Ergonomic Evaluation Report

Veterinary Teaching Hospital
Pharmacy

Report By:
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Risk Management & Insurance
Ergonomic Evaluation Report
Veterinary Teaching Hospital

Executive Summary
Ergonomic evaluation services were requested by Veterinary Teaching Hospital (VTH) Administrator Gail Gumminger as part of an upcoming remodel to the VTH Pharmacy. After providing ergonomic evaluations, the visits revealed an increased potential for injury to pharmacy employees. Injury risks primarily encompass work with the hands such as computer tasks, gripping and twisting bottle caps, filling syringes, counting tablets/pills, filling & closing vials & bottles, using a mortar and pestle, as well as lifting and handling bags and other objects. Because evaluation of the job tasks revealed an increased injury risk, it is recommended that changes to environment, equipment and job tasks be made. In addition, the overall layout of the pharmacy needs improvement which will help decrease inefficiency.

With adequate implementation correct ergonomics engineering, administrative and work practice controls the exposure to ergonomics injury risk factors should be reduced. However, pharmacy staff must utilize equipment and work practice techniques in order to help counteract the injury risk.

Problem Statement
Recent ergonomic evaluation has revealed the need for further changes to help counteract exposure to injury risk factors.

Focus
The initial ergonomic evaluation walk-through was performed to determine potential employee injury risk. Prior injuries do not seem common however, it may be a case of employee underreporting of discomfort and injury.

Evaluation Plan
The overall purpose of the initial ergonomic evaluation was to determine if more detailed ergonomic evaluation was needed and after the initial evaluation revealed a risk for injury, further and more detailed evaluation of job tasks took place. Qualitative ergonomic evaluation took place on several occasions. Thereafter, a more detailed semi-quantitative analysis was used to further quantify injury risk.
Ergonomic Injury Risk Factors

- Repetitive & forceful use of the hands, fingers, forearms (pinch and power grips)
- Awkward wrist postures (flexion, ulnar deviation)
- Wrist rotation (supination, pronation)
- Awkward neck postures (flexion, rotation and lateral flexion)
- Awkward shoulder postures (flexion and abduction)
- Forceful lifting and awkward bending
- Improper chair support (poor chairs)
- Frequent static standing

Not all injury risks may be listed.

Ergonomics Analysis Tools Utilized

The below ergonomics analysis tools were used in determining injury risk for tasks performed by VTH Pharmacy Employees. These semi-quantitative analysis tools help quantify potential for injury risk and help prioritize the necessity for change. The analysis tools used below are several commonly used ergonomics analysis tools used to determine upper extremity injury risks.

1. Rapid Upper Limb Assessment (RULA)
2. Strain Index (SI)
3. Hand Activity Level (HAL)

1. RULA
   - The Rapid Upper Limb Assessment (RULA) method is a postural targeting method for estimating the risks of work-related upper limb disorders. A RULA assessment gives a quick and organized assessment of the postural risks to a worker.

2. Strain Index
   - The Strain Index is a semi quantitative job analysis tool that results in a numerical score (SI score) that is correlates with the risk of developing distal upper extremity disorders. The index is based on multiple variables within a task including intensity, duration of exertion, efforts/minute, posture, speed and duration per day.

3. HAL
   - The Hand Activity Level (HAL) assessment tool is used to evaluation of job risk factors which may be associated with cumulative trauma disorders of the hand and wrist. The evaluation is based on assessment of hand activity and the level of effort for a typical posture while performing a short cycle task. Effort repetition and duration as well as effort level are used to determine final scores.
## Ergonomics Analysis Tool Results

