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Technology Report

The Healthy Market for Video Surveillance at Medical Facilities





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The Healthy Market for Video Surveillance at Medical Facilities

The healthcare market is unique among verticals in the video surveillance market. Keeping healthcare facilities safe and secure for patients, visitors and employees is especially challenging given the size of a typical hospital and the range of security and life safety technologies in play. For one thing, the threat of violence is especially acute in the hospital setting, where visitors and patients are stressed, and where family relationships may be strained. Violence from the larger community frequently spills over into the hospital emergency room, where many victims of crime are transported.

Hospitals are open environments where patients, visitors and clinicians come and go largely without restrictions. There are a lot of doors and entrances, and hospitals in general aim for an open environment that reduces stress and helps patients and their families feel more at home. Hospitals are a combination of many different environments – some including restaurants, banks, dry cleaners, and other shops – and therefore reflect a broad spectrum of security challenges. It's a busy environment that challenges security personnel to monitor threats. Video surveillance is a critical tool.

This SourceSecurity.com Technology Report will highlight some of the opportunities for integrators and end users to leverage the value of video surveillance technology in the hospital and healthcare environment. We will also report on how one video technology manufacturer, Hikvision North America, is working to meet the unique challenges of the healthcare community.



Hospitals in general aim for an open environment that reduces stress

The Market for Video Surveillance in Healthcare

In the increasingly “networked” healthcare world, hospitals are often combined into groups that are operated by a single regional entity. Others are individually owned. In addition to hospitals, the area of healthcare security also covers medical office buildings, public health clinics, and other health-related facilities. Pharmacies and drug stores, in addition to their retail operations and requirement to house medications, today also host medical clinics. Behavioral health facilities house patients that may need to be watched 24/7, and cameras can enable remote monitoring to save on personnel costs.

Hospitals and other healthcare facilities require enterprise-level solutions. Disparate access control, video and alarm systems on separate platforms have largely gone away in favor of integrated solutions that provide a “dashboard” where emergency alarms, access control and other systems are unified and work together. Greater intelligence in physical security systems allows hospital police and security departments to provide greater security with less manpower.

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Among for-profit and not-for-profit hospitals, the former tends to be a bigger challenge when selling video surveillance equipment; typically, there is much tighter control on capital projects. Cash flow is less predictable among not-for-profit hospitals; for instance, a large donation might make funds available for a project that was not previously budgeted. Most hospitals have a competitive bidding process for projects over a certain dollar amount, and they look for bids from three to five integrators on a project. Sometimes a request for proposal (RFP) specifies a certain camera manufacturer, although the majority of the time, integrators are open to bid alternative products.

Another facet of healthcare security is assisted living facilities. Because of its focus on serving the elderly, it is a sector that is perpetually under examination. Integrators and manufacturers must bring their “A game” to provide effective security and withstand the scrutiny of city, county and local governments.

Doctor’s offices and medical office buildings have their own requirements. These buildings may be located on a hospital’s campus, or located remotely and possibly owned and branded by a hospital’s health group. They may provide offices for doctors offering specialties such as pediatrics, orthopedics or oncology. Video surveillance of these medical buildings is more akin to applications in an office environment, with cameras focused in lobbies and stairwell areas.

Healthcare facilities are expected to adhere to guidelines common among critical infrastructure facilities that include uniform design criteria and specific requirements for responding to an emergency. The guidelines may be incorporated as part of codes enforced by the local authority having jurisdiction (AHJ).

The Health Insurance Portability and Accountability Act (HIPAA) dictates data privacy and security provisions for safeguarding medical information. Any hospital area or room that stores patient records is controlled by access control. Video might be installed to monitor patient record areas to protect information. Cameras in an emergency room do not cover the patient check-in areas but focus on the large waiting area or lobby.



Video might be installed to monitor patient record areas

Selling Video Surveillance to the Healthcare Market

The healthcare market tends to have a long sales cycle; in general, sales don't happen overnight or even within a month or two. In fact, the period between an initial meeting with a healthcare facility and installation of a system could stretch to a year or longer. A lot happens during that time. Healthcare systems involve extensive planning, engineering, and meetings among various departments.

