

# Ventilated Patient Surveillance

## Philips Capsule Ventilated Patient Surveillance solution helps frontline staff with patient care management

Assisting frontline clinicians in identifying patients in respiratory distress can help increase the possibility of survival. It also helps to reduce the burden on already-stressed care providers of identifying the emergent population among patients requiring either invasive or non-invasive support for adequate ventilation and respiration.

Adding continuous surveillance provides frontline caregivers with mobile, on-the-go and remote centralized visibility to a subset of mechanical ventilator settings and measurements and, most importantly, alerts on clinically actionable emergent events that may require immediate action due to changing patient conditions.

## Ventilated Patient Surveillance

Continuous clinical surveillance can help extend the reach of frontline clinical staff over the full range of intensive care patients, regardless of where they receive care in the facility. Ventilated Patient Surveillance provides a centralized view of ventilator data and annunciates clinically actionable emergent events:

- Reducing bedside visits from non-actionable events limits the caregivers' exposure to infection and reduces their consumption of PPE
- Shortening response times with the goal of helping to improve patient safety and outcomes

### Notification pane

Real-time, prioritized display of alarms and alerts

Centralized review and management, including novel smart alerts

Visual snapshots by patient including alarm/alert name, time/date stamp, and relevant discrete data variables

### Departmental dashboard

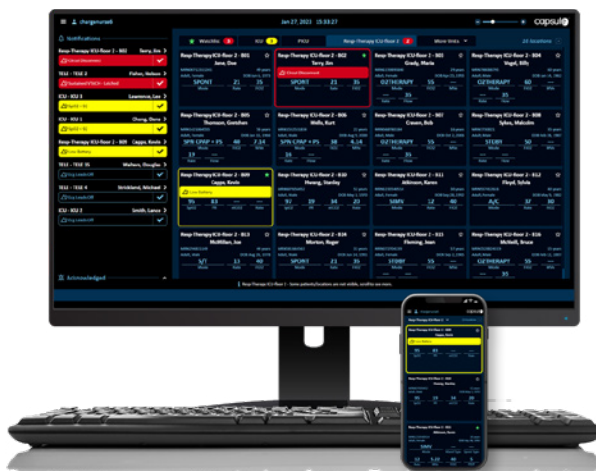
Visualize details of selected patients of interest

Centralized view of ventilator data

### Patient detail dashboard

Detailed single patient view

Administrative console to view alarms, alerts and events, and set up reports



### Mobile

Integration with mobile devices enables caregivers on the go to receive data and smart notifications

### Capsule approach

- **Versatility:** deploy in remote telemetry rooms, respiratory departments, central stations
- **Flexibility:** cloud-based or remotely installed on a dedicated workstation PC or server
- **Proven:** experience deploying in mission critical ICUs, remote central monitoring units and more

## Detecting the onset of emergent, potentially actionable conditions early and inform the care team



# Ventilated Patient Surveillance facilitates oversight and actionable clinical workflows

The Ventilated Patient Surveillance workstation provides caregivers with remote visibility on ventilated patients beyond the bedside, in locations such as:

## Remote centralized visibility at war room/resource management

Provides a third set of eyes and a “shoulder tap” to remind frontline clinical staff of events requiring intervention on ventilated patients.

Provides notification of a sustained potentially actionable emergent clinical event. The surveilling clinician reaches out to the assigned clinician on the floor to ensure the patient is attended to.



## Central station/respiratory departments

Notifies clinicians of potentially actionable emergent clinical events, such as patient disconnect.

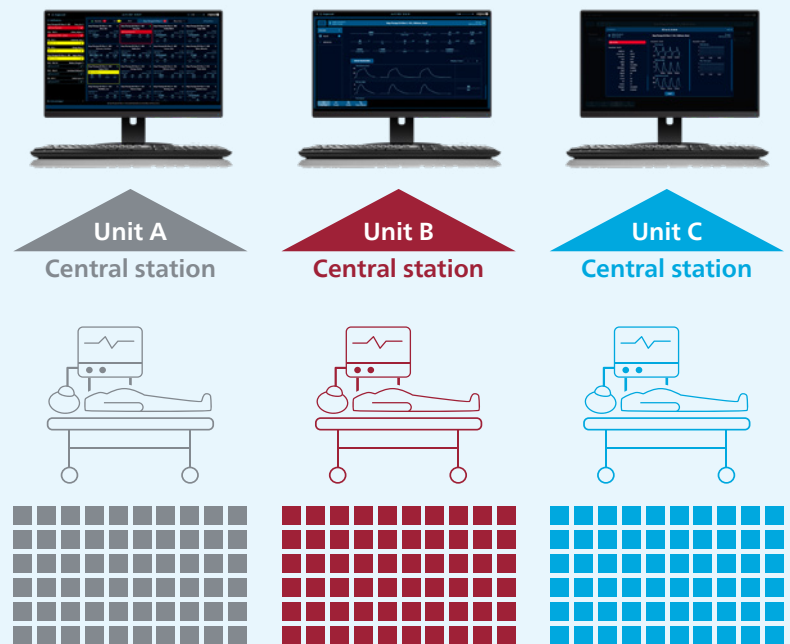
Provides RT/RN with context on emergent respiratory events that can motivate heading to the patient’s room.

### Patient beds

Each Ventilated Patient Surveillance workstation provides visibility for hundreds of beds across one or many care units.

Care provider reports to the bedside and confirms emergent notification raised at the Ventilated Patient Surveillance workstation.

Primary source of device settings and alarms are reviewed on the ventilator before clinical intervention.