### RULA - Returning Prescriptions

<table>
<thead>
<tr>
<th>Action level</th>
<th>RULA score</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-2</td>
<td>The person is working in the best posture with no risk of injury from their work posture.</td>
</tr>
<tr>
<td>2</td>
<td>3-4</td>
<td>The person is working in a posture that could present some risk of injury from their work posture, and this score most likely is the result of one part of the body being in a deviated and awkward position, so this should be investigated and corrected.</td>
</tr>
<tr>
<td>3</td>
<td>5-6</td>
<td>The person is working in a poor posture with a risk of injury from their work posture, and the reasons for this need to be investigated and changed in the near future to prevent an injury</td>
</tr>
<tr>
<td>4</td>
<td>7+</td>
<td>The person is working in the worst posture with an immediate risk of injury from their work posture, and the reasons for this need to be investigated and changed immediately to prevent an injury</td>
</tr>
</tbody>
</table>

RULA score for – Returning Prescriptions = **6**
### RULA - Allergy Shots

<table>
<thead>
<tr>
<th>Action level</th>
<th>RULA score</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

RULA score for – Allergy Shots = 7
# RULA – Making Pills – Mortar & Pestle

<table>
<thead>
<tr>
<th>Action level</th>
<th>RULA score</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
<td>4</td>
<td>7+</td>
<td>The person is working in the worst posture with an immediate risk of injury from their work posture, and the reasons for this need to be investigated and changed immediately to prevent an injury</td>
</tr>
</tbody>
</table>

**RULA score for – Making Pills – Mortar & Pestle = 5**
### Strain Index - Returning Prescriptions

<table>
<thead>
<tr>
<th>SI Score and Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3</td>
</tr>
<tr>
<td>3-5</td>
</tr>
<tr>
<td>5-7</td>
</tr>
<tr>
<td>&gt;7</td>
</tr>
</tbody>
</table>

**SI score for – Returning Prescriptions = 3**

### Strain Index - Allergy Shots

<table>
<thead>
<tr>
<th>SI Score and Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;3</td>
</tr>
<tr>
<td>3-5</td>
</tr>
<tr>
<td>5-7</td>
</tr>
<tr>
<td>&gt;7</td>
</tr>
</tbody>
</table>

**SI score for – Allergy Shots = 13.5**
Strain Index – Making Pills – Mortar & Pestle

<table>
<thead>
<tr>
<th>SI Score and Interpretation</th>
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</thead>
<tbody>
<tr>
<td>&lt;3</td>
<td>Safe</td>
</tr>
<tr>
<td>3-5</td>
<td>Uncertain</td>
</tr>
<tr>
<td>5-7</td>
<td>Some Risk</td>
</tr>
<tr>
<td>&gt;7</td>
<td>Hazardous</td>
</tr>
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</table>

SI score for – Making Pills – Mortar & Pestle = 6.8
## HAL - Returning Prescriptions

### ACGIH® TLV® for Hand Activity

<table>
<thead>
<tr>
<th>Job</th>
<th>Analyst</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning Prescriptions</td>
<td>Frank Gonzales</td>
<td>Feb/Mar 2012</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hand Activity Level (HAL) (See scale below)</th>
<th>0.16</th>
<th>0.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalized Peak Force (NPF) (See table below)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ratio = NPF / (10-HAL)</th>
<th>0.16</th>
<th>0.25</th>
</tr>
</thead>
</table>

**Determine Result**

- TLV = 0.78
- AL = 0.56
- > TLV
- AL to TLV
- < AL

- Hand Activity Level (HAL) Scores
  - 0.16 (Left)
  - 0.25 (Right)
**HAL – Allergy Shots**

### ACGIH® TLV® for Hand Activity

<table>
<thead>
<tr>
<th>Job</th>
<th>Analyst</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergy Shots</td>
<td>Frank Gonzales</td>
<td>Feb/Mar 2012</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>Right</td>
</tr>
<tr>
<td>Hand Activity Level (HAL) (See scale below)</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Normalized Peak Force (NPF) (See table below)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ratio = NPF / (10-HAL)</td>
<td>0.66</td>
<td>0.66</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determine Result</th>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; TLV</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>AL to TLV</td>
<td>✭</td>
<td>✭</td>
</tr>
<tr>
<td>&lt; AL</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

