Unlock predictive decision support

Acumen intelligent decision support suite

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Acumen Hypotension Prediction Index (HPI) software

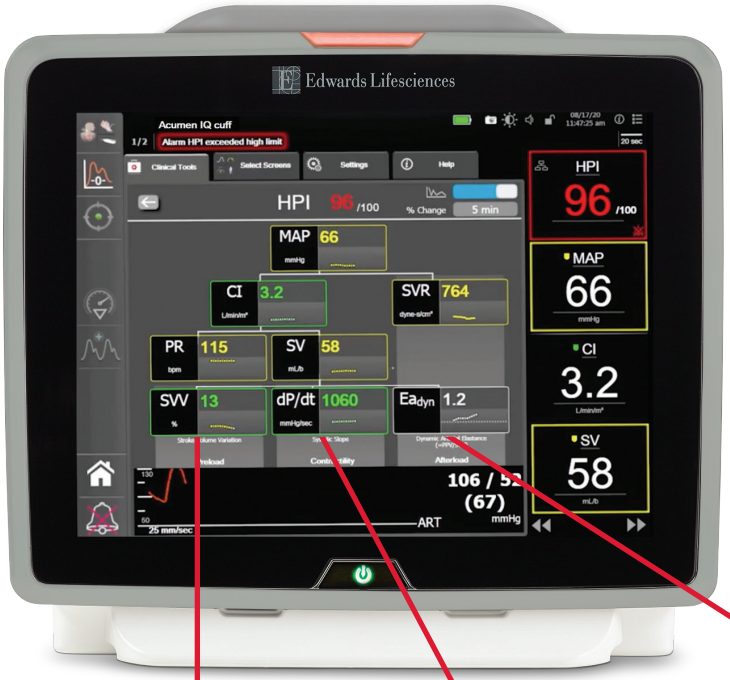
Multiple studies have shown Acumen HPI software:

Achieves statistically significant reduction of hypotension when combined with a treatment protocol in noncardiac surgery vs. standard of care.[8,9]

Demonstrates accuracy to predict the likelihood of hypotension.[10]

Demonstrates superior predictive abilities for hypotension over common hemodynamic parameters such as cardiac output (CO), stroke volume (SV), and changes in mean arterial pressure (MAP).[11]

Key elements of Acumen HPI software



HPI parameter
Index value ranging from 0 to 100 with higher values indicating a higher likelihood of a hypotensive event* to occur.

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.

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: Systolic slope dP/dt
Maximum 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). It is an estimate of arterial elastance.

* A hypotensive event is defined as MAP <65 mmHg for a duration of at least one minute
** ΔSV can be used when appropriate

Innovation for proactive management of hypotensive events*

Acumen IQ cuff and Acumen IQ sensor each have the capability to unlock the Acumen Hypotension Prediction Index (HPI) software, enabling you to choose the right device for your patient and clinical needs.

Acumen IQ cuff**

Acumen IQ cuff unlocks Acumen HPI software and provides continuous blood pressure and advanced hemodynamic parameters from a noninvasive cuff. Acumen IQ cuff gives you noninvasive access to calculated beat-to-beat hemodynamic information for a broad patient population, including patients in whom an arterial line would not be typically placed.[6]

Acumen IQ sensor***

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. Advanced hemodynamic parameters provided by Acumen IQ sensor offer you continuous insight to more accurately determine your patient's hemodynamic status.

Advanced hemodynamic parameters provided by Acumen IQ cuff and Acumen IQ sensor:

- Hypotension Prediction Index (HPI)
- Systolic slope (dP/dt)
- Dynamic arterial elastance (Ea_{dyn})
- Stroke volume (SV)
- Stroke volume variation (SVV)
- Mean arterial pressure (MAP)
- Cardiac index (CI)
- Cardiac output (CO)
- Systemic vascular resistance (SVR)
- Pulse pressure variation (PPV)
- Systemic arterial systolic blood pressure (SYS_{ART})
- Systemic arterial diastolic blood pressure (DIA_{ART})

Acumen HPI software, Acumen IQ cuff, and Acumen IQ sensor are all compatible with the HemoSphere monitor along with a range of other catheters and sensors.

* A hypotensive event is defined as MAP <65 mmHg for a duration of at least one minute
** Surgical patient use only
*** Surgical and nonsurgical patient use

Acumen Analytics software

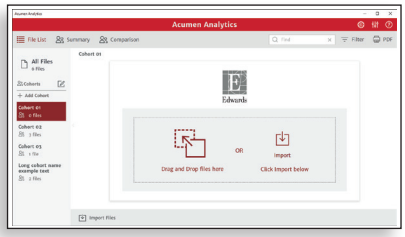
Are you interested in learning how much hypotension you have in your practice? Acumen Analytics software allows you to retrospectively view and analyze previous hemodynamic parameter data from the HemoSphere advanced monitoring platform all on your personal computer, highlighting events including:

Hypotension duration

Hypotension frequency

Hypotension prevalence

Key features of Acumen Analytics software

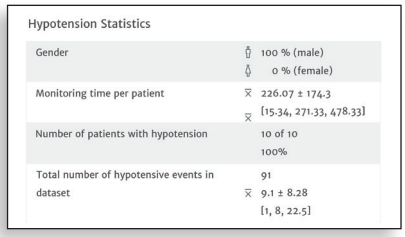


Customizable viewing pane

With a streamlined tile layout, the main viewing page organizes a list of all cases, cohort summaries, and cohort comparison for convenient overviews.

