming' then the risk factors may be under-represented.
Gaming is human nature, to imagine that there would be 300 ‘olympian’ individuals involved in the provision of cardiac surgery in the UK is naive.

The SCTS and NICOR have lost an opportunity to lead in creating clear and transparent definitions for the fields of the risk adjustment. They have created ambiguity which leads to a fertile ground for inaccuracy or even gaming. There have been several changes in the system which is unclear how they have been developed and implemented (i.e., lack of consensual transparent process). There have been several conflicts of interests not declared or identified (i.e., lack of split roles SCTS, NICOR, HqUIP). There has been little working with units to develop a mutual protocol for data validation and as a result of this the Registry data raises significant doubts and thus undermines the validity and credibility of the process.

Combined data point entry by different team members of different designations (medical & non-medical) at different timpanist. No objective validation of data entry. Gaming of procedures (intervening on mild-moderate valve disease & non-flow-limiting coronary disease) to upscale procedures IS A REAL PROBLEM

Gaming the system also involves ensuring that patient deaths do not occur in 30 days, or that the patient is transferred out of the Trust if death is inevitable.

Payment to commissioners is improved if comorbidity was maximally pumped up. So little uninvestigated angina could be entered as established IHD. WHO performance status is usually whimfully pumped up.

For LV function, I tended to use measurements provided at surgery pre-bypass. Analysis showed that I had a disproportionately high incidence of moderate LV function. Re-assessment of the data using pre-operative data brought me back into line with national figures. This is an example of my personal experience of data collection which, though I honestly reported, could be construed as “gaming”. There is a precedent where a colleague consultant cardiac surgeon has suffered seriously because of alleged discrepancies in data collection and possible clinical performance issues.

This is seen as excess numbers with pulmonary hypertension in some surgeons NICOR feedback

Surgeons may manipulate the scoring without a transparent internal or external validation process

However unpleasant to describe Cardiac Surgeons as ‘Gaming’, it is my observation that it happens all the time.

**THEME: Opinion that SSMD is politically motivated (18)**

The FOI act and political/press pressure means that SSMD cannot be "put back in the bottle".

SSMD are based on flawed methodology and result in risk averse behaviour, misinform the public, harm patients, hamper innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons.

This statistic is a piece of gimmick, targeted to appease the public who are blinded to the confounding factors in obtaining it.

he who pays the piper plays the tune

SSMD is a mistake and is resulting in gaming of the system, and risk-averse behaviour. This is detrimental to patients, as those with high risk operations will now be turned down. When previously surgeons would have been willing to 'give it a go', on a patient who was certain to die, as there was 'nothing to lose', now will be quite concerned there is quite a lot to lose. My own practice has been to take on anyone, who if operating gives them the best chance, then I would operate, regardless of
risk. Having had a few recent deaths, I will not continue this, and will have to be more selective, as I do not want to receive an alert letter from the Society, or worse appear on the front pages of the Tabloids. Rather than cave in to media pressures, the Society needs to recognise that ultimately risk averse behaviour is going to actually have a negative impact for patients. They need to make a strong stand and refuse to be party to this. Arguing that Dr Foster and such-like bodies will ‘put the data out there anyway, and we might as well control it’ is a very poor excuse. If the SCTS categorically rejects the quality of data of such bodies, and refuses to party up to it, then they have no credibility whatsoever. After one or 2 media stories, met by robust rejection by the Society, the media will stop following Dr Foster for Cardiac data. The Society should take control and publish data in a helpful and meaningful way, such as Dept/Hospital based data, which does not hold individual surgeons out to meet the chop. The SCTS need to be equally robust at standing up to the Government, who seem hell-bent on pursuing their own agenda. The SCTS Exec is doing a very poor job of representing its members and patients.

Reference 6: 0.18% coverage
We have got used to the publication of the data in its current format but you get the feeling that it is being used as stick for surgeons (and not a carrot for change)

Reference 7: 0.42% coverage
SSMD diverts the public's attention from system failure - product of "NHS reforms" / Publishing Unit results against "UK profile" will encourage Medical Directors to review local practice and ALL TEAM MEMBERS performance. / Individual Surgeon's performance is best reflected by Risk Adjusted Mortality Ratio, which has nothing to do with "UK profile" or UK mean mortality.

Reference 8: 1.30% coverage
I have no doubt the publication of SSMD has lead to risk averse behavior. The number of patients who are refused surgery because of being deemed unfit for surgery by surgeons concerned about their results do not come into our statistics of mortality and that is why our results in UK are better than our counterparts in USA and many West European countries who have much better resourced units than we do. If we believe that is because we are much better surgeons we are fooling ourselves at the detriment of our patients for whom we are supposed to do our best. I am sure if a family loses a loved one following cardiac surgery they would want to know the accurate reasons of cause of death and not a scapegoat called the surgeon. No surgeon should be forced to be Jesus Christ taking the sins of others on his shoulders in this day and age neither by the politicians nor by SCTS. I belief strongly that training has suffered as the result of publication of SSMD. Unfortunately, those surgeons who are keen on training often do not have the right case mix to use for training purpose. The cardiologist know the surgeons who are risk averse and do not refer high risk patients to them

Reference 9: 0.62% coverage
The notion that SSMD has improved outcomes despite the surgeons operating on worse patients is absurd. This is another example of politician-surgeons using the statistics for self promotion. The surgical profession should be driven by science and not by politics. The improvement in outcomes is likely to be multifactorial and is a phenomenon observed in all advanced countries due to improvements in technology and medicine. Also careful patient selection due to risk aversion is taking place and is not reflected in the Euroscore of these patients.

Reference 10: 0.44% coverage
Sadly we cannot go back as we have travelled too far along this road. The concept was politically driven and we did not fully comprehend the potential damage to surgeons, their practice and the service delivery to high risk patients. It is legacy that future generation of surgeons will have to endure. This survey and any amount of debate is not now going to prevent the future release of SSMD!

Reference 11: 0.22% coverage
The publication of these results has purely been to further the careers of individuals in the SCTS and this continues. Concern about results has resulted in cases being taken away from trainees.

Reference 12: 0.47% coverage
Few surgeons have pushed for the release of SSMD without giving due considerations to concerns raised by many colleagues regarding the damaging effects of such a move. Those few surgeons have made a career for themselves, making opportunistic use of systemic failures and the public emotional response to them. They should now hang their heads in shame for having caused such a disservice to both surgeons and patients.

Reference 13: 0.29% coverage
With all systems of data collection for any purpose, 100% accuracy is not possible. A reasonable level of accuracy is enough to guide. Statistics are supposed to always be used as a guide and not to police the medical profession. This is another flaw with SSDS.

Reference 14: 0.51% coverage
SSI and reoperations for bleeding are useful internal measures (within SCTS or departments) but public reporting would be
ill-advised, as those matters are too complicated for the public to understand but also rather gory for some lay people. Unit mortality, waiting list times and patient satisfaction are useful measures for the public. Caution however is needed on unit mortality, as this can also be used internally for blaming and political reasons.

Reference 15: 0.42% coverage
In our politicized and under funded health care system it is difficult to see how giving patients an illusion of choice about where they will get their surgery can be helpful in any way. If we have learned anything from 15 years of reporting SSMD it is the lesson of unintended consequences. We should provide nothing other than unit mortality and some composite measure of safety.

Reference 16: 0.48% coverage
It's time for a revisit and a rethink. The scheme that was agreed by the Society at the end of a barrel of a gun was better than the alternative at the hands of the Guardian. Subsequent adjustments have been opaque & unscientific. There is a significant erosion of confidence of consultant surgeons in the current iteration. This is an opportunity for root-and-branch reassessment & reform. We led the way. We haven't evolved since.

Reference 17: 0.70% coverage
I rather suspect that over the years some surgeons have been vilified for bad results and their careers have been harmed. This is highly inappropriate. Vilification is for those doctors who fall foul of the time honoured failures enshrined in the GMC codes. I think it would be good for a subcommittee of the SCTS to look into this. What happened to the task force that was set up after the "Bristol scandal" to see if (as some claimed) the other paediatric units had similar mortalities to those experienced by Bristol, but submitted inaccurate data. It seemed to just peter out. Maybe they didn't wish to disclose their findings.

