

# Ensuring Quality Patient Care with Oxygen Distribution Monitoring

A WellAware Case Study

## Introduction

HCA Healthcare is focused on delivering high-quality and safe medical care to every single patient. To achieve this goal, the healthcare provider has to ensure all patients have access to the services and treatments they need for their unique medical problems. During the COVID-19 pandemic, this meant being able to deliver oxygen to patients who struggled with the respiratory illness and its symptoms. After a medical oxygen supply scare in California, HCA decided to upgrade its monitoring capabilities at the point of delivery with WellAware.

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### About the Operator:

HCA Healthcare is one of the nation's leading healthcare service providers. The company has more than 2,000 sites of care across 20 states and provides approximately 6% of all inpatient hospital services in the U.S. In 2020 alone, HCA had 32+ million patient encounters. Above all else, HCA is committed to the care and improvement of human life.



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*– Brian Weldy,  
VP of Engineering*

## The Challenge: No Visibility Into Medical Oxygen Delivery

COVID-19, a respiratory illness that has taken the lives of millions, created significant challenges for healthcare institutions, including HCA. One of the more publicized issues at the onset of the pandemic was the shortage of ventilators available. As time went on, a new problem emerged - a lack of medical oxygen. HCA was one of many healthcare institutions to face this challenge.

“During the COVID surge event in California, we had the issue of not having enough oxygen for our patients due to regional shortages,” said Brian Weldy, VP of Engineering. “Demand was 2.5x what it would normally be, and that really taxed the system.”

Fortunately, HCA was able to secure oxygen from a distributor that delivered directly to bulk storage tanks outside of its facilities. But given the experience in California, Weldy wanted to find a better way to track oxygen supply in individual facilities.

“We didn't know the oxygen level in our storage tanks, and we didn't know when trucks would come to refill them so we wouldn't run out of oxygen,” says Weldy.

Weldy also wanted to give facility managers the ability to see if pressure reducing valves or evaporators were working properly for oxygen delivery, or if pipes were sized appropriately. This information would empower operations leads to take action should anything go awry.

Additionally, HCA wanted to build an analytics model that could predict oxygen needs accurately based on historical usage. For this to happen, HCA needed to feed its analytics system with data from the point of delivery - e.g., patient rooms, surgery rooms, etc. The problem was that the organization simply didn't have this data.

HCA was also beholden to its oxygen distributor, who owned the bulk storage tanks located outside of facilities. The healthcare provider was forced to buy oxygen from one particular distributor, which meant HCA had little control over their supply chain, a concerning reality, especially amidst a global pandemic.



## The Solution: Real-time Oxygen Monitoring System at the Point of Care

After reviewing various solutions, HCA decided to partner with WellAware to create a monitoring system capable of addressing the organization's most pressing needs.

Using WellAware's Connect platform, HCA installed pressure sensors in patient rooms, surgery rooms, and ICU units that took oxygen level readings every five minutes. By integrating these devices at critical points of delivery, HCA was able to monitor oxygen distribution more closely and mitigate "never" events - situations that should never happen - like running out of oxygen.

"We were getting real-time pressure readings very quickly, and we customized a very unique application that, to my knowledge, didn't previously exist," says Weldy. "[It] helped us get through the situation in California."

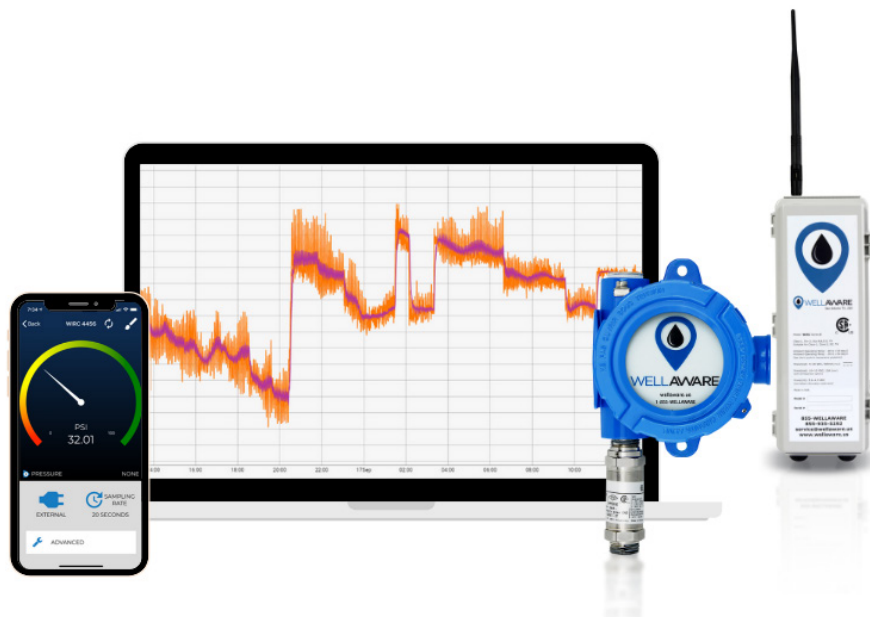
WellAware's Connect platform was designed with the same principle in mind - "never lose a data point" - which is why it served HCA needs so well. WellAware Connect runs on 12V DC power supply and comes with internal battery backup, insulating the system against facility-wide power failures.

WellAware Connect also operates on 4G LTE cellular and avoids hospital WiFi altogether, providing better reliability and security. In the event of cellular outages, Connect devices temporarily store pressure readings to prevent data loss. The platform also does not provide an access point to building management systems or patient care networks, keeping hospital data safe from malicious actors.

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## The Results: High-Quality Data, Better Predictability Over Oxygen Usage and Demand

Though HCA's new oxygen monitoring system is still in its early stages, the organization is anticipating numerous benefits from its new data streams. By enabling visibility at the point of delivery, HCA facilities managers can troubleshoot and detect oxygen delivery problems as soon as they surface. In some instances, facility leads have already been able to detect and correct loss of pressure within individual patient rooms.

In addition, the WellAware Connect platform provides HCA's analytics system with high-quality, high-resolution data. This information enables better predictability for usage and demand, allowing the healthcare provider to optimize its supply chain.

Furthermore, Weldy can now envision a future in which HCA owns its oxygen distribution infrastructure and monitoring system entirely, reducing the organization's dependence on outside service providers. Moreover, Weldy is excited about the new opportunities that a real-time monitoring system provides. "We are really looking for ways to make our buildings more intelligent," he says. WellAware Connect appears to be a key step forward.

***Want to learn more about how WellAware's platform can enhance your facilities management capabilities?***

Check out our solutions today.

**Get Started**



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