

**SOLUTION BRIEF: Healthcare**

Keeping pace with the mobile communications needs of staff, patients and visitors

Enabling Today's High-Tech Healthcare Facilities

Today's healthcare facilities have transformed into high-tech hubs that not only demand robust cellular connectivity in-building, but often across expansive outdoor environments too. A medical center's wireless network is critical for multiple purposes such as enhancing patient care and safety, increasing staff productivity, improving operations, and keeping family and friends connected. To accommodate these various needs, healthcare facilities are turning to converged networks. The wireless system must support a wide range of frequencies, different protocols, any modulation scheme, and it must be future-proof. The ultimate goal is to provide strong wireless connectivity in-building and across a medical campus cost-effectively.

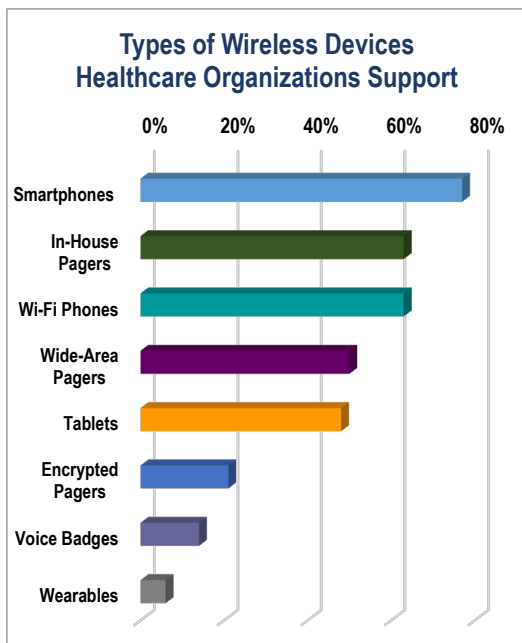
Many Wireless Network Challenges

Ensuring good wireless coverage on a medical campus is not always an easy feat. First, the buildings are constructed of concrete and steel, and have metal film window tint - materials which impede wireless signals from the surrounding cellular towers. In recent years "low-E" (low

emissivity) glass has been installed to reduce operating costs and increase indoor comfort by transmitting visible light while controlling the amount of solar heat that enters a facility. However, low-E glass presents another deterrent to powerful in-building wireless coverage. Inside, ubiquitous cellular connectivity is impeded further by lead-lined X-ray rooms that act as shields to wireless signals. These sensitive areas are particularly challenging for cell phone coverage.

Next, a hospital's wireless network must be capable of supporting many different types of mobile communications. Machine-to-machine communications (M2M) along with many telemedicine applications are expanding rapidly. With the emergence of 5G, many new use cases will be introduced; therefore, it is critical to deploy a wireless network that is ready to support them.

Finally, medical centers have turned into expansive campuses that not only require in-building cellular communications, but seamless wireless connectivity must



be prevalent across the outdoor environment also. Staff need to stay connected and informed as they travel from building to building, and smart phones are the device of choice with 77 percent of organizations supporting them (see graph above).¹

Leading-Edge Cellular Communications Solutions

JMA Wireless offers a wide variety of wireless communications solutions that enable fast, reliable, secure and pervasive mobile communications. The portfolio includes the TEKO® DAS (distributed antenna system), the NWA V antenna line, FUZE™, world renowned compression connectors and jumpers, TEKO Cell Hub, and X RAN®. The TEKO DAS, a modular solution supporting multiple operators and multiple bands, can be installed on campus or off-premise. This cost-effective solution uses a single optical fiber per remote unit (RU) to distribute multiple frequency bands and multiple carriers from the rack mounted master unit, resulting in at least 50 percent less fiber usage than competitive offerings.

The portfolio of NWA V antennas includes FRO (Fast Roll-Off) technology, which ensures increased data throughput without compromising coverage. The horizontal beam produced by this technology improves the signal-to-noise-plus-interference ratio (SINR) by eliminating overlap between sectors. The improved SINR results in higher throughput, which is particularly critical on bustling medical campuses. Furthermore, the horizontal beam produced by Fast Roll-Off technology reduces harmful interference between adjacent cells, ensuring powerful cellular coverage even in dense environments.

The FUZE platform is perfect for addressing heterogeneous networks on medical campuses. It offers integrated IDF mounting and cabling kits for DAS and Wi-Fi delivery. In addition, it provides Digital Electricity™, which is an ideal solution to support wireless connectivity across expansive medical campuses. Digital Electricity provides centralized power; therefore, the need for metal conduits is eliminated. And, it ensures power up to over one mile away.

TEKO Cell Hub, a fiber connected node that is not a small cell or a DAS, uniquely addresses today's needs of smaller medical facilities (20K square feet to one million square feet) while enabling performance and services to support the evolving healthcare environment, including a smooth transition path to 5G. With fiber, a single Cell Hub delivers multiple mobile operators' licensed bands as well as the new CBRS (Citizens Broadband Radio Service) spectrum. The TEKO Cell Hub integrates directly with JMA Wireless X RAN® technology, the industry's first 100 percent software baseband solution that runs on off-the-shelf servers. Cell Hub with X RAN aligns with the new Distributed Radio System (DRS) segment, but uniquely adds virtualized RAN to the solution. Together, they provide a scalable, flexible and easy to deploy solution that uniquely address the needs of healthcare facilities to ensure best-in-class mobile performance.

A Superior Wireless Network

JMA Wireless not only offers industry leading wireless solutions, but it also partners with best-in-class system integrators and service providers. Medical facilities can be ensured that the wireless network deployed will provide powerful mobile communications today as well as support changing needs as 5G becomes mainstream.

About JMA Wireless

JMA Wireless is the leading global innovator in mobile wireless connectivity solutions that ensure infrastructure reliability, streamline service operations, and maximize wireless performance. Employing powerful, patented innovations their solutions portfolio is proven to lower the cost of operations while ensuring lifetime quality levels in equipment and unrivaled performance for coverage and high-speed mobile data. JMA Wireless solutions cover macro infrastructure, outdoor and indoor distributed antenna systems and small cell solutions. JMA Wireless corporate headquarters are located in Liverpool, NY, with manufacturing, R&D, and sales operations in over 20 locations worldwide. For more information see jmwireless.com or follow JMA Wireless on Twitter at [@JMAwireless](https://twitter.com/JMAwireless).

Source:
¹The State of Mobile Communications in Healthcare: Devices, Infrastructure and Access - Survey Results Part 2", 2017, Spok.com

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