

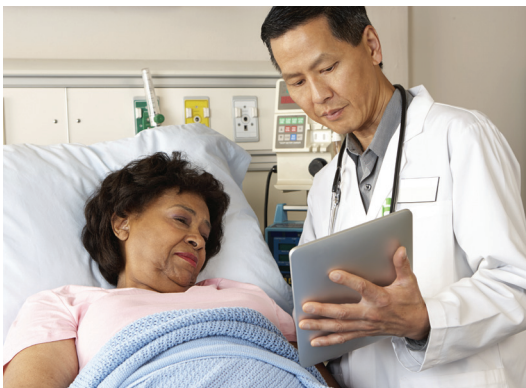
Wireless in Health Care Facilities

How Network Infrastructure Design Improves Caregiver and Patient Experience



What is driving demand for wireless?

Hospitals are seeing huge jumps in data growth, largely due to the rise of Electronic Health Records, as well as more connected equipment at the bedside and other areas. But there is also a huge push to support staff, patients, and visitors, as they increasingly expect reliable wireless access for mobile devices. This means that stronger, faster wireless networks — and the wired infrastructure supporting them — have become a much bigger priority for health care IT departments. They must take into consideration the following trends:



More Doctors and Staff Use Tablets and Smartphones for Work

Today, 90 percent of doctors and staff use mobile devices to engage patients, according to Healthcare Business Insights. And it's little surprise that nearly 70 percent of health care IT leaders say Bring Your Own Device (BYOD) policies will be fully supported in their organizations by 2018. This incredible growth requires staff to have a network that delivers the data they need without disruption or downtime.



Patients and Guests Expect Wi-Fi Availability

The demand for reliable wireless access isn't limited to employees and staff. Wireless access is one of the biggest nonclinical factors for patients and guests, as more than half of all health care customers say a positive experience includes access to Wi-Fi and other entertainment, according to a PricewaterhouseCoopers Health Research Institute survey. While guest networks may not require the bandwidth of critical clinical networks, managing this traffic has become an important part of an overall health care IT network strategy.



More Automated Medical Devices Rely on Wireless

The proliferation of mobile devices is just one facet of a connected hospital. The Internet of Things (IoT) is widely considered as the next frontier for networking all types of medical devices, including stationary devices like IV pumps, fetal monitors, MRIs, and CTs. These devices will be able to quickly send patient data and alerts. Other devices can monitor supplies and equipment, then notify staff when they need to be replenished or maintained, creating greater efficiencies and cost savings.

Building the Right Network

To handle these rising data demands, and to lessen the impact of future disruptions due to network upgrades, IT managers need a well-planned design for both clinical and guest networks. They also need a high-bandwidth wired network to support them. New technology, such as 802.11ac access points that deliver gigabit speed and faster, as well as robust fiber and copper cabling infrastructure, are helping health care IT managers meet these demands.

Wireless Access Points

802.11ac offers performance improvements by utilizing wider channel width and incorporating additional spatial streams. This translates into data rates of up to 1.3 Gbps per radio for current Wave 1 certified 802.11ac products, and eventually up to 6.9 Gbps with Wave 2 products. These upgrades mean staff will get the information they need quickly, and the network won't be taxed by higher numbers of devices in use simultaneously.

While current wireless access points (WAPs) with 802.11ac have the bandwidth to support most wireless applications in health care facilities, some IT managers may also start considering 802.11ad for specialized environments. This technology, also known as WiGig, provides short-range wireless coverage in a single room, but up to 7 Gbps in the 60 GHz band for bandwidth-intensive requirements.





Cabling and Connectivity

Hospitals will not see the full benefits of new wireless technology without the right cabling infrastructure behind it. Health care IT cabling standards, such as TIA-1179, recommend using Category 6A cable for new installations. Only Category 6A will support future migration to speeds up to 7 Gbps offered by 802.11ac Wave 2 and 802.11ad technologies.

The Leviton Atlas-X1™ Cat 6A Cabling System was designed to support critical systems such as clinical networks. It can deliver 10 Gbps out to WAPs, preparing hospitals for 1 Gbps Wi-Fi today and up to 6.9 Gbps with Wave 2 and beyond.

In addition, the Atlas-X1 system takes full advantage of Power over Ethernet (PoE) technology, which can transmit power and data over the same cable. Most WAPs use PoE, which eliminates the need for additional electrical wiring installations, saving on money and redundant cabling. PoE also allows for faster deployment at the WAP. The Atlas-X1 Cat 6A system can deliver 100-Watt PoE, meeting the needs for both higher bandwidth and power.

Atlas-X1 connectivity is also available as part of a complete plenum-rated in-ceiling system, providing reliable connectivity out to WAPs.

The system includes patch cords, cable, connectors, and mounting boxes and brackets. It has been tested and approved to meet requirements for flammability and smoke density in air-handling spaces. The plenum-rated system makes it easier to install a standards-based permanent link for IP devices where traditional wallplate connections are not practical or feasible. It is also easier to test and less likely to be damaged during construction.

Although TIA-1179 does not provide specific recommendations for WAP deployment, there are restrictions on removing or lifting ceiling tiles due to infection control requirements. Therefore, Leviton recommends using ceiling tile WAP enclosures.

It is important to remember that wireless is not the end-all solution for a hospital's network needs. For example, transferring large images, such as MRI scans, can often take too long to transmit over wireless. Hospitals need to ensure they are installing the right infrastructure to handle greater demand now and in the near future. The Atlas-X1 system is ideal for those critical applications that still require wired connectivity.

You can learn more about Leviton's full range of network connectivity for hospitals at Leviton.com/ns/healthcare.