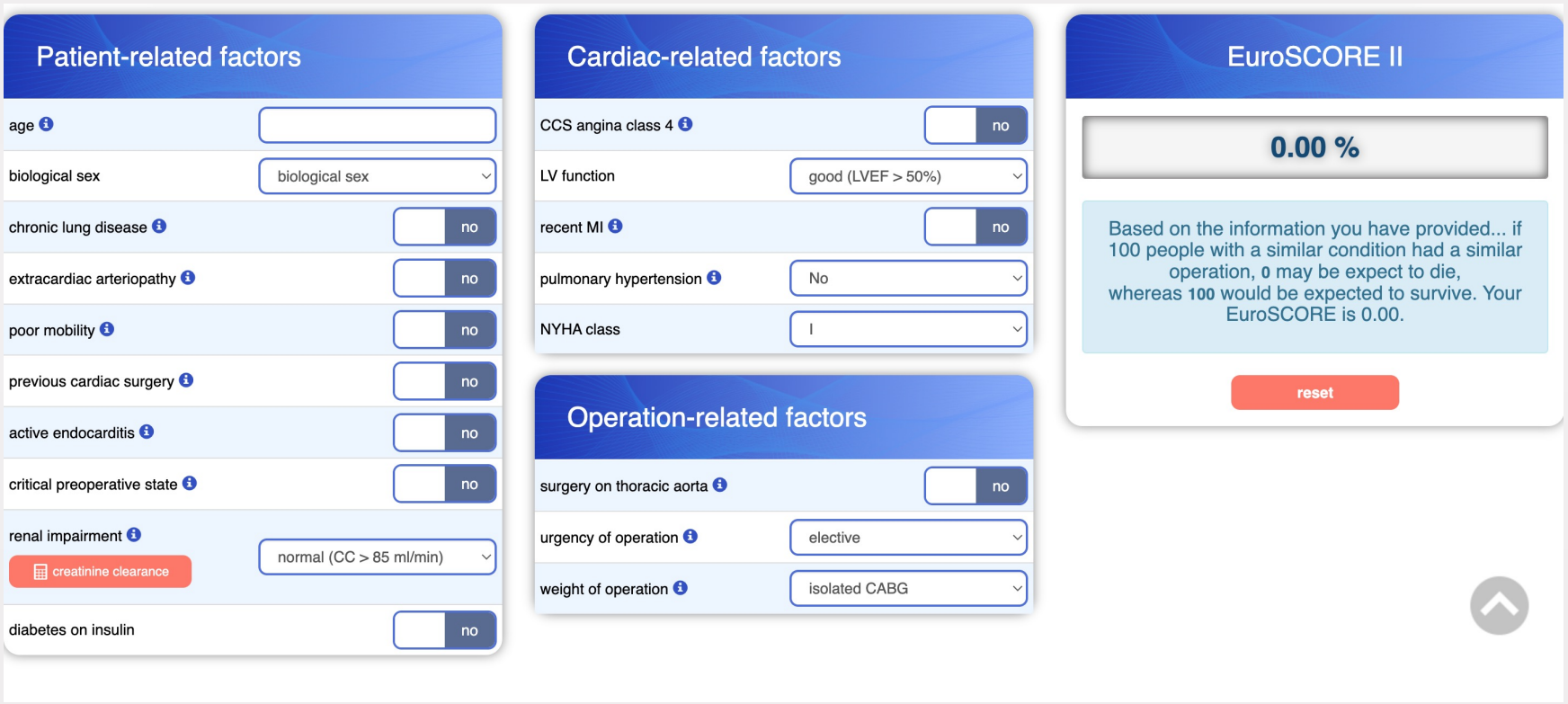
Cardiac surgery prediction modelling

Chaoqun Zheng, MD, PhD studerende

Theis Itenov, MD, PhD

Lars Grønlykke, MD, PhD

EuroSCORE 2


Patient-related factors
age
biological sex
biological sex
chronic lung disease
no
extracardiac arteriopathy
no
poor mobility
no
previous cardiac surgery
no
active endocarditis
no
critical preoperative state
no
renal impairment
creatinine clearance
normal (CC > 85 ml/min)
diabetes on insulin
no
Cardiac-related factors
CCS angina class 4
no
LV function
good (LVEF > 50%)
recent MI
no
pulmonary hypertension
No
NYHA class
I
Operation-related factors
surgery on thoracic aorta
no
urgency of operation
elective
weight of operation
isolated CABG
EuroSCORE II
0.00 %
Based on the information you have provided... if 100 people with a similar condition had a similar operation, 0 may be expect to die, whereas 100 would be expected to survive. Your EuroSCORE is 0.00.
reset

Cardiac patient data journey

Preoperative

Demographics:
Age
Sex
Medical history
Surgical history
Medication
Echocardiography
Coronary angiography
Pulmonary function
ECG
Lab work