Reference 18: 0.89% coverage
My major disappointment with the Society is that 'our' Clinical database was a reasonable initiative, but then used (indirectly and directly) for the personal advancement of only a few individuals, and now appears to be aimed at using it against individuals at multiple levels. Very few other Society members have benefitted from it - my fear now is that at a local level local resources (dedicated staff or job-planned time) will not be provided on the assumption it is now 'our duty/ responsibility', and furthermore that in the NHS the surgeon can now be held publically accountable/blamed for wider institutional / management failures that may at times be a greater contributing factor for poor outcomes; a win win for non-clinical management who are only accountable for financial targets

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<th>THEME: ‘Discontentment with SCTS leadership’ (16)</th>
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| Reference 1: 0.38% coverage
Those who have been responsible for the decisions about data collection and publication over the last decade have failed patients. They have failed to provide patients with useful information about quality of care and promoted an atmosphere of risk aversion amongst surgeons depriving some patients of the choice of higher risk surgery. |
| Reference 2: 0.25% coverage
I feel disappointed that the Society leadership over the last 10 years or so has played into the hands of politicians to help them achieve their aim at the expense of our professional standards and what our patients deserve. |
| Reference 3: 0.29% coverage
Outcome data are a good thing and are here for good, that is accepted by most surgeons but the way that the SCTS has gone about it has been an unmitigated disaster. It has not benefited patients and it has caused enormous distress and stress to many good surgeons. |
| Reference 4: 0.07% coverage
Time for a rethink SCTS, come up with something better please. |
| Reference 5: 0.39% coverage
SSMD are based on flawed methodology and result in risk averse behaviour, misinform the public, harm patients, hamper innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons. |
| Reference 6: 1.90% coverage
SSMD is a mistake and is resulting in gaming of the system, and risk-averse behaviour. This is detrimental to patients, as those with high risk operations will now be turned down. When previously surgeons would have been willing to 'give it a go', on a patient who was certain to die, as there was 'nothing to lose', now will be quite concerned there is quite a lot to lose. My own practice has been to take on anyone, who if operating gives them the best chance, then I would operate, regardless of risk. Having had a few recent deaths, I will not continue this, and will have to be more selective, as I do not want to receive...
an alert letter from the Society, or worse appear on the front pages of the Tabloids. Rather than cave in to media pressures, the Society needs to recognise that ultimately risk averse behaviour is going to actually have a negative impact for patients. They need to make a strong stand and refuse to be party to this. Arguing that Dr Foster and such-like bodies will 'put the data out there anyway, and we might as well control it' is a very poor excuse. If the SCTS categorically rejects the quality of data of such bodies, and refuses to party up to it, then they have no credibility whatsoever. After one or 2 media stories, met by robust rejection by the Society, the media will stop following Dr Foster for Caridac data. The Society should take control and publish data in a helpful and meaningful way, such as Dept/Hospital based data, which does not hold individual surgeons out to meet the chop. The SCTS need to be equally robust at standing up to the Government, who seem hell-bent on pursuing their own agenda. The SCTS Exec is doing a very poor job of representing its members and patients.

Reference 7: 0.22% coverage
The publication of these results has purely been to further the careers of individuals in the SCTS and this continues. Concern about results has resulted in cases being taken away from trainees.

Reference 8: 0.47% coverage
Few surgeons have pushed for the release of SSMD without giving due considerations to concerns raised by many colleagues regarding the damaging effects of such a move. Those few surgeons have made a career for themselves, making opportunistic use of systemic failures and the public emotional response to them. They should now hang their heads in shame for having caused such a disservice to both surgeons and patients.

Reference 9: 0.04% coverage
a society without trust is death

Reference 10: 0.26% coverage
SCTS are responsible for declining recruitment of surgeons to the speciality Why majority of SCTS officials are belong to Midlands and comes from Caucasian ancestry? Even though majority of hard working surgeons are foreigners?

Reference 11: 0.81% coverage
The SCTS and NICOR have lost an opportunity to lead in creating clear and transparent definitions for the fields of the risk adjustment. They have created ambiguity which leads to a fertile ground for inaccuracy or even gaming. There have been several changes in the system which is unclear how they have been developed and implemented (i.e lack of consensual transparent process). There have been several conflicts of interests not declared or identified (e.g. lack of split roles SCTS, NICOR, HqUIP). There has been little working with units to develop a mutual protocol for data validation and as a result of this the Registry data raises significant doubts and thus undermines the validity and credibility of the process.

Reference 12: 0.49% coverage
stop making the surgeon a scapegoat, the institute has to take some responsibility and the government needs to understand this, also, there should be nobody in the society making decisions who does not operate at least 150 cases per year, decisions impacting "surgeons" have been made by "non surgeons" i.e., either bad surgeons hiding behind management jobs or surgeons with no referral base having time to attend management meetings.

Reference 13: 0.82% coverage
Public ignorance is one thing - ignorance of the president of the RCS, our medical directors and chief executives is quite another. None of them have a real grasp of the impact of SSMD on the individual surgeons. Consultant surgeons need confidence when they scub for a case. This confidence has been systematically eroded by the blame-culture stimulated by SSMD. Stress levels have escalated, impacting training and leading to risk averse behaviour. I for one will not be working in this specialty up to my new retirement age of 67! Furthermore, I have a real problem with trying to enthuse medical students and junior doctors to join our profession. SSMD has already destroyed our profession - now we need to re-build it......fast.

Reference 14: 0.89% coverage
My major disappointment with the Society is that 'our' Clinical database was a resonable initiative, but then used (indirectly and directly) for the personal advancement of only a few individuals, and now appears to be aimed at using it against individuals at multiple levels. Very few other Society members have benefitted from it - my fear now is that at a local level local resources (dedicated staff or job-planned time) will not be provided on the assumption it is now 'our duty / responsibility', and furthermore that in the NHS the surgeon can now be held publically accountable / blamed for wider institutional / management failures that may at times be a greater contributing factor for poor outcomes; a win win for non-clinical management who are only accountable for financial targets.

Reference 15: 0.46% coverage
SSMD has led to usage of data for unprofessional reasons. The Ian Wilson affair needs to be clarified by the Society. Have SSMD been used inappropriately for reasons other than patient safety and performance? The way SSMD are currently displayed is complicated, the public gets the wrong message and the over simplistic interpretation of performance has resulted in unfair termination of professional careers.

Jarral et al. - National survey of UK consultant surgeons’ opinions on surgeon-specific mortality data in cardiothoracic surgery
Please address the abuse of the current system by few ill-intended individuals. The system should be a supportive one, not a punitive one.

**THEME: ‘Lack of adequate resources for proper outcome reporting’ (15)**

Reference 1: 0.43% coverage
The public simply will not accept that a surgeon does not need to know his/her mortality data. However the public should and will, if properly educated, demand that that the NHS should fund the collection of quality outcome measures (as listed above). A large amount of money finds its way to HQIP, CQC etc but precious little to the units that collect the data. This needs to be addressed

Reference 2: 0.34% coverage
I beleive the data from my unit is accurate as we have mutliple processes to cross check but I accept that not all units have the same support and funding. Accuracy requires dedicated surgical oversight as well as good data managers and funding as well as a trust that supports and understands the process

Reference 3: 0.36% coverage
If the public and politicians want risk-stratified data, there should be adequate provision of resources to ensure very robust data entry and validation. Such resources should include at a minimum an adequate number of full-time staff whose primary role is to ensure accurate and timely data entry and validation.

Reference 4: 0.14% coverage
SCTS Report recommended more audit staff in 2006 - still not implemented. We share a part-time audit clerk with cardiology!

Reference 5: 0.26% coverage
To do it accurately we would need better quality and quantity of audit staff who would work independantly of the surgeons. If unadjusted mortality was published then huge savings could be made as this data is quite easy to collect.

Reference 6: 0.07% coverage
The costs of validating data are always underestimated..

Reference 7: 0.19% coverage
in our unit the consultants collect and enter the data but there is lack of support in the form of data manager and coding which could definitely improve the service further

Reference 8: 0.45% coverage
Reporting long-term mortality would be detrimental, as surgeons would start looking at the longer term survival chances of patients, when they are considering recommending surgery. The current databases are not adequate for collecting all the factors that can contribute to mortality. trust shirk their responsibilities and hang the surgeon and colleagues use this to get back (stab) colleagues

Reference 9: 0.06% coverage
Big gap between data expectations and resources.

Reference 10: 0.42% coverage
In our politicized and under funded health care system it is difficult to see how giving patients an illusion of choice about where they will get their surgery can be helpful in any way. If we have learned anything from 15 years of reporting SSMD it is the lesson of unintended consequences . We should provide nothing other than unit mortality and some composite measure of safety.

Reference 11: 0.04% coverage
no resources - all done by consultants

Reference 12: 0.27% coverage
We simply do not have the resources. Over the last 10 years we have lost our audit clerk who enters data, relied on an out-of-date database, and do not have the resources to reliably backfill the outcome data when patients are discharged/died.

