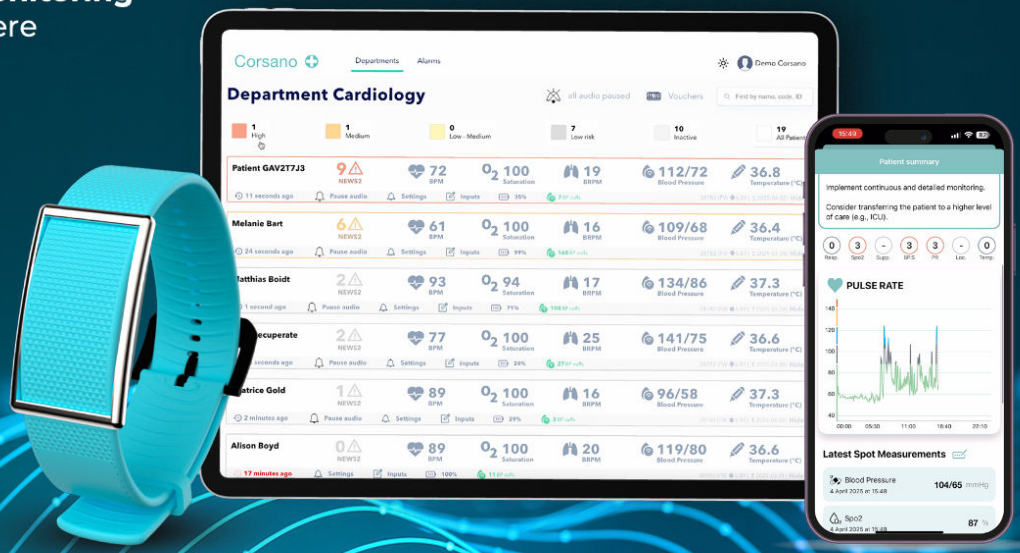
Corsano

Continuous Patient Monitoring
Anytime, Anywhere



Trending Alerts

Rule-Based Detection of Physiological Changes to Support Earlier Clinical Review

A Software Function Trend-Based Event Notifications in Corsano Patient Monitoring

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Introduction

Trending Alerts is a software function within the Corsano CardioWatch 287-2 System that processes physiological data acquired by both the CardioWatch 287-2 Bracelet & 3rd-party devices and generates predefined event notifications (alerts) for display to healthcare personnel.

Overview

Trending Alerts uses rule-based software logic to detect configured events based on one or more physiological inputs, thresholds, and/or trends over time.
Event generation may be based on:

- single-parameter threshold conditions,
- multi-parameter rule combinations,
- trend deterioration or improvement over a defined assessment period,
- signal validity and data availability checks.

When the event criteria are met, the system presents an event notification (alert) in the Corsano user interface for review by healthcare professionals. Event notifications are intended to provide supportive information and do not replace clinical judgment, diagnosis, or direct patient assessment.

Trending Alerts is not intended to provide autonomous diagnosis or treatment recommendations.

The Trending Alerts feature is part of the software-only analytical layer of the Corsano CardioWatch 287-2 System and does not alter the underlying physiological measurements acquired by the wearable or by 3rd party devices. It processes acquired device data and presents derived event information to the user through the Corsano Web Portal.

Principle of operation

The Trending Alerts function operates by applying predefined software rules to physiological data acquired by the Corsano CardioWatch 287-2 System. Physiological measurements collected by the Bracelet or 3rd Party device are transmitted through the system architecture to the Corsano software environment, where the data are stored, processed, and evaluated.

The Trending Alerts function analyzes available input data for predefined conditions associated with vital parameter values, combinations of parameters, and/or changes in parameters over time. The software uses deterministic, rule-based logic to compare incoming or recently acquired physiological data against configured event rule criteria. These predefined criteria include threshold conditions, multi-parameter combinations and trend conditions over a defined time-period.

When the predefined event criteria are met, the software generates a corresponding event output and presents that output in the Corsano Web Portal for review by the healthcare personnel. If required input data are unavailable, insufficient, delayed, or fail applicable quality checks, the corresponding event output may be suppressed, delayed, or not generated.

