

# Security System Monitoring in Health Care Facilities



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# Security System Monitoring in Health Care Facilities

This review will define a security command center, discuss officer selection and training criteria, discuss physical and psychological limitations and the impact of ergonomics when designing or upgrading the command center.

## Security Command Centers

Command centers have been around for a very long time; large organizations and governments have used them since the beginning of civilization. From the castle's keep to the pentagon, they all share common fundamental attributes and missions that do not materially change: to achieve situational awareness, manage threats, and secure the organization (RGA).

Today's command centers are mostly computerized; officers must be able to proficiently operate many computer-based systems. Training of these officers is critical in order to have an efficient and highly functional command center. The quantity of information available is multiplying with the introduction of new technologies and the required decision making processes that are introduced with the technology. Command center operators are being asked to undertake a mix of tasks, some electronic, some manual and others that are still paper based; all of these responsibilities are sometimes conducted under great pressures (ASRA). The operator's responsibilities need to be reconciled with an efficient and comfortable working environment (ASRA). There are different types of monitoring that can be achieved in a command center. Cameras that are monitored in real time are referred to as active monitoring whereas cameras monitored retrospectively are referred to as passive monitoring (La Vigne et al. 37).

## Security Officer Selection and Training

More hospitals are increasing their use of CCTV as part of their overall security plans, using an integrated system, security staff at a central monitoring station can view live images from surveillance cameras, control pan-tilt-zoom cameras, or search for video clips stored on digital video recorders. (TAC). The selection and training of officers to staff

the command centers is crucial. The average person cannot distinguish between normal or suspicious activities, but trained security monitoring officers are taught to do just that (Bureau of Labor). Most employers teach their new officers to become proficient in the process of analyzing people through the cameras screens or in person when they are stationed away from the monitoring station. Officers are put through extensive testing so they can distinguish what normal behavior is versus a visitor or patient that may be acting suspicious. Other important qualities that employers look for in potential officers are decision making skills, patience, and observation skills. These are beneficial to the job because officers need to determine the best courses of action in an emergency while still being aware of their surroundings (Bureau of Labor). A case can be made that less sophisticated operators require more carefully designed command centers to function more efficiently, especially when the security function must compete with the telephone, radio and visitor log for their attention (RGA).

“Training for monitors should entail both guidance on how to use cameras and interact with dispatch and patrol as well as cover the policies and procedures in place to safeguard privacy. Most agencies employ on-the-job learning to train monitors on actual camera use, with current monitors overseeing the training of new monitors,” (La Vigne et al 39). However, the Association of Public-Safety Communications Officials (APCO) is an organization that provides training and education for private and public safety professionals to enhance their skills in operating within a security command center. Monitors are often trained on things they are intended to monitor and things they aren’t intended to or cannot monitor. As such, often the monitor must sign a pledge that acknowledges the disciplinary sanctions that can occur if they violate protected rights when monitoring (La Vigne et al 40).

There are several different training programs that are available to ensuring that a central station is operating at the highest level. The Security Industry Association (SIA) offers a training program that will create a more effective operator. SIA claims that their program will boost the productivity of all operators, reduce mistakes, increase satisfaction and retention of experienced operators, and will fit best into your budget.

The Central Station Alarm Association (CSAA) has created eight online modules for training operators. Their modules cover topics like operational overview, the role as the central operator, alarm verification, communication equipment, and emergency procedures. The Central Station Operators course will enable employees to gain skills and an understanding that are critical for taking calls as the operator.

Employing these programs and modules when hiring operators is essential. “When training, emphasis is placed on operator and customer relations, application of systems and software, and peer relations, (Security Sales and Integration 1997).” The SIA/CPO has a program that in general covers central station terminology, interpersonal communications, telephone and radio communication, how to handle stressful situations, and alarm signal processing (Security Sales and Integration 1997). All of these programs by the various organizations set out to be consistent in their training mechanisms.

### **Physical and Psychological Limitations**

Through studies considering CCTV monitoring results have shown that monitoring video screens is both boring and mesmerizing; the attention span of the individual monitoring and assessing the screens falls below suitable levels after 20 minutes (Rhodes). The average shift length is eight hours, it is suggested that officers not be in the command center the entire shift. Since most officers working in the command center are sitting, it is recommended that officers scheduled for the same shift, switch duties every two to four hours. “Experts now say you should start standing up at work at least two hours a day—and work your way toward four. (Schulte)” “Medical researchers have long warned that prolonged sitting is dangerous, associated with a significantly higher risk of heart disease, diabetes, obesity, cancer, and depression, as well as muscle and joint problems,” (Schulte).

Rotating assignments will decrease the chances of ineffectiveness in the command center. If an individual cannot change the tasks that they are doing, the effects of task-specific fatigue are often unavoidable (Miller 18). Fatigue can cause the officers attention span to drift throughout the shift. When a person gets tired their eyes slowly become more

and more heavy, which leads to a lack of focus on the camera images. If a security officer is not fully concentrating on the task at hand they could miss an opportunity to prevent an event from escalating.

