**Table S1.** List of excluded procedures.

|  |  |
| --- | --- |
| **Specialty** | **Excluded procedures** |
| Abdominal surgery | Ascitic drain (drainage of peritoneal cavity) |
|  | Endoscopic ultrasound |
|  | Laparoscopic ultrasound |
| Breast surgery | Breast biopsy |
| Cardiac surgery | Insertion of cardiac pacemaker |
|  | Percutaneous coronary intervention |
|  | Transluminal balloon angioplasty of coronary artery |
| Colorectal surgery | Colonoscopy (diagnostic or therapeutic) |
|  | Flexible sigmoidoscopy (diagnostic or therapeutic) |
|  | Proctoscopy (diagnostic or therapeutic) |
| Dental procedures | Implantation of tooth |
|  | Insertion of dental prosthesis |
|  | Orthodontic operations |
|  | Restoration of tooth |
|  | Extraction of tooth |
| Gynaecology | Cervical biopsy |
|  | Colposcopy (diagnostic or therapeutic) |
| Obstetrics | Any vaginal delivery (normal delivery, breech delivery, forceps delivery, vacuum delivery) |
| Surgical termination of pregnancy |
| Ophthalmology | Removal of foreign body from cornea |
| Orthopaedics | Bone biopsy |
|  | Injection in to joint |
|  | Muscle biopsy |
| Otolaryngology | Laryngoscopy (diagnostic or therapeutic) |
| Nasendoscopy (diagnostic) |
| Packing of cavity of nose |
| Thoracic surgery | Bronchoscopy (diagnostic) |
| Insertion of chest drain |
| Upper gastrointestinal surgery | Endoscopic retrograde cholangiopancreatography (diagnostic or therapeutic) |
| Liver biopsy |
| Oesophago-gastro-duodenoscopy (diagnostic or therapeutic) |
| Urology\* | Bladder biopsy |
| Extracorporeal shock-wave lithotripsy |
| Flexible cystoscopy (diagnostic) |
| Percutaneous nephrostomy |
| Vascular surgery | Endovenous laser treatment for varicose veins |
| Insertion or removal of dialysis catheter |
| injection into varicose vein of leg |
| Transluminal (endovascular) procedures on arteries (diagnostic or therapeutic), including with open cut down to the artery |
| Transluminal (endovascular) procedures on veins (diagnostic or therapeutic) |
| Insertion or removal of Hickmann line |
| Other | Insertion of central venous catheter/ line |
| Insertion of chest drain |
| Lumbar (spinal) puncture |
| Percutaneous tracheostomy |
| Skin biopsy (including shave biopsy of skin) |
| Therapeutic epidural injection |
| Vacuum dressing |

\*Transurethral resection of the prostate, transurethral resection of bladder tumour, rigid cystoscopy under general anaesthesia, and insertion of ureteric stent should be included.