# Ventilated Patient Surveillance solution supports adherence to guidance from WHO for the clinical management of SARI, as well as general management of the ventilated patient

Ventilated Patient Surveillance notifies clinicians of potentially actionable emergent clinical events, such as:

- Patient disconnect — loss of airway (low pressure and low volume)
- Decreased lung compliance (high pressure and low volume)
- Low respiration rate or apnea
- Occlusions and the need for suctioning

The data elements in the table below indicate how Ventilated Patient Surveillance facilitates adherence to the WHO SARI guidance. These data elements may be incorporated into surveillance of multiple clinical use cases in the context of ventilated patient management.

## Alert notifications

Ventilated Patient Surveillance allows users to configure customized alert settings, which are independent of a ventilator's primary alarms. A care team can create unique, clinically actionable alerts to complement their specific workflows and protocols.

Guidance below is indicated for non-pregnant ADULT patients of acute respiratory distress and infection

	Oxygen	Pressure (cmH <sub>2</sub> O)	Volume (ml)	Respiration (per minute)	Loss of ventilation
<b>WHO guidance<sup>†</sup></b>		<b>Lower inspiratory pressures</b> (plateau pressure < 30 cmH <sub>2</sub> O) and higher PEEP	<b>Lower tidal volumes</b> (4–8 mL/kg predicted body weight)		<b>Avoid ventilator disconnect, which results in loss of PEEP and atelectasis</b> (or worse if not detected)
<b>Ventilator settings/ measurements</b>	<b>Inspired oxygen concentration</b> (FiO <sub>2</sub> %)	<b>PEEP</b> (Positive End Expiratory Pressure)	<b>Tidal volume</b> (set)	<b>Respiratory rate</b> (set)	
		<b>PIP</b> (Positive Inspiratory Pressure)	<b>Exhaled tidal volume</b> <b>Exhaled minute volume</b>	<b>Respiration rate</b> (total)	
<b>12 Clinically actionable alarms</b>		<b>High PIP</b> (device-triggered sustained/ consecutive)	<b>High tidal volume</b> (sustained)	<b>High respiratory rate</b> (sustained)	<b>Disconnect</b> (device triggered sustained)
		<b>Low pressure</b> (sustained/ consecutive)	<b>Low tidal volume</b> (sustained)	<b>Low respiratory rate</b> (sustained)	
			<b>Apnea</b> (device-triggered sustained)		
			<b>High pressure and low volume combination</b> (indicating possible occlusion)		<b>Low pressure and low volume combination</b> (indicating possible leak or disconnect)

**Type legend** ■ Ventilator measurements and triggered alarms ■ Philips Capsule Surveillance Smart Notifications

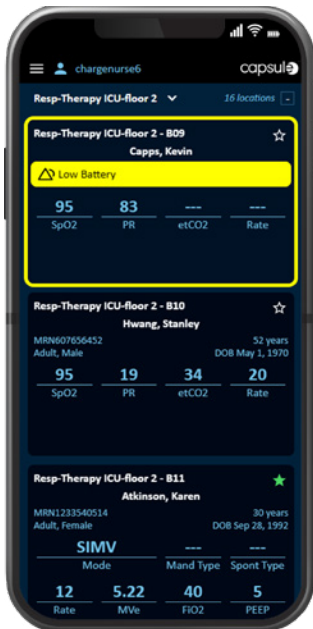
<sup>†</sup>WHO reference number: WHO/2019-nCoV/clinical/2020.4

# Receive data and smart notifications on-the-go

Integrated with a popular 3rd party staff assignment client or clinical communication and collaboration application, Philips Capsule Surveillance can be configured to route notifications to clinicians on the go.

## My Watchlist

View live-streaming device data for any patient in a unit. Select assigned patients for quick identification.



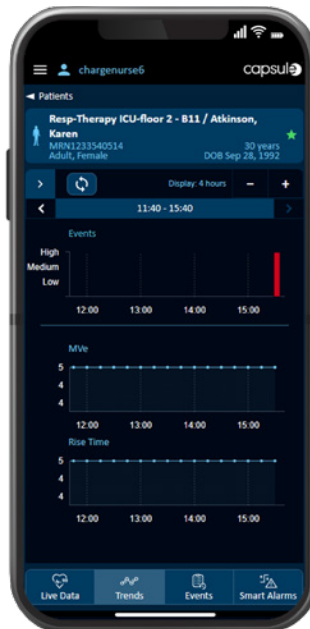
## Patient detail view

See all detailed patient physiological measurements, waveforms and alerts.



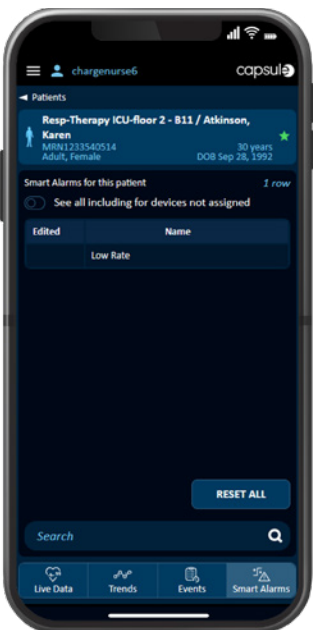
## Trended data

Review a patient's past measurements, events and configured settings.



## Events

Scan a chronologic and detailed view of a patient's clinical events.



## Condition-specific alerts from patented Smart Rules\*

Ventilated Patient Surveillance allows for user configuration of specific Smart Rules. As part of implementation, Capsule will provide a Smart Rules configuration best-practice guideline based on current literature and validated experience. Hospital clinical staff work with Capsule clinical specialists during the clinical design sessions to determine the rule configuration per facility and care area.

\* Patents US 9,626,479 B2, US 11,031,129 B2, US 11,246,542 apply to all Capsule Surveillance Smart Rules. Patent US 10,685,549 B2 applies only to Capsule Surveillance Instability Smart Rule.

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