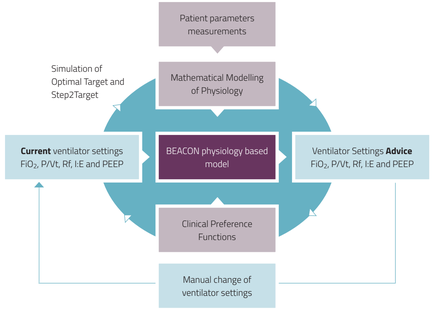
BEACON Caresystem®

– a Physiological based Ventilator Assist and Monitoring System

The BEACON Caresystem® is a decision support system, implemented as an extra device on the side of the mechanical ventilator or as a stand-alone on a trolley, which provides advice as to appropriate ventilator settings. BEACON Caresystem® is based upon a number of linked mathematical models of physiology that enable simulation of changes in the patient on modifying ventilator settings.

BEACON Concept



The BEACON Caresystem®

Learns about the individual patient's physiological status, which is reflected in model simulations and, consequently, the most appropriate ventilator settings for that individual, at that time.

BEACON Caresystem®

A Physiological based Ventilator Assist and Monitoring System

Physiological Based Ventilator Assist System

- The BEACON Caresystem® provides advice on the optimal FiO_2, P/Vt, Rf, I:E and PEEP setting regardless of patient clinical state
- The BEACON advice is based on Physiological Models, Clinical Preferences and Step2Target Simulations
- The BEACON Caresystem® is in contrast to rule-based systems, which use the same medical protocol or rules of thumb for all patients

Intelligent Monitoring and Alarms

- The BEACON Caresystem's model parameters characterize the in-depth picture of the patient's state and physiology
- Monitoring is based on changes in physiology instead of a single point of measure, enabling improved patient safety
- Monitoring is in contrast to other systems, which measure and report a drop in SpO_2, but do not explain why the drop happened

Distributor label

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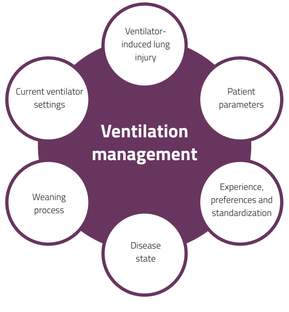
BEACON® CARESYSTEM

A Physiological based Ventilator Assist and Monitoring System

Clinical challenges in Ventilation management

- Finding the optimal ventilator settings, based on the balance between physiological status and clinical preference
- Minimizing the risk of Ventilator-induced lung injury
- Weaning the patient from mechanical ventilation quickly and safely
- Balancing the goals of sufficient oxygenation and carbon dioxide removal



BEACON® CARESYSTEM

Three different versions

The BEACON Caresystem® is available in three different versions with an easy upgrade path between them:

D

DIAGNOSTIC OF SHUNT, LOW AND HIGH V/Q

BEACON D: Pulmonary diagnostic device for the Intelligent Monitoring and Non-invasive V/Q measurement on ICU ventilated patients

3

VENTILATOR ADVICE ON FIO_2, P/Vt AND Rf

BEACON 3: Physiological Based Ventilation Assist and Intelligent Monitoring System connected to an ICU ventilator, which provides advice for three ventilator settings

5

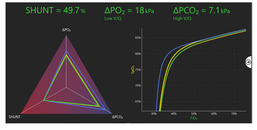
VENTILATOR ADVICE ON FIO_2, P/Vt, Rf, I:E AND PEEP

BEACON 5: Physiological based Ventilation Assist and Intelligent Monitoring System connected to an ICU ventilator, which provides advice for five settings

BEACON® CARESYSTEM

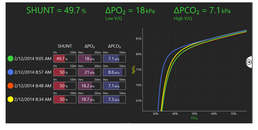
BEACON D

Pulmonary diagnostic device for Intelligent Monitoring and Non-invasive V/Q measurement on ICU ventilated patients



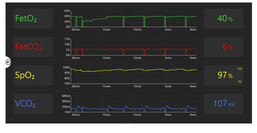
Automatic Lung Parameter Estimation (ALPE) provides an overview of pulmonary ventilation/ perfusion (V/Q) distribution

- Pulmonary diagnostic, reporting SHUNT, Low V/Q and High V/Q distribution
- Historical review and trending for easy monitoring of changes in distribution
- Fast, non-invasive and guided measurment, using FiO_2 as tracer



V/Q distribution results can be displayed graphically or numerically making BEACON D an optimal Ventilator Assist tool

- Provides decision support for optimal ventilator settings
- Intuitive and easy-to-use interface
- Simple and minimal patient information required for measurement