Physical security systems that involve the information technology (IT) department, as do most systems today, can be especially complex. Installation of networked video systems based on Internet protocol (IP) requires deep and probing discussions with the IT team about how a system fits into the facility's network infrastructure. A facility's IT folks must be convinced an IP solution will function seamlessly on their network. They must vet the technology to ensure the devices and solutions will be compatible with the network, and must sign off on technology choices. And even more important is determining if the security system will adhere to cybersecurity requirements of the facility.

It was a different picture only a few years ago. At one time, talking to a hospital about video only involved the security director, who made the decisions. Technical issues such as bandwidth were just an afterthought. Security directors oversee the day-to-day operations of security for a hospital, including the security command center, the guard force, and video operations.

Today, the IT director is a major decision-maker, deciding what technology platform will be deployed. Even an initial meeting might dig into the details of data speeds (MB/sec) and how much bandwidth will be used. Although some hospital end user customers deploy a separate IT infrastructure for video, about half use their existing network to transmit video.

Additional parties involved in buying security systems for a healthcare facility include the facility manager, whose job encompasses several roles, from security to operations to hardware deployment, to other procedures; sometimes he or she oversees operations of multiple facilities on a regional basis.

Of course, there is likely a systems integrator involved with the project, and there may be a consultant involved on larger projects or for larger clients, especially if it is a new or more complex solution.

Healthcare security business is roughly 60 percent retrofits of systems and 40 percent new facilities, estimates Chris Lennon, Hikvision USA's director of healthcare. There is growth in new hospitals, and there has been a surge in business as more hospitals embrace a change from analog to IP-based networked systems. "It's a good market, but a very aggressive market," says Lennon. "They are looking for the lowest total cost of ownership, but want the best quality cameras." Even today's analog solutions are up to meeting the demands of these facilities. Therefore, expanding existing analog systems is part of the retrofit business.

Healthcare end users may be susceptible to information online and on social media sites promoting products that are not suitable for their applications. These consumers may be influenced by information that is confusing or even misleading. A \$25 camera from Amazon or eBay is not suitable for a hospital or healthcare application, and customers must be educated to understand the points of differentiation and the need for quality equipment from a stable, reputable manufacturer, sold through professional channels.

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Items like wheelchairs are expensive equipment that could be stolen

Why Healthcare Customers Buy Video Surveillance

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) is an accrediting agency that evaluates hospitals based on visits two or three times a year. How a hospital handles safety, security and emergency preparedness is among the issues that are scrutinized, and maintaining JCAHO accreditation can be an impetus for hospitals to install and maintain their security and life safety systems (including video surveillance).

Shrinkage is another reason hospitals and healthcare facilities deploy video surveillance. Items like wheelchairs, IV pumps and even hospital beds are expensive equipment that could be stolen either by the public or even hospital employees. Video surveillance is a tool to keep watch on expensive equipment and prevent theft, or to provide video of an incident after the fact. Shrinkage can also be a problem in the pharmacy area, where additional cameras can document who's taking what and avoid any loss of medication.

Avoiding litigation can also be a motivator for healthcare facilities to install video surveillance equipment.

The most likely reason a hospital or healthcare facility might seek to install video equipment is because an incident happened, especially if the existing system failed to provide useful information after the incident. In that case, hospitals are likely to look for new equipment with better resolution and recording, products that help prevent incidents by identifying suspicious behavior, or additional cameras. An incident or crime at a nearby facility, or even a high-profile incident reported in the media, can lead end users to reevaluate their video surveillance system with an eye toward improving or replacing it.

Security ‘Hot Spots’ and the Role of Video Surveillance

A hospital's emergency room is an active, often chaotic, environment. Patients come to the emergency room with everything from a broken bone to delusions, and violent incidents are not uncommon. Managing the security of patients and their families in the emergency room, not to mention protecting hospital staff, makes it a prime location for video surveillance deployments. Cameras outside an emergency entrance can monitor vehicles dropping off injured patients and related activity.

Lobbies are another security “hot spot” in hospitals. These large open spaces are open to the public. Panoramic or “fisheye” cameras provide good coverage of open areas for overall situational awareness.