Perioperative

Blood pressure
Heart rate
Central venous pressure
Pulmonary artery pressure
Temperature
Ventilator settings
Extracorporal circulation
Lab work
Medication

ICU

Blood pressure
Heart rate
Central venous pressure
Pulmonary artery pressure
Temperature
Ventilator settings
Extracorporal circulation
Lab work
Medication
Dialysis

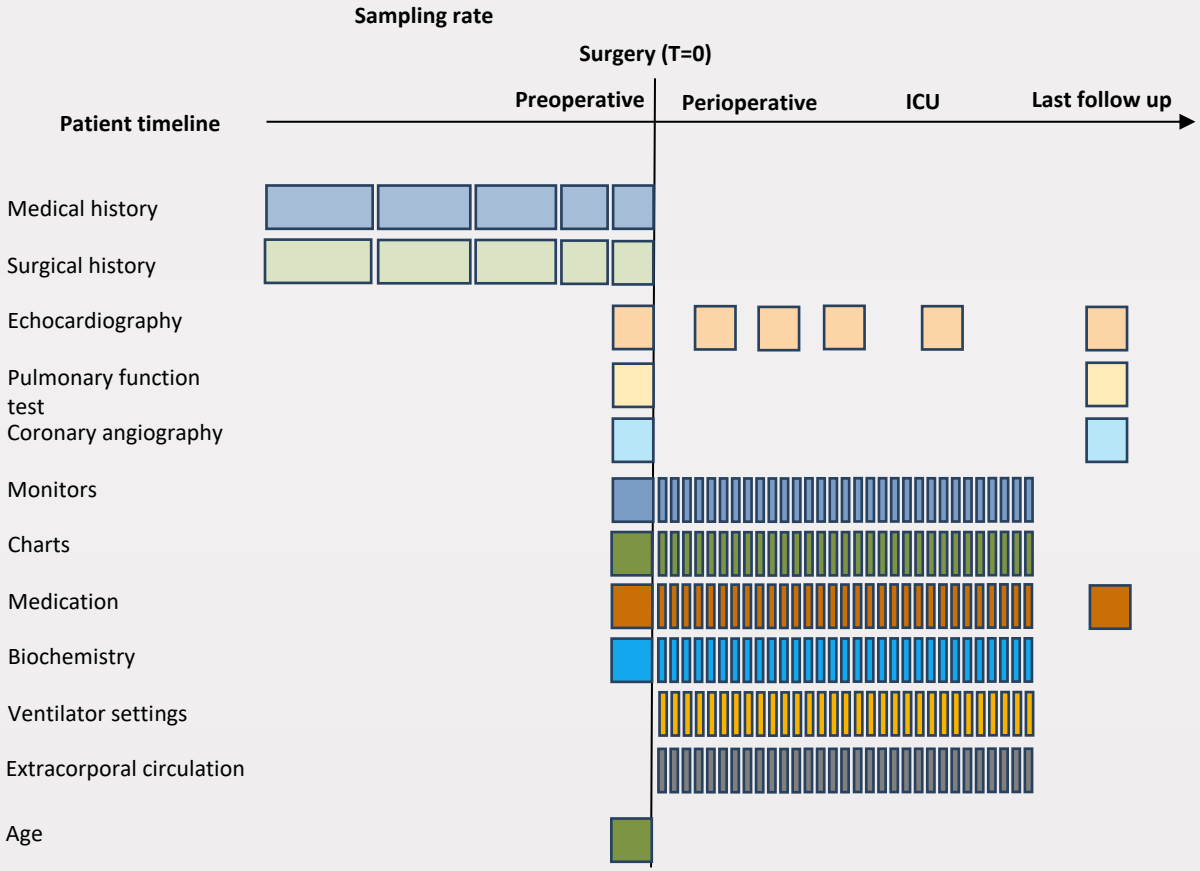
Ward

Blood pressure
Heart rate
Medication

Outcome

Mortality 30 d
Mortality 90 d
Mortality 365 d
Readmission
ICU length of stay
Hospital length of stay
Patient reported outcome measures

a


Sampling rate
Surgery (T=0)
Preoperative
Perioperative
ICU
Last follow up
Patient timeline
Medical history
Surgical history
Echocardiography
Pulmonary function test
Coronary angiography
Monitors
Charts
Medication
Biochemistry
Ventilator settings
Extracorporal circulation
Age

Outcomes

- Death
- Organ failure
- Dialysis
- Persistent hypotension/need for inotropi/vasopressor
- Ventilatortime
- Admission time
- Organizational – Time at Rigshospitalet. Time in the healthcare system
- Readmission

- Sequential measurements – medicine, hemodynamics, ventilatorsettings
- Time-true modelling – example: hypotensions, but for how long and how easy is it to fix it with medication
- Do we see model saturation from a few parameters (for example time)

Practicalities

- Contract
- Access to data
- Laptop

DTU project