# Supplementary data

## 1. Table S1. The Survey

| | |
|---|---|
| **1. Years of Experience in EM.**<br>0-4<br>5-10<br>>10<br>**2. Prior Involvement in TBAD**<br>Yes<br>No<br>**3. Prior Diagnosis Of TBAD**<br>0-4<br>5-10<br>>10<br>**4. Is TBAD A Differential in Chest Pain?**<br>Yes<br>No<br>**5. Symptoms For Suspecting TBAD**<br>**Severity and location of pain**<br>Neurology<br>Shortness of breath<br>Nausea and Vomiting<br>All of the above<br>None of the above<br>**6. Clinical Findings (For Suspecting TBAD)**<br>**Hypertension**<br>Pulse deficit<br>Focal neurology<br>Reduced air entry<br>Murmurs<br>All of the above<br>**7. What Would You Consider as A Risk Factor?**<br>Age<br>Gender<br>Pregnancy<br>Connective tissue disorder<br>Cardiovascular risk factors<br>Aortic surgery<br>Family History of Aortic Valve Disease<br>All of the above<br>**8. What Would Prompt You For CTA?**<br>Normal ECG<br>Normal Troponin<br>Raised D-Dimer<br>Raised Lactate<br>None of the above<br>All of the above | **9. Is Rapid CTA & Reporting Available?**<br>Yes<br>No<br>**10. What Is Your First Line Antihypertensive?**<br>Labetalol<br>GTN<br>Nitroprusside<br>Hydralazine<br>I don't start<br>**11. Site Management of Diagnosed TBAD**<br>**Local**<br>Tertiary centre<br>Both<br>**12. Speciality Management of TBAD**<br>Internal medicine<br>Vascular surgery<br>Cardiothoracic surgery<br>General surgery<br>**13. Is there a Standard Operating Procedure (SOP) for TBAD?**<br>Yes<br>No<br>**14. Which Decision Tool Are You Aware Of?**<br>Aortic dissection decision tool<br>ADDR + age-adjusted d-dimer<br>ADDR + d-dimer >500<br>ADDR + ascending aorta > 40<br>None of the above<br>All of the above<br>**15. Do You Think a Risk Stratification Tool Might Be Useful?**<br>Yes<br>No<br>**16. Is TBAD In Your Teaching Programme?**<br>Yes<br>No<br>**17. What Do You Think Is the Rate of Misdiagnosis?**<br>10-29%<br>30-49%<br>>50% |

## 2. Table S2. Hospitals, Unit & Cities.

| | |
|---|---|
| **England (n=30)** | Aylesbury, Basildon, Bedford, Blackburn, Bury St Edmunds, Cambridge, Chelmsford, Chester, Chesterfield, Chipping Barnet, Colchester, Cornwall, Devon, Great Yarmouth, Harlow, Ipswich, King's Lynn, Lancaster, Leeds, Leicester, Liverpool, Luton, Norwich, Oxford, Southend-on-Sea, Stevenage, Stockport, Taunton, Watford, Whiston. |
| **Scotland (n=2)** | Aberdeen & Inverness |
| **Wales (n=1)** | Cardiff |

## 3. Table S3. Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

| ***Checklist Item*** | ***Explanation*** | ***Page Number*** |
|---|---|---|
| Describe survey design | Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.) | 5 |
| IRB approval | Mention whether the study has been approved by an IRB. | NA |
| Informed consent | Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study? | 5 |
| Data protection | If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access. | NA per pg 5 |
| Development and testing | State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire. | 5 |
| Open survey versus closed survey | An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey). | 5 |
| Contact mode | Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.) | 5 |
| Advertising the survey | How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix. | 5 |
| Web/E-mail | State the type of e-survey (eg, one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses? | 6 |
| Context | Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on a anti-immunization Web site will have different results from a Web survey conducted on a government Web site | 5 |
| Mandatory/voluntary | Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey? | 5 |
| Incentives | Were any incentives offered (eg, monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)? | 5 |
| Time/Date | In what timeframe were the data collected? | 6 |
| Randomization of items or questionnaires | To prevent biases items can be randomized or alternated. | NA |

