|  |  |
| --- | --- |
| A | B |
| C | |

Figure 1, slopes of the individual evaluated procedures. The three panels show three different type of descends in QALYs due to delay: panel A shows procedures that have a linear slope; panel B shows the diseases that have a slope that steepens (more negative) over time; panel C shows procedures that have a slope that flattens (less negative) over time. The vertical dashed lines indicate the evaluated scenarios.

Table 1, the output of the decision model for all investigated diseases. The estimates and 95% confidence intervals are shown.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | QALY, delay = 2 weeks | QALY, delay = 12 weeks | QALY, delay = 22 weeks | QALY, delay = 32 weeks | QALY, delay = 42 weeks | QALY, delay = 52 weeks | No surgery | QALY loss per month |
| AAA, surgical repair | 11.56 (10.38 - 12.52) | 11.29 (10.14 - 12.20) | 11.04 (9.92 - 11.90) | 10.78 (9.70 - 11.61) | 10.56 (9.49 - 11.34) | 10.33 (9.28 - 11.08) | 5.62 (4.66 - 6.81) | -0.11 (-0.13 - -0.09) |
| Pacemaker implantation | 11.04 (9.67 - 12.32) | 10.76 (9.26 - 12.05) | 10.51 (8.96 - 11.80) | 10.29 (8.62 - 11.63) | 10.05 (8.34 - 11.47) | 9.84 (7.98 - 11.31) | 4.81 (2.60 - 7.36) | -0.11 (-0.22 - -0.04) |
| Cholangeoca., resection | 4.67 (3.89 - 5.39) | 4.41 (3.61 - 5.21) | 4.18 (3.35 - 5.05) | 3.96 (3.12 - 4.91) | 3.77 (2.92 - 4.78) | 3.60 (2.75 - 4.65) | 2.20 (1.70 - 3.20) | -0.09 (-0.12 - -0.06) |
| ESRD, transplant | 15.58 (14.22 - 16.63) | 15.35 (14.06 - 16.42) | 15.13 (13.92 - 16.21) | 14.93 (13.76 - 15.99) | 14.74 (13.58 - 15.79) | 14.54 (13.40 - 15.61) | 5.25 (3.53 - 6.91) | -0.09 (-0.12 - -0.06) |
| NSCLC, lobectomy | 9.38 (8.04 - 11.12) | 9.08 (7.67 - 10.89) | 8.92 (7.46 - 10.72) | 8.76 (7.29 - 10.56) | 8.61 (7.14 - 10.41) | 8.46 (6.99 - 10.27) | 5.44 (4.22 - 7.11) | -0.08 (-0.10 - -0.06) |
| Liver metastasis colonca, resection | 2.43 (1.81 - 3.49) | 2.17 (1.48 - 3.34) | 1.95 (1.23 - 3.20) | 1.77 (1.04 - 3.07) | 1.62 (0.89 - 2.97) | 1.53 (0.78 - 2.87) | 1.09 (0.61 - 1.99) | -0.08 (-0.10 - -0.05) |
| ESLD, transplant | 10.05 (9.15 - 10.96) | 9.87 (8.97 - 10.74) | 9.69 (8.80 - 10.54) | 9.51 (8.65 - 10.34) | 9.34 (8.50 - 10.14) | 9.16 (8.36 - 9.95) | 2.76 (2.28 - 3.24) | -0.08 (-0.09 - -0.07) |
| ESHF, LVAD | 1.45 (1.15 - 2.05) | 1.16 (0.90 - 1.60) | 0.96 (0.72 - 1.32) | 0.81 (0.59 - 1.11) | 0.69 (0.49 - 0.94) | 0.59 (0.43 - 0.81) | 0.33 (0.25 - 0.42) | -0.07 (-0.11 - -0.05) |
| Mild larynx ca., resection | 4.27 (2.02 - 11.15) | 4.01 (1.68 - 11.06) | 3.78 (1.43 - 10.98) | 3.66 (1.24 - 10.89) | 3.51 (1.20 - 10.82) | 3.44 (1.17 - 10.76) | 2.77 (1.05 - 8.36) | -0.07 (-0.10 - -0.04) |
| AAA, EVAR | 9.03 (8.54 - 9.46) | 8.88 (8.43 - 9.30) | 8.75 (8.31 - 9.14) | 8.62 (8.19 - 9.00) | 8.49 (8.07 - 8.87) | 8.37 (7.96 - 8.74) | 5.89 (5.48 - 6.41) | -0.06 (-0.07 - -0.05) |