- **Hand Activity Level (HAL) Scores**
  - 0.66 (Left)
  - 0.66 (Right)
# HAL – Making Pills – Mortar & Pestle

## ACGIH® TLV® for Hand Activity

<table>
<thead>
<tr>
<th>Job</th>
<th>Analyst</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making Pills – Mortar &amp; Pestle</td>
<td>Frank Gonzales</td>
<td>Feb/Mar 2012</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
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<th>Right</th>
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</thead>
<tbody>
<tr>
<td>Hand Activity Level (HAL)</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Normalized Peak Force (NPF)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ratio = NPF / (10-HAL)</td>
<td>0.28</td>
<td>1.0</td>
</tr>
</tbody>
</table>

### Determine Result

- \[ \text{TLV} = 0.78 \]
- \[ \text{AL} = 0.56 \]

- > TLV
- AL to TLV
- < AL

- > TLV
- AL to TLV
- < AL

- Hand Activity Level (HAL) Scores
  - 0.28 (Left)
  - 1.00 (Right)
Results Discussion

RULA

- Returning Prescriptions
  - The use of the RULA tool demonstrates that a change is necessary when performing Rx returns. This score is however due to awkward neck and wrist postures. A modification to the postures used, which may be possible when performing this task, will help reduce the RULA score and reduce injury risk potential. A significant task redesign is not completely necessary if postural adjustments are made.

- Allergy Shots
  - The use of the RULA tool demonstrates that a change is necessary when filling allergy shots. However, this score is also due to awkward neck and wrist postures. Although a modification to certain postures used may help reduce injury risk potential, the overall pinch grip using the hands and fingers are concerning and difficult to modify. To reduce the injury risk, adequate rest and recovery along with equipment changes and posture modifications are necessary.

- Making Pills – Mortar & Pestle
  - The use of the RULA tool demonstrates that there is a slight risk making pills when using a mortar & pestle. This is however due to postures at the shoulders while mixing using the pestle. The RULA score does not indicate repetition or force which is of greater concern with this task.

Strain Index (SI)

- Returning Prescriptions
  - Scores indicate some uncertainty and somewhat lower injury risk to the distal upper extremities when returning prescriptions. The reason for slightly increased score, as was also illustrated in the results of the RULA score are due to wrist postures. Training employees in maintaining neutral wrist postures will help reduce SI scores and potential injury risk. Neutral wrist postures are sometimes difficult to maintain however as earlier mentioned, this task is one where neutral wrist postures appear feasible.

- Allergy Shots
  - Scores indicate the job task as being quite hazardous with a high risk for injury risk to the distal upper extremities. Primary reasons for the high scores are exertion intensity, exertion duration and exertion frequency, all of which are high. Postures are fairly neutral and do not need alteration however additional changes to pacing, break time and training may help reduce SI scores and potential injury risk. Modifications to equipment through the manufacturer to decrease force requirements are most ideal.
• Making Pills – Mortar & Pestle
  o Scores indicated some hazards with this task. As illustrated in the HAL, the speed and repetition are of concern with this task. Because the overall task duration is not continuous throughout the day, the risk slightly decreases risk. Avoidance of performing this task for extended periods should continue. Again, changes to the job to allow automation (if feasible), additional rest breaks, etc, will help minimize injury risk.

HAL

• Returning Prescriptions
  o Results of the HAL indicate scores below the action limit (AL) for both the right and left hands. These scores indicate a low injury risk for this task, specifically to the hands. However, awkward neck and wrist postures were identified as mentioned above. Again, certain awkward wrist postures can be modified with training and awareness.

• Allergy Shots
  o Results of the HAL indicate scores above the action limit (AL) for both the right and left hands. These scores indicate a higher injury risk potential, specifically to the hands. Speed and forceful exertions are concerning with this task. Additional rest periods may be needed to reduce potential for injury. It appears this task is not continuous for 8 hours which is beneficial in avoiding increases in injury risk. Future performance of this task’s total duration should remain as low as possible. Job rotation should also be incorporated to decrease potential for injury.