Trending Alerts Event Criteria

ID	Event Name	UI Description	Time Window
1	**Pulse Rate Trending Increase (Short-term)**	Mean pulse rate over the past 2 h exceeds the preceding 4 h baseline by >30%.	2 h vs 4 h
2	**Pulse Rate Trending Increase (Long-term)**	Mean pulse rate over the past 4 h exceeds the preceding 24 h baseline by >30%.	4 h vs 24 h
3	**High Pulse Rate Event (Median)**	Median pulse rate over the past 60 min exceeds 115 beats/min.	60 min
4	**Low Pulse Rate Event (Median)**	Median pulse rate over the past 60 min falls below 50 beats/min (daytime) or below 40 beats/min (during sleep).	60 min
5	**Respiratory Rate Trending Increase (Short-term)**	Mean respiratory rate over the past 2 h exceeds the preceding 4 h baseline by >30%, when respiratory rate is above 20 breaths/min.	2 h vs 4 h
6	**Respiratory Rate Trending Increase (Long-term)**	Mean respiratory rate over the past 4 h exceeds the preceding 24 h baseline by >30%, when respiratory rate is above 20 breaths/min.	4 h vs 24 h
7	**High Respiratory Rate Event (Median)**	Median respiratory rate over the past 60 min exceeds 28 breaths/min.	60 min
8	**Low Respiratory Rate Event (Median)**	Median respiratory rate over the past 60 min falls below 8 breaths/min.	60 min
9	**Combined Event**	Median pulse rate >100 beats/min AND median respiratory rate >24 breaths/min over the past 60 min.	60 min

⚠ Trending Alerts is intended for use only by trained healthcare professionals who can interpret the information in the clinical context of the patient.

⚠ Trending Alerts does not replace clinical assessment, standard patient observation, manual vital-sign measurements, or established escalation procedures.

⚠ Trending Alerts provides supportive prioritization information only and must not be the sole basis for diagnosis, treatment decisions, or clinical intervention.

⚠ Trending Alerts do not by themselves establish that patient deterioration is present.

⚠ Outputs depend on data quality. Trend Alerts may be delayed, suppressed, or unavailable when required measurements are missing, stale, affected by motion, poor sensor contact, low signal quality, or intermittent data.

⚠ Absence of an alert does not exclude clinical deterioration.

Display

Trending Alerts appear as red information badge in both the HCP Mobile App and Web Portal. Each badge describes the alert with summary text and icon. When multiple alerts are triggered for the same patient, the banner indicates this with "+X more alerts."

If the HCP user is not active in the HCP App, a push notification appears on the mobile phone. The notification shows the app logo, room/bed number and alert type. Tapping the notification opens the HCP App directly to the relevant patient.

On both HCP Mobile App and Web Portal, an event alert can have one of the following colors, based on the status of the alert:

RED: indicates an Active alert – alert has neither been confirmed nor escalated to a superior.

BLUE: indicates that the alert has been confirmed by the HCP or has become inactive

An event alert will stay active for 4 hours and will disappear after 12 hours.

Severity Indicator: Arrow Convention

Within each Trending Alert badge, severity is communicated through the number of arrows displayed. The direction of the arrow indicates the nature of the physiological deviation:
↓ Downward arrows indicate a parameter that is below the normal threshold (e.g. low pulse rate, low respiratory rate). The higher the number of downward arrows, the more severe the deviation below threshold.

↑ Upward arrows indicate a parameter that is above the normal threshold (e.g. high pulse rate, high respiratory rate). The higher the number of upward arrows, the more severe the deviation above threshold.
The examples below illustrate this for pulse-rate and respiratory-rate events, but the same arrow convention applies to all Trending Alerts types across all monitored parameters.