**Table S2.** Ranked VTE rates alongside PE and DVT rates by specialty in all patients of any SARS-CoV-2 status

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | VTE | | PE | | DVT | |
| Neurosurgery | 37/2848 | 1.3% | 15/2848 | 0.5% | 27/2848 | 0.9% |
| Thoracic surgery | 21/2087 | 1.0% | 13/2087 | 0.6% | 8/2087 | 0.4% |
| Surgical oncology | 25/2699 | 0.9% | 11/2699 | 0.4% | 17/2699 | 0.6% |
| Colorectal surgery | 118/13,012 | 0.9% | 71/13,012 | 0.5% | 56/13,012 | 0.4% |
| General surgery | 99/10,925 | 0.9% | 54/10,925 | 0.5% | 55/10,925 | 0.5% |
| Orthopaedics | 175/20,815 | 0.8% | 86/20,815 | 0.4% | 99/20,815 | 0.5% |
| Spinal surgery | 24/2940 | 0.8% | 11/2940 | 0.4% | 15/2940 | 0.5% |
| Cardiac surgery | 20/2482 | 0.8% | 9/2482 | 0.4% | 12/2482 | 0.5% |
| Oesophagogastric | 25/3327 | 0.8% | 17/3327 | 0.5% | 13/3327 | 0.4% |
| Other surgery | 6/828 | 0.7% | 1/828 | 0.1% | 5/828 | 0.6% |
| Hepatobiliary surgery | 56/10,736 | 0.5% | 36/10,736 | 0.3% | 23/10,736 | 0.2% |
| Head & Neck surgery | 23/6515 | 0.4% | 10/6515 | 0.2% | 13/6515 | 0.2% |
| Gynaecology | 24/7629 | 0.3% | 12/7629 | 0.2% | 15/7629 | 0.2% |
| Vascular surgery | 25/8569 | 0.3% | 12/8569 | 0.1% | 16/8569 | 0.2% |
| Hernia surgery | 22/7812 | 0.3% | 17/7812 | 0.2% | 8/7812 | 0.1% |
| Obstetrics | 22/8967 | 0.2% | 4/8967 | 0.0% | 19/8967 | 0.2% |
| Plastic surgery | 6/2971 | 0.2% | 2/2971 | 0.1% | 5/2971 | 0.2% |
| Breast surgery | 8/5428 | 0.1% | 5/5428 | 0.1% | 5/5428 | 0.1% |
| Endocrine surgery | 4/2800 | 0.1% | 3/2800 | 0.1% | 1/2800 | 0.0% |
| Ophthalmology | 2/4315 | 0.0% | 1/4315 | 0.0% | 1/4315 | 0.0% |
| Dentistry | 0/281 | 0.0% | 0/281 | 0.0% | 0/281 | 0.0% |
| Missing | 27 |  |  |  |  |  |

**Table S3.** Adjusted regression model for factors associated with venous thromboembolism (shown in Figure 3).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Odds Ratio | [95% Conf. | Interval] | p value |
| SARS-CoV-2 status |  |  |  |  |