• Making Pills – Mortar & Pestle
  o Results of the HAL indicate scores above the threshold limit value (TLV) for the right hand only. This result indicates a very high injury risk potential. The main reason for this score is the repetition and speed. Force is also a concern. Fortunately, the task duration is low and slightly decreases risk. However, changes to the job to allow automation (if feasible), additional rest breaks, etc, will help minimize injury risk.

Although not all job tasks may create injury, the results of analysis were not surprising. Hand intensive tasks are common for pharmacy employees, and simple modifications to reduce injury risk is challenging. Job rotation, rest breaks along with additional engineering controls (when feasible) as well work practice controls and training should be incorporated to reduce potential for injury.
**Recommendations**

As mentioned above, and as is true for any injury risk exposure, the implementation of engineering controls to eliminate or reduce exposure is most ideal and should be investigated and implemented first. Along with these changes, administrative and work practice controls should also be implemented where needed.

Further evaluation and analysis of job tasks will need to take place in the future to further identify injury risk potential for various pharmacy job tasks.

1. **Avoid awkward wrist postures whenever feasible.** Concentrate on keeping the wrists as straight as possible in a neutral position (handshake posture) and avoid unnecessary and awkward bending of the wrists. Awkward bending of the wrists (extension, flexion, radial or ulnar deviation) can drastically decrease grip strength. In combination with a pinch grip, these awkward postures can be harmful to the body.
   a. Avoiding unnecessary awkward wrist postures during prescriptions returns will lower injury risk scores previously indicated. Maintaining a neutral wrist posture should be focused on whenever possible.

2. **Alternate hand use as much as possible to decrease repetitive and forceful motions with the hands** (i.e. left hand to stir with pestle versus right).
   a. Alternating hands may help reduce injury risk scores previously indicated.

3. **Use tools and equipment designed to incorporate use of the entire hand, not just one finger and thumb.** Pinch gripping should be avoided whenever feasible. Unfortunately pinch grip and grasp is difficult to prevent which further emphasizes the need for correctly designed hand tools.
   a. Repetitive tasks requiring pinching with the fingers should have forces below 2.2 pounds/force.

4. **Maintain a 90 degree elbow angle while working.** Avoid awkward shoulder postures and work overhead.

5. **Avoid unnecessary pinch or grasp whenever feasible.** Use a grasp rather than a pinch when possible. Power grasp, or use of the entire hand and all fingers, is approximately 15 – 25 times stronger than a pinch grip (thumb and one finger).

6. **Set down hand tools, Rx bottles, etc when they are not in use.** Alternate hands and use a relaxed pace when performing repetitive tasks.
   a. Purchase a tool holder to hold hand tools when not in use. This may be available through frequently used vendors PCCA – [www.pccarx.com](http://www.pccarx.com)
b. As shown in pictures below, repetitive and forceful pinch grip and grasp are common of pharmacy employees and is difficult to eliminate. Use of job rotation and work practice controls are needed.

7. Ensure hand tools have adequate dimensions and weights. Current hand tool handle measurements do not meet all ergonomic guideline specifications. Hand tool specifications should be as follows:
   a. Hand tool handle length should not be less than 4 inches. This can produce pressure on the palm. Recommended handle length is 5 inches.*
      i. Current handle length is less than 4 inches. Hand tools with adequate dimensions should be purchased or handle extensions made.
   b. Diameter of handle should be 1.25 to 2 inches. Ideal diameter is 1.5 inches.*
      i. Current diameter is 2 inches. This is with ergonomic hand tool guidelines for diameter.
   c. For tools which require a precision grip (e.g. pinch grip of a scalpel, pencil, etc) a diameter of 0.45 inches is recommended. Precision tools should not weigh more than 1 lb.*
8. Consider implementing foam tubing for softer grips on hand tools where needed.