Reference 13: 0.09% coverage
Data clerk in post at present . Intermittent staffing for a few months preceding
Reference 14: 0.14% coverage
Thoracic surgery departments are generally not equipped to collect data required by SCTS/specialist commissioning.

Reference 15: 0.89% coverage
My major disappointment with the Society is that 'our' Clinical database was a reasonable initiative, but then used (indirectly and directly) for the personal advancement of only a few individuals, and now appears to be aimed at using it against individuals at multiple levels. Very few other Society members have benefited from it - my fear now is that at a local level local resources (dedicated staff or job-planned time) will not be provided on the assumption it is now 'our duty / responsibility', and furthermore that in the NHS the surgeon can now be held publically accountable / blamed for wider institutional / management failures that may at times be a greater contributing factor for poor outcomes; a win win for non-clinical management who are only accountable for financial targets

THEME: ‘Non-specific frustration against SSMD’ (13)

Reference 1: 0.05% coverage
SSMD has to go/must go for the benefit of patients

Reference 2: 0.11% coverage
we keep shooting ourselves in the foot and flogging a dead donkey; no advantage to the patients at all

Reference 3: 0.16% coverage
It has taken us 15 years to realize that public reporting of risk adjusted surgeon specific data has damaged all of us and many of our patients!

Reference 4: 0.57% coverage
This will punish an put more pressure on select surgeons in every unit who continue to take on high risk patients after proper discussion and informed consent. We also feel that data should be entered independently so that those consistently operating at lower risk should be questioned rather than those operating higher risk victimised. We fully support SCTS stand on not publishing surgeon specific data. Support of patient groups in this will be critical to educate people why it will be counterproductive.

Reference 5: 0.29% coverage
Surgeon specific mortality data is of limited use. Some of the best surgeons I know, whom I would let operate on my family, have highish mortality rates on the funnel plots that get published on the society web site because they get sent the most challenging cases.

Reference 6: 0.32% coverage
What the public really want to know is that the surgeon who is operating on them is safe. In other words they have achieved a standard whatever that standard might be. the actual number is unimportant. The releasing of such data simply leads to a race to zero with all its consequences!

Reference 7: 0.35% coverage
SSMD is a goal achieved so often through careful patient selection and of course careful surgery. However we are in practice to perform surgery for those that may have value added by that surgery. Our surgery should be directed towards benefit to the patient and I do not believe that SSMD puts the patient first.

Reference 8: 0.10% coverage
SSMD would have failed to identify Dr Shipman, and would unlikely have identified Bristol.

Reference 9: 0.05% coverage
patients are the ultimate losers ironically

Reference 10: 0.55% coverage
I do not think the average patient ever checks the mortality data of the surgeons on the internet. I do not think the cardiologists who refer patients to surgeons ever check the data regularly. Secondly, enough has been done to assess and publish data on surgeons' performances. Attention should now be directed to other specialties especially the medical ones. Should not the survival data for cardiologists, chest physicians, endocrinologists, oncologists etc also be published.

Reference 11: 0.07% coverage
A lot of unintended consequences... Overall counterproductive
Reference 12: 0.12% coverage
The public release of SSMD has been damaging across many sectors, including patients and the surgeons.

Reference 13: 0.48% coverage
It's time for a revisit and a rethink. The scheme that was agreed by the Society at the end of a barrel of a gun was better than the alternative at the hands of the Guardian. Subsequent adjustments have been opaque & unscientific. There is a significant erosion of confidence of consultant surgeons in the current iteration. This is an opportunity for root-and-branch reassessment & reform. We led the way. We haven't evolved since.

**THEME: ‘Opinion that SSMD is used to detract from resource constraints and institutional shortcomings’ (10)**

Reference 1: 0.18% coverage
SSMD is simplistic and diverts attention from underlying problems that drive mortality such as indifferent ITU, poor out of hours cover and ward experience.

Reference 2: 0.40% coverage
This appears to highlight the hazards of the crude tool that surveys represent. It would be fatuous to claim that surgeon specific mortality data are unimportant but the problem with their publication is that they are used as a surrogate for a sort of league table and something behind which Trusts and their officers can conceal institutional shortcomings.

Reference 3: 0.33% coverage
I strongly believe that the government has introduced this to cover up the lack of resources in most of our units and stop surgeons operating on very high risk patients as they are the most expensive patients but unfortunately as we all know they are the ones who benefit most from their operations.

Reference 4: 0.28% coverage
Promotes risk avoidance. Will be one of the ways trusts will stop us doing higher risk patients, as they will be able to use the excuse of higher risk on surgeon mortality data, when the actual meaning is the higher risk patients actually cost too much!!

Reference 5: 0.34% coverage
If you wanted to design a system to cause division amongst surgical colleagues, and reduce high risk surgery to save money, SSMD would be ideal. It has lead to an epidemic of surgeon suspensions. We should oppose it at every level, but continue to support unit-specific mortality data being published.

Reference 6: 0.08% coverage
No point hanging surgeon for system failure, he will stop take my risk

Reference 7: 0.42% coverage
SSMD diverts the public's attention from system failure - product of "NHS reforms" / Publishing Unit results against "UK profile" will encourage Medical Directors to review local practice and ALL TEAM MEMBERS' performance. / Individual Surgeon's performance is best reflected by Risk Adjusted Mortality Ratio, which has nothing to do with "UK profile" or UK mean mortality.

Reference 8: 0.34% coverage
We work as teams unfortunately the responsibility of a bad outcome is assigned to surgeon alone. The outcome is not correlated with the resources available. There is a disparity in allocation of resources. / Data sets in paediatric cardiac surgery do not collect data that enables risk stratification

Reference 9: 0.45% coverage
Reporting long-term mortality would be detrimental, as surgeons would start looking at the longer term survival chances of patients, when they are considering recommending surgery. The current databases are not adequate for collecting all the factors that can contribute to mortality. Trust shirk their responsibilities and hang the surgeon and colleagues use this to get back (stab) colleagues

Reference 10: 0.89% coverage
My major disappointment with the Society is that 'our' Clinical database was a reasonable initiative, but then used (indirectly and directly) for the personal advancement of only a few individuals, and now appears to be aimed at using it against individuals at multiple levels. Very few other Society members have benefitted from it - my fear now is that at a local level local resources (dedicated staff or job-planned time) will not be provided on the assumption it is now 'our duty / responsibility', and furthermore that in the NHS the surgeon can now be held publically accountable / blamed for wider institutional / management failures that may at times be a greater contributing factor for poor outcomes; a win win for non-clinical management who are only accountable for financial targets.
THEME: ‘Opinion that SSMD is creating dysfunctionality between teams and colleagues’ (10)

Reference 1: 0.14% coverage
Release of SSMD promotes disharmony between colleagues and rewards mediocre surgeons who never take on high risk cases.

Reference 2: 0.81% coverage
There is particular concern about the risk of the current system of "presumed guilt" of the surgeon whose performance is questioned by anyone who decides to raise an allegation of sub-standard performance. Indeed, this mechanism is frequently abused by colleagues and peers who are ill-intended and under the false pretence of "protecting patient safety" raise allegations about a colleague's performance. The surgeon is then put under an intense and unjustified spotlight, often for an unreasonably long time, with devastating consequences for the surgeon, his/her patients, the employer and the NHS as a whole. These type of abuses of the system should be dealt with very robustly and effectively eradicated.

Reference 3: 0.34% coverage
If you wanted to design a system to cause division amongst surgical colleagues, and reduce high risk surgery to save money, SSMD would be ideal. It has lead to an epidemic of surgeon suspensions. We should oppose it at every level, but continue to support unit-specific mortality data being published.

Reference 4: 0.43% coverage
Mortality in cardiac surgery is now very low. SSMD publication has more negative than positive aspects. It has created a hostile environment for surgeons to work in. Unfortunately the NHS cannot deal with outlying surgeons in a reasonable fashion. If I was a cardiac surgeon I would not take on any high risk cases for fear of being hung out to dry by the NHS should I be unlucky with outcomes.

Reference 5: 0.30% coverage
The SSMD for a surgeon does not help identify problem areas, but misleadingly focuses on one small facet that influences outcome. The unintended consequence is to build a culture of blame, and lead to risk adverse behaviour which is overall detrimental to public health.