| | | |
|---|---|---|
| Adaptive questioning | Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions. | NA |
| Number of Items | What was the number of questionnaire items per page? The number of items is an important factor for the completion rate. | 6 |
| Number of screens (pages) | Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate. | 6 |
| Completeness check | It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if "yes", how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as "not applicable" or "rather not say", and selection of one response option should be enforced. | 6 |
| Review step | State whether respondents were able to review and change their answers (eg, through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct). | 6 |
| Unique site visitor | If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both. | NA |
| View rate (Ratio of unique survey visitors/unique site visitors) | Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary. | NA |
| Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors) | Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called "recruitment" rate. | NA |
| Completion rate (Ratio of users who finished the survey/users who agreed to participate) | The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure for attrition. Note that "completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate".) | 8 |
| Cookies used | Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)? | NA |
| IP check | Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)? | NA |
| Log file analysis | Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe. | NA |
| Registration | In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)? | NA |
| Handling of incomplete questionnaires | Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed? | 8 |
| Questionnaires submitted with an atypical timestamp | Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined. | NA |
| Statistical correction | Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods. | NA |

This checklist has been modified from Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). J Med Internet Res. 2004 Sep 29;6(3):e34 [erratum in J Med Internet Res. 2012; 14(1): e8.]. Article

available at https://www.jmir.org/2004/3/e34/; erratum available https://www.jmir.org/2012/1/e8/. Copyright ©Gunther Eysenbach. Originally published in the Journal of Medical Internet Research, 29.9.2004 and 04.01.2012.