9. When needed and feasible, consider utilizing automated pill crushers to reduce potential manual crushing of pills (forceful and awkward shoulder, elbow, hand/wrist postures and repetition).

10. Consult with equipment vendors regarding forceful exertions using IV bags, syringes, etc and request that adjustments to force required to manipulate these and other items requiring a forceful pinch be made. Force reduction is most ideal in reducing potential injury risk.
   a. As earlier mentioned, repetitive tasks requiring pinching with the fingers should have forces below 2.2 pounds/force. *

11. Take occasional breaks away from hand intensive and repetitive tasks whenever feasible. Although it is very difficult to eliminate exposure entirely, rest breaks may be beneficial. Stretches and exercises may also be beneficial. Job rotation to less fatiguing tasks should be incorporated as well.
   a. Implementing a 5-minute break for another activity every hour is recommended for continuous, highly repetitive tasks. *
   b. Implementing a stretch break program may be beneficial however is not a replacement for elimination of injury risk exposure and ergonomics engineering controls. Contact me for additional information on coordinating this type of program.

12. Make improvements or modifications to the front window glass panels. Although brand new, these panels are heavy and opening/closing these requires some forceful exertion. Employees have commented on the difficulty opening/closing these new glass panels.

13. All storage shelves should be reorganized and relocated to help improve work flow in the remodel design. Currently, employees must leave the front counter area to access the outgoing prescriptions shelf. Overflow storage shelves should be replaced with contents from outgoing patient shelves and vice versa which will help improve work flow. Storage and shelf location should be highly considered during the redesign.
14. Increase shelf storage space. Employees mention insufficient space is provided.

15. Additional space near the front counter is needed for storage of large bags of dog food to be picked up by customers. Currently insufficient space is available and bags stored on the floor create trip and fall hazards.
   a. A redesign and/or reorganization of the ‘display counter’ should take place as well. The display counter is apparently in place to show commonly purchased items to customers; however, many of these items are not very visually accessible to customers, especially items on shelves lower to the ground. This space should be redesigned to accommodate overflow of customer pick up items such as the bags of dog food and if used as a display, should be made more visually accessible to customers, without impacting storage space or creating safety hazards.
   b. Aisles should be kept clear of all trip hazards (as shown in below pictures).

16. Employee view of the front counter is obstructed when working in certain areas of the pharmacy. Several options can be implemented to alleviate this issue.
   a. Relocate work counters to allow employees to face the front counter to see when customers are present.
   b. Install mirrors for employees to see customers at the front window when their backs may be turned.
   c. Install additional customer service bells to allow customers to notify employees a customer is waiting.
   d. Install cameras and software to allow employees to see customers at the front counter through the computer monitoring system.

17. Ensure correct working elbow height in counter design. Current work surface heights vary from 36 inches to 40 inches. This is within acceptable working height ranges of approximately 37” – 47” however certain surfaces may be too low. Employees mention during ergonomic evaluation that they prefer countertop heights to match; however,
depending on the work performed, varying counter top heights may be necessary. Future counter height design specifications should meet the below criteria shown in the illustration.

a. Counter height where allergy shots are filled is too low (36 inches) and should be raised in the redesign. A work surface area of at least 48” x 30” is needed for the allergy shots area.

18. Employee forward reach should be no more than 18”. * Work surface depth should be designed to minimize forward reach as much as possible.

19. Consider utilizing the east wall of the pharmacy office for additional overhead storage space.

20. Ensure sufficient clearance under all work surfaces. Current work surface clearance is insufficient.
   a. Work surface thickness should not exceed 1.75 inches.*
      i. Several drawers under seated work surfaces are well beyond this. Work surfaces with thicknesses of beyond 1.75 inches should be standing only workstations.
   b. For seated work surfaces, all leg obstructions should be removed. Feet clearance depth should be at least 31.5 inches deep under the work surface. Width clearance for the thighs should be at least 20.5 inches.* (Additional space is needed for movement around the workstation. This clearance accounts for the thighs only).
   c. For standing work surfaces, all leg obstructions should be removed. Depth clearance for the knees should be at least 17.5 inches. Feet clearance depth should be at least 4 inches deep and 4.5 inches high.*
21. If seated work is to occur at a standing height counter (i.e. 37-47 inches high), appropriate stools should be purchased (higher pneumatic seat lift with foot ring). As mentioned above, all leg obstructions should be removed if seated work is to take place. Below stools are currently in use in the VTH business office.