Reference 6: 1.10% coverage
I strongly believe that SSMD is bad for patients. It DOES cause risk aversion. Decisions have become about protecting me, not about what is best for the patient; this is a terrible form of medicine to practice. There is no dignity at end of life, with surgeons delaying inevitable adverse outcomes in the hope of a miracle, or transferring patients to other units so that they don't count in the figures. The delivery of so many warnings is causing huge stress for individual surgeons, the vast majority of whom are performing with great proficiency. Training is inhibited. Innovation is inhibited. Teamworking is undermined. The speciality has become highly unattractive, as can be witnessed by the quality of applicant at National Selection. The screw is being continually tightened - on our speciality only. This is not happening else in the medical profession. Why? Why is the Society allowing/promoting this? This is the main reason that Society membership isn't higher.

Reference 7: 0.51% coverage
SSI and reoperations for bleeding are useful internal measures (within SCTS or departments) but public reporting would be ill-advised, as those matters are too complicated for the public to understand but also rather gory for some lay people. Unit mortality, waiting list times and patient satisfaction are useful measures for the public. Caution however is needed on unit mortality, as this can also be used internally for blaming and political reasons.

Reference 8: 0.45% coverage
Reporting long-term mortality would be detrimental, as surgeons would start looking at the longer term survival chances of patients, when they are considering recommending surgery. The current databases are not adequate for collecting all the factors that can contribute to mortality. Trust shirk their responsibilities and hang the surgeon and colleagues use this to get back (stab) colleagues.

Reference 9: 0.89% coverage
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clinical management who are only accountable for financial targets

Reference 10: 0.46% coverage
SSMD has led to usage of data for unprofessional reasons. The Ian Wilson affair needs to be clarified by the Society. Have SSMD been used inappropriately for reasons other than patient safety and performance? The way SSMD are currently displayed is complicated, the public gets the wrong message and the over simplistic interpretation of performance has resulted in unfair termination of professional careers.

THEME: ‘Training has suffered as a result of SSMD’ (10)

Reference 1: 1.10% coverage
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Reference 2: 0.59% coverage
By making the Surgeon take all the responsibility for outcomes which they are only partially responsible for, if at all, we have created a fundamental injustice at the heart of the system. Surgeons are scapegoated and patients left to die. in the realpolitik of units the surgeons are, from the patients perspective, dangerously disempowered. Cardiologists, managers, intensivists and anaesthetists. Nurses and juniors. All have unfair leverage. Consultants are scapegoated. I cannot train juniors for fear of teh audit.

Reference 3: 0.46% coverage
The stress level among surgeons who continue to practice regardless of their risk is very high. In itself this introduces a risk factors I don't allow much training even in cases where (in retrospect) I could have done so because I need to rebalance the figures. This is terrible but I have been advised by my director There are examples (not stories!) of medical directors using performance analysis in the wrong way.

Reference 4: 0.63% coverage
There are undoubtedly many reasons for improved results however no hospital I know of records the patients being turned down or referred for other procedures, often with little or no evidence, just to avoid surgery. Why risk your future income when it's easier to say no? Training is a serious concern. Cardiac surgery is not an attractive option for trainees. I am all for transparency and accountability but believe this should be at hospital level- better measure of the patient journey than blaming an individual surgeon for an event outwith his control.

Reference 5: 0.97% coverage
Even though SSMD may have led to improvement in introspective capacity of the surgeons, I am not convinced the UK population is better treated, even though overall mortality number are down. This may be due to general improvements and is certainly due to risk adverse attitudes resulting in severe patient selection which leaves many severe patients without treatment options. This risk adverse attitude is transmitted to the trainees which are also perceived as a risk to the patient and not given much to do. Paradoxically, the surgeons who try to push the boundaries of care and help the sickest patients end up singled out. I think this is leading to level the specialty to its lowest safest denominator leaving patients in need untreated and leaving unrealistic expectations as to what medicine and surgery can achieve through misleading short term SSMD.

Reference 6: 0.28% coverage
Self protection is absolutely essential in any profession. Losing a patient through no fault of your own gets alarm bells ringing. Thereafter high risk cases are deemed non surgical and registrars are used purely as assistants. That is natural.

Reference 7: 0.17% coverage
Training has become much worse for many trainees including mine because I do not want to risk my outcomes and the unnecessary backlash that comes with it.

Reference 8: 0.06% coverage
Poor surgical trainers use SSMD as an excuse not to train.

Reference 9: 0.14% coverage
The impact has been particularly severe on newly appointed Consultants and in Training young and enthusiastic surgeons.
All conscientious surgeons must guard their practice by auditing their own results and that is the most important factor in improving outcomes. However, progress and the apparent improvement of the results is multifactorial, including the impact of better anaesthesia and Intensive Care. Nevertheless, protecting ones results has certainly had an impact on training as some surgeons are now less inclined to all juniors to do certain elements of the procedures.

**THEME: ‘Surgeon’s suffer from anxiety, emotional and psychological problems as a result of SSMD’ (9)**

The publication of this data also places a lot of stress on surgeons, and this has a negative impact while operating, and managing patients postoperatively. Overall, I feel patient care in the NHS in the UK will improve if the publication of surgeon specific mortality data will be stopped.

There is particular concern about the risk of the current system of "presumed guilt" of the surgeon whose performance is questioned by anyone who decides to raise an allegation of sub-standard performance. Indeed, this mechanism is frequently abused by colleagues and peers who are ill-intended and under the false pretence of "protecting patient safety" raise allegations about a colleague's performance. The surgeon is then put under an intense and unjustified spotlight, often for an unreasonably long time, with devastating consequences for the surgeon, his/her patients, the employer and the NHS as a whole. These type of abuses of the system should be dealt with very robustly and effectively eradicated.

The cardiac surgeon is to be blamed for everything! We are destroying surgeons, their families and of course the specialty! We started this and we are responsible for the way it progressed.

The SSM terminology itself is flawed and is misunderstood by some members of the public and media to be mortality that is directly related to a surgeon or his operation, whereas in truth the statistic that is being used could be more accurately described as “all cause mortality under an individual Consultant Surgeon inpatient episode (of patients who had an operation)”. Whilst these statistics have been shared with the media I’m not sure that the public have been fully informed as to what the weaknesses of the data are and we are all discovering the consequences that this scrutiny is having on our colleagues as time goes by. The reality is that the actual cause of death of a patient following surgery is not recorded in any of the databases that are used to look at surgeon outcome data and that it is currently not possible to study the mode of death of a population of patients undergoing cardiac surgery in the UK. There are extremely important weaknesses with SSMD that need to be communicated to the public very very clearly. In my opinion the current system is not fit for purpose, it is driving risk averse behaviour as surgeons select the patients with the physiological reserve to survive any complication and avoid very high risk cases.

I strongly believe that SSMD is bad for patients. It DOES cause risk aversion. Decisions have become about protecting me, not about what is best for the patient; this is a terrible form of medicine to practice. There is no dignity at end of life, with surgeons delaying inevitable adverse outcomes in the hope of a miracle, or transferring patients to other units so that they don't count in the figures. The delivery of so many warnings is causing huge stress for individual surgeons, the vast majority of whom are performing with great proficiency. Training is inhibited. Innovation is inhibited. Teamworking is undermined. The specialty has become highly unattractive, as can be witnessed by the quality of applicant at National Selection. The screw is being continually tightened - on our specialty only. This is not happening else in the medical profession. Why? Why is the Society allowing / promoting this? This is the main reason that Society membership isn't higher.

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Public ignorance is one thing - ignorance of the president of the RCS, our medical directors and chief executives is quite another. None of them have a real grasp of the impact of SSMD on the individual surgeons. Consultant surgeons need confidence when they scub for a case. This confidence has been systematically eroded by the blame-culture stimulated by SSMD. Stress levels have escalated, impacting training and leading to risk averse behaviour. I for one will not be working in
this specialty up to my new retirement age of 67! Furthermore, I have a real problem with trying to enthuse medical students and junior doctors to join our profession. SSMD has already destroyed our profession - now we need to re-build it......fast.

Reference 8: 0.70% coverage
I rather suspect that over the years some surgeons have been vilified for bad results and their careers have been harmed. This is highly inappropriate. Vilification is for those doctors who fall foul of the time honoured failures enshrined in the GMC codes. I think it would be good for a subcommittee of the SCTS to look into this. What happened to the task force that was set up after the "Bristol scandal" to see if (as some claimed) the other paediatric units had similar mortalities to those experienced by Bristol, but submitted inaccurate data. It seemed to just peter out. Maybe they didn't wish to disclose their findings.

Reference 9: 0.57% coverage
The release of surgeon specific data, the alert system and its implementation resulted in me being put on a 'voluntary' restricted practice due to an alert. This was professionally distressing and had implications on my NHS and private practices. It also stopped me continuing to develop programmes in minimal access surgery and AF surgery. The alert has been removed after some 'adjustment' at NICOR, all of the above was unnecessary. It was a major contributing factor in my decision to leave the NHS.

