# Figures legends

Figure 1, state-transition diagram of the cohort model. The model is a state transition model with three health states, a preoperatieve health states (Preop), a postoperatieve state (Postop) and Dead. All patients start in the Preop health states. This is the health states where patient eligible for surgery start in our simulation. We follow these patients over time using fixed time intervals of 1 week, these fixed time intervals are called cycles. Every cycle, patients can transition to one of the other health states or they can remain in the health states they currently are. From the Preop state they either die (transition to dead state) or continue to wait for their surgery (stay in the Preop state, the arrow points back into the health state). At the time of surgery, which is determined by us, all individuals still alive in the Preop health state transition to the Postop health state. The remaining lifetime the cohort is followed. They can die (transition from the Postop state to Dead state) or stay alive in the Postop health state (transition back to the Postop state). Finally, patients in the Dead state remain dead, so every cycle they stay in the dead state.

Figure 2, input parameters for the model. For a full list of input parameters per disease and source, see appendix A. **Abbreviations Figure titles**: Qol\_no\_tx: Quality of Life without treatment; QoL\_tx: quality of life with treatment; Surv\_no\_tx: 1-year survival probability without treatment; Surv\_tx: 1-year survival probability with treatment; Time\_noeff\_surv: days until no treatment is effective. **Abbreviations surgery/indications:** AAA: aneurysm of the abdominal aorta; AP: angina pectoris; AV: aortic valve; AVR: aortic valve replacement; ESRD: end-stage renal disease; ASD: atrial septum defect; -ca.: carcinoma; CABG: coronary artery bypass graft; COPD: chronic obstructive pulmonary disease; ESHF: end-stage heart failure; ESLD: end-stage liver disease; EVAR: endovascular aortic repair; HIPEC: hyperthermic intraperitoneal chemotherapy; HCC: hepatocellular carcinoma; NSCLC: non-small cell lung carcinoma; MVR: mitral valve replacement; PAD: peripheral arterial disease; PAD F2: peripheral arterial disease Fontaine classification 2, PCI: percutaneous coronary intervention; TAVI: transaortic valve implantation; UUT: upper urinary track; VATS: video assisted thoracoscopic surgery.

Figure 3, the maximum expected QALYs and LYs per surgery, in descending order of urgency (see figure 4). The estimates (gray bars) and 95% confidence intervals (black lines) are shown. The model output for no surgery was subtracted from the model output for a delay of 2 weeks. The actual data are presented in Appendix B. **Abbreviations Figure titles**: QALY: Quality of Life without treatment; LY: life years. **Abbreviations surgery/indication**: AAA: aneurysm of the abdominal aorta; AP: angina pectoris; AV: aortic valve; AVR: aortic valve replacement; ESRD: end-stage renal disease; ASD: atrial septum defect; -ca.: carcinoma; CABG: coronary artery bypass graft; COPD: chronic obstructive pulmonary disease; ESHF: end-stage heart failure; ESLD: end-stage liver disease; EVAR: endovascular aortic repair; HIPEC: hyperthermic intraperitoneal chemotherapy; HCC: hepatocellular carcinoma; NSCLC: non-small cell lung carcinoma; MVR: mitral valve replacement; PAD: peripheral arterial disease; PAD F2: peripheral arterial disease Fontaine classification 2, PCI: percutaneous coronary intervention; TAVI: transaortic valve implantation; UUT: upper urinary track; VATS: video assisted thoracoscopic surgery.

Figure 4, the average loss of QALYs and LYs per month of delay for the investigated surgeries based on the simulation of surgery delay of 52 weeks. The estimates (gray bars) and 95% confidence intervals (black lines) are shown. The actual data are presented in appendix B. **Abbreviations Figure titles**: QALY: Quality of Life without treatment; LY: life years. **Abbreviations diseases/indication**: AAA: aneurysm of the abdominal aorta; AP: angina pectoris; AV: aortic valve; AVR: aortic valve replacement; ESRD: end-stage renal disease; ASD: atrial septum defect; -ca.: carcinoma; CABG: coronary artery bypass graft; COPD: chronic obstructive pulmonary disease; ESHF: end-stage heart failure; ESLD: end-stage liver disease; EVAR: endovascular aortic repair; HIPEC: hyperthermic intraperitoneal chemotherapy; HCC: hepatocellular carcinoma; NSCLC: non-small cell lung carcinoma; MVR: mitral valve replacement; PAD: peripheral arterial disease; PAD F2: peripheral arterial disease Fontaine classification 2, PCI: percutaneous coronary intervention; TAVI: transaortic valve implantation; UUT: upper urinary track; VATS: video assisted thoracoscopic surgery.

Figure 5, showing the mean duration of the surgeries and the urgency in terms of QALY loss per month. Liver transplant is excluded in this plot, because it was an outlier in terms of duration of surgeries (median: 875 minutes, IQR: 797-957 and -0.08 QALY per month, 95% CI: -0.09--0.07). **Abbreviations Figure titles**: QALY: Quality of Life without treatment.  **Abbreviations diseases/indication**: AAA: aneurysm of the abdominal aorta; AP: angina pectoris; AV: aortic valve; AVR: aortic valve replacement; ESRD: end-stage renal disease; ASD: atrial septum defect; -ca.: carcinoma; CABG: coronary artery bypass graft; COPD: chronic obstructive pulmonary disease; ESHF: end-stage heart failure; ESLD: end-stage liver disease; EVAR: endovascular aortic repair; HIPEC: hyperthermic intraperitoneal chemotherapy; HCC: hepatocellular carcinoma; NSCLC: non-small cell lung carcinoma; MVR: mitral valve replacement; PAD: peripheral arterial disease; PAD F2: peripheral arterial disease Fontaine classification 2, PCI: percutaneous coronary intervention; TAVI: transaortic valve implantation; UUT: upper urinary track; VATS: video assisted thoracoscopic surgery.