Trend parameters

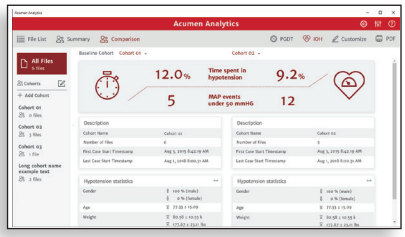
At the core of Acumen Analytics software is advanced hemodynamic parameter data. You can review recorded data on a number of valuable pressure and flow parameters, as well as tissue oxygen saturation that are involved in clinical decision making.



Hypotension statistics

This case summary list provides statistics on key hypotensive calculations such as average number of hypotensive events,* duration of each event, number of patients in a cohort that experienced a hypotensive event.*

* A hypotensive event is defined as MAP <65 mmHg for a duration of at least one minute



Cohort comparison

The cohort comparison screen allows you to retrospectively compare data from two cohorts. When viewing intraoperative hypotension data, key callouts include duration of hypotension and MAP events under 65 mmHg. The customizable cohort summary screen displays a summary of the data collected for the chosen patient or patient group.

Contact your sales rep if you are interested in this analytics tool.

Proactive patient insights for smart recovery

Hemodynamic insights can help guide you with proactive decision support across care settings so you can maintain optimal pressure and flow for your patients.

Risk of hypotension
Research findings have revealed strong associations between intraoperative hypotension and elevated risk of acute kidney injury (AKI), myocardial injury after noncardiac surgery (MINS), and mortality.[1,2,3] Acumen HPI software is effective in detecting hemodynamic instability and substantially reducing the amount of intraoperative hypotension when used in surgical patients who require intraoperative hemodynamic monitoring during non-cardiac surgery.[4]

IOH is common
88% of patients continuously monitored with an arterial line still experienced hypotension, defined as MAP <65 mmHg for 1 minute.[5]

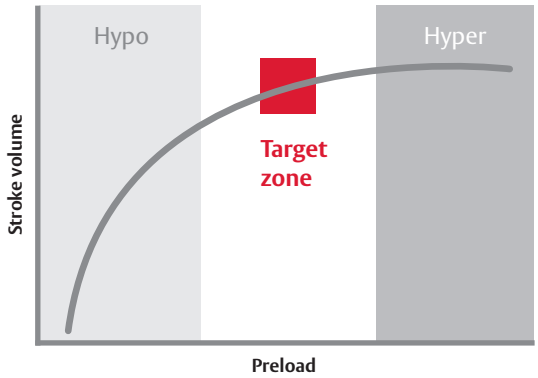
IOH has elevated risks
Prolonged exposures below mean arterial pressure (MAP) thresholds of 65 mmHg are associated with increased risk of mortality, myocardial injury (MI) and Acute Kidney Injury (AKI) after noncardiac surgery.[1,6]

IOH can be reduced
Acumen HPI software has demonstrated a reduction in the duration of IOH[4] by 57%.*

* Single arm, multicenter, prospective-to-historical control where patients received arterial line monitoring.

Hemodynamic instability
Continuous access to pressure and flow parameters allow you to evaluate hemodynamic instability and guide appropriate treatment. The patient's location on the Frank-Starling curve can be determined by measuring changes in SV in response to change in preload using a fluid challenge or passive leg raise (PLR). Dynamic and flow-based parameters are more informative than conventional parameters in determining fluid responsiveness and may help guide individualized volume administration in patients and avoid excessive or insufficient administration.[7] When managing perfusion, stroke volume can be optimized using the patient's own Frank-Starling curve.

Frank-Starling relationship between preload and stroke volume (SV)



Model No.	Description	Length (in)	Pack size
AIQCS	Acumen IQ cuff	Small	5
AIQCM	Acumen IQ cuff	Medium	5
AIQCL	Acumen IQ cuff	Large	5
AIQS8	Acumen IQ sensor	84 in / 213 cm	EA
AIQS85	Acumen IQ sensor	84 in / 213 cm	5
AIQS6	Acumen IQ sensor	60 in / 152 cm	EA
AIQS65	Acumen IQ sensor	60 in / 152 cm	5
AIQS6AZ	Acumen IQ sensor with VAMP adult system	60 in / 152 cm	EA
AIQS6AZ5	Acumen IQ sensor with VAMP adult system	60 in / 152 cm	5

Learn more on how you can stay ahead of hypotension at Edwards.com/Acumen

For more than 50 years, Edwards Lifesciences has been helping you make proactive clinical decisions and advance the care of surgical and acutely ill patients across the continuum of care.

References

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