THEME: ‘Recruitment has suffered as a result of SSMD’ (5)

Reference 1: 1.10% coverage
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Reference 2: 0.63% coverage
There are undoubtedly many reasons for improved results however no hospital I know of records the patients being turned down or referred for other procedures, often with little or no evidence, just to avoid surgery. Why risk your future income when it's easier to say no? Training is a serious concern. Cardiac surgery is not an attractive option for trainees. I am all for transparency and accountability but believe this should be at hospital level- better measure of the patient journey than blaming an individual surgeon for an event outwith his control.

Reference 3: 0.26% coverage
SCTS are responsible for declining recruitment of surgeons to the speciality Why majority of SCTS officials are belong to Midlands and comes from Caucasian ancestry ? Even though majority of hard working surgeons are foreigners ?

Reference 4: 0.82% coverage
Public ignorance is one thing - ignorance of the president of the RCS, our medical directors and chief executives is quite another. None of them have a real grasp of the impact of SSMD on the individual surgeons. Consultant surgeons need confidence when they scub for a case. This confidence has been systematically eroded by the blame-culture stimulated by SSMD. Stress levels have escalated, impacting training and leading to risk averse behaviour. I for one will not be working in this speciality up to my new retirement age of 67! Furthermore, I have a real problem with trying to enthuse medical students and junior doctors to join our profession. SSMD has already destroyed our profession - now we need to re-build it......fast.

Reference 5: 0.25% coverage
Audit is good SSMD is wrong and misleading and leads to risk adverse behaviour which is probably more detrimental to patients and to training and will definitely impact recruitment of the best and brightest for this speciality

THEME: ‘Innovation has been hampered by SSMD reporting’ (4)

Reference 1: 0.39% coverage
SSMD are based on flawed methodology and result in risk averse behaviour, misinform the public, harm patients, hamper innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons.

Reference 2: 1.10% coverage
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Reference 3: 0.57% coverage
The release of surgeon specific data, the alert system and its implementation resulted in me being put on a 'voluntary' restricted practice due to an alert. This was professionally distressing and had implications on my NHS and private practices. It also stopped me continuing to develop programmes in minimal access surgery and AF surgery. The alert has been removed after some 'adjustment' at NICOR, all of the above was unnecessary. It was a major contributing factor in my decision to leave the NHS.

Reference 4: 0.26% coverage
Congratulations on your excellent initiative. The surgeons need to regain a lot of lost ground... Another unintended consequence is risk-averse behaviour and lack of innovation. Or even adopting innovation from elsewhere.

THEME: ‘Damaging impact of the media in relation to SSMD’ (3)

Reference 1: 0.16% coverage
I would be more in favour if the press could resist the urge to sensationalise and produce league tables which will only drive risk-averse practice

Reference 2: 1.90% coverage
SSMD is a mistake and is resulting in gaming of the system, and risk-averse behaviour. This is detrimental to patients, as those with high risk operations will now be turned down. When previously surgeons would have been willing to 'give it a go', on a patient who was certain to die, as there was 'nothing to lose', now will be quite concerned there is quite a lot to lose. My own practice has been to take on anyone, who if operating gives them the best chance, then I would operate, regardless of risk. Having had a few recent deaths, I will not continue this, and will have to be more selective, as I do not want to receive an alert letter from the Society, or worse appear on the front pages of the Tabloids. Rather than cave in to media pressures, the Society needs to recognise that ultimately risk averse behaviour is going to actually have a negative impact for patients. They need to take control and publish data in a helpful and meaningful way, such as Dept/Hospital based data, which does not hold individual surgeons out to meet the chop. The SCTS need to be equally robust at standing up to the Government, who seem hell-bent on pursuing their own agenda. The SCTS Exec is doing a very poor job of representing its members and patients.

Reference 3: 0.96% coverage
Because of statistical variations there will always be a small number of surgeons with "results" outside the chosen confidence limits. This makes it easy for the press to construct a league table of "performance" which is really is damaging to surgical performance and therefore makes things worse, especially when the publication is out of date with contemporaneous practice. Inevitably these surgeons protect themselves by avoiding cases that are at higher risk of complications and patients suffer. By far the best way to improve transparency and performance of doctors and nurses is by publication of the outcomes of the team, i.e. the hospital where the surgery is carried out. It should be up to each hospital, not HQIP or the SCTS to be responsible for the performance of the members of the team, i.e. the consultant surgeons and their colleagues.

THEME: ‘Cardiologists do not use or value SSMD data’ (3)

Reference 1: 0.28% coverage
Unless the surgeon has grossly elevated results, I feel the cardiologist will not alter his referral pattern. In fact, I know that the cardiologist are astute enough that they know the risk averse surgeons even without the publication of this data.
Reference 2: 0.10% coverage
Cardiologists do not care about outcomes. Refer to anyone not necessarily the best surgeon.

Reference 3: 0.16% coverage
Personally, I don't look into what's published about me. Also, I think cardiologists don't care about these publications - they know who to refer to.

**CATEGORY: SPECIFIC RECOMMENDATIONS (5 THEMES)**

**THEME: ‘Preference for team and unit based mortality reporting rather than SSMD’ (37)**

Reference 1: 0.28% coverage
I would be in favor of unit specific mortality data, not individual surgeon. A patient should choose on the basis that the place where his/her surgery is carried out is safe. We all work in teams so publishing individual surgeons data is misleading.

Reference 2: 0.43% coverage
The surgeon needs to be accountable as an individual for their decisions and their actions - so it is appropriate there is some measure of their quality outcomes. At the same time there is much quality that is not in the control of an individual surgeon - the frailty of the patient, the cardiology assessment, the post operative care on ITU etc - and this should be attributed to the whole team.

Reference 3: 0.10% coverage
Patient outcomes are important and must be audited but on a unit/heart team specific basis.

Reference 4: 0.11% coverage
Abolish SSMD and introduce Hospital Specific to drive up care as at present Hospitals don't care.

Reference 5: 0.67% coverage
That is why I believe hospital mortality should be published to allow transparency on patients choice but at the same time without exposing unfairly in to the public individuals. High mortality results in a hospital can be further investigated but at least the aforementioned risk factors have been eliminated. That would help surgeons to worry more about the care of all patients (including high risk ones) rather their results against colleagues. Outcomes depend on teams and institutions. It is wrong to target individuals. The main differences are inter-unit (as can be seen from the data).

Reference 6: 0.14% coverage
I support unit mortality disclosure. Surgeon specific should be collected but held by the society as part of a QA process.

Reference 7: 0.26% coverage
Hospital data is better than surgeon specific because it measures the whole team, but the risk adjustment needs to be accurate. The current PRAiS system we use in paediatric cardiac surgery doesn't come close to being a good system.

Reference 8: 0.34% coverage
SSMD is only relevant to operative aspects. Hospital outcome reflects the performance of the whole team in the institute that one works in and team one surrounded with. Best operative outcomes can be undone in a dysfunctional, poorly resourced unit and this surely cannot reflect surgeon's performance.

Reference 9: 0.13% coverage
Outcomes after cardiac surgery are determined by the performance of the whole clinical team and should be unit based.

Reference 10: 0.43% coverage
It is also very important to have our results being reported and available to the public. However, the results of cardiac surgery are very much a reflection of the standards of care given to each patient by each member of the whole team involved in the care of patients from theatres, Cardiac ITU and HDU and the surgical ward. Therefore, the results should be published as results of the team.

Reference 11: 0.99% coverage
Hospital specific risks are very important. Multiple factors other than surgeon creates mortality. We should incorporate outcome data dependent on qualitative measures such as SSI infection rates, length of stay, etc. Cardiac surgery is a team approach and results should be based on a team, the reality is that most of the time the only constant member of a supposedly F1 team is the driver consultant cardiac surgeon supported by locum anaesthetist, locum perfusionist and locum general nurses. The patient is then transferred to an ITU where the consultant has very little input with the decision making process by the intensivists but carries all the responsibility if the outcome is poor. The whole situation needs to be addressed to factor in...
these inconsistencies in the NHS. This survey will help highlight the difficulties especially for new consultants in Cardiac Surgery.

Reference 12: 0.18% coverage
Comparison on outcomes should therefore be based on the package of care and outcomes the institution provides as only that way a fair comparison will be made

Reference 13: 0.14% coverage
The Society should make it imperative on the Trusts to provide certain standards. That's why it should be unit specific data.