| No SARS-CoV-2 |  |  |  |  |
| Peri-operative SARS-CoV-2 | **1.48** | 1.08 | 2.03 | **0.016** |
| Recent SARS-CoV-2 | **1.96** | 1.16 | 3.33 | **0.012** |
| Previous SARS-CoV-2 | 1.66 | 0.90 | 3.04 | 0.103 |
| Pneumonia |  |  |  |  |
| No |  |  |  |  |
| Yes | **3.73** | 2.98 | 4.68 | **< 0.001** |
| Age; years |  |  |  |  |
| 18–49 |  |  |  |  |
| 50–69 years | **1.50** | 1.22 | 1.84 | **< 0.001** |
| ≥ 70 | **1.68** | 1.34 | 2.12 | **< 0.001** |
| Sex |  |  |  |  |
| Female |  |  |  |  |
| Male | 0.88 | 0.76 | 1.03 | 0.113 |
| ASA physical status |  |  |  |  |
| 1–2 |  |  |  |  |
| 3–5 | **2.03** | 1.70 | 2.42 | **< 0.001** |
| Smoker |  |  |  |  |
| No |  |  |  |  |
| Yes | 1.06 | 0.87 | 1.30 | 0.548 |
| Respiratory comorbidities |  |  |  |  |
| No |  |  |  |  |
| Yes | 1.15 | 0.93 | 1.42 | 0.197 |
| Congestive heart failure |  |  |  |  |
| No |  |  |  |  |
| Yes | 1.16 | 0.89 | 1.51 | 0.274 |
| Cerebral vascular disease |  |  |  |  |
| No |  |  |  |  |
| Yes | 1.15 | 0.87 | 1.52 | 0.320 |
| Chronic kidney disease |  |  |  |  |
| No |  |  |  |  |
| Yes | **1.49** | 1.12 | 1.99 | **0.007** |
| Ischaemic heart disease |  |  |  |  |
| No |  |  |  |  |
| Yes | 1.08 | 0.88 | 1.33 | 0.456 |
| Indication |  |  |  |  |
| Benign |  |  |  |  |
| Malignancy | **1.70** | 1.41 | 2.05 | **< 0.001** |
| Trauma | **1.59** | 1.29 | 1.95 | **< 0.001** |
| Obstetric | **0.62** | 0.38 | 1.00 | **0.050** |
| Grade of surgery |  |  |  |  |
| Minor |  |  |  |  |
| Major | **1.96** | 1.61 | 2.40 | **< 0.001** |
| Urgency |  |  |  |  |
| Elective |  |  |  |  |
| Emergency | **2.35** | 1.98 | 2.79 | **< 0.001** |
| Anaesthetic |  |  |  |  |
| Local / regional |  |  |  |  |
| General | **1.47** | 1.19 | 1.83 | **< 0.001** |
| Country income |  |  |  |  |
| High |  |  |  |  |
| Upper middle | 1.20 | 0.97 | 1.48 | 0.095 |
| Lower middle/low | **1.78** | 1.45 | 2.19 | **< 0.001** |

