

## Foundational principles

- Blood pressure is determined by a combination of cardiac output and systemic vascular resistance
- An adequate blood pressure does not mean adequate flow and vice versa
- Managing perfusion (and differentiating the cause of hypotension) requires frequent monitoring of arterial pressure and cardiac output

## Parameters

### 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 HPI value is updated every 20 seconds
- If the HPI parameter value exceeds 85, an auditory alarm will sound. If the HPI parameter exceeds 85 for two consecutive readings 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

### Dynamic elastance ( $Ea_{dyn}$ )

- $Ea_{dyn}$  is simply the ratio of PPV: SVV
- $Ea_{dyn}$  is a measure of the afterload to the left ventricle by the arterial system, relative to the left ventricular elastance
- In the same way that we consider dynamic parameters like SVV to predict “fluid responsiveness,”  $Ea_{dyn}$  has been shown to be an indicator of “pressure responsiveness” – predicting if blood pressure will increase in response to fluid administration (in preload responders)
- $Ea_{dyn}$  should only be considered when a patient is fluid responsive; it is not a valid measure of pressure response in preload-independent individuals

### Systolic slope (dP/dt)

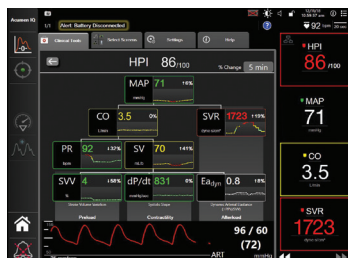
- Arterial dP/dt is the maximum upslope of the arterial pressure waveform measured from a peripheral artery
- The “trend” values of dP/dt may be an indicator of increasing or decreasing contractility



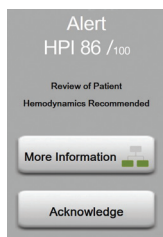
## Acumen Hypotension Prediction Index software

- This software provides you with information regarding the likelihood of a patient trending toward a hypotensive event
- Three key elements includes the HPI parameter, HPI high alert popup, and HPI secondary screen
- The HPI secondary screen displays advanced parameters arranged by preload, contractility, and afterload and allows you an opportunity to investigate and identify the root cause of potentially developing hypotensive events

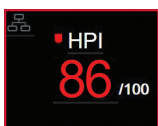
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## Secondary screen



## Popup



## Parameter

## HPI Values Clinical Validation in surgical patients (N=52)

HPI Range	Event Rate (%)	Time-to-Event in minutes: Median [10 <sup>th</sup> percentile, 90 <sup>th</sup> percentile]
10-14	14.2	8.0 [4.7, 12.7]
15-19	16.6	6.7 [3.3, 12.6]
20-24	15.4	7.0 [3.3, 14.0]
25-29	16.9	7.8 [3.7, 13.4]
30-34	22.5	9.0 [3.7, 14.0]
35-39	27.4	8.0 [3.3, 13.3]
40-44	31.8	8.3 [3.0, 13.7]
45-49	40.4	8.3 [3.3, 13.7]
50-54	43.4	7.7 [2.7, 13.3]
55-59	44.3	7.3 [3.0, 13.1]
60-64	57.0	6.7 [2.7, 12.8]
65-69	56.8	5.7 [2.3, 12.3]
70-74	67.2	5.7 [2.0, 11.7]
75-79	81.0	4.7 [2.0, 11.0]
80-84	84.2	5.0 [1.7, 12.3]
85-89	92.9	4.0 [1.7, 10.3]
90-94	95.8	3.7 [1.3, 10.0]
95-99	97.6	1.3 [0.3, 8.0]

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

**CAUTION: Federal (United States) law restricts this device to sale by or on the order of a physician. See instructions for use for full prescribing information, including indications, contraindications, warnings, precautions and adverse events.**

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