Infant abduction is a key concern for hospitals, and video can keep careful watch over nursery and neonatal intensive care unit (NICU) areas to ensure the safety of infants. Video and access control systems can be integrated with infant abduction systems to provide video and/or to auto-lock the doors in case a child is taken.

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Lobbies are a security “hot spot” in hospitals

Occasionally, a covert camera might be used by a hospital or healthcare facilities to address a specific challenge, especially internal theft by hospital employees. Covert cameras are typically deployed on a one-off, often temporary, basis.

Outside, hospitals and healthcare facilities need security in the parking areas and decks. Protecting them ensures perimeter security of the facilities, and that any incidents are observed and verified with recordings. Most larger hospitals have adjacent parking garages that can be the site of any number of incidents. Video and analytics can help ensure that any object or unauthorized activity gets documented. Hikvision pan-tilt-zoom, low-light and WDR cameras, and cameras with infrared illuminators, can meet the lighting challenges and operate in the outdoor environment. Vandal resistant and weather resistant cameras may also be considered.

Brian Seyller, owner of integration company RTX Solutions, Roseville, Minn., points to Hikvision's Darkfighter line of cameras as especially useful in the healthcare vertical, in particular for their ability to provide crisp, full-color images in any lighting situation.

Garages may be connected to hospitals via skywalks, stairwells, and elevators or escalators, which require video coverage both for security and to address personal injury liability/claims.

Garages may be connected to hospitals via skywalks, stairwells, and elevators or escalators, which require video coverage both for security and to address personal injury liability/claims. Cameras may be installed in elevator lobbies or inside elevators. Most video systems in hospitals and healthcare facilities are used for forensics and investigation after an event occurs; there is little live monitoring of cameras. Security guards are generally engaged elsewhere, although a few hospitals are providing security personnel with remote access to video on their cell phones. Recent improvements in video analytics increase the verification of events in unmonitored installations. Detection of objects or persons in restricted areas, Unattended Baggage, Objects Removed, Scene Changes, Sudden Audio Increase or Decrease, and Loss of Audio are all available in the latest security systems.

Systems to Solve the Challenges of Healthcare Security

An expectation for video monitoring systems is that what you see on the monitor is what is actually happening somewhere else in a hospital or healthcare facility. The assumption is true only if the right video equipment is chosen and it is properly placed to capture the action. Subject matter experts are required to understand emergency operations plans and how video can be used to provide “actionable intelligence” in case of an emergency.

It’s important to have the right product, the right placement and right technology. Some cameras might be overkill in certain situations, and could consume more IT resources [bandwidth]. A different camera might be more suited to the application.

In terms of product choices, many hospitals are looking for cameras that can do more for less. They want a single camera that can see down a hallway, rather than four separate cameras with four video streams and four IP devices on the network. They want one camera that can provide a variety of angles from one viewpoint, such as a 360-degree panoramic camera.

Hikvision North America provides quality equipment with a low cost of ownership for the healthcare vertical. Strong warranties are assurance of the equipment’s robustness, the cameras rarely fail, and they can operate in harsh conditions from the desert heat of Phoenix to cold New England and Canadian winters.

“Every hospital is completely different,” says Lennon. “We want to be relevant with the healthcare space and create solutions to serve every hospital.”

Non-security uses of cameras provide an opportunity for new manufacturers to do business with a healthcare provider, which might be standardized on a certain camera brand for security applications but would be open to other brands for non-security uses by individual departments. Examples might be cameras used for patient monitoring or for training.

For these stand-alone systems that are not tied into the hospital’s security system, the opportunities are wide open. In some cases, money for security upgrades may not be available, but there may be funds for a new application, especially if there is a return on investment (ROI). Related to security, spending on video cameras might have a lower priority than access control systems, for example. In non-security uses, these hard choices don’t have to be made.

“The biggest challenge is to get them out of a mold and try something new,” says David Caputo, senior systems consultant for Faith Group LLC.



It’s important to have the right product, the right placement and right technology

Faith Group LLC is a full-service consulting and engineering consulting firm that works with security clients in airports, utilities, healthcare and higher education, with headquarters in St. Louis and offices in Atlanta, Philadelphia, Minneapolis, and Gaithersburg, Md.