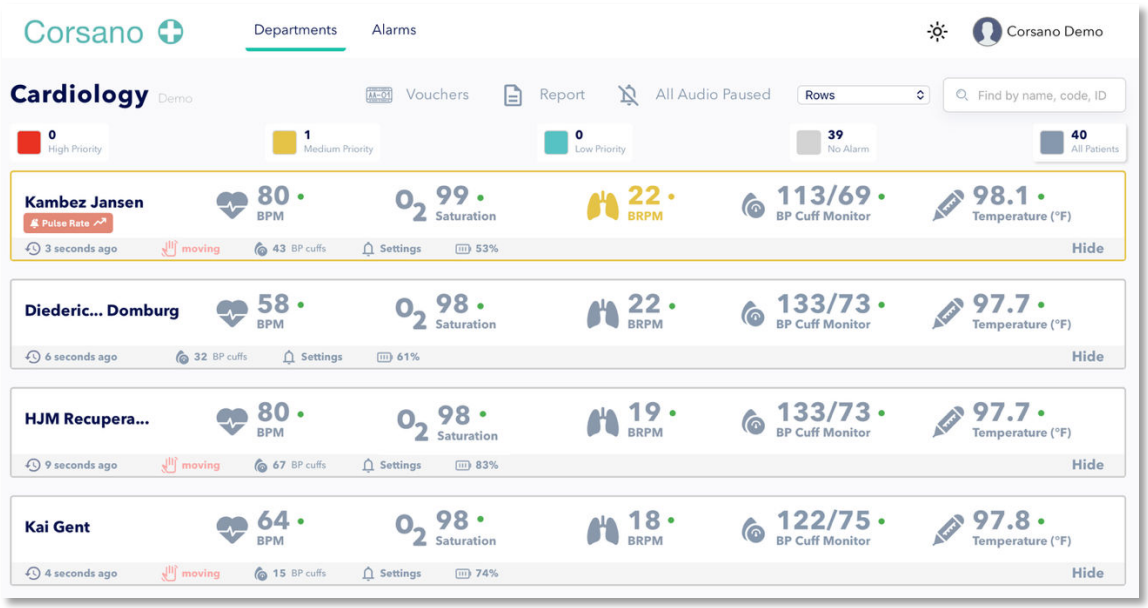
ID	Event Name	Arrow
1	Pulse Rate Trending Increase (Short-term)	PR ↑
2	Pulse Rate Trending Increase (Long-term)	PR ↑↑
3	High Pulse Rate Event (Median)	PR ↑
4	Low Pulse Rate Event (Median)	PR ↓
5	Respiratory Rate Trending Increase (Short-term)	RR ↑
6	Respiratory Rate Trending Increase (Long-term)	RR ↑↑
7	High Respiratory Rate Event (Median)	RR ↑
8	Low Respiratory Rate Event (Median)	RR ↓
9	Combined High PR and RR (Double High)	PR ↑ RR ↑

Trending Alert Arrow indicator

Upward arrows (↑) indicate a parameter above threshold (elevated values). Downward arrows (↓) indicate a parameter below threshold (reduced values). The number of arrows reflects severity within the category: one arrow = lower severity; three arrows = highest severity. Active status: RED = unconfirmed alert; BLUE = confirmed by HCP or inactive.

Web Portal Screen User Interfaces

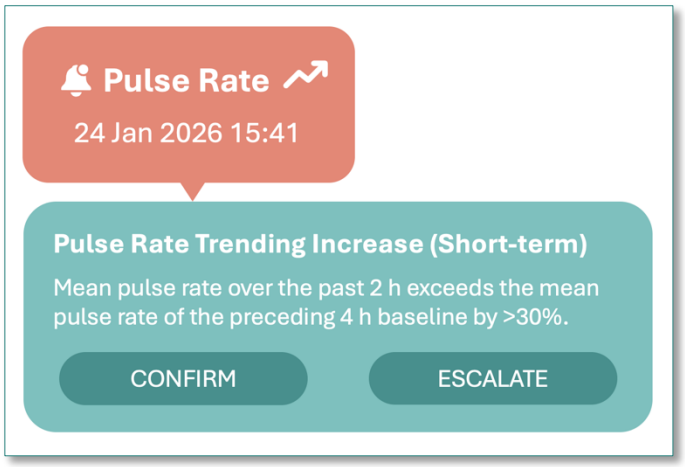
The following are screen shots of the user interface on the Corsano Web Portal :



Trending Alert on the Patient Dashboard

Event Alert User Interface

When a Trending alert is opened on the Web Portal or HCP App, the HCP can select the event badge to view additional details, including the event type (name), timestamp, and the criteria that triggered the notification. From this detailed view, the HCP can either select *Confirm* to acknowledge and validate the event, or *Escalate* to forward the event to a supervisor or other HCP as per hospital's protocol for further review and follow-up:



Trending Alerts User Interface

"Confirm" selection

Confirm acknowledges and validate the alert.. Once confirmed, the alert becomes inactive and its color changes from red to blue on the Patient Detail screen. And the red badge is removed from the Patient Dashboard.

"Escalate" selection

Escalate forwards the alert to a supervisor or other HCP as per hospital's protocol for further review and follow-up. The alert notification is then sent to the HCP Mobile app on the mobile phone of the selected supervisor or colleague as per hospital's protocol. Once confirmed, the alert remains active and its color remains red on the Patient Dashboard and the Patient Detail screen.