

Talking Points – Healthcare Ergonomics

Safe Patient Handling Programs and Infection Control: Ensuring a Smooth Process

By Andrew Rich, MS, OTR/L

**Editor's note: We are pleased to announce that Laurette Wright, RN MPH, COHN-S, Clinical Director of Diligent Services, and her staff of clinical directors, will continue this column. Andrew Rich, a Regional Clinical Manager, has authored this column. Andrew has a Master of Science in Occupational Therapy and Ergonomic Certification: IMPACC (Injury Management & Cost Containment.) We welcome Andrew's expertise and thank Laurette for continuing this excellent column.*



Costs of work-related musculoskeletal injuries to staff caused by manually handling patients continue to present a major financial impact to healthcare organizations. Nursing homes and personal care facilities rank second, with an incidence rate of 13.8 per 100 employees, and hospitals rank sixth, with an incidence rate of 8.4 per 100 workers (Lipscomb, Tinkoff, et al, 2004.) These rates consistently reveal that nursing personnel have the highest claim risk for musculoskeletal disorders for any occupation or industry.

Safe patient handling programs are showing tremendous benefit for nursing homes and hospitals. Seventy to 80 percent and higher reductions in patient handling injuries to healthcare workers due to the introduction of safe patient handling equipment is not uncommon. The success of these programs has led to the introduction of legislation mandating the use of safe patient handling programs in Texas and Rhode Island.

As hospitals begin to introduce these programs, concern is always vocalized regarding the spread of infection from equipment being used between patients. This concern is warranted, considering hospital-acquired infections continue to be a common occurrence in healthcare. At any time, about one in 10 patients in acute care hospitals have a hospital-acquired infection, and an additional 10-60 percent of infections may present after discharge (Infection Control: Basic Concepts and Practices: 2nd Edition.) According to the Plowman study, 7.8 percent of patients had hospital-acquired infections identified during their stays in the hospital. In addition, 19 percent

of patients who were not diagnosed with hospital-acquired infections in hospital – and 30 percent of those who were – reported symptoms after discharge. Patients diagnosed with a hospital-acquired infection remained in the hospital about 2.5 times longer than uninfected patients, an average of 11 additional days. This increased hospital costs approximately 2.8 times more than for uninfected patients, averaging about \$5,000 per case (Infection Control: Basic Concepts and Practices: 2nd Edition.)

The concern regarding the costs due to cross contamination is a legitimate one and can be expected to be raised once a safe patient handling program is implemented. One question is always posed. “Does the use of equipment (lifts, slings, repositioning and lateral transfer devices, etc.) increase the risk of cross contamination and spread disease from patient to patient among those who use the equipment?” In an attempt to examine specific microbes existing on equipment, one study cultured non-disposable fabric slings that were used between patients. What was found was, of the 32 cultured swabs taken from slings and hard-surfaced equipment, 25 percent were found with no growth, 71 percent were found with negative coagulase-negative isolated staphylococcus and 3 percent with isolated staphylococcus aureus (Boden, 1999.) The microbes found, although with varying frequency, were the same types found on various surfaces. Based on this, the preventive measures to avoid cross contamination are basically the same.

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As with any activity in a hospital, the most effective means of preventing the spread of infection is through the use of hand washing before and after interacting with a patient. In addition, after using lifting equipment with a patient, the surfaces of the equipment should be cleaned. Simply put – *clean hands on clean goods*. Surfaces should be cleaned, disinfected and then cleaned again. **Cleaning** first removes any significant soilage. The **disinfectant** destroys any pathogens and microorganisms by physical or chemical means. The **second cleaning** removes the disinfectant, thereby reducing risk of skin irritation if a patient’s skin touches the surface upon using the equipment. Be sure the disinfectant is left on the surface for the prescribed time dictated by the manufacturer of the solution. If these measures are taken with the non-porous surfaces of the equipment, risk of infection is greatly reduced. Interestingly, these processes are the same measures taken for any medical equipment that is used in a hospital.

Contending with cross contamination becomes more challenging when confronted with porous surfaces (or software) involved in safe patient handling (i.e., slings, re-positioning sheets, lateral transfer sheets, etc.) In many cases, these are classified as a fabric or linen and therefore require additional measures to ensure clean hands are indeed placed on clean goods.

These devices typically fall into two categories: non-disposable and disposable (patient specific.)

- Non-disposable products are further broken down by the means in which they are terminally cleaned. Some are non-disposable and wipeable, and others are non-disposable and must undergo a laundry process to ensure appropriate disinfection. The best manner to find out appropriate cleaning for the devices is to check with the manufacturer of each device.
- Disposable products are patient specific and can be used multiple times until the product degrades and loses its functionality or becomes significantly soiled.

Regardless of which type of device is used, several processes need to be considered to ensure the safe patient handling program will comply with infection control systems and not prove to be a disincentive for use. These areas are:

1. Terminal cleaning of lifts and non-porous equipment
2. Cleaning of porous equipment (slings, sliding sheet, etc.)
3. Determination of appropriate par levels and accessibility of equipment

Terminal Cleaning of Equipment

It just makes sense that, after equipment is used, it should be cleaned. The challenge when entering a nursing home or hospital is ensuring procedures are being followed to

keep equipment clean. As it relates to safe patient handling equipment, refer to the manufacturer’s guidelines. Almost all manufacturers will recommend cleaning all surfaces that come into contact with patients with the organization’s typical disinfection/cleaning solution. However, many times surfaces such as footplates, mast arms, etc. are often found in a condition with debris on them. Besides the risk for cross contamination, these surfaces also simply do not look clean. The question one should pose is, “Would I wish to be placed in this equipment, given its condition?” If the answer is “No,” it needs to be cleaned.