| ASD, repair | 22.02 (21.06 - 22.77) | 21.86 (20.85 - 22.62) | 21.72 (20.67 - 22.50) | 21.57 (20.49 - 22.42) | 21.42 (20.31 - 22.35) | 21.34 (20.13 - 22.27) | 12.48 (7.31 - 17.06) | -0.06 (-0.14 - -0.02) |
| Pancreasca., Whipple | 2.08 (1.56 - 2.56) | 1.83 (1.29 - 2.36) | 1.62 (1.12 - 2.21) | 1.51 (1.04 - 2.12) | 1.46 (1.00 - 2.07) | 1.42 (0.97 - 2.03) | 1.22 (0.86 - 1.76) | -0.05 (-0.07 - -0.03) |
| Instable AP, CABG | 18.38 (17.54 - 19.23) | 18.27 (17.42 - 19.12) | 18.14 (17.30 - 19.01) | 18.03 (17.19 - 18.91) | 17.94 (17.07 - 18.82) | 17.84 (16.96 - 18.73) | 13.30 (11.63 - 14.90) | -0.05 (-0.07 - -0.03) |
| Instable AP, PCI | 14.42 (13.13 - 15.64) | 14.32 (13.04 - 15.50) | 14.21 (12.94 - 15.36) | 14.10 (12.84 - 15.21) | 13.97 (12.74 - 15.06) | 13.87 (12.63 - 14.95) | 10.11 (8.51 - 12.24) | -0.04 (-0.06 - -0.02) |
| HCC, resection | 5.67 (4.69 - 7.54) | 5.55 (4.54 - 7.49) | 5.43 (4.39 - 7.43) | 5.32 (4.26 - 7.37) | 5.24 (4.15 - 7.31) | 5.20 (4.10 - 7.28) | 4.44 (3.50 - 6.12) | -0.04 (-0.05 - -0.02) |
| Colonca., HIPEC | 2.25 (1.78 - 2.63) | 2.14 (1.67 - 2.48) | 2.04 (1.59 - 2.35) | 1.96 (1.51 - 2.26) | 1.87 (1.45 - 2.17) | 1.80 (1.39 - 2.11) | 1.09 (0.88 - 1.45) | -0.04 (-0.06 - -0.02) |
| Ovarium ca., resection and HIPEC | 4.26 (4.14 - 4.36) | 4.10 (3.99 - 4.21) | 4.02 (3.91 - 4.12) | 3.98 (3.86 - 4.07) | 3.94 (3.80 - 4.03) | 3.89 (3.75 - 3.99) | 3.15 (2.91 - 3.44) | -0.03 (-0.04 - -0.03) |
| Oral ca., resection | 9.45 (5.14 - 14.36) | 9.34 (4.93 - 14.37) | 9.28 (4.78 - 14.32) | 9.22 (4.73 - 14.27) | 9.17 (4.68 - 14.22) | 9.12 (4.63 - 14.17) | 7.12 (3.68 - 11.01) | -0.03 (-0.04 - -0.02) |
| High-risk endometrium ca, resection | 8.81 (8.09 - 9.68) | 8.69 (7.96 - 9.59) | 8.60 (7.87 - 9.52) | 8.55 (7.82 - 9.47) | 8.50 (7.77 - 9.42) | 8.45 (7.73 - 9.37) | 6.88 (6.33 - 7.60) | -0.03 (-0.03 - -0.03) |
| UUT Ca., nefroureterectomy | 6.08 (4.66 - 7.57) | 5.96 (4.56 - 7.44) | 5.88 (4.50 - 7.35) | 5.83 (4.46 - 7.28) | 5.78 (4.41 - 7.23) | 5.73 (4.38 - 7.17) | 4.95 (3.77 - 6.20) | -0.03 (-0.04 - -0.02) |
| Mammaca., resection | 17.89 (16.09 - 19.05) | 17.81 (15.98 - 18.98) | 17.73 (15.88 - 18.92) | 17.69 (15.83 - 18.87) | 17.64 (15.77 - 18.81) | 17.60 (15.73 - 18.76) | 13.86 (12.40 - 15.38) | -0.03 (-0.04 - -0.02) |
| High-grade glioma, resection | 1.48 (1.41 - 1.55) | 1.41 (1.34 - 1.47) | 1.34 (1.28 - 1.40) | 1.28 (1.23 - 1.34) | 1.23 (1.19 - 1.28) | 1.19 (1.15 - 1.24) | 0.94 (0.90 - 0.97) | -0.03 (-0.03 - -0.02) |
| Carotid endarteriectomy | 15.05 (14.39 - 15.80) | 14.99 (14.35 - 15.74) | 14.94 (14.32 - 15.68) | 14.88 (13.53 - 15.63) | 14.80 (12.44 - 15.53) | 14.61 (12.37 - 15.44) | 12.11 (11.39 - 12.80) | -0.02 (-0.24 - -0.02) |
| Empyema, VATS | 22.63 (21.80 - 23.50) | 22.58 (21.75 - 23.44) | 22.52 (21.70 - 23.38) | 22.46 (21.65 - 23.32) | 22.40 (21.60 - 23.26) | 22.34 (21.56 - 23.20) | 15.44 (14.77 - 16.23) | -0.02 (-0.03 - -0.02) |
