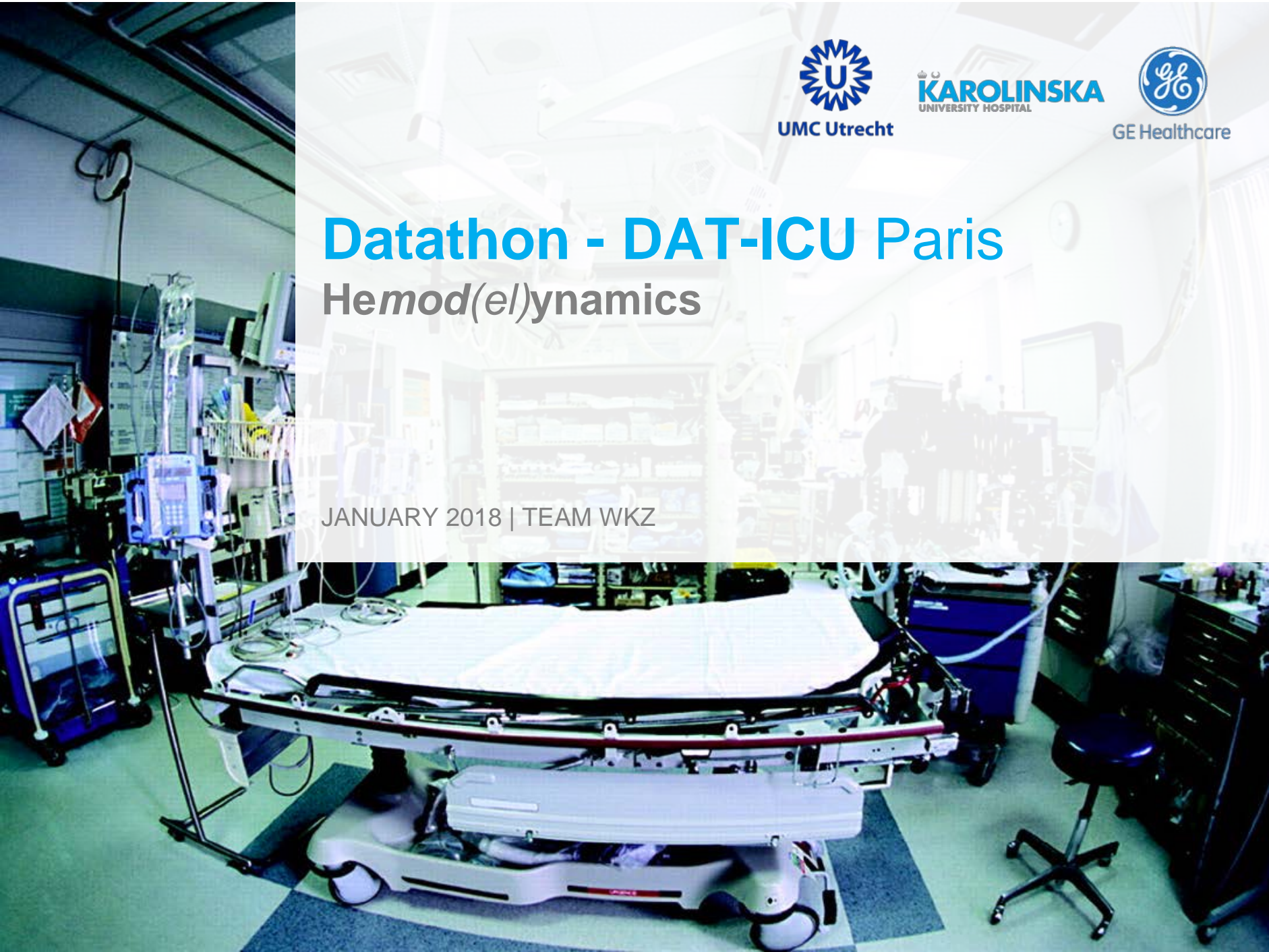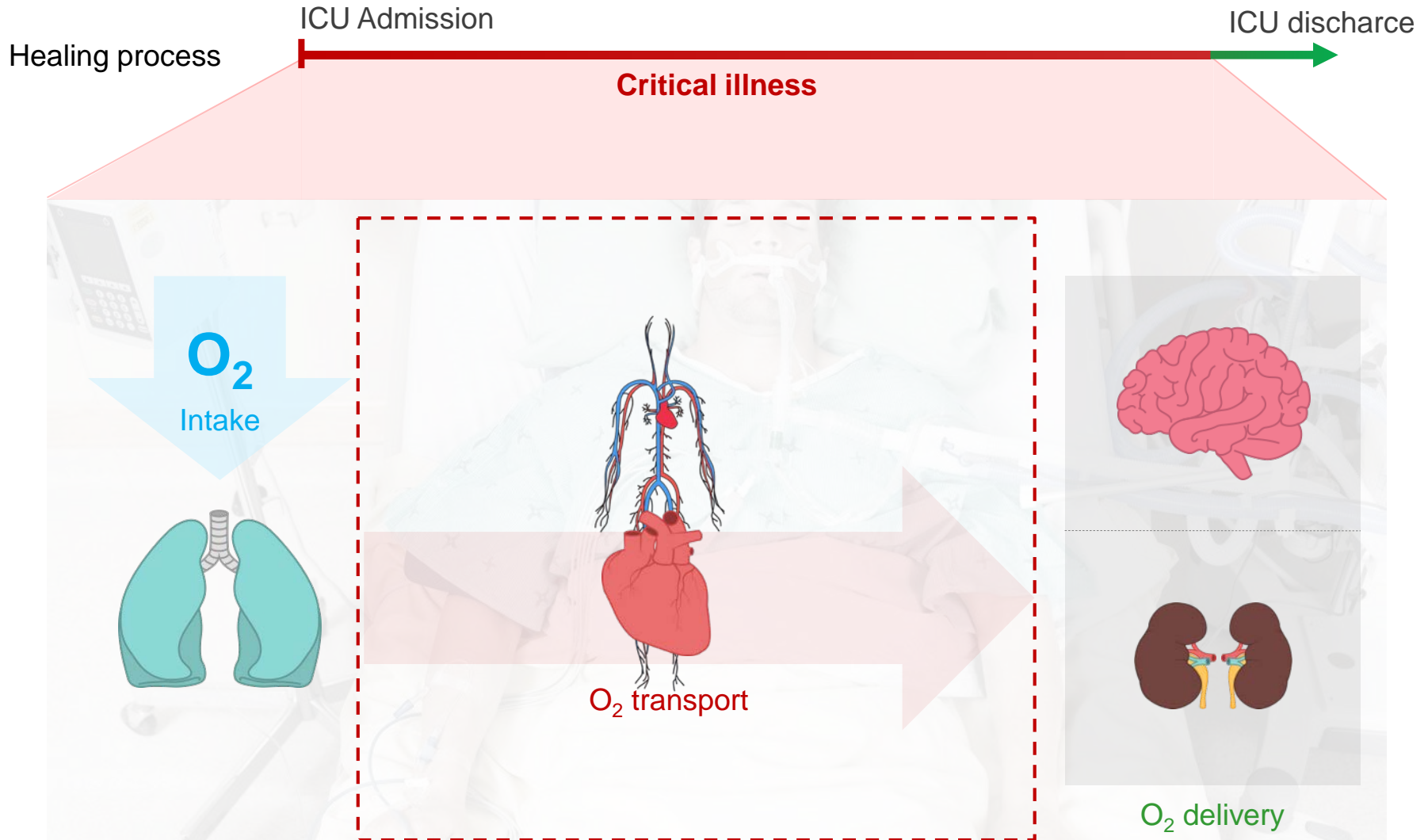# Datathon - DAT-ICU Paris
He*mod(el)*ynamics