According to John Honovich of IPVM, if you have more than 8 or 16 cameras, the probability of you missing significant events by simply looking at the screen is nearly guaranteed. "Industry lore varies in respect to this topic, but common numbers cite between 12-24 cameras being monitored for somewhere between 15 minutes and two hours as being the human limit. We would tend to believe the lower side of both of these figures," (Honovich). Research has been done that shows as more monitors are added, detection rates go down. Research studies found that viewing 1, 4, 6, and 9 monitors have showed accuracy detection scores of 85%, 74%, 58%, and 53% effectiveness (Donald). "From an engineering point of view, the surveying task rarely incorporates an analysis of monitor to operator ratios on the basis of any security risk factor" (Donald). Varying an officer's assignment from monitoring in the command station, to patrolling or driving the premises, and greeting visitors at entrances will keep the officer more focused and engaged. Thus, in theory, the cameras with the most traffic and activity need to be observed more carefully. The camera image with the highest amount of traffic should appear larger than the rest of the images. Images with the least amount of traffic and activity should appear smaller on the monitor since they do not need to be observed as frequently. These small yet large setup strategies can be adjusted accordingly. For example, command centers with two officers, one officer could study the high traffic images while another officer monitors multiple low traffic images (RGA).

Psychological limitations include an individual's motor function skills, including interpreting sounds and language, decision-making, and reaction time. Development of motor function skills takes place in the back of the frontal lobe, called the motor cortex in the brain. Lack of motor function can result in poor decision making and delayed reaction time causing negative outcomes. Another psychological limitation is what most people know as 'daydreaming'. Daydreaming is trance-like, and could induce a sleep-like state of mind. This distraction can lead to losing focus, increased errors, or even falling asleep on the job.

Other important psychological limitations consist of an individual's ability to multitask, and his or her attention span. Multitasking is defined as handling more than one task or activity at the same time. This consists of using multiple parts of your brain at once (Human Multitasking). It is not uncommon for people to multitask on a daily basis, but when a security officer is on duty, multitasking can be critical to a situation. Security officers are faced with multiple tasks that can include any of the following such as; monitoring the access control system, emergency communication systems, viewing cameras, answering phone calls, dispatching officers, incident reporting, greeting guests, responding to fire, infant abduction, and medical gas alarms. Taking that into consideration, pure multitasking skills are a highly recommended quality for security officers. Studies prove that if an individual is taught and trained to multitask properly, employers will see improvements in their work. "In some cases criminals have to set up the scene for the incident, position themselves, wait for the right moment, and then strike." Some situations require an officer to look through the picture rather than just at it because things can be happening in the background of an image rather than just the foreground (Donald). However it's important to keep in mind although monitors are expected to multitask, it's essential to avoid work overload. Overload of work often makes people feel stressed, which can lead to an increase in mistakes made and the quality of work going down ([Human Factors] in CCTV Control Rooms 13).

In order to keep the monitoring officer's analytical skills at the most effective rate security command centers should have minimal distractions. To yield the best possible results and to keep security officers as attentive as possible the command center should be away from loud or high traffic areas. By keeping the officer's attention fully on the task at hand and preventing minor distractions in the work station, it will provide the employer with the most effective results possible.

There are two common types of monitoring locations that are used. There are "up front" locations, which would be located in lobbies or at reception desks or a "back office" dedicated specifically for monitoring purposes (Aggleton). When considering what type works best for the location being monitored there are a few things to consider. The

business of the area should be considered as well as the space necessary to complete the job (Aggleton).

### **Ergonomics**

Ergonomics has been defined as the study of relationships between workers and their environment, and nowhere does this come more into play than in the security or surveillance center (RGA). In a study published in the Journal of Public Affairs reveals that good office design has a positive effect on employee's productivity. Different factors like room design (including furniture design), lighting, temperature, and noise can affect a person's performance in the workplace.

It's suggested that monitors should be an arm's length away from the officer when sitting and analyzing images. The screen should also be tilted just slightly below eye level to protect the officer's eyes from getting strained over long periods of time (Security Info Watch). Studies found that a maximum of ten images per monitor per officer is the most effective. Depending on the officer's multitasking skills, it will help determine how many cameras will be shown on one monitor. This will then determine the size and angles of the camera images on the monitor. When officers alternate duties they can readjust the setup to fit their requirements. Employees comfort levels in their work environment can affect their productivity. Therefore, employers should take this into considering when purchasing office furniture; for example, the comfort of a chair or the height and sturdiness of a desk. Hydraulic chairs and tables can be adjusted by each operator to enhance comfort and reduce fatigue.

The lighting and temperate of a work environment can affect the employees productivity. Working in dim light leads to eye strain and thus causing headaches and irritability, which can lead to a decrease in productivity. "Essentially when a task relies more heavily on vision, the effect of lighting plays a stronger role in task performance- it makes colors and details easier to discriminate and helps in preventing visual fatigue," (Human Factors18). An important part of ensuring monitors are using their vision the most efficiently is making sure that light is distributed to where people will need it most, which is at the center of the vision field (Human Factors 18). Productivity can also be highly affected by the

temperature of the environment. “The human response to the thermal environment- heat and humidity- is affected by factors such as air temperature and velocity, clothing worn, and activity level, (Human Factors 17). If levels of heat and cold are uncomfortable, they can negatively impact the performance of workers. Even slight irregularity in temperature can negatively impact productivity. In addition, noise should be limited in the work environment for the command center officer to be able to focus more intently. “The effects of noise on performance are dependent on the degree to which sounds need to be heard to complete a given task, (Human Factors 19). If the officer is distracted by noise, they’re hindering their focus on the screen. Overall, the dynamics of the work environment play a big role in how efficiently the job gets done. In order to reach the goal of protecting healthcare facilities, employers should take these measures into consideration for the overall success and safety of the company and the community’s well-being.

## **Conclusion**

Before undertaking any new construction or renovation, the security leader must define the role and use of the command center, determine the criteria for the selection and training of command center operators, understand the physical and psychological limitations of the operator, and understand the impact of ergonomics in order to achieve maximum effectiveness and officer performance.

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