Healthcare facilities want high-quality equipment, but they are also sensitive to price. Funds are limited, and every expenditure is watched carefully. Hospitals tend to have more appetite for fixed, dome-type cameras rather than the more expensive panoramics or pan-tilt-zooms, says Caputo.

Hikvision is developing specific devices and solutions, including hardware and software, tailored to the healthcare vertical, evaluating the challenges healthcare end users face and how to meet those challenges.

Hikvision's new HikCentral system provides an open-system platform for integration of multiple systems in the healthcare environment, from cameras to access control to emergency alarms, mobile video platforms, and ambulance video. The single central management system (CMS) platform will pull in data from multiple systems and enable a hospital to manage the systems and data from a central location.

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Emerging Applications: Remote Patient Monitoring and Telesitting

In addition to its use for security purposes, video surveillance is also finding applications in the healthcare vertical related to remote or virtual monitoring of patients. Essentially, video cameras with audio (or used with external audio devices) are installed in patient rooms, and video is routed to a workstation down the hall or on the next floor, from which medical professionals can monitor a patient's condition and activities, making sure they don't pull out an IV or injure themselves or someone else.

Sometimes patients need a round-the-clock sitter at their bedside, perhaps after an operation or if there is a behavioral issue. Monitoring is especially useful to prevent patients from falling. A patient who is injured in a fall may face an additional stay at the hospital's expense. Video is a less expensive alternative to expensive private nurse care, and it's a "force multiplier" – one healthcare employee can watch 10 patients rather than one. And video analytics helps ensure any incident is recorded and alarmed if the monitoring site is unmanned for whatever reason.

In addition to security and safety, video from cameras monitoring patients can be used for training to help caregivers better understand a patient's needs. In a sleep lab, for example, a video camera used alongside monitoring equipment can provide additional insights.



Video is a less expensive alternative to expensive private nurse care

Hikvision is currently developing specialized systems, including software and cameras, for patient observation applications. Hikvision is creating the solution end-to-end using all Hikvision hardware and software. In addition to selling through new channels (i.e., healthcare and IT), Hikvision will make the system available for sale in its existing security integrator channel.

Another remote monitoring application is to provide a video observation system for parents whose children are in the hospital's neonatal intensive care unit (NICU). Cameras monitoring young patients as they are cared for can provide video that parents can view remotely from home.

Finally, video plays a role in another burgeoning area, called "telehealth," which essentially enables remote patient and doctor visits. A doctor in an office can visit with a patient virtually using video. Hikvision cameras can currently be used in telehealth applications, and telehealth could be an aspect of Hikvision's emerging remote observation platform. In any case, high-resolution cameras that provide a crisp, clear image are an important enabling technology of telehealth applications.

The ability of cameras to lower the number of required employees, including security guards, in a healthcare situation is a big advantage of video surveillance systems. Monitoring from a remote location, whether it's healthcare employees watching patients or a security guard responding to an alarm, is more efficient and saves money. Liability lawsuits can be an expense for employers, and fewer employees equates to lower risk, another economic benefit of video surveillance systems.

Challenges and Opportunities for Integrators

One challenge for security integrators in the healthcare space is a need to protect patients from any dust or debris generated during system installation. If a camera is to be installed in a patient's room, for example, the room (and possibly adjacent rooms) should be enclosed and shut down for a time. Even removing a ceiling tile can generate dust and debris. All work should be performed inside a tent using HEPA (high-efficiency particulate air) filtration to ensure no airborne particulates are released into the room or hallway.

Avoiding disruptions to patients may impact a hospital's decision between reinstalling cabling or using existing infrastructure, even coaxial cabling. Hikvision products can accommodate the use of existing cabling with IP-over-coax transmission or with an analog HD product line that provides clearer images and better resolution using analog connectivity. Flexibility also enables Hikvision systems to be easily retrofitted, with legacy systems mixing seamlessly with newer products. For example, existing cabling could be used in the older wing of a hospital and structured cabling/Ethernet installed in a new addition. Hikvision's wide range of products accommodates any scenario.

For smaller, regional hospitals, in particular, there is an opportunity to upgrade video surveillance equipment. Smaller hospitals are more likely than the norm to still be using out-of-date analog equipment. Money may be an issue, but older systems have to be replaced sometime, and improved image quality and better functionality of newer systems may be the motivator to turn the tide.