22. Where needed, if height adjustable work surfaces are not implemented, provide supplemental work surfaces or work platforms to allow for proper work surface heights for employees of varying stature.

23. Rotate job tasks regularly. Ideally job rotation should allow for task rotation following 2 hours of performing continuous moderately fatiguing tasks. Switching to a task that is less fatiguing and requires use of alternative muscle groups is ideal. Intensive work should be broken into smaller units. Best environment for fatigued muscles is light, dynamic work which stimulates blood flow to affected muscles and allows lactic acid waste removal. Job rotation may be difficult given many pharmacy job tasks are hand intensive.*
24. Consider relocation of the computer workstation counter where returns are performed and redesign this space to be used as additional workspace, product display space or product pickup storage (i.e. dog food, etc). One employee mentioned that approximately 68” is needed adequate workspace for this area. Currently there appears to be a lot of wasted space that could be utilized as additional workspace for other tasks or for storage.

a. Consider utilizing the front area workstation space (shown below) as a standing only workspace and storage space. Store additional larger Items under the work surface or on shelf space.
   i. The current space used to store the chair/stool takes up additional storage space for bags of dog food, etc. (See below picture)
   ii. Adjacent drawers under the work surface appear to be used minimally. Re-organization and redesign can take place to improve storage of more frequently used items.

b. The overflow shelves where internal VTH staff obtain items is far away from the staff entrance to the pharmacy. Reorganization and relocation of shelves to improve work flow is recommended. Switching the prescription pick up shelf with the overflow supply shelf would decrease traffic through the middle of the pharmacy.
The above crude drawing is to illustrate potential changes in location to storage shelves, display, etc. Many variations may exist.

In keeping with ergonomic design guidelines and to improve work flow and storage space, more advance aesthetic design modifications should be made as desired. A curvature of the storage counter to follow a similar curvature of the front counter is one option. Various options exist to improve storage and increase work flow while decreasing traffic.
25. Continue to utilize anti-fatigue mats especially in areas where static standing occurs. Ensure mats are in good working shape and do not increase risk of slips, trips and falls on worn edges or edges which do not have an adequate bevel. Replacement should be made regularly when mats become worn. Mats currently in the pharmacy can be replicated and appear to be of good quality.

26. Consider a shoe program or shoe insert program which will emphasize proper foot wear and foot care to help reduce back, knee and foot fatigue.
   a. Athletic shoes are better for the feet. Shoes that are adjustable (i.e. laces, Velcro) are recommended. Slip-on shoes are not recommended for work use. Shoes should have cushioning under the heel and the balls of the toes. Shoes should have proper midsole thickness. A soft, flexible insole inside the shoe can also be worn. Shoes should be flexible and will reduce the chance of slipping. Flat, rubber outsole or similar low-profile pattern is ideal. Shoes should have a perforated or mesh top to allow for adequate ventilation.*