Reference 14: 0.08% coverage
Surgeons alone should not be held accountable for the care of the team

Reference 15: 0.35% coverage
Cardiac surgery is a multi-disciplinary treatment and the results are the responsibility or the result of the multi-disciplinary team (MDT). While the cardiac surgeon does and should lead the team, the cardiac surgeon cannot and should not be held solely responsible for the actions of every person in that time.

Reference 16: 0.23% coverage
Mortality is not exclusively linked to the surgeon but rather to the team and facilities as a whole. Sports matches are decided by the overall score of the team rather than the individual score of one member.

Reference 17: 0.10% coverage
Team mortality is at least as important if not more so than individual surgical performance

Reference 18: 0.21% coverage
Cardiac surgery is a complex and quintessential team effort. Therefore, there is no clinical or logical sense in skewing the accountability for its outcomes only on one individual.

Reference 19: 0.21% coverage
Unit specific results may be welcomed and every unit should do the housekeeping for surgeon specific outcomes where mortality should be part and not the only outcome under scrutiny.

Reference 20: 0.34% coverage
If you wanted to design a system to cause division amongst surgical colleagues, and reduce high risk surgery to save money, SSMD would be ideal. It has lead to an epidemic of surgeon suspensions. We should oppose it at every level, but continue to support unit-specific mortality data being published.

Reference 21: 0.75% coverage
Cardiothoracic surgery is done by a team to treat cardiothoracic disease. The only meaningful outcomes are intention to treat outcomes from time of presentation. In my view data gathered should include all presenting patients and their therapeutic pathway, whether they were referred to MDT and whether they were rejected for surgery at any stage and by whom. No patient should be refused surgery on the word of a single clinician if surgery is contemplated but considered risky it must go to MDT and those refused surgery documented. Higher intervention thresholds will lead to higher operative mortality but better overall survival in all three subspeciality areas.

Reference 22: 0.15% coverage
This is not good for patients. Comparing hospitals would, I believe, focus on improving the whole patient journey and drive up quality.

Reference 23: 0.19% coverage
SSMD is vital but public release is not the way forward. We should internally police the surgeon specific mortality and publicly release Hospital specific mortality

Reference 24: 0.21% coverage
Cardiac surgery is a team sport. If the captain of the team is going to be held to account for the performance of the whole team, there needs to be greater accountability of other team members

Reference 25: 0.40% coverage
I think transparency is fundamental. Individual surgical results should be reported amongst team performance. Double operating should also be reported. Surgeons are inherently competitive and results tend to converge towards excellent if data are visible. We know how to select a surgeon and I think the population should have the same possibility.
Reference 26: 0.96% coverage
Because of statistical variations there will always be a small number of surgeons with "results" outside the chosen confidence limits. This makes it easy for the press to construct a league table of "performance" which is really damaging to surgical performance and therefore makes things worse, especially when the publication is out of date with contemporaneous practice. Inevitably these surgeons protect themselves by avoiding cases that are at higher risk of complications and patients suffer. By far the best way to improve transparency and performance of doctors and nurses is by publication of the outcomes of the team, i.e. the hospital where the surgery is carried out. It should be up to each hospital, not HQIP or the SCTS to be responsible for the performance of the members of the team, i.e. the consultant surgeons and their colleagues.

Reference 27: 0.42% coverage
SSMD diverts the public's attention from system failure - product of "NHS reforms". Publishing Unit results against "UK profile" will encourage Medical Directors to review local practice and ALL TEAM MEMBERS performance. Individual Surgeon's performance is best reflected by Risk Adjusted Mortality Ratio, which has nothing to do with "UK profile" or UK mean mortality.

Reference 28: 0.34% coverage
We work as teams unfortunately the responsibility of a bad outcome is assigned to surgeon alone. The outcome is not correlated with the resources available. There is a disparity in allocation of resources. Data sets in paediatric cardiac surgery do not collect data that enables risk stratification.

Reference 29: 0.42% coverage
Mortality can rarely be blamed on one individual. While some deaths are unavoidable, others are the result of systemic rather than individual failings. Furthermore, the volumes of procedures done by individual surgeons is relatively low, giving rise to wide error bars on analysis of mortality rates. Hospital-specific data is fairer, more robust and more relevant.

Reference 30: 0.36% coverage
Surgery is only one aspect to the treatment delivered to a patient by an institution. Therefore SSMD is only accounting one person ie the surgeon for the responsibility for the patient care. I believe it should be an institutional care mortality rate rather than SSMD due to complexity of patient care which involves many teams.

Reference 31: 0.44% coverage
Why is the need for transparency and accountability limited to cardiac surgeons and does not apply to any other members of the team? The same level of transparency and accountability can be achieved and be bettered by publishing hospital or institutional mortality rates. SSMD does not address accountability and transparency with regard to patient selection and risk averse behaviour.

Reference 32: 0.63% coverage
There are undoubtedly many reasons for improved results however no hospital I know of records the patients being turned down or referred for other procedures, often with little or no evidence, just to avoid surgery. Why risk your future income when it's easier to say no? Training is a serious concern. Cardiac surgery is not an attractive option for trainees. I am all for transparency and accountability but believe this should be at hospital level- better measure of the patient journey than blaming an individual surgeon for an event outwith his control.

Reference 33: 0.24% coverage
SSMD is paternalistic. There should be a programme of Unit reporting and an expectation that units will audit their own members ensuring safe, reliable and effective service to all seeking the services of that unit.

Reference 34: 0.23% coverage
The correct process would be to publish unit results & outcomes. These should be criterion referenced (e.g. stars), not norm referenced; otherwise, there will be the inevitable 50% below average headlines.

Reference 35: 0.44% coverage
Waiting times are long here, the cancellation rate is very high. Readmission rate to ITU is high. Unit mortality is more pertinent rather than individual data. Individual deviation from acceptable standards should be investigated locally, not by someone trying to further his career. Teams, not individuals, should be held accountable for clinical outcomes of a quintessential team effort.

Reference 36: 0.42% coverage
In our politicized and under funded health care system it is difficult to see how giving patients an illusion of choice about where they will get their surgery can be helpful in any way. If we have learned anything from 15 years of reporting SSMD it is the lesson of unintended consequences. We should provide nothing other than unit mortality and some composite measure of safety.
The future of our specialty is bleak unless this is sorted out. Published hospital outcomes allow comparison and act to drive up quality across the board. Maybe the chief executives and medical directors should be accountable for their own institutions rather than a surgeon working in very difficult circumstances. Surgeons need to have their performance monitored in-house. Early warning should be there to allow support rather than name and shame after things were allowed to go on too long and careers are threatened.

**THEME: ‘Further morbidity data needs to be published’ (23)**

Reference 1: 0.15% coverage
Reliable morbidity data is desperately needed to complete the picture. As long as risk adjustment is in place there is nothing to fear.

Reference 2: 0.25% coverage
I would encourage SCTS to campaign for the funding of accurate morbidity/quality data at a unit level (blood usage, stroke rate, acute dialysis, 1-yr survival etc.) to put the SSMD in a more accurate and realistic context.

Reference 3: 0.07% coverage
Resection rates is the most important marker in thoracic surgery.

Reference 4: 0.99% coverage
Hospital specific risks are very important. Multiple factors other than surgeon creates mortality. We should incorporate outcome data dependent on quantitative measures such as SSI infection rates, length of stay, etc. Cardiac surgery is a team approach and results should be based on a team. The reality is that most of the time the only constant member of a supposedly F1 team is the driver consultant cardiac surgeon supported by locum anaesthetist, locum perfusionist and locum general nurses. The patient is then transferred to an ITU where the consultant has very little input with the decision making process by the intensivists but carries all the responsibility if the outcome is poor. The whole situation needs to be addressed to factor in these inconsistencies in the NHS. This survey will help highlight the difficulties especially for new consultants in cardiac surgery.

Reference 5: 0.07% coverage
I would be more in favour of SSMD if it was procedure specific.

Reference 6: 0.37% coverage
I believe the general population has accepted and recognised there is a mortality associated with heart surgery - there is very little difference between units and trust and confidence in the system is high. It is time to move on - the cat is out of the bag and will never be put back let us start publishing other quality markers for units!

Reference 7: 0.50% coverage
Surgeon specific mortality data should be well monitored and reviewed but this is better done with appropriate understanding and interpretation rather than tabloid or other press league tables or dramatic banner headlines. Patients should have access to quality of care information relating to potential treatment of which mortality is only one domain. Quality of care and in particular mortality is rarely down to the surgeon in isolation.