Intelligent Physiological Monotoring System

- Monitoring of physiological changes (changes in V/Q distribution) and advice of when new ALPE measurement is needed
- Tracking and trending display of patient parameters
- Intuitive and easy-to-use interface with customizable layouts

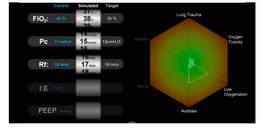
Screen layout subject to changes without any further notice.
Publications: See www.beaconcaresystem.com/beacon-d/publication

BEACON 3

Physiological Based Ventilation Assist and Intelligent Monitoring System, which provides advice for **FiO_2, P/Vt, Rf** ventilator settings

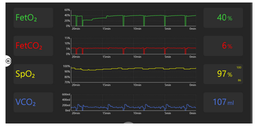
Physiological Based Ventilation Assist and Intelligent Monitoring System, which provides advice for three ventilator settings: FiO_2, P/Vt and Rf

- Intelligent Step2Target® algorithm for optimal FiO_2, P/Vt and Rf setting advice
- Advice is based on the balance between patient's physiological status and clinical preferences
- Advice is provided for Volume/Pressure and Control/Support ventilation modes



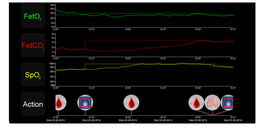
Intelligent Simulation, simulates the effect of ventilator settings

- Simulates the effects of changes in FiO_2, P/Vt and Rf
- Simulations describe the balance between
  - Over / under ventilation
  - stress / ventilator dependency
  - low oxygenation / oxygen toxicity
- Simulations presented on the PreferenceZone® hexagon, illustrating the balances
- Simulations provide a learning environment, to assess the effects of ventilation strategy



Intelligent Physiological Monitoring

- Model parameters characterize the individual patient's physiological state
- Monitor changes based on physiology, and advises when a new ALPE measurement, Blood Gas Data or Cardiac Output data is needed, in order to tune BEACON's models to the patient's physiological condition
- Tracking and trending display of patient parameters
- Intuitive and easy-to-use interface with customizable layouts



Intelligent Physiological Review

- Tracking and trending of physiological changes, advice, patient parameters, ventilator settings etc.
- Intuitive and easy-to-use interface with customizable layouts
- Enables a complete overview of all past activities performed by the system

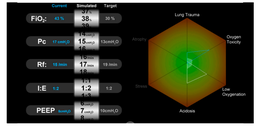
Screen layout subject to changes without any further notice.
Publications: See www.beaconcaresystem.com/beacon-3/publication

BEACON 5

Physiological Based Ventilation Assist and Intelligent Monitoring System, which provides advice for **FiO_2, P/Vt, Rf, I:E and PEEP** ventilator settings

Physiological Based Ventilation Assist and Intelligent Monitoring System, which provides advice for five ventilator setting: FiO_2, P/Vt, Rf, I:E and PEEP

- Intelligent Step2Target® algorithm for optimal FiO_2, P/Vt, Rf, I:E and PEEP setting advice
- Advice is based on the balance between the patient's physiological status and clinical preferences
- Advice is provided for Volume/Pressure and Control/Support ventilation modes



Intelligent Simulation, simulates the effect of ventilator settings

- Simulates the effects of changes in FiO_2, P/Vt and Rf, I:E and PEEP
- Simulations describe the balance between
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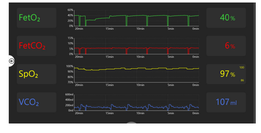
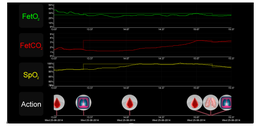
  - stress / ventilator dependency
  - low oxygenation / oxygen toxicity
- Simulations presented on the PreferenceZone® hexagon, illustratingthe balances
- Simulations provide a learning environment, to assess the effects of ventilation strategy



Intelligent Physiological Monitoring System

- Model parameters characterize the individual patient's physiological state
- Monitor changes based on physiology and advises when a new ALPE measurement, Blood Gas Data or Cardiac Output data is needed, in order to tune BEACON's models to the patient's physiological condition
- Tracking and trending display of patient parameters
- Intuitive and easy-to-use interface with customizable layouts



Intelligent Physiological Review

- Tracking and trending of physiological changes, advice, patient parameters, ventilator settings etc.
- Intuitive and easy-to-use interface with customizable layouts
- Enables a complete overview of all past activities performed by the system

Screen layout subject to changes without any further notice.
Publications: See www.beaconcaresystem.com/beacon-5/publication