Peri-operative SARS-CoV-2, 7 days before to 30 days after surgery; recent SARS-CoV-2, 1–6 weeks before surgery; previous SARS-CoV-2, ≥ 7 weeks before surgery.

**Table S4.** Adjusted sub-group analysis for VTE in elective patients only.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | VTE | % | Odds Ratio | [95% Conf. | Interval] | p value |
| SARS-CoV-2 status |  |  |  |  |  |  |
| No SARS-CoV-2 | 316 / 87,117 | 0.4% |  |  |  |  |
| Peri-operative SARS-CoV-2 | 20 / 965 | 2.1% | **2.10** | 1.27 | 3.48 | **0.004** |
| Recent SARS-CoV-2 | 10 / 604 | 1.7% | **2.93** | 1.52 | 5.64 | **0.001** |
| Previous SARS-CoV-2 | 5 / 857 | 0.6% | 1.51 | 0.62 | 3.68 | 0.366 |
| Pneumonia |  |  |  |  |  |  |
| No | 302 / 88,297 | 0.3% |  |  |  |  |
| Yes | 49 / 1246 | 3.9% | **5.54** | 3.92 | 7.83 | **< 0.001** |
| Age; years |  |  |  |  |  |  |
| 18–49 | 75 / 35,989 | 0.2% |  |  |  |  |
| 50–69 years | 152 / 33,642 | 0.5% | **1.71** | 1.27 | 2.31 | **< 0.001** |
| ≥ 70 | 124 / 19,911 | 0.6% | **2.18** | 1.56 | 3.06 | **< 0.001** |
| Sex |  |  |  |  |  |  |
| Female | 181 / 48,889 | 0.4% |  |  |  |  |
| Male | 170 / 40,651 | 0.4% | 0.95 | 0.76 | 1.18 | 0.616 |
| ASA physical status |  |  |  |  |  |  |
| 1–2 | 185 / 67,143 | 0.3% |  |  |  |  |
| 3–5 | 166 / 22,365 | 0.7% | **1.60** | 1.25 | 2.06 | **< 0.001** |
| Smoker |  |  |  |  |  |  |
| No | 292 / 75,485 | 0.4% |  |  |  |  |
| Yes | 58 / 13,811 | 0.4% | 1.11 | 0.82 | 1.48 | 0.504 |
| Respiratory comorbidities |  |  |  |  |  |  |
| No | 296 / 80,616 | 0.4% |  |  |  |  |
| Yes | 55 / 8860 | 0.6% | 1.16 | 0.85 | 1.57 | 0.351 |
| Congestive heart failure |  |  |  |  |  |  |
| No | 320 / 86,134 | 0.4% |  |  |  |  |
| Yes | 31 / 3385 | 0.9% | 1.28 | 0.86 | 1.90 | 0.225 |
| Cerebral vascular disease |  |  |  |  |  |  |
| No | 325 / 86,581 | 0.4% |  |  |  |  |
| Yes | 26 / 2938 | 0.9% | 1.33 | 0.88 | 2.03 | 0.177 |
| Chronic kidney disease |  |  |  |  |  |  |
| No | 333 / 87,616 | 0.4% |  |  |  |  |
| Yes | 18 / 1903 | 1.0% | 1.60 | 0.97 | 2.62 | 0.064 |
| Ischaemic heart disease |  |  |  |  |  |  |
| No | 289 / 81,605 | 0.4% |  |  |  |  |
| Yes | 62 / 7914 | 0.8% | 1.09 | 0.80 | 1.48 | 0.593 |
| Indication |  |  |  |  |  |  |
| Benign | 166 / 58,777 | 0.3% |  |  |  |  |
| Malignancy | 153 / 22,262 | 0.7% | **1.63** | 1.29 | 2.05 | **< 0.001** |
| Trauma | 27 / 4646 | 0.6% | **2.22** | 1.45 | 3.40 | **< 0.001** |
| Obstetric | 5 / 3855 | 0.1% | 0.75 | 0.29 | 1.94 | 0.555 |
| Grade |  |  |  |  |  |  |
| Minor | 58 / 34,452 | 0.2% |  |  |  |  |
| Major | 293 / 55,074 | 0.5% | **2.25** | 1.67 | 3.03 | **< 0.001** |
| Anaesthetic |  |  |  |  |  |  |
| Local / regional | 47 / 23,720 | 0.2% |  |  |  |  |
| General | 304 / 65,791 | 0.5% | **1.53** | 1.09 | 2.16 | **0.015** |
| Country income |  |  |  |  |  |  |
| High | 218 / 61,230 | 0.4% |  |  |  |  |
| Upper middle | 71 / 15,356 | 0.5% | **1.41** | 1.06 | 1.86 | **0.017** |
| Lower middle/low | 62 / 12,957 | 0.5% | **1.88** | 1.39 | 2.55 | **< 0.001** |