Reference 8: 0.21% coverage
Unit specific results may be welcomed and every unit should do the housekeeping for surgeon specific outcomes where mortality should be part and not the only outcome under scrutiny.

Reference 9: 0.75% coverage
Cardiothoracic surgery is done by a team to treat cardiothoracic disease. The only meaningful outcomes are intention to treat outcomes from time of presentation. In my view data gathered should include all presenting patients and their therapeutic pathway, whether they were referred to MDT and whether they were rejected for surgery at any stage and by whom. No patient should be refused surgery on the word of a single clinician if surgery is contemplated but considered risky it must go to MDT and those refused surgery documented. Higher intervention thresholds will lead to higher operative mortality but better overall survival in all three subspeciality areas.

Reference 10: 0.10% coverage
We should dilute mortality with more measures such as stroke rate, infection rate, LOS etc.

Reference 11: 0.48% coverage
Mortality is only one measure of outcome; it is an unsophisticated descriptor of patient experience as a whole, and cannot be used without also examining 'softer' measures of quality, as well as the experience of patients referred for but not undergoing surgery for whatever reason (capture turn-downs, waiting list deaths etc) thus taking a true intention-to be-treated population, and not the I-chose-to-treat population.

Reference 12: 0.40% coverage
I think transparency is fundamental. Individual surgical results should be reported amongst team performance. Double operating should also be reported. Surgeons are inherently competitive and results tend to converge towards excellent if data are visible. We know how to select a surgeon and I think the population should have the same possibility.

Reference 13: 0.18% coverage
In modern era morbidity and long term results (reoperation rate etc) possibly even more important. Mortality only if higher than average without explanation.

Reference 14: 0.12% coverage
The more measures, the more dilute the conclusions. Patient reported outcome measures trump all else?

Reference 15: 0.37% coverage
I would support the accurate collection of blood product usage post op. It is an expensive and potentially dangerous product and we should all know how much is used and thus be in a position to reduce usage and benefit patients. This is not an easy thing to do but can save considerable sums of money and more importantly reduce patient risk.

Reference 16: 0.28% coverage
Re-op for bleeding could have perverse incentive not to re-open a patient who is bleeding. Defining surgical site infection would be difficult - many happen after discharge Re-admission rates would encourage keeping patients in hospital longer.

Reference 17: 0.31% coverage
Renal failure, prolonged ventilation, stroke and infections are important to patients. They are though more difficult to measure. I do hope that those who make the decisions about data publication do not just go for reoperation and length of stay because they are easy to measure.

Reference 18: 0.50% coverage
The only measure which may indicate to certain extent quality of surgery is the long term mortality and freedom from symptoms from which the patient suffered pre surgery. Definitely the long term patency of grafts, freedom from angina and breathlessness and lack of paravalvular leaks are indicators of good surgery. All the others may be influenced by how well the department is resourced and what the skill mix of staff available in each unit is.

Reference 19: 0.51% coverage
SSI and reoperations for bleeding are useful internal measures (within SCTS or departments) but public reporting would be ill-advised, as those matters are too complicated for the public to understand but also rather gory for some lay people. Unit mortality, waiting list times and patient satisfaction are useful measures for the public. Caution however is needed on unit mortality, as this can also be used internally for blaming and political reasons.

Reference 20: 0.26% coverage
Longer term outcomes must become the ‘gold standard’ - this is a major reason for the shift back from PCI everything to CABG, but would need to be stratified for age and preop risk / disease profile and compared to other alternatives.

Reference 21: 0.08% coverage
The more measures the better. Informs the public and patients maximally.

Reference 22: 0.69% coverage
Putting data out to the lay public risks confusing the public rather than enlightening them, especially if all the above were published. How would they understand what re-opening for bleeding means, and what the numbers mean? Data that they can understand - patient satisfaction surveys, wait times - would be more useful. Hosp/Dept mortality would be more appropriate for public reporting. Long term mortality is difficult to interpret. Cardiac surgery patients are generally elderly patients whose natural life expectancy will limit their longevity, not necessarily their cardiac condition or operation.

Reference 23: 0.06% coverage
Further morbidity score should be taken into account.

THEME: ‘Outcomes should be reported, analysed and acted on at a local level’ (13)
the best system for ensuring quality is to integrate robust quality metrics locally within each hospital and subject them to central inspection to make sure they are up to scratch. Thereafter, leave the units which comply with this alone to manage their affairs.

Clearly individual involvement in adverse outcomes should be analysed internally and acted upon if an outlier is identified.

Clearly mortality data is important when outcomes are way outside range of acceptable. Such deviation could be picked up at a local level since it would affect overall hospital mortality outcomes.

I consider the outcome of cardiac surgery is very weighted on the judgement and performance of the surgeon. this is why i believe that ssmd remains important. however i believe that institutions needs to better empowered to control it's own affairs. There needs to be a mechanism where the unit can identify underperformance and have the tools to deal with it, mentoring, referral of high risk cases perhaps ssmd should still be reported and analysed centrally and underperformance reported back to the unit with an obligation to deal with it.

Good quality hospital data is sufficient to reassure everyone of the good outcomes of their "local" cardiothoracic centre. Individual surgical outcomes should still be measured and any outliers identified in good time to prevent any patient safety concerns.

SSMD will be useful in the context of individual surgeons for identifying dangerous performers. Information that directly applies to this should be released to the public, but unless training is poor, this should be infrequent. It should, however, be used by the surgeon and his trust to assess systematic and individual factors that determine it.

Anyone with knowledge that understands Cardiac surgery will deduce that the surgeon's involvement in the overall result is only a part of the complete care. There are some units that have variable ITU cover, some with highly aggressive PCI services and some with older colleagues that are quite risk averse. Comparisons are therefore rendered meaningless. No doubt internal inspection of any outliers is absolutely necessary to ensure standards of care are maintained.

Because of statistical variations there will always be a small number of surgeons with "results" outside the chosen confidence limits. This makes it easy for the press to construct a league table of "performance" which is really is damaging to surgical performance and therefore makes things worse, especially when the publication is out of date with contemporaneous practice. Inevitably these surgeons protect themselves by avoiding cases that are at higher risk of complications and patients suffer. By far the best way to improve transparency and performance of doctors and nurses is by publication of the outcomes of the team, i.e. the hospital where the surgery is carried out. It should be up to each hospital, not HQIP or the SCTS to be responsible for the performance of the members of the team, i.e. the consultant surgeons and their colleagues.

Ssmd should be gathered by trusts for internal performance management but HSMD should be published.

SSMD is paternalistic. There should be a programme of Unit reporting and an expectation that units will audit their own members ensuring safe, reliable and effective service to all seeking the services of that unit.

All EuroSCORE-relevant data should be validated at each unit prior to submission.

We cross check our ES entries and submissions with a number of procedures to ensure the recording of ES is fair and accurate.

The future of our speciality is bleak unless this is sorted out. Published Hospital outcomes allow comparison and act to drive up quality across the board. Maybe the chief executives and medical directors should be accountable for their own institutions rather than a surgeons working in very difficult circumstances. Surgeons need to have their performance monitored in-house. Early warning should be there to allow support rather than name and shame after things were allowed to go on too long and
careers are threatened.

**THEME: ‘Data entry should be performed by independent non-conflicted parties’ (11)**

- **Reference 1**: 0.08% coverage  
  The data should be monitored by Professional bodies and newsmedia.

- **Reference 2**: 0.12% coverage  
  I leave it to the anaesthetist doing the case to enter the data and I do not try to interfere or manipulate

- **Reference 3**: 0.22% coverage  
  regarding the question on who enters the data: the anaesthetists enters risk data, surgeons enter operative data, each checks the other's entry and resolve any disagreement by verifying the notes

- **Reference 4**: 0.33% coverage  
  To cover any accusations of gaming, in our unit we have an in-built check - the EuroSCORE fields to be entered have to be agreed with the anaesthetist at the time of the operation. It is appropriate to use data from the pre-bypass TOE for LV function and PHT if this is different from the pre-op TTE

- **Reference 5**: 0.48% coverage  
  I strongly belief no clinician involved in care of patients should be taking part in entering data of risk adjustment scores into the dataset. I think the NHS should fung enough number of independent staff to enter all the data to avoid the surgeons being accused of data manipulation as it has already sadly happened leading to an excellent surgeon to lose his job and reputation disappointedly without any support from SCTS.