| Cerical ca., resection | 5.04 (4.07 - 6.15) | 4.93 (3.97 - 6.07) | 4.88 (3.92 - 6.02) | 4.83 (3.86 - 5.97) | 4.78 (3.82 - 5.92) | 4.74 (3.77 - 5.88) | 3.79 (2.81 - 4.57) | -0.02 (-0.03 - -0.02) |
| Low-grade glioma, resection | 7.81 (7.14 - 8.31) | 7.76 (7.10 - 8.27) | 7.71 (7.05 - 8.23) | 7.66 (7.01 - 8.19) | 7.61 (6.96 - 8.15) | 7.56 (6.92 - 8.11) | 5.66 (4.93 - 6.40) | -0.02 (-0.03 - -0.01) |
| Low-risk endometrium ca, resection | 13.61 (12.67 - 14.38) | 13.51 (12.56 - 14.29) | 13.47 (12.52 - 14.26) | 13.44 (12.49 - 14.22) | 13.41 (12.45 - 14.19) | 13.38 (12.42 - 14.16) | 11.68 (10.75 - 12.54) | -0.02 (-0.03 - -0.02) |
| PAD, bypass surgery | 8.15 (7.56 - 8.81) | 8.11 (7.52 - 8.75) | 8.06 (7.49 - 8.69) | 8.01 (7.46 - 8.64) | 7.96 (7.43 - 8.58) | 7.91 (7.40 - 8.53) | 6.44 (5.86 - 6.96) | -0.02 (-0.03 - -0.01) |
| Mammaca., mastectomy | 16.08 (14.59 - 17.18) | 16.02 (14.52 - 17.11) | 15.96 (14.47 - 17.04) | 15.93 (14.44 - 17.00) | 15.89 (14.42 - 16.96) | 15.87 (14.40 - 16.92) | 13.91 (12.29 - 15.34) | -0.02 (-0.03 - -0.01) |
| COPD, bullectomy | 7.89 (7.24 - 8.54) | 7.85 (7.21 - 8.49) | 7.81 (7.18 - 8.45) | 7.78 (7.15 - 8.41) | 7.74 (7.11 - 8.37) | 7.71 (7.08 - 8.33) | 6.08 (5.43 - 6.57) | -0.02 (-0.02 - -0.01) |
| Pleurodesis for pneumothorax | 21.40 (21.15 - 21.65) | 21.36 (21.12 - 21.62) | 21.33 (21.09 - 21.58) | 21.29 (21.05 - 21.54) | 21.26 (21.01 - 21.50) | 21.22 (20.98 - 21.47) | 16.38 (14.93 - 17.72) | -0.02 (-0.02 - -0.01) |
| Mild salivary gland ca., resection | 15.28 (12.60 - 16.89) | 15.24 (12.52 - 16.87) | 15.20 (12.44 - 16.85) | 15.15 (12.36 - 16.82) | 15.12 (12.34 - 16.81) | 15.11 (12.33 - 16.81) | 14.51 (11.78 - 16.29) | -0.01 (-0.03 - -0.01) |
| Thyroid ca., resection | 23.81 (22.49 - 24.94) | 23.78 (22.44 - 24.92) | 23.74 (22.40 - 24.90) | 23.72 (22.35 - 24.88) | 23.70 (22.32 - 24.86) | 23.68 (22.30 - 24.84) | 21.19 (19.70 - 22.74) | -0.01 (-0.02 - -0.01) |
| ESRD, shunt | 8.55 (7.83 - 9.30) | 8.53 (7.81 - 9.28) | 8.51 (7.80 - 9.25) | 8.49 (7.78 - 9.22) | 8.48 (7.77 - 9.19) | 8.46 (7.75 - 9.17) | 7.09 (6.54 - 7.71) | -0.01 (-0.01 - -0.00) |

Table 2, capacity requirements of the studied interventions in our hospital, in descending order of urgency.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Number since 6-2017 | Duration of the procedure, min (median [IQR]) | Length of ICU stay, days (median [IQR]) | Length of non-ICU stay, days (median [IQR]) |
| AAA, surgical repair | 138 | 246 (166 - 305) | 0 (0 - 0.6) | 3.8 (2.2 - 7.1) |
| Pacemaker implantation | 273 | 115 (82 - 154) | 0 (0 - 0) | 1.4 (1.1 - 2.1) |
| Cholangeoca., resection | 413 | 268 (103 - 443) | 0 (0 - 0) | 7.15 (1 - 13.9) |
| NSCLC, lobectomy | 133 | 245 (213 - 294) | 0 (0 - 0) | 5.1 (3.9 - 8) |
