

Wi-Fi CERTIFIED 6™ in healthcare



Wi-Fi 6 improves patient care

Wi-Fi® is common in healthcare settings, including hospitals and clinics. Wi-Fi enabled devices can be used to communicate patient records, imaging results, and real-time patient monitoring data to nurses and doctors. This allows providers to remotely monitor patients, create and maintain consistent medication schedules, and provide care in a timely manner.

Hospital and clinical Wi-Fi networks serve thousands of connected devices on a daily basis. Ensuring these networks have the capacity and efficiency to connect a proliferating number of devices is critical to providing the highest level of patient care. In a survey of healthcare information technology professionals, 90 percent of respondents noted that the wireless network was “mission critical” and any downtime was “high risk.”¹

Wi-Fi 6 provides the capacity and efficiency healthcare settings require, accommodates many more devices in dense locations, adds better coverage, and improves spectrum resource management to deliver a quality user experience—and ultimately, better patient outcomes.



Wi-Fi 6 healthcare use cases

Wi-Fi 6 brings invaluable benefits to congested environments such as hospitals. As medical devices make the move from wired configurations to Wi-Fi, updating those devices and access points (APs) to Wi-Fi 6 will result in more efficient and reliable patient care. Wi-Fi 6 offers advanced capabilities for more client devices per AP, efficient use of airtime, and reduced power consumption. This means that Wi-Fi 6 powered networks help medical devices stay connected consistently, run longer on battery operation, and provide an improved experience for all users.

Hospital and clinical environments

In hospitals and other clinical settings, Wi-Fi enabled medical devices can take advantage of scheduling based resource allocation. For instance, infusion pump devices that deliver fluids such as nutrients and medications to a patient can negotiate and define a specific time to send data to reduce contention and overlap between patients. New features of Wi-Fi 6 allow many devices to share a channel with the infusion pump. As a result, the infusion pump consumes less power due to increased sleep time. Such Wi-Fi 6 enabled medical devices—as well as patient monitors, streaming cameras for virtual patient engagement, and imaging systems—will work more efficiently and stay consistently connected to provide a better overall patient experience.

Patient monitoring

A hospital performs physiological monitoring of patients throughout their stay. Such a system consists of body-worn sensors connected to a bedside monitor that forwards the data to a central viewer within the hospital, to an electronic medical record (EMR) for storage and historical review, or potentially to a remote viewer such as a smartphone. A clinical specialist monitors the data and any clinical alarm limit violations. Although the streaming data is low bandwidth, it requires a robust and reliable connection, especially with mobility where roaming or handover events may lead to connectivity interruptions that introduce unacceptable clinical risk. Wi-Fi 6 improves the reliability and performance of patient monitoring.

¹ Healthcare IT Network Survey Report, Nyansa, February 2019

Imaging

Wi-Fi 6 boasts improved data handling, allowing healthcare practitioners hospital-wide access to digital data and images from medical imaging systems, such as magnetic resonance imaging (MRI), radiography, and ultrasound. Historically, these types of extremely large files were difficult to transfer and manipulate in a timely manner. With Wi-Fi 6, such files can be transmitted reliably, making the diagnostic process much quicker and improving outcomes for patients.

Telemedicine

Higher data rates provided by Wi-Fi 6 allow healthcare providers to move away from in-person consultations to Ultra HD video sessions. Healthcare practitioners can examine and diagnose patients via mobile applications, providing a concierge-level of service while allowing patients to forego a trip to the hospital or clinic. These capabilities are particularly useful in rural areas, during natural disasters, and in conflict zones. Wi-Fi 6 enables video-intensive solutions to perform at high speeds and with low latency even at the edge of the network, meaning Wi-Fi 6 enabled devices will enhance telemedicine in ways that were simply unavailable before.

Remote video surgery

In the future, improved data transfer speeds and ultra low latency enabled by Wi-Fi 6 also mean that healthcare organizations can deploy robotics and augmented reality (AR) and virtual reality (VR) solutions to remotely carry out surgical procedures and medical training. Wi-Fi 6 enables Ultra HD video for real-time assistance from remote medical specialists and high speed transfers of 3D images for real-time analysis.

Wi-Fi CERTIFIED 6™ devices ensure consistent performance and interoperability

The best way for healthcare providers to ensure a quality Wi-Fi experience is to use [Wi-Fi CERTIFIED™](#) devices. The [Wi-Fi CERTIFIED 6](#) certification program from Wi-Fi Alliance® validates that devices based on Wi-Fi 6, or IEEE 802.11ax technology, meet industry-agreed standards to deliver key benefits such as higher data rates, greater network capacity, better power efficiency, and quality performance in congested environments, such as hospitals. Key features of Wi-Fi CERTIFIED 6 that enable the use cases and healthcare benefits listed above include:

- **Orthogonal frequency division multiple access (OFDMA):** Allows the network to more effectively share channels, resulting in increased efficiency and lower latency for uplink and downlink traffic
- **New modulation modes:** 1024 quadrature amplitude modulation mode (1024-QAM) encodes more data in the same amount of available spectrum, resulting in greater throughput
- **Multi-user multiple input, multiple output (MU-MIMO):** Allows greater amounts of downlink data to be transferred at the same time, supporting concurrent operation of many more devices per AP
- **Target wake time (TWT):** Increases a device's sleep time and improves battery life, making Wi-Fi 6 particularly beneficial for battery powered devices, such as patient monitors, infusion pumps, respiratory equipment, and sensors
- **Backwards compatibility:** Supports operation of legacy devices using prior generations of Wi-Fi

Wi-Fi CERTIFIED: Technology to trust

Since 2000, Wi-Fi Alliance has been driving the adoption and evolution of Wi-Fi through the Wi-Fi CERTIFIED program. The Wi-Fi CERTIFIED logo designates products with proven interoperability, backward compatibility, and the highest industry-standard security protections in place. Wi-Fi CERTIFIED devices can communicate with previous and future generations of Wi-Fi technologies, enabling homes installed with Wi-Fi CERTIFIED networking devices to provide a seamless, interoperable experience with a multitude of other Wi-Fi devices brought into the home for years to come.



Learn more: www.wi-fi.org/discover-wi-fi/healthcare