

Case Study of Musculoskeletal Disorder (MSD) Prevention/ Ergonomics Intervention

Title: Integrating Ergonomics for MSD Reduction in a Pharmaceutical Manufacturing Workplace

Keywords: Pharmaceutical, Manufacturing, Large Business, Employee Engagement, Collaboration

[Use up to 5 keywords: i.e., sector, business size or type, type of intervention, etc.]

1. Organizations Involved (name or description)

[i.e., company/organization, labour/union, external consultant]

- Apotex Inc.
- Workplace Safety Prevention Services (WSPS)

2. Case Study Description

2.1 Introduction/Background

[What is the industry or type of organization? What is the size of the organization? What were the gaps or problems identified? How did you know there was a gap or problem?]

Apotex Inc. is a Canadian pharmaceutical company that produces high-quality and affordable medicines for patients globally. In Canada, Apotex Inc. is the largest producer of generic drugs, with the capacity to fill over 90 million (or 1 in 5) prescriptions a year. The North York campus employs more than 2000 employees, with a majority working in manufacturing and other general labour settings where there is potential for ergonomic injury and musculoskeletal disorders (MSDs) as a result of their day-to-day tasks.

Based on past incident history, and feedback from manufacturing employees about ergonomic concerns on awkward postures, heavy equipment, strenuous and physical tasks, an ergonomics program was initiated to identify and control potential MSD hazards in the workplace.

The first functional area to participate in the ergonomics program was the Compounding department, comprised of approximately 120 employees.

2.2 Goal

[What was the goal of this intervention or project? Write a short description of the goal.]

Identify tasks with potential MSD hazards and effective solutions to reduce ergonomic injuries in the Compounding department.

2.3 What was Done and How?

[Provide details of the actions, what was changed, what resources were used/needed and how did the change get made?]

Ergonomic risk assessments were performed for Compounding operations to identify and measure the risk factors that may lead to musculoskeletal disorders or ergonomic injuries among workers.

1. Tasks with potential ergonomic hazard concerns were identified by an Apotex health and safety member in conjunction with employees in the relevant areas, and through analyzing incident history reports from the last 5 years.
2. Task identification was followed by an on-site assessment conducted by a WSPS ergonomist. The WSPS ergonomist observed the work processes and environment within the Apotex facility, and interviewed workers. Photographs and measurements such as workstation and tool dimensions, and



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various forces, were obtained. These measurements were analyzed using the following ergonomic modeling tools, where applicable:

- NIOSH Observation-Based Posture Assessment
 - Michigan 3-D Static Strength Prediction Program (3D SSPP)
 - Liberty Mutual Manual Materials Handling Tasks Calculators (based on Snook and Ciriello Tables)
3. The Apotex health and safety team shared the results and potential solutions with the Compounding department.
 4. Following completion of the ergonomic studies, the Compounding department used the results to develop controls to reduce risk factors. The department formed a project team (made up of management, project leaders, and the health and safety team) to develop and implement engineering and administrative controls. These teams met on a regular basis to discuss challenges and solutions, and to ensure ergonomic improvement deadlines were prioritized.
 5. After improvements are implemented, effectiveness was measured by employee feedback, internal risk evaluations, and monitoring (number and severity of) incidents since implementation.

2.4 Result of the Changes

[What were the result of the changes and how do you know?]

The results and recommendations in the ergonomic studies were well received by department management and workers as they had a better understanding of the benefits of applying ergonomic controls to reduce injury and discomfort.

The Compounding department had their initial ergonomic assessment by a WSPS ergonomist in 2019. Since then, there has been ongoing work to implement controls to address items identified in the assessment.

Controls that have been implemented include:

- Engineering control #1: Mechanical lifter for heavy equipment and materials.
- Engineering control #2: Adding additional handles on heavy parts to enable team lifting.
- Engineering control #3: Creation of a lifting aid attachment to forklifts to easily transport drums.
- Administrative control #1: Training videos and modules focusing on safe material handling for specific tasks in the department, which have been incorporated into new-hire orientation.

The North York campus has already seen a reduction of 59% of WSIB-reportable ergonomic injuries since the baseline measurement. The Compounding department has seen a 55% reduction. The projected direct cost savings is \$20,000 per year, in addition to indirect cost savings such as hiring/training, productivity, and quality.

3. Success Factors and Challenges

[What contributed to the success or lack of success of the intervention? What challenges were faced?]

- External experts (WSPS ergonomist) and ergonomic modeling tools were useful in identifying and measuring risk factors, allowing departments to prioritize ergonomic improvements.
- Management commitment and employee engagement.
- Active participation from the health and safety team to ensure ergonomic projects were prioritized by departments. The health and safety team accompanied the external expert (WSPS ergonomist) to assist in data collection and interviewing employees.

4. Transferability

[Do you think this intervention would work in other workplaces? Why or why not?]



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Ergonomic risk factors can be properly identified and analyzed to ensure employers develop appropriate controls. This approach can be applied to other manufacturing and other workplace settings where employees perform many material handling tasks. This approach is currently being applied in other settings within the Apotex North York campus including warehouse, packaging, and production operations.

5. Further Information

[Please provide the name of a person/organization and contact information for whom we could communicate about this case study]

N/A

6. References or Resources

[If any, please provide main reference(s)/document(s)]

National Institute for Occupational Safety and Health, Revised Lifting Equation

NIOSH and CRE-MSD (2014). Observation-Based Posture Assessment. DHHS (NIOSH) Publication Number 2014-131. Retrieved from <https://www.cdc.gov/niosh/docs/2014-131/default.html>

Snook, S.H., The design of manual handling tasks, Ergonomics, 21:12-963-985, 1978.

7. Attach Photographs/Figures (Optional)

[Pre and post comparisons are ideal]

Engineering control #1: Mechanical (drum) lifter



Engineering control #2: Additional handles to enable team lifting



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Engineering control #3: Drum lifting aid attachment to existing fork lifts



Administrative control #1: Training modules for department-specific tasks



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Compounding Ergonomics Training Module 5: Loading/Unloading the Rollers into/out of the Branson Cleaner



Agenda



1. Learning Goals
2. Placing rollers into
the Branson cleaner
3. Taking rollers out of
the Branson cleaner



Learning Goals

After this module, you will be able to:

- Know how to use ergonomic techniques to reduce handling risks when lifting materials into and out of the Branson cleaner.