JANUARY 2018 | TEAM WKZ
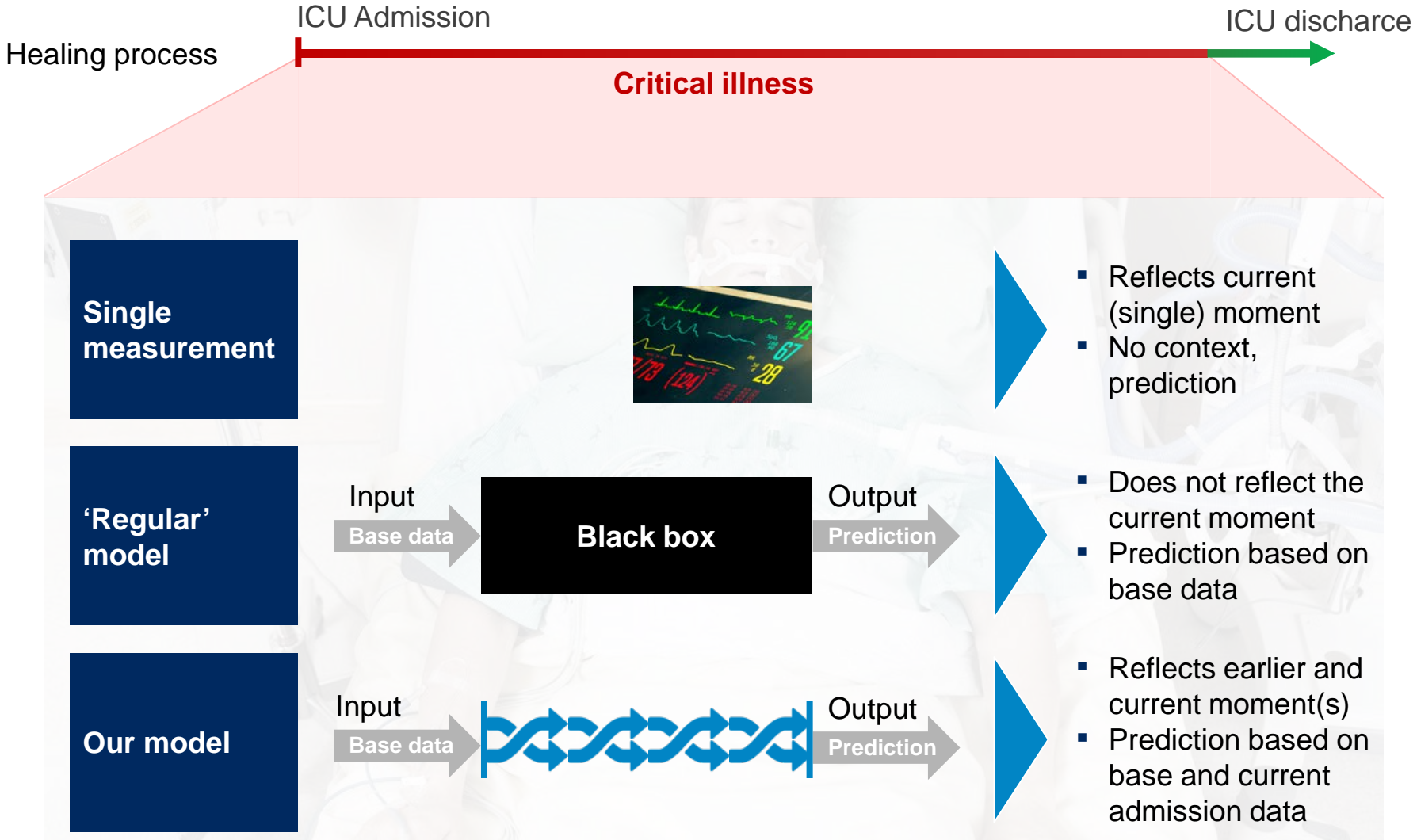
In the ICU we support and optimize the oxygen perfusion of vital organs of patients to support their healing process
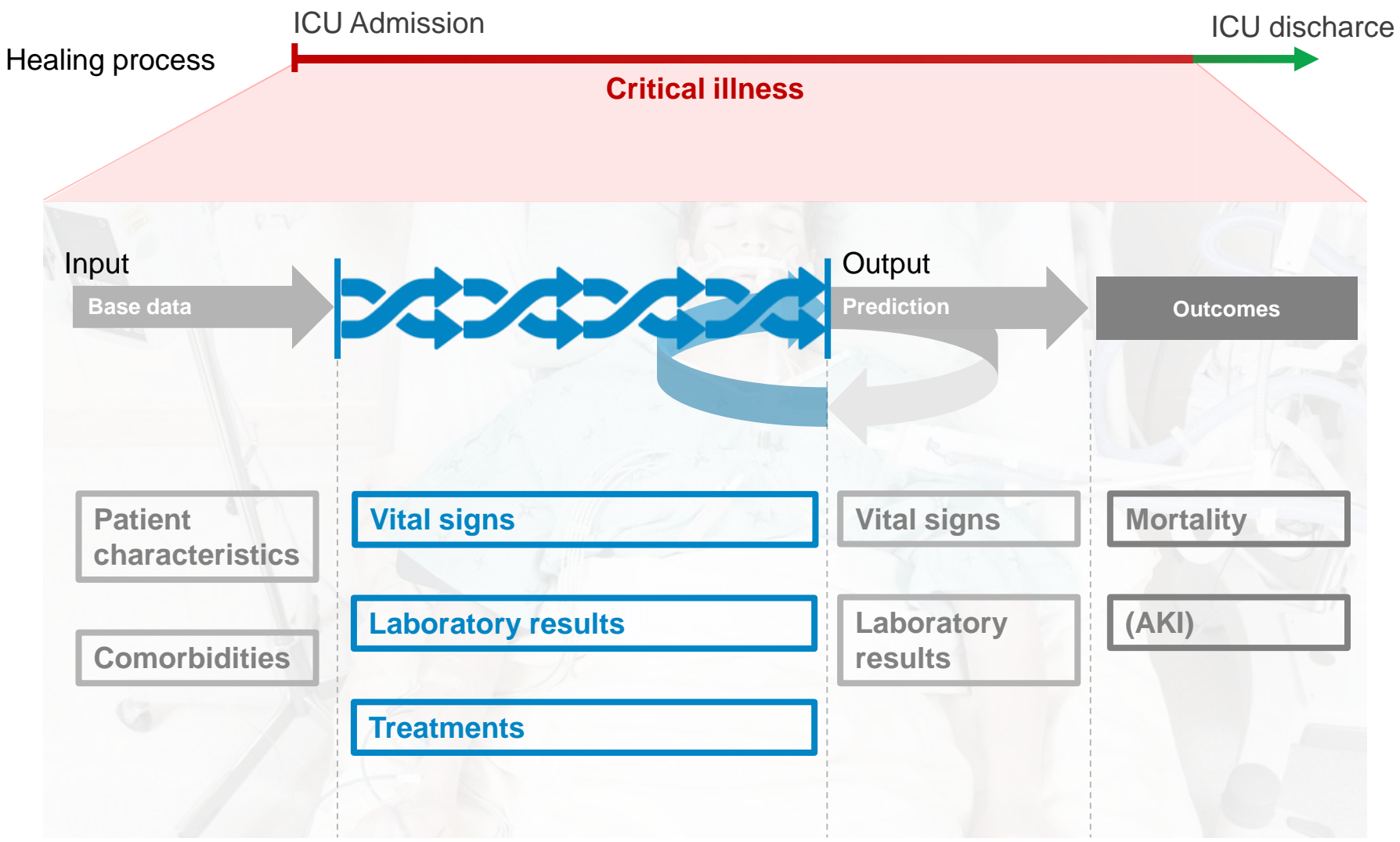
ICU Admission

ICU discharce

Healing process

Critical illness

An important objective in the ICU to keep patients alive is to manage their hemodynamic state to optimize organ perfusion

Healing process

ICU Admission

ICU discharce

Critical illness

O_2
Intake

O_2 transport

O_2 delivery

To be able to optimize organ perfusion we measure hemodynamic parameters as a derivative for a patients hemodynamic state

ICU Admission   ICU discharce

Healing process

Critical illness

Single measurement

- Reflects current (single) moment
- No context, prediction

'Regular' model

Input
Base data

Black box

Output
Prediction

- Does not reflect the current moment
- Prediction based on base data

Our model

Input
Base data

Output
Prediction

- Reflects earlier and current moment(s)
- Prediction based on base and current admission data

By combining hemodynamic parameters and treatments in a **neural network** we plan to be able to predict possible hemodynamic detoriation…

... so we can offer clinicians descision support to improve ICU outcomes in the future

Healing process

ICU Admission

ICU discharce

Critical sickness

Current condition of patient

State of organs

Advise on best treatment