Predictive decision support
Smart. Innovation.

Acumen Hypotension Prediction Index software and Acumen IQ sensor
Predict the likelihood of hypotensive events* with Acumen Hypotension Prediction Index (HPI) software

Predict • Review • Respond

Innovation for proactive management of hypotensive events

Developed in partnership with clinicians across the world and the first in a new category of products, Acumen Hypotension Prediction Index software offers the only predictive monitoring parameter for hypotension that is available in the United States. This first-of-its-kind predictive decision support software detects the likelihood of a patient trending towards a hypotensive event* before the event occurs, and provides you with insights to understand the root cause and inform a potential course of action for your patient management.

Using the predictive index software and continuously updated hemodynamic pressure and flow parameters, you are empowered with both knowledge and ability to take action before a hypotensive event occurs.

Harness the power of intelligent decision support

The proprietary algorithm was developed, using machine learning techniques, on data from 59,000 hypotensive events and over 144,000 non-hypotensive events.

Diagnostic performance of the HPI parameter was assessed through clinical validation studies.
Acumen Hypotension Prediction Index software is comprised of three key elements

**HPI parameter**
The HPI parameter displays as a value ranging from 0 to 100, with higher values indicating higher likelihood of a hypotensive event.*

The proprietary algorithm - developed with machine learning on data from almost 59,000 hypotensive events and over 144,000 non-hypotensive events - detects potential hypotensive trending of a patient’s mean arterial pressure (MAP). The HPI parameter updates every 20 seconds, providing continuous insights into developing hypotensive events.

**HPI high alert popup**
The HPI high alert popup alerts you when your patient is trending toward or experiencing a hypotensive event.

If the HPI parameter value exceeds 85 for two consecutive 20-second updates or reaches 100 at any time, the HPI high alert popup window will appear, prompting you to review the patient hemodynamics using the HPI secondary screen.

**HPI secondary screen**
The advanced hemodynamic pressure and flow parameters provided on the HPI secondary screen allow you an opportunity to investigate and identify the root cause of potentially developing hypotensive events.

The HPI secondary screen is accessed through the HPI high alert popup, by touching the HPI Information Bar when enabled, by pressing the button on the HPI Key Parameter, or at any time through the Clinical Actions menu on the monitor.

**Preload:** Stroke volume variation (SVV) or Pulse pressure variation (PPV)
The percent difference between minimum and maximum stroke volume (SV) or pulse pressure (PP) during a respiratory cycle
Note: SVV serves as an accurate marker of position status on the Frank-Starling curve

**Contractility:** dP/dt
Systolic slope maximal upslope of the arterial pressure waveform from a peripheral artery

**Afterload:** Dynamic arterial elastance (Ea_dyn)
The ratio of pulse pressure variation to stroke volume variation (PPV/SVV)

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*A hypotensive event is defined as MAP <65 mmHg for a duration of at least one minute.*
Acumen IQ sensor unlocks intelligent decision support for hemodynamic management

The minimally invasive Acumen IQ sensor unlocks Acumen Hypotension Prediction Index software and utilizes the reliable and trusted foundation of the Edwards arterial pressure-based cardiac output (APCO) algorithm, enabling predictive hemodynamic management.

Acumen IQ sensor attaches to any existing radial arterial line and automatically calculates key parameters every 20 seconds, reflecting rapid physiologic changes in moderate- to high-risk surgery.

- Stroke volume (SV)
- Stroke volume variation (SVV)
- Mean arterial pressure (MAP)
- Cardiac index (CI)
- Systemic vascular resistance (SVR)
- Hypotension prediction index (HPI)
- Maximal slope of the arterial pressure upstroke (dP/dt)
- Dynamic arterial elastance (E_{adyn})

Advanced hemodynamic parameters provided by the Acumen IQ sensor on the HemoSphere monitoring platform offer you continuous insight into your patient’s hemodynamic status. The proprietary algorithm, developed with machine learning techniques, detects potential hypotensive trending of a patient’s mean arterial pressure (MAP).

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<tr>
<th>Model</th>
<th>Description</th>
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</table>

Available on the platform of the future

For each clinical decision moment the HemoSphere advanced monitoring platform enables proactive decision support across care settings, across a diversity of patient profiles.