Peri-operative SARS-CoV-2, 7 days before to 30 days after surgery; recent SARS-CoV-2, 1–6 weeks before surgery; previous SARS-CoV-2, ≥ 7 weeks before surgery.

**Table S5.** Adjusted sub-group analysis for VTE in emergency patients only.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | VTE | % | Odds Ratio | [95% Conf. | Interval] | p value |
| SARS-CoV-2 status |  |  |  |  |  |  |
| No SARS-CoV-2 | 350 / 36,471 | 1.0% |  |  |  |  |
| Peri-operative SARS-CoV-2 | 30 / 1352 | 2.2% | 1.26 | 0.84 | 1.88 | 0.267 |
| Recent SARS-CoV-2 | 5 / 349 | 1.4% | 1.15 | 0.47 | 2.84 | 0.761 |
| Previous SARS-CoV-2 | 6 / 291 | 2.1% | 1.85 | 0.81 | 4.24 | 0.146 |
| Pneumonia |  |  |  |  |  |  |
| No | 323 / 37,037 | 0.9% |  |  |  |  |
| Yes | 68 / 1426 | 4.8% | **2.94** | 2.20 | 3.94 | **< 0.001** |
| Age; years |  |  |  |  |  |  |
| 18–49 | 117 / 21,568 | 0.5% |  |  |  |  |
| 50–69 years | 127 / 9488 | 1.3% | **1.34** | 1.01 | 1.79 | **0.044** |
| ≥ 70 | 147 / 7406 | 1.0% | 1.37 | 0.99 | 1.88 | 0.054 |
| Sex |  |  |  |  |  |  |
| Female | 199 / 19,935 | 1.0% |  |  |  |  |
| Male | 192 / 18,527 | 1.0% | 0.81 | 0.65 | 1.00 | 0.051 |
| ASA physical status |  |  |  |  |  |  |
| 1–2 | 138 / 26,874 | 0.5% |  |  |  |  |
| 3–5 | 253 / 11,581 | 2.2% | **2.56** | 1.99 | 3.29 | **< 0.001** |
| Smoker |  |  |  |  |  |  |
| No | 324 / 31,707 | 1.0% |  |  |  |  |
| Yes | 66 / 6621 | 1.0% | 1.01 | 0.76 | 1.33 | 0.961 |
| Respiratory comorbidities |  |  |  |  |  |  |
| No | 329 / 35,070 | 0.9% |  |  |  |  |
| Yes | 62 / 3362 | 1.8% | 1.13 | 0.84 | 1.51 | 0.411 |
| Congestive heart failure |  |  |  |  |  |  |
| No | 350 / 36,825 | 1.0% |  |  |  |  |
| Yes | 41 / 1634 | 2.5% | 1.09 | 0.77 | 1.55 | 0.632 |
| Cerebral vascular disease |  |  |  |  |  |  |
| No | 357 / 36,880 | 1.0% |  |  |  |  |
| Yes | 34 / 1579 | 2.2% | 1.02 | 0.70 | 1.48 | 0.918 |
| Chronic kidney disease |  |  |  |  |  |  |
| No | 353 / 37,025 | 1.0% |  |  |  |  |
| Yes | 38 / 1434 | 2.7% | **1.46** | 1.02 | 2.08 | **0.038** |
| Ischaemic heart disease |  |  |  |  |  |  |
| No | 319 / 35,171 | 0.9% |  |  |  |  |
| Yes | 72 / 3288 | 2.2% | 1.07 | 0.80 | 1.42 | 0.644 |
| Indication |  |  |  |  |  |  |
| Benign | 183 / 19,940 | 0.9% |  |  |  |  |
| Malignancy | 46 / 1851 | 2.5% | **1.75** | 1.25 | 2.46 | **0.001** |
| Trauma | 143 / 10,590 | 1.4% | **1.44** | 1.14 | 1.83 | **0.003** |
| Obstetric | 19 / 6082 | 0.3% | **0.52** | 0.30 | 0.93 | **0.026** |
| Grade |  |  |  |  |  |  |
| Minor | 74 / 14,142 | 0.5% |  |  |  |  |
| Major | 317 / 24,313 | 1.3% | **1.78** | 1.36 | 2.34 | **< 0.001** |
| Anaesthetic |  |  |  |  |  |  |
| Local / regional | 78 / 11,997 | 0.7% |  |  |  |  |
| General | 313 / 26,445 | 1.2% | **1.37** | 1.03 | 1.82 | **0.029** |
| Country income |  |  |  |  |  |  |
| High | 266 / 23,821 | 1.1% |  |  |  |  |
| Upper middle | 47 / 6214 | 0.8% | 0.94 | 0.68 | 1.29 | 0.690 |
| Lower middle/low | 78 / 8428 | 0.9% | **1.59** | 1.20 | 2.11 | **0.001** |

Peri-operative SARS-CoV-2, 7 days before to 30 days after surgery; recent SARS-CoV-2, 1–6 weeks before surgery; previous SARS-CoV-2, ≥ 7 weeks before surgery.