## 4. Table S4. Subgroup analysis Per years of experience of consultants

| | *Group 1* | *Group 2* | *Group 3* | *p-value* |
|---|---|---|---|---|
| *Involvement in Dissection* | 93.88% (95% CI: 87.16% - 100.00%) | 98.15% (95% CI: 94.55% - 100.00%) | 95.65% (95% CI: 90.84% - 100.00%) | p = 0.54 |
| *How Many Diagnosed (0-4)* | 67.35% (95% CI: 54.22% - 80.48%) | 57.41% (95% CI: 44.22% - 70.60%) | 28.99% (95% CI: 18.28% - 39.69%) | p < 0.001 |
| *How Many Diagnosed (5-10)* | 26.53% (95% CI: 14.17% - 38.89%) | 33.33% (95% CI: 20.76% - 45.91%) | 50.72% (95% CI: 38.93% - 62.52%) | p < 0.05 |
| *How Many Diagnosed (>10)* | 6.12% (95% CI: 0.00% - 12.84%) | 9.26% (95% CI: 1.53% - 16.99%) | 20.29% (95% CI: 10.80% - 29.78%) | p < 0.05 |
| *Severity and Location of Pain* | 77.55% (95% CI: 65.87% - 89.23%) | 74.07% (95% CI: 62.39% - 85.76%) | 73.91% (95% CI: 63.55% - 84.27%) | p = 0.89 |
| *Neurology* | 73.47% (95% CI: 61.11% - 85.83%) | 66.67% (95% CI: 54.09% - 79.24%) | 63.77% (95% CI: 52.43% - 75.11%) | p = 0.54 |
| *Shortness of Breath (SOB)* | 6.12% (95% CI: 0.00% - 12.84%) | 11.11% (95% CI: 2.73% - 19.49%) | 14.49% (95% CI: 6.19% - 22.80%) | p = 0.36 |
| *Nausea and Vomiting* | 6.12% (95% CI: 0.00% - 12.84%) | 9.26% (95% CI: 1.53% - 16.99%) | 2.90% (95% CI: 0.00% - 6.86%) | p = 0.32 |
| *All of the Above Symptoms* | 20.41% (95% CI: 9.12% - 31.69%) | 25.93% (95% CI: 14.24% - 37.61%) | 26.09% (95% CI: 15.73% - 36.45%) | p = 0.74 |
| *None of the Above Symptoms* | 2.04% (95% CI: 0.00% - 6.00%) | 0.00% (95% CI: 0.00% - 0.00%) | 0.00% (95% CI: 0.00% - 0.00%) | p = 0.28 |
| *Hypertension (HTN)* | 75.51% (95% CI: 63.47% - 87.55%) | 57.41% (95% CI: 44.22% - 70.60%) | 76.81% (95% CI: 66.85% - 86.77%) | p < 0.05 |
| *Pulse Deficit* | 69.39% (95% CI: 56.48% - 82.29%) | 62.96% (95% CI: 50.08% - 75.84%) | 73.91% (95% CI: 63.55% - 84.27%) | p = 0.43 |
| *Focal Neurology* | 73.47% (95% CI: 61.11% - 85.83%) | 62.96% (95% CI: 50.08% - 75.84%) | 75.36% (95% CI: 65.19% - 85.53%) | p = 0.29 |
| *Reduced Air Entry* | 0.00% (95% CI: 0.00% - 0.00%) | 1.85% (95% CI: 0.00% - 5.45%) | 0.00% (95% CI: 0.00% - 0.00%) | p = 0.33 |
| *Murmurs* | 48.98% (95% CI: 34.98% - 62.98%) | 37.04% (95% CI: 24.16% - 49.92%) | 65.22% (95% CI: 53.98% - 76.46%) | p < 0.01 |
| *All Clinical Findings* | 18.37% (95% CI: 7.53% - 29.21%) | 27.78% (95% CI: 15.83% - 39.72%) | 15.94% (95% CI: 7.30% - 24.58%) | p = 0.25 |
| *Risk Factors: Age* | 59.18% (95% CI: 45.42% - 72.95%) | 50.00% (95% CI: 36.66% - 63.34%) | 37.68% (95% CI: 26.25% - 49.12%) | p < 0.1 |
| *Risk Factors: Gender* | 30.61% (95% CI: 17.71% - 43.52%) | 33.33% (95% CI: 20.76% - 45.91%) | 26.09% (95% CI: 15.73% - 36.45%) | p = 0.67 |
| *Risk Factors: Pregnancy* | 10.20% (95% CI: 1.73% - 18.68%) | 14.81% (95% CI: 5.34% - 24.29%) | 13.04% (95% CI: 5.10% - 20.99%) | p = 0.78 |
| *Risk Factors: Connective Tissue Disorder* | 69.39% (95% CI: 56.48% - 82.29%) | 48.15% (95% CI: 34.82% - 61.48%) | 56.52% (95% CI: 44.82% - 68.22%) | p < 0.1 |
| *Risk Factors: Aortic Surgery* | 42.86% (95% CI: 29.00% - 56.71%) | 42.59% (95% CI: 29.40% - 55.78%) | 49.28% (95% CI: 37.48% - 61.07%) | p = 0.70 |
| *Risk Factors: Family History of Aortic Valve Disease* | 34.69% (95% CI: 21.37% - 48.02%) | 27.78% (95% CI: 15.83% - 39.72%) | 31.88% (95% CI: 20.89% - 42.88%) | p = 0.75 |