| Liver metastasis colonca, resection | 355 | 230 (155 - 336) | 0 (0 - 0) | 6.2 (4.3 - 9.1) |
| Mild larynx ca., resection | 103 | 70 (38 - 109) | 0 (0 - 0) | 0.9 (0.2 - 1.3) |
| ESRD, transplant | 346 | 291 (244 - 341) | 0 (0 - 0) | 11 (7.5 - 12.3) |
| ESLD, transplant | 81 | 875 (797 - 957) | 0.9 (0 - 2.3) | 9.5 (2 - 18.7) |
| Pancreasca., Whipple | 413 | 268 (103 - 443) | 0 (0 - 0) | 7.15 (1 - 13.9) |
| AAA, EVAR | 138 | 246 (166 - 305) | 0 (0 - 0.6) | 3.8 (2.2 - 7.1) |
| ASD, repair | 164 | 74 (56 - 132) | 0 (0 - 0) | 1.3 (0.6 - 1.95) |
| Instable AP, CABG | 336 | 279 (244 - 314) | 0.6 (0.3 - 0.9) | 4.8 (3.8 - 6.3) |
| HCC, resection | 355 | 230 (155 - 336) | 0 (0 - 0) | 6.2 (4.3 - 9.1) |
| Colonca., HIPEC | 283 | 271 (75 - 405) | 0 (0 - 0) | 8.2 (0.4 - 12.1) |
| High-risk endometrium ca, resection | 83 | 244 (183 - 331) | 0 (0 - 0) | 5.2 (2.8 - 6.9) |
| UUT Ca., nefroureterectomy | 148 | 229 (188 - 268) | 0 (0 - 0) | 3.8 (2.6 - 6) |
| Oral ca., resection | 103 | 70 (38 - 109) | 0 (0 - 0) | 0.9 (0.2 - 1.3) |
| Mammaca., resection | 383 | 99 (71 - 148) | 0 (0 - 0) | 1.2 (0.4 - 2.1) |
| High-grade glioma, resection | 329 | 228 (182 - 274) | 0 (0 - 0) | 4.1 (3.1 - 5.2) |
| Low-risk endometrium ca, resection | 83 | 244 (183 - 331) | 0 (0 - 0) | 5.2 (2.8 - 6.9) |
| Empyema, VATS | 55 | 174 (120 - 219) | 0 (0 - 0) | 4.1 (3.1 - 6.2) |
| Low-grade glioma, resection | 329 | 228 (182 - 274) | 0 (0 - 0) | 4.1 (3.1 - 5.2) |
| Mammaca., mastectomy | 383 | 99 (71 - 148) | 0 (0 - 0) | 1.2 (0.4 - 2.1) |
| PAD, bypass surgery | 43 | 218 (163 - 269) | 0 (0 - 0) | 3.9 (2.9 - 5.1) |
| Mild salivary gland ca., resection | 100 | 108 (79 - 175) | 0 (0 - 0) | 1.2 (1 - 3.1) |
| COPD, bullectomy | 55 | 174 (120 - 219) | 0 (0 - 0) | 4.1 (3.1 - 6.2) |
| Pleurodesis for pneumothorax | 55 | 174 (120 - 219) | 0 (0 - 0) | 4.1 (3.1 - 6.2) |
| ESRD, shunt | 190 | 72 (56 - 100) | 0 (0 - 0) | 1.1 (0.3 - 1.7) |
| AAA, surgical repair | 138 | 246 (166 - 305) | 0 (0 - 0.6) | 3.8 (2.2 - 7.1) |

*Table 3, test-retest results of three health states.*

|  |  |  |  |
| --- | --- | --- | --- |
| Health state | Utility, day 1 (SE) | Utility, day 2 (SE) | P-value (t-test) |
| COPD, bullectomy - preoperative | 0.38 (0.02) | 0.49 (0.02) | 0.65 |
| COPD, bullectomy - postperative | 0.43 (0.03) | 0.57 (0.02) | 0.02 |
| Mild Endometrium ca., resection – preoperative | 0.78 (0.03) | 0.83 (0.02) | 0.23 |
| Mild Endometrium ca., resection – postoperative | 0.94 (0.03) | 0.96 (0.01) | 0.54 |
| Mild Endometrium ca., resection – preoperative | 0.69 (0.03) | 0.71 (0.00) | 0.71 |
| Mild Endometrium ca., resection – postoperative | 0.84 (0.03) | 0.90 (0.01) | 0.09 |
| Pneumothorax, pleurodesis - preoperative | 0.75 (0.04) | 0.89 (0.01) | 0.01 |
| Pneumothorax, pleurodesis - postoperative | 0.98 (0.00) | 0.98 (0.01) | 0.57 |