The Beacon Caresystem

A system providing advice for mechanical ventilation

Rees, Stephen Edward; Karbing, Dan Stieper

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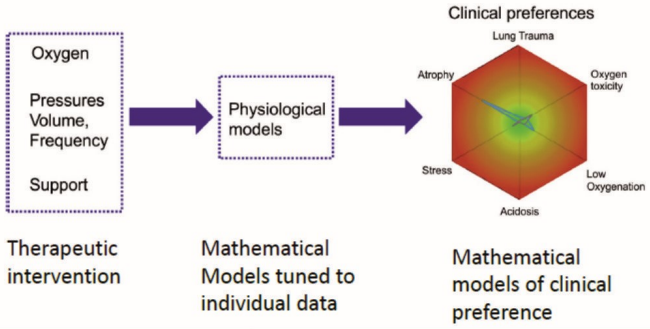
Respiratory and Critical Care group

The Beacon Caresystem - A system providing advice for mechanical ventilation

The idea and research

Critically ill patients require support of breathing using mechanical ventilation.

Innapropriate settings e.g. oxygen, pressure, volume and breathing rate can be dangerous



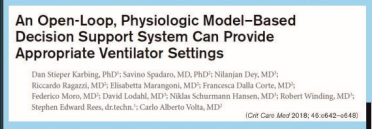
Mathematical models of the physiology can be tuned to individual patient measurements, allowing patient specific predictions. Preference functions formulated from decision theory, are used to describe the negative effects of ventilation, and advice generated to maximize preference and hence optimise mechanical ventilation.

A research system, INVENT, was built to advise on correct settings, minimizing the damage of mechanical ventilation for the individual patient.

Commercial collaboration

In 2013 research was transfered into a commercial product - The Beacon Caresystem, produced by Mermaid Care A/S

Implemented as a tablet mounted on the ventilator it integrates patient data and provides advice on all ventilator settings. Collaboration continued between the rcare group at AAU and Mermaid Care resulting in clinical studies illustrating the safety and efficacy of the system


An Open-Loop, Physiologic Model–Based Decision Support System Can Provide Appropriate Ventilator Settings

Dan Stieper Karbing, PhD[1]; Savino Spadaro, MD, PhD[2]; Nilanjan Dey, MD[3]; Riccardo Ragazzi, MD[2]; Elisabetta Marangoni, MD[2]; Francesca Dalla Corte, MD[2]; Federico Moro, MD[2]; David Lodahl, MD[3]; Niklas Schurmann Hansen, MD[3]; Robert Winding, MD[3]; Stephen Edward Rees, dr.techn.[1]; Carlo Alberto Volta, MD[2]

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An open-loop, physiological model based decision support system can reduce pressure support while acting to preserve respiratory muscle function

Savino Spadaro [a], Dan Stieper Karbing [b], Francesca Dalla Corte [a], Tommaso Mauri [c], Federico Moro [a], Antonio Gioia [a], Carlo Alberto Volta [a], Stephen Edward Rees [b,*]

[a] Department of Morphology, Experimental Medicine and Surgery, Section of Anaesthesia and Intensive Care, Arcispedale Sant' Anna, University of Ferrara, Ferrara, Italy
[b] Respiratory and Critical Care Group, Department of Health Science and Technology, Aalborg University, Aalborg, Denmark
[c] Department of Anesthesia, Critical Care and Emergency, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan, Italy

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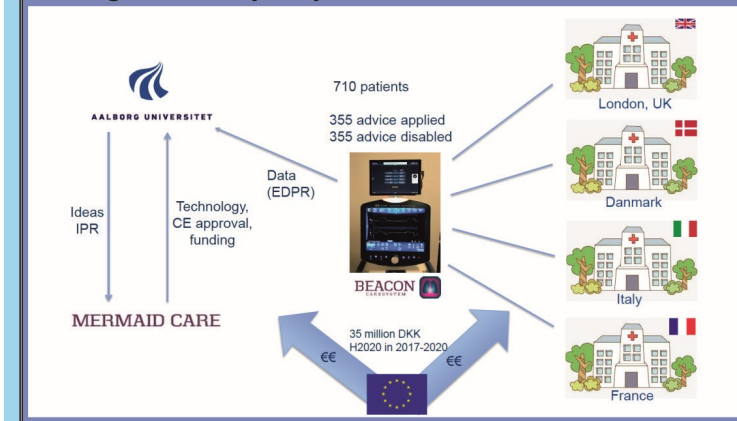
Large Scale Trials

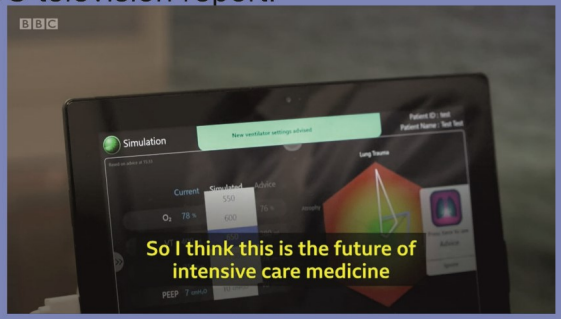
In 2017/18 large scale randomised control trials began with the system used in 10 hospitals worldwide, and the system advising on settings during the many days of mechanical ventilation.



Studies are funded with two large H2020 grants amounting to 35 million DKK.

Studies are ongoing with scientific and commercial collaboration. Each clinical site requires >100 nurses trained in the system to respond to and understand advice.

In London the work was recently promoted by a BBC television report.



For further information contact Stephen Rees (sr@hst.aau.dk) or Dan Karbing (dank@hst.aau.dk)