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If a camera is to be installed in a patient's room, the room should be enclosed and shut down for a time

Hospitals of all sizes may use their internal facilities personnel to install cameras and other security equipment. In larger hospitals, connecting cameras may fall to the IT department. If it's a larger project, they will likely go to a contractor. But the reality is, for one or two cameras, hospital groups often do it themselves. And this is where the simplicity of installation becomes an important deciding factor in the selection of security products. Hikvision's Plug and Play products offer ease of use and easy installation.

A relatively new aspect of healthcare security is protecting a growing number of cannabis producers. Medical usage of cannabis is now legal in 29 states (and recreational usage is legal in eight states and the District of Columbia). Regulations require both producers and dispensaries of cannabis to have redundant video surveillance at each stage in the process. Those seeking to supply video systems to cannabis producers and dispensaries face strict vetting, which reduces the field of players and increases opportunities for those willing to meet the requirements.



Hospitals and healthcare end users often approach systems integrators when they have a problem they want to solve. They may not be aware of any regulatory limitations, and they may not fully understand whether more video surveillance is the best (or simplest) approach to solving the problem. Therefore, integrators should do their own research

Integrators should do their own research to make sure they aren't "crossing any lines," whether privacy concerns or regulations.

to make sure they aren't "crossing any lines," whether privacy concerns or regulations. "They are looking for help," says Brian Seyller, of integration firm RTX Solutions. "They want us to design something to solve a problem, but sometimes it's not another camera that will solve the problem. It might be a procedural change."

In addition to working with hospitals in central Minnesota, RTX Solutions has installed systems in several clinics in the Twin Cities. In the case of clinics, video surveillance is used to monitor procedures, such as making sure blood draws are labeled and stored properly to ensure the integrity of lab results. For hospitals, a major concern is internal theft.

Seyller has seen that adding audio to a system can be helpful in terms of hearing what happens, including voices outside the camera range. In addition, excessive noise and unusual sounds can be identified through Hikvision analytics features.

He says the outlook for continuing (and increasing) business in the healthcare vertical is positive based on the sector's emphasis on managing liability and the cost of liability insurance. "They want to document the fact that procedures are handled properly, with video as part of that documentation," says Seyller. "Healthcare seeks to reduce their exposure to liability, and a good integrator can present them with a multi-faceted solution that includes video, audio, door access records, all documenting that they followed procedures and did the right thing. It makes it easier to defend themselves in case of a lawsuit or accusation."

Hikvision North America's Focus on the Healthcare Vertical

Hikvision North America provides education and resources to inform the healthcare market about selecting products and setting up systems. Hikvision's dedicated healthcare vertical sales team and subject matter experts are in place to better serve customers in this expanding and specialized market. Exhibiting at industry-specific events – large and small, local and national – provides opportunities for Hikvision to talk to end users and other entities about their needs and challenges. When it comes to specifying equipment for a job, manufacturers' products must have been vetted to even be considered. Industry events provide access to decision-makers who might influence equipment choices at multiple facilities.



Hikvision North America provides education and resources to inform the healthcare market

Assisted living facilities and healthcare networks may standardize enterprise-wide on a certain brand of cameras; those decisions may not be made at the local level. Talking to parent companies for multiple facilities, as well as engineers, consultants and integrators, enables Hikvision to keep its value proposition top-of-mind while educating the market on broader technology issues of video surveillance. Security or architect and engineering (A&E) consultants may be contracted by an architect in the case of a new hospital or renovation, or might deal directly with a healthcare group's department.

Assisted living facilities and healthcare networks may standardize enterprise-wide on a certain brand of cameras; those decisions may not be made at the local level.

Expect a Bright Future for a Stable Market

Healthcare is a stable market for video surveillance with a bright future for growth. As life expectancy increases, the aging population will yield additional healthcare challenges. In short, changing demographics favor a greater-than-ever need for healthcare in our society, and by extension, a growing market for technologies to keep it safe and secure.

Video surveillance systems have a role to play, and product and system innovations continue to meet demand and serve applications that are emerging as fast as the market is changing.

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