27. Try and purchase pill bottle openers to decrease required force to open bottles.

<table>
<thead>
<tr>
<th>Pill bottle opener</th>
<th><img src="http://www.organizeit.com/multi-grip-pill-bottle-opener.asp" alt="Pill bottle opener" /></th>
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</thead>
<tbody>
<tr>
<td>Pill bottle opener</td>
<td><img src="http://www.amazon.com/Dycechm-Pill-Bottle-Opener-Pad/dp/B003XWXTR8" alt="Pill bottle opener" /></td>
</tr>
</tbody>
</table>
28. Use a hand truck/dolly or cart to manually handle bags of dog food. Avoid lifting and carrying whenever feasible.
   a. Overall, the storage in the back storeroom area is setup well. Smaller and lighter weight items are stored on higher shelves and heavier items stored on lower shelves. However, in dog food storage space in one corner is difficult to obtain and creates awkward lifting postures. Food bags may reach upwards of 40 lbs. Although reach of these bags may be in infrequent, a modification to storage should be made to decrease awkward lifting and access to these bags.
29. Organize items placed on storage shelves to reduce lifting overhead or below the hips. Purchase additional step stools as needed. Reaching or lifting items above shoulder height (over 50 inches) is made easier with step stools. Overhead reach should not exceed 73". If storing items over this height, these items should be those less frequently used. Equipment or obstructions should be recessed so that overhead obstructions for taller employees are minimized.*

   a. Storage for step stools should be designated so that they are easily accessed by quickly stored (i.e. between shelves with adequate space accounted for)

<table>
<thead>
<tr>
<th>Step Stool</th>
<th>1. Target</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>2. Amazon</td>
</tr>
</tbody>
</table>

   | Step Stool | http://www.stepstooluniverse.com/Rolling-Step-Stools-s/41.htmb |

Store heaviest materials that can be moved with an assistive device, (e.g., hand truck) on the floor.
30. Avoid awkward neck postures whenever possible. The nature of pharmacology work involves neck flexion; however, using correct work surface heights and providing an angled work surface where appropriate may help reduce awkward neck postures.

31. Purchase wireless hands free telephone headsets to eliminate awkward hand, forearm or neck posture while on the phone. With the hands free to perform other tasks, productivity & efficiency may also be improved. Employees may be resistant to this device however headsets are is highly recommended in reduction of awkward neck postures. Many awkward neck postures seen in pharmacy work are difficult to eliminate; however in regards to phone use, awkward neck postures can be completed eliminated if this device is used regularly.

| 226 | **Plantronics CS70 Wireless Convertible Headset**  
| Product ID: CS70 | **$349.99** | CSU Bookstore  
| | | (970) 491-1481  
| | | (970) 491-3355  
| | | [www.bookstore.colostate.edu](http://www.bookstore.colostate.edu) |

| 39 | **Plantronics - HL10 Handset Lifter Accessory**  
| Product ID: L8HL10 | **$63.12** | CSU Bookstore  
| | | (970) 491-1481  
| | | (970) 491-3355  
| | | [www.bookstore.colostate.edu](http://www.bookstore.colostate.edu) |

32. Purchase monitor arms for computer monitors. This will free up work surface space for additional items. Along with this, CPU’s should be relocated and mounted in alternative locations off of the desktop to increase workspace.

| 223 | **Space Arm, Single Arm, Bolt Through Mount**  
| Product ID: SA01BT | **$189.00** | Colorado Correctional Industries (CCI)  
| | | (800) 685-7891  
| | | (303) 320-1210  
| | | [http://www.coloradoci.com](http://www.coloradoci.com) |
33. Try monitor mount document holders attached to the side of the monitor. Currently, prescription paperwork, etc is placed between the CPU and the keyboard which provides an improved viewing angle, however, if monitor arms are installed to increase workspace, this will no longer be feasible in which case a document holder such as the below would be most ideal.

<table>
<thead>
<tr>
<th>153</th>
<th>Copyholder,Clip,Bk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Product ID: MMMDH240MB</td>
</tr>
<tr>
<td>$10.91</td>
<td>Amazon (800) 201-7575</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.amazon.com">www.amazon.com</a></td>
</tr>
</tbody>
</table>

34. Provide ergonomics awareness training for pharmacy employees to include manual materials handling and back safety. Please contact me directly for assistance with the setup of training.

Additional evaluation will need to be performed at the VTH Pharmacy in order to determine additional injury risks and potential solutions. Please contact Risk Management for further assistance with any of the recommendations made as well as for assistance in ensuring ergonomic design guidelines are met.

References


END OF REPORT

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