- **Reference 6**: 0.12% coverage  
  Eurosceor must not be scored by surgeon Sadly others perform it badly Readjusted scoring is ludicrous

- **Reference 7**: 0.26% coverage  
  Our unit has an excellent system where a medical doctor with a statistics degree thus combining medical, clinical and statistical knowledge inputs the data independently from all the surgeons, this removes any bias or gaming

- **Reference 8**: 0.33% coverage  
  SSMD will always remain an un-level playing field when surgeons are left to risk assess their own patients and enter their own data. There are recent notable examples where this has occurred. It is human nature to gain advantage whenever possible and naive to think that this practice is "rare"

- **Reference 9**: 0.17% coverage  
  although i enter the data, there is an audit personnel who checks the entry to ensure that the entry is a true reflection of what is documented clinically

- **Reference 10**: 0.36% coverage  
  If the public and politicians want risk-stratified data, there should be adequate provision of resources to ensure very robust data entry and validation. Such resources should include at a minimum an adequate number of full-time staff whose primary role is to ensure accurate and timely data entry and validation.

- **Reference 11**: 0.36% coverage  
  Combined data point entry by different team members of different designations (medical & non-medical) at different timpanist. No objective validation of data entry. Gaming of procedures (intervening on mild/0moderate valve disease & non-flow-limiting coronary disease) to upscale procedures IS A REAL PROBLEM

**THEME: ‘Outcome data should be collected and analysed but not published’ (4)**

- **Reference 1**: 0.30% coverage  
  surgeon specific data should still be collected as it may form part of an analysis of high mortality rates but its publication is damaging and fails to reflect problems and solutions. It suggests sanction against the surgeon solves the problem when it may perpetuate it

- **Reference 2**: 0.19% coverage  
  SSMD is vital but public release is not the way forward. We should internally police the surgeon specific mortality and publicly release Hospital specific mortality
Reference 3: 0.09% coverage
It is the public reporting that is the problem, not the assessment of the data

Reference 4: 0.16% coverage
The difficulty with answering this question is whether you think the data can and should be input by members of the medical team or admin team

**CATEGORY: OTHER (4)**

**THEME: ‘Unclassifiable comments’ (15)**

Reference 1: 0.34% coverage
Someone has to be accountable for the overall care of the patient - we should be accountable but not responsible for the outcome. We need to make Medical Directors understand this. Unit level data are only useful if there is good internal assessment of outcomes. Hospital level data would be misleading

Reference 2: 0.24% coverage
SSMD are misunderstood and misused. The work of S Westaby and colleagues proves the point well. Other countries have not made the mistake of going down this route. Quality improvement initiatives is a smarter way

Reference 3: 0.29% coverage
Surgeon Specific Data thus far has only highlighted a handful of outliers Nobody talks about the majority of the Nation's Surgeons being excellent. A member of the public should feel confident that he or she can have a safe procedure in most hospitals in the UK

Reference 4: 0.07% coverage
I think leagal advice should be sought on th eefollowing issue

Reference 5: 0.05% coverage
there is no such thing as a good anaesthetist

Reference 6: 0.09% coverage
For patient safety all non operating surgeons should not be given any merit awards

Reference 7: 0.28% coverage
The issue is the grey line of accepting every patient regardless of the risk (potentially a more cavalier and resource intense approach) versus better appropriate patient selection (potentially some salavagable patients may not be treated).

Reference 8: 0.13% coverage
Which data is presented and how it is presented has been in our gift. We have not been brave enough to grasp the nettle.

Reference 9: 0.16% coverage
Every trainer should be able to ensure that training does not increase the risk to the patient - or that case is not suitable for that trainee

Reference 10: 0.12% coverage
I leave it to the anaesthetist doing the case to enter the data and I do not try to interfere or manipulate

Reference 11: 0.40% coverage
This is about adult surgery NICOR date Is not validated in the adult database and is therefore an unknown quantity in terms of accuracy as a paediatric surgeon I have answered about the accuracy of the paediatric database which is validated by site visits. I don't use euro score as it is not used for children so please ignore my answer to the euroscore question

Reference 12: 0.09% coverage
We have built our own data system to 'self-run' with registrar/perfusion entry

Reference 13: 0.13% coverage
If you start to make number of adverse events a quality indicator then people will be dis-inclined to report them

Reference 14: 0.23% coverage
Re-operation for bleeding is asking the wrong question. A quick return to the OR is less detrimental (and probably has no effect on outcome) than a delayed return after massive transfusion of blood products.
### Theme: ‘Non-specific voicing of frustration’ (9)

**Reference 1: 0.09% coverage**
The UK is the only country in the world releasing SSMD. We are screwing ourselves.

**Reference 2: 0.28% coverage**
The idea that SSMD can identify poorly performing surgeons is fundamentally flawed. It would be fairer to time all the UK cardiac surgeons running a mile and sack the 5% with the worst times. This would at least have a health promoting effect on us all.

**Reference 3: 0.38% coverage**
Those who have been responsible for the decisions about data collection and publication over the last decade have failed patients. They have failed to provide patients with useful information about quality of care and promoted an atmosphere of risk aversion amongst surgeons depriving some patients of the choice of higher risk surgery.

**Reference 4: 0.39% coverage**
SSMD are based on flawed methodology and result in risk averse behaviour, misinform the public, harm patients, hamper innovation and are used frequently and systematically to damage surgeons for political reasons within clinical departments. Surgeons have been voicing their concerns for years but fallen on deaf ears of politician-surgeons.

**Reference 5: 0.06% coverage**
The publication of SSMD is making the job intolerable

**Reference 6: 0.21% coverage**
The cardiac surgeon is to be blamed for everything! We are destroying surgeons, their families and of course the specialty! We started this and we are responsible for the way it progressed.

**Reference 7: 1.90% coverage**
SSMD is a mistake and is resulting in gaming of the system, and risk-averse behaviour. This is detrimental to patients, as those with high risk operations will now be turned down. When previously surgeons would have been willing to ‘give it a go’, on a patient who was certain to die, as there was ‘nothing to lose’, now will be quite concerned there is quite a lot to lose. My own practice has been to take on anyone, who if operating gives them the best chance, then I would operate, regardless of risk. Having had a few recent deaths, I will not continue this, and will have to be more selective, as I do not want to receive an alert letter from the Society, or worse appear on the front pages of the Tabloids. Rather than cave in to media pressures, the Society needs to recognise that ultimately risk averse behaviour is going to actually have a negative impact for patients. They need to make a strong stand and refuse to be party to this. Arguing that Dr Foster and such-like bodies will ‘put the data out there anyway, and we might as well control it’ is a very poor excuse. If the SCTS categorically rejects the quality of data of such bodies, and refuses to party up to it, then they have no credibility whatsoever. After one or 2 media stories, met by robust rejection by the Society, the media will stop following Dr Foster for Cardiac data. The Society should take control and publish data in a helpful and meaningful way, such as Dept/Hospital based data, which does not hold individual surgeons out to meet the chop. The SCTS need to be equally robust at standing up to the Government, who seem hell-bent on pursuing their own agenda. The SCTS Exec is doing a very poor job of representing its members and patients.

**Reference 8: 0.09% coverage**
For patient safety all non operating surgeons should not be given any merit awards

**Reference 9: 0.04% coverage**
looking forward to my retirement

### Theme: ‘Enthusiasm over this survey’ (6)

**Reference 1: 0.12% coverage**
This survey will help highlight the difficulties especially for new consultants in Cardiac Surgery.

**Reference 2: 0.09% coverage**
I'm glad that this survey is taking place and I hope that there is a good response.
Reference 3: 0.04% coverage
This is a well designed questionnaire.

Reference 4: 0.05% coverage
Excellent initiative and my thanks to you all

Reference 5: 0.04% coverage
This survey is a good initiative

Reference 6: 0.26% coverage
Congratulations on your excellent initiative. The surgeons need to regain a lot of lost ground... Another unintended consequence is risk-averse behaviour and lack of innovation. Or even adopting innovation from elsewhere.

**THEME: ‘Criticism of this survey or its methodology’ (3)**

Reference 1: 0.15% coverage
Has the VAD/ECMO question been added to reflect the personal interests of Mr Westaby? It would appear otherwise to be irrelevant.

Reference 2: 0.19% coverage
How was this survey developed? I am not sure it addresses the real issues. Did you use a focus group to devise this or is it just something that came off the top of your heads?

Reference 3: 0.75% coverage
I think there are a number of useful questions that could have been asked in this survey which were not. I do not think it is a balanced assessment of the issues. I would question the methodology used to determine the selection of the questions asked to get to the bottom of what are very complex issues. I also somewhat challenge the conflicts of interest question - surely all surgeons are involved in governance structures related to surgeons specific mortality data collection and analysis - if they are not they really should be, at both local level and in validating national data analyses. Possibly if they are not that may relate to some of the issues about data quality.