| | | | | |
|---|---|---|---|---|
| *Risk Factors: All of the Above* | 30.61% (95% CI: 17.71% - 43.52%) | 44.44% (95% CI: 31.19% - 57.70%) | 40.58% (95% CI: 28.99% - 52.17%) | p = 0.33 |
| *What Would Prompt a CTA: Normal ECG* | 4.08% (95% CI: 0.00% - 9.62%) | 1.85% (95% CI: 0.00% - 5.45%) | 17.39% (95% CI: 8.45% - 26.33%) | p < 0.01 |
| *What Would Prompt a CTA: Normal Troponin* | 10.20% (95% CI: 1.73% - 18.68%) | 3.70% (95% CI: 0.00% - 8.74%) | 13.04% (95% CI: 5.10% - 20.99%) | p = 0.20 |
| *What Would Prompt a CTA: Raised D-Dimer* | 42.86% (95% CI: 29.00% - 56.71%) | 44.44% (95% CI: 31.19% - 57.70%) | 43.48% (95% CI: 31.78% - 55.18%) | p = 0.99 |
| *What Would Prompt a CTA: Raised Lactate* | 30.61% (95% CI: 17.71% - 43.52%) | 37.04% (95% CI: 24.16% - 49.92%) | 13.04% (95% CI: 5.10% - 20.99%) | p < 0.01 |
| *What Would Prompt a CTA: None of the Above* | 30.61% (95% CI: 17.71% - 43.52%) | 33.33% (95% CI: 20.76% - 45.91%) | 36.23% (95% CI: 24.89% - 47.57%) | p = 0.81 |
| *What Would Prompt a CTA: All of the Above* | 12.24% (95% CI: 3.07% - 21.42%) | 11.11% (95% CI: 2.73% - 19.49%) | 11.59% (95% CI: 4.04% - 19.15%) | p = 0.98 |
| *Rapid CT/Reporting* | 59.18% (95% CI: 45.42% - 72.95%) | 64.81% (95% CI: 52.08% - 77.55%) | 82.61% (95% CI: 73.67% - 91.55%) | p < 0.05 |
| *First Line Antihypertensive: Labetalol* | 100.00% (95% CI: 100.00% - 100.00%) | 92.59% (95% CI: 85.61% - 99.58%) | 86.96% (95% CI: 79.01% - 94.90%) | p < 0.05 |
| *First Line Antihypertensive: GTN* | 26.53% (95% CI: 14.17% - 38.89%) | 16.67% (95% CI: 6.73% - 26.61%) | 14.49% (95% CI: 6.19% - 22.80%) | p = 0.23 |
| *First Line Antihypertensive: Nitroprusside* | 2.04% (95% CI: 0.00% - 6.00%) | 0.00% (95% CI: 0.00% - 0.00%) | 1.45% (95% CI: 0.00% - 4.27%) | p = 0.60 |
| *First Line Antihypertensive: I Don't Start* | 0.00% (95% CI: 0.00% - 0.00%) | 0.00% (95% CI: 0.00% - 0.00%) | 5.80% (95% CI: 0.28% - 11.31%) | p < 0.05 |
| *Site Management: Locally* | 42.86% (95% CI: 29.00% - 56.71%) | 42.59% (95% CI: 29.40% - 55.78%) | 37.68% (95% CI: 26.25% - 49.12%) | p = 0.80 |
| *Site Management: Tertiary* | 48.98% (95% CI: 34.98% - 62.98%) | 42.59% (95% CI: 29.40% - 55.78%) | 49.28% (95% CI: 37.48% - 61.07%) | p = 0.73 |
| *Site Management: Both* | 8.16% (95% CI: 0.50% - 15.83%) | 14.81% (95% CI: 5.34% - 24.29%) | 13.04% (95% CI: 5.10% - 20.99%) | p = 0.57 |
| *Specialty Managing: Internal Medicine* | 28.57% (95% CI: 15.92% - 41.22%) | 31.48% (95% CI: 19.09% - 43.87%) | 39.13% (95% CI: 27.61% - 50.65%) | p = 0.45 |
| *Specialty Managing: Vascular Surgery* | 44.90% (95% CI: 30.97% - 58.82%) | 38.89% (95% CI: 25.89% - 51.89%) | 42.03% (95% CI: 30.38% - 53.68%) | p = 0.83 |
| *Specialty Managing: Cardiothoracic Surgery* | 53.06% (95% CI: 39.09% - 67.03%) | 48.15% (95% CI: 34.82% - 61.48%) | 53.62% (95% CI: 41.86% - 65.39%) | p = 0.81 |
| *Specialty Managing: General Surgery* | 0.00% (95% CI: 0.00% - 0.00%) | 1.85% (95% CI: 0.00% - 5.45%) | 0.00% (95% CI: 0.00% - 0.00%) | p = 0.33 |
| *SOP* | 28.57% (95% CI: 15.92% - 41.22%) | 37.04% (95% CI: 24.16% - 49.92%) | 30.43% (95% CI: 19.58% - 41.29%) | p = 0.61 |
| *Which Decision Tool Aware of: Aortic Dissection Decision Tool* | 22.45% (95% CI: 10.77% - 34.13%) | 29.63% (95% CI: 17.45% - 41.81%) | 26.09% (95% CI: 15.73% - 36.45%) | p = 0.71 |
| *Which Decision Tool Aware of: ADDR + Age Adjusted D-Dimer* | 16.33% (95% CI: 5.98% - 26.68%) | 22.22% (95% CI: 11.13% - 33.31%) | 21.74% (95% CI: 12.01% - 31.47%) | p = 0.71 |
| *Which Decision Tool Aware of:* | 24.49% (95% CI: 12.45% - 36.53%) | 20.37% (95% CI: 9.63% - 31.11%) | 13.04% (95% CI: 5.10% - 20.99%) | p = 0.27 |