**Table S6.** Adjusted sub-group analysis for VTE in major surgery patients only.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | VTE | % | Odds Ratio | [95% Conf. | Interval] | p value |
| SARS-CoV-2 status |  |  |  |  |  |  |
| No SARS-CoV-2 | 545 / 76,391 | 0.7% |  |  |  |  |
| Peri-operative SARS-CoV-2 | 42 / 1622 | 2.6% | **1.55** | 1.10 | 2.18 | **0.013** |
| Recent SARS-CoV-2 | 12 / 668 | 1.8% | **1.92** | 1.07 | 3.46 | **0.030** |
| Previous SARS-CoV-2 | 11 / 709 | 1.6% | **2.04** | 1.11 | 3.75 | **0.022** |
| Pneumonia |  |  |  |  |  |  |
| No | 515 / 77,192 | 0.7% |  |  |  |  |
| Yes | 95 / 2199 | 4.3% | **3.33** | 2.60 | 4.27 | **< 0.001** |
| Age; years |  |  |  |  |  |  |
| 18–49 | 149 / 34,667 | 0.4% |  |  |  |  |
| 50–69 years | 233 / 27,029 | 0.9% | **1.54** | 1.22 | 1.93 | **< 0.001** |
| ≥ 70 | 228 / 17,694 | 1.3% | **1.74** | 1.34 | 2.24 | **< 0.001** |
| Sex |  |  |  |  |  |  |
| Female | 317 / 47,115 | 0.7% |  |  |  |  |
| Male | 293 / 32,273 | 0.9% | 0.94 | 0.79 | 1.11 | 0.452 |
| ASA physical status |  |  |  |  |  |  |
| 1–2 | 265 / 54,948 | 0.5% |  |  |  |  |
| 3–5 | 345 / 24,424 | 1.4% | **1.84** | 1.51 | 2.22 | **< 0.001** |
| Smoker |  |  |  |  |  |  |
| No | 512 / 67,483 | 0.8% |  |  |  |  |
| Yes | 96 / 11,649 | 0.8% | 1.01 | 0.80 | 1.27 | 0.933 |
| Respiratory comorbidities |  |  |  |  |  |  |
| No | 513 / 71,485 | 0.7% |  |  |  |  |
| Yes | 97 / 7848 | 1.2% | 1.19 | 0.95 | 1.50 | 0.137 |
| Congestive heart failure |  |  |  |  |  |  |
| No | 559 / 75,824 | 0.7% |  |  |  |  |
| Yes | 51 / 3556 | 1.4% | 0.96 | 0.71 | 1.31 | 0.807 |
| Cerebral vascular disease |  |  |  |  |  |  |
| No | 555 / 76,244 | 0.7% |  |  |  |  |
| Yes | 55 / 3136 | 1.8% | 1.31 | 0.98 | 1.75 | 0.073 |
| Chronic kidney disease |  |  |  |  |  |  |
| No | 570 / 77,388 | 0.7% |  |  |  |  |
| Yes | 40 / 1992 | 2.0% | 1.34 | 0.96 | 1.89 | 0.090 |
| Ischaemic heart disease |  |  |  |  |  |  |
| No | 503 / 71,676 | 0.7% |  |  |  |  |
| Yes | 107 / 7704 | 1.4% | 1.03 | 0.82 | 1.30 | 0.784 |
| Indication |  |  |  |  |  |  |
| Benign | 264 / 41,865 | 0.6% |  |  |  |  |
| Malignancy | 183 / 17,730 | 1.0% | **1.77** | 1.45 | 2.17 | **< 0.001** |
| Trauma | 140 / 10,733 | 1.3% | **1.39** | 1.10 | 1.76 | **0.005** |
| Obstetric | 23 / 9061 | 0.3% | **0.53** | 0.32 | 0.89 | **0.016** |
| Urgency |  |  |  |  |  |  |
| Elective | 293 / 55,074 | 0.5% |  |  |  |  |
| Emergency | 317 / 24,313 | 1.3% | **2.43** | 2.00 | 2.94 | **< 0.001** |
| Anaesthetic |  |  |  |  |  |  |
| Local / regional | 94 / 17,605 | 0.5% |  |  |  |  |
| General | 516 / 61,747 | 0.8% | 1.29 | 1.00 | 1.66 | 0.053 |
| Country income |  |  |  |  |  |  |
| High | 393 / 51,205 | 0.8% |  |  |  |  |
| Upper middle | 99 / 13,758 | 0.7% | 1.20 | 0.95 | 1.51 | 0.125 |
| Lower middle/low | 118 / 14,428 | 0.8% | **1.76** | 1.40 | 2.20 | **< 0.001** |

Peri-operative SARS-CoV-2, 7 days before to 30 days after surgery; recent SARS-CoV-2, 1–6 weeks before surgery; previous SARS-CoV-2, ≥ 7 weeks before surgery.