To contend with this issue as it relates to the actual lifts, many organizations have implemented simple procedures. Standard infection control procedures should always be expected to be in operation (i.e., inspect equipment before use to ensure cleanliness, and terminally clean the equipment after each use.) But, to ensure compliance, organizations have assigned staff to “inspect equipment” one time per shift for cleanliness as part of a routine, have Housekeeping clean equipment as part of their assignment to ensure cleanliness, and/or use other types of monitoring systems to ensure the cleanest state of the safe patient handling equipment.

The key to the success of these types of monitoring systems is accountability. The nurses, CNAs, therapists, etc. who use the equipment should have the primary role of keeping the equipment clean. During Housekeeping’s cleaning routine, if they find equipment with significant amounts of debris, they should clean the equipment and then inform their supervisor of the situation. The Housekeeping supervisor then follows up with the patient care manager, charge nurse, etc. and informs them of the situation. This creates a feedback loop. Housekeeping should not need to clean the equipment, but if cleaning is required, the system should raise the issue to the appropriate parties so correction can occur. Without this loop, an expectation can be created that Housekeeping is solely responsible for cleaning the equipment. However, with the expectation that Housekeeping staff will let their manager know about the state in which patient handling equipment is found, and that this information will be communicated to the patient care manager, there is a greater likelihood of all staff performing basic terminal cleaning procedures after patients use the equipment.

Cleaning of porous equipment (slings, sliding sheets, etc.)

The terminal cleaning of slings and other software pieces is the same as for non-porous equipment in terms of the expectation to follow infection control procedures. In the case of

patient-specific disposable equipment, it is rather basic. Dispose of the sling, etc. after it is no longer needed or is significantly soiled. The challenge with disposable equipment is ensuring correct par levels have been determined and a clean supply is regularly monitored and re-stocked as needed. There are elaborate computer systems that can be used, or a simple count of the stock. The problem often is the initial par level is not correct or the supply is not monitored, and the result eventually is that no disposables are available. The hope is that if this occurs, staff will simply take the appropriate steps and get the supply re-stocked. However, without a system in place, what often occurs is due to the time demands (real or perceived) by staff, a choice is made to either use another patient's sling or to simply perform a manual handling maneuver. Either choice can lead to catastrophic results; spread of a contagion or injury to a staff member due to the heavy lifting required to move the patient. To determine appropriate par levels, determine the number of patients on the unit that typically require use of the sling, etc.

In the situation where non-disposable launderable devices are being used, the challenges are basically the same. Ensure the correct number of devices is available, and ensure the device is sent to be cleaned upon discharge of the patient. In identifying par levels of non-disposables, the steps to determine the correct number are basically the same as when looking at disposables.

Once a sling, sliding sheet, etc. has been assigned to the patient, it is imperative that a standard placement location in the patient room is determined. Devices should be easily accessible and ready to use. If a staff person must search for the device, it increases the likelihood that an inappropriate transfer will occur, or the staff member will grab a readily available device that belongs to a different patient. In addition, storage of clean and ready-to-use slings and slides should also be in a standardized location (i.e., clean hold, etc.)

Determining Par Levels

To avoid the problem of not having enough equipment, it is important to determine the correct amount of devices needed for the patient population. For example, if on a unit of 40 patients, the typical number of patients that require use of a lift with a non-disposable or disposable sling is 30 percent, that means 12 patients on any given day will need a sling. Therefore, the amount needed in a ready-to-use state is 12. However, what must be considered are variances when a higher demand occurs, and more importantly

with non-disposables, how long it will take to get the devices back from laundry. In the case with higher demand, many organizations increase the par level by two or three, or they have a backup available that they can call upon. Laundry turn-around must also be considered. If it takes 24 hours for a soiled sling to return to the unit in a clean and usable state, that will increase the demand by 100 percent, or in this case 24. Some organizations will increase their original par level by 5 to 10 percent to accommodate for this and have additional slings available for use by request (i.e., calling central supply and having more sent.) The key to the success of this system is monitoring and updating par levels based on the caseload.

To assist in lowering costs and supporting infection control procedures, many manufacturers are creating slings and other software devices that are wipeable between patient uses. So, through the use of disposable and wipeable devices, organizations can implement safe patient handling programs that significantly contain the risk of cross contamination between patients.

The bottom line is that the implementation of a safe patient handling program should not create new obstacles to infection control processes. Safe patient handling equipment should be treated like any other equipment brought into a patient's room, whether it is a blood pressure cuff, a chair or a portable x-ray machine. Simply follow your organization's infection control policies. However, to ensure success of your safe patient handling program and compliance with infection control, have systems in place to inspect and monitor the status of your program. If these steps are done, you can expect to keep your staff and patients safe from the risks of inappropriate manual handling and the spread of infection.

References

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