| | | | | |
|---|---|---|---|---|
| *ADDR + D-Dimer >500* | | | | |
| *Which Decision Tool Aware of: ADDR + Ascending Aorta > 40* | 0.00% (95% CI: 0.00% - 0.00%) | 7.41% (95% CI: 0.42% - 14.39%) | 1.45% (95% CI: 0.00% - 4.27%) | p < 0.1 |
| *Which Decision Tool Aware of: None of the Above* | 57.14% (95% CI: 43.29% - 71.00%) | 50.00% (95% CI: 36.66% - 63.34%) | 46.38% (95% CI: 34.61% - 58.14%) | p = 0.51 |
| *Which Decision Tool Aware of: All of the Above* | 0.00% (95% CI: 0.00% - 0.00%) | 0.00% (95% CI: 0.00% - 0.00%) | 1.45% (95% CI: 0.00% - 4.27%) | p = 0.47 |
| *Risk Stratification Tool Useful* | 83.67% (95% CI: 73.32% - 94.02%) | 83.33% (95% CI: 73.39% - 93.27%) | 86.96% (95% CI: 79.01% - 94.90%) | p = 0.82 |
| *Teaching* | 91.84% (95% CI: 84.17% - 99.50%) | 98.15% (95% CI: 94.55% - 100.00%) | 89.86% (95% CI: 82.73% - 96.98%) | p = 0.19 |
| *Rate of Misdiagnosis (10-29%)* | 30.61% (95% CI: 17.71% - 43.52%) | 27.78% (95% CI: 15.83% - 39.72%) | 34.78% (95% CI: 23.54% - 46.02%) | p = 0.70 |
| *Rate of Misdiagnosis (30-49%)* | 48.98% (95% CI: 34.98% - 62.98%) | 44.44% (95% CI: 31.19% - 57.70%) | 26.09% (95% CI: 15.73% - 36.45%) | p < 0.05 |
| *Rate of Misdiagnosis (>50%)* | 20.41% (95% CI: 9.12% - 31.69%) | 25.93% (95% CI: 14.24% - 37.61%) | 37.68% (95% CI: 26.25% - 49.12%) | p = 0.10 |