**Table S7**. Adjusted sub-group analysis for VTE in minor surgery patients only.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | VTE | % | Odds Ratio | [95% Conf. | Interval] | p value |
| SARS-CoV-2 status |  |  |  |  |  |  |
| No SARS-CoV-2 | 121 / 47,178 | 0.3% |  |  |  |  |
| Peri-operative SARS-CoV-2 | 8 / 695 | 1.2% | 1.10 | 0.48 | 2.48 | 0.828 |
| Recent SARS-CoV-2 | 3 / 285 | 1.1% | 1.69 | 0.50 | 5.72 | 0.398 |
| Previous SARS-CoV-2 | 0 / 439 | 0 | No events |  |  |  |
| Pneumonia |  |  |  |  |  |  |
| No | 110 / 48,125 | 0.2% |  |  |  |  |
| Yes | 22 / 472 | 4.7% | **7.56** | 4.36 | 13.10 | **< 0.001** |
| Age; years |  |  |  |  |  |  |
| 18–49 | 43 / 22,877 | 0.2% |  |  |  |  |
| 50–69 years | 46 / 16,095 | 0.3% | 1.28 | 0.81 | 2.02 | 0.296 |
| ≥ 70 | 43 / 9624 | 0.5% | 1.48 | 0.87 | 2.52 | 0.148 |
| Sex |  |  |  |  |  |  |
| Female | 63 / 21,697 | 0.3% |  |  |  |  |
| Male | 69 / 26,899 | 0.3% | 0.71 | 0.50 | 1.02 | 0.062 |
| ASA physical status |  |  |  |  |  |  |
| 1–2 | 58 / 39,055 | 0.2% |  |  |  |  |
| 3–5 | 74 / 9518 | 0.8% | **3.16** | 2.05 | 4.86 | **< 0.001** |
| Smoker |  |  |  |  |  |  |
| No | 104 / 39,697 | 0.3% |  |  |  |  |
| Yes | 28 / 8777 | 0.3% | 1.35 | 0.87 | 2.09 | 0.181 |
| Respiratory comorbidities |  |  |  |  |  |  |
| No | 112 / 44,183 | 0.3% |  |  |  |  |
| Yes | 20 / 4374 | 0.5% | 0.98 | 0.59 | 1.62 | 0.925 |
| Congestive heart failure |  |  |  |  |  |  |
| No | 111 / 47,118 | 0.2% |  |  |  |  |
| Yes | 21 / 1462 | 1.4% | **2.18** | 1.28 | 3.73 | **0.004** |
| Cerebral vascular disease |  |  |  |  |  |  |
| No | 127 / 47,200 | 0.3% |  |  |  |  |
| Yes | 5 / 1380 | 0.4% | 0.47 | 0.18 | 1.19 | 0.110 |
| Chronic kidney disease |  |  |  |  |  |  |
| No | 116 / 47,235 | 0.3% |  |  |  |  |
| Yes | 16 / 1345 | 1.2% | **1.91** | 1.08 | 3.39 | **0.026** |
| Ischaemic heart disease |  |  |  |  |  |  |
| No | 105 / 45,083 | 0.2% |  |  |  |  |
| Yes | 27 / 3497 | 0.8% | 1.34 | 0.83 | 2.18 | 0.232 |
| Indication |  |  |  |  |  |  |
| Benign | 85 / 36,839 | 0.2% |  |  |  |  |
| Malignancy | 16 / 6382 | 0.3% | 1.08 | 0.61 | 1.90 | 0.801 |
| Trauma | 30 / 4501 | 0.7% | **2.50** | 1.61 | 3.89 | **< 0.001** |
| Obstetric | 1 / 874 | 0.1% | 0.69 | 0.09 | 5.10 | 0.718 |
| Urgency |  |  |  |  |  |  |
| Elective | 58 / 34,452 | 0.2% |  |  |  |  |
| Emergency | 74 / 14,142 | 0.5% | **2.06** | 1.40 | 3.04 | **< 0.001** |
| Anaesthetic |  |  |  |  |  |  |
| Local / regional | 31 / 18,111 | 0.2% |  |  |  |  |
| General | 101 / 30,472 | 0.3% | **1.82** | 1.19 | 2.77 | **0.005** |
| Country income |  |  |  |  |  |  |
| High | 91 / 33,843 | 0.3% |  |  |  |  |
| Upper middle | 19 / 7798 | 0.3% | 1.16 | 0.69 | 1.95 | 0.572 |
| Lower middle/low | 22 / 6956 | 0.3% | **1.85** | 1.12 | 3.05 | **0.016** |

Peri-operative SARS-CoV-2, 7 days before to 30 days after surgery; recent SARS-CoV-2, 1–6 weeks before surgery; previous SARS-CoV-2, ≥ 7 weeks before surgery.