## 5. Table S5. Literature & Search Methodology (Total articles identified n=196)

| **Primary Search Methodology (n=171)** |
|---|
| ("Aortic Dissection"[Mesh] OR "Acute Aortic Syndrome"[tiab] OR "Type B Aortic Dissection"[tiab] OR "TBAD"[tiab]) AND ("Risk Assessment"[Mesh] OR "Risk Score"[tiab] OR "Risk Prediction"[tiab] OR "Prognostic Score"[tiab] OR "Scoring System"[tiab] OR "Stratification"[tiab] OR "Risk Factors"[Mesh] OR "Prognosis"[Mesh]) AND ("Predictive Value of Tests"[Mesh] OR "Clinical Prediction Rule"[tiab] OR "Machine Learning"[Mesh] OR "Artificial Intelligence"[Mesh] OR "Logistic Models"[Mesh] OR "ROC Curve"[Mesh] OR "Sensitivity and Specificity"[Mesh]) AND ("Mortality"[Mesh] |
| **Secondary Search Methodology (n=21)** |
| ("Aortic Dissection"[MeSH Terms] OR "Acute Aortic Syndrome"[Title/Abstract] OR "Type B Aortic Dissection"[Title/Abstract] OR "TBAD"[Title/Abstract]) AND ("Risk Assessment"[MeSH Terms] OR "Risk Score"[Title/Abstract] OR "Risk Prediction"[Title/Abstract] OR "Prognostic Score"[Title/Abstract] OR "Scoring System"[Title/Abstract] OR "Stratification"[Title/Abstract] OR "Clinical Prediction Rule"[Title/Abstract] OR "Probability Score"[Title/Abstract]) AND ("IRAD"[Title/Abstract] OR "International Registry of Aortic Dissection"[Title/Abstract] OR "ADvISED"[Title/Abstract] OR "Aortic Dissection Detection Risk Score"[Title/Abstract] OR "Canadian Clinical Practice Guidelines"[Title/Abstract] OR "Age-Adjusted D-Dimer"[Title/Abstract] OR "D-Dimer Algorithm"[Title/Abstract]) AND ("Predictive Value of Tests"[MeSH Terms] OR "Machine Learning"[MeSH Terms] OR "Artificial Intelligence"[MeSH Terms] OR "Logistic Models"[MeSH Terms] OR "ROC Curve"[MeSH Terms] OR "Sensitivity and Specificity"[MeSH Terms] OR "Biomarkers"[MeSH Terms] OR "Clinical Decision Rule"[Title/Abstract]) |
| **Third Secondary Search Methodology (n=4)** |
| ("Aortic Dissection"[MeSH Terms] OR "Acute Aortic Syndrome"[Title/Abstract] OR "Type B Aortic Dissection"[Title/Abstract] OR "TBAD"[Title/Abstract]) AND ("Risk Assessment"[MeSH Terms] OR "Risk Score"[Title/Abstract] OR "Risk Prediction"[Title/Abstract] OR "Prognostic |

| |
|---|
| Score"[Title/Abstract] OR "Scoring System"[Title/Abstract] OR "Stratification"[Title/Abstract] OR "Clinical Prediction Rule"[Title/Abstract] OR "Probability Score"[Title/Abstract]) AND ("IRAD"[Title/Abstract] OR "International Registry of Aortic Dissection"[Title/Abstract] OR "ADvISED"[Title/Abstract] OR "Aortic Dissection Detection Risk Score"[Title/Abstract] OR "Canadian Clinical Practice Guidelines"[Title/Abstract] OR "Age-Adjusted D-Dimer"[Title/Abstract] OR "D-Dimer Algorithm"[Title/Abstract]) AND ("Predictive Value of Tests"[MeSH Terms] OR "Machine Learning"[MeSH Terms] OR "Artificial Intelligence"[MeSH Terms] OR "Logistic Models"[MeSH Terms] OR "ROC Curve"[MeSH Terms] OR "Sensitivity and Specificity"[MeSH Terms] OR "Biomarkers"[MeSH Terms] OR "Clinical Decision Rule"[Title/Abstract]) AND ("Mortality"[MeSH Terms] OR "Survival Analysis"[MeSH Terms] OR "Complications"[Title/Abstract] OR "Reintervention"[Title/Abstract] OR "Endovascular Procedures"[MeSH Terms] OR "Endograft Failure"[Title/Abstract] OR "Stent Graft"[Title/Abstract]) AND ("Systematic Review"[Publication Type] OR "Meta-Analysis"[Publication Type] OR "Review"[Publication Type] OR "Cohort Studies"[MeSH Terms] OR "Prospective Studies"[MeSH Terms] OR "Longitudinal Studies"[MeSH Terms]) |
| **Exclusion Criteria** |
| Non-English studies<br>Experimental studies on risk scores/tools/models<br>Commentaries on risk stratification tools<br>Expert opinions on risk prediction models<br>Case reports on aortic dissection risk scores<br>Case series of risk prediction tools<br>Operative risk scores/tools/models<br>Operative outcome predictive tools/models/scores<br>CT-based scoring systems/tools/models<br>CT-based predictive tools/scores/models<br>Studies focusing on surgical risk models/tools/scores (Open surgery, TEVAR)<br>Studies on medical management strategies rather than risk assessment models/scores/tools<br>Studies analysing mortality and morbidity after surgery rather than predictive models/scores/tools<br>Postoperative outcome prediction models/tools/scores |

## 6. Figure S1. PRIMSA Flow CHART

