

Wholesale/Retail Trade Safety Issues

**John W. Mroszczyk, Ph.D., PE, CSP
Northeast Consulting Engineers, Inc.
Danvers, MA**

Introduction

The Wholesale and Retail Trade (WRT) sector is one of the largest sectors in the economy. In 2008, there were some estimated 22 million workers in the Wholesale and Retail Trade (WRT) sector, second only to the service sector. While the injury rates may be low, the number of injuries is significant just by virtue of the size of the workforce. Improved safety measures can therefore have a significant impact on reducing worker injuries.

The WRT is also one of the most diverse workforces and sub-sector workplaces. The workforce includes old workers, young workers, full-time workers, part-time workers, seasonal workers, experienced workers, and inexperienced workers. The sub-sector businesses include everything from mail-order houses, small “mom and pop” stores, conveniences stores, gas-stations, all the way up to large retail store chains.

The majority of WRT injuries fall into four main categories. These include musculoskeletal injuries, fall and contact related injuries, motor vehicle related injuries, and work place violence. There are other issues as well. Approximately 85% of WRT companies are small businesses that lack the staff and resources of larger companies. Therefore, in addition to these four focus areas, special attention needs to be paid for small businesses.

This paper will present the most recent Bureau of Labor Statistics and surveillance data. The safety issues in the four main categories and other safety will be discussed. Safety measures that can be taken to reduce or eliminate injuries and fatalities will be presented.

Wholesale Versus Retail

The wholesale sector consists of businesses engaged in wholesaling merchandise incidental to the sale of merchandise. The wholesale process is an intermediate step in the merchandising process. Wholesalers usually operate from a warehouse or office.

The retail process is the final step in the sale of merchandise. Retail businesses receive merchandise from a wholesaler and sell it to the public in small quantities. Retailers may sell from a store or through the mail.

Bureau of Labor Statistics

Tables 1 and 2 reveal the latest Bureau of Labor Statistic (BLS). Table 1 lists the employment number and injury statistics for some of the largest sectors. WRT ranks second in the number of employees. While the injury rate is low compared to some of the other sectors, the number of cases is substantial given the size of the workforce.

Table 2 shows a breakdown of some of the WRT sub-sectors. The table clearly depicts the diversity of the WRT sector. The WRT sub-sector businesses include food/beverage, building materials, sporting goods, gasoline stations, lumber, appliances, motor vehicles, and general merchandise.

Table 1. This table shows 2008 employment by major industry (BLS, 2010).

<u>Industry Sector</u>	<u>Average Employment</u>	<u>Incidence Rate</u>	<u>Number of Cases</u>
Service	67,100,000	1.5	975,400
Wholesale/Retail	21,846,100	3.4	731,900
Manufacturing	13,735,000	4.6	630,600
Construction	7,597,200	4.6	314,200
Transportation, Warehousing	4,352,000	5.5	233,600
Agriculture, Fishing	991,500	4.9	43,700
Mining	687,700	2.9	23,700
Utilities	560,900	3.2	17,600

WRT Surveillance Data

An analysis of the WRT surveillance data reveals some interesting statistics. In WRT highway fatalities were the most prevalent. Sales and related occupations, transportation and material moving occupations rank highest in this group. Within wholesale, transportation incidents and contact with objects and equipment account for 75% of injuries. In retail, 80% of the fatalities involve transportation incidents and assaults/violent acts. Homicides are prevalent in Food/Beverage Stores, Gasoline Stations, and General Merchandise Stores.

Injuries in wholesale are highest in grocery and beer/wine/alcohol related businesses. Trunk, upper, and lower extremities account for most of the injuries. In retail, the majority of the injuries are in grocery, department, general merchandise, and building materials/supply stores. Food/beverage, general merchandise, motor vehicle/spare parts, and building material/garden supplies have the highest incidents of trunk, upper and lower extremities. Overexertion, falls, contact with objects, sprains/strains, containers, worker motion/position, floors, walkways and ground surfaces are prevalent

Table 2. This table shows a breakdown of 2008 WRT injury statistics by sub-sector (BLS, 2010).

	Average <u>Employment</u>	Incidence <u>Rate</u>
Retail Sector	15,762,300	4.3
General Merchandise	3,085,900	5.5
Food and Beverage	2,910,000	5.6
Clothing	1,526,500	2.4
Building/Garden Materials	1,292,900	5.7
Automobile Dealers	1,232,900	3.9
Health and Personal Care	1,055,900	2.1
Gasoline Stations	868,900	3.3
Sporting Goods	663,700	3.4
Electronics/Appliance	566,600	2.0
Furniture	560,000	4.0
Wholesale Sector	6,083,800	3.6
Electronic	867,900	1.8
Grocery	739,300	5.9
Machinery	696,100	4.0
Commercial Equipment	662,600	1.7
Electrical Goods	356,600	1.5
Motor vehicle and motor vehicle parts	347,100	5.3
Hardware, Plumbing, Heating	257,400	3.1
Lumber and Construction Materials	251,800	4.5

Safety and Health Challenges

There are a number of safety and health challenges in the wholesale/retail sector. One challenge is providing effective safety training. Employee (including management) turnaround can be less than a year. Many retail stores hire part-time and seasonal employees. Employees are not around long enough to put safety training to use. For some large retailers, it can be difficult to keep safety “fresh” in everyone’s mind if your particular store does not have any injuries.

Training can be more effective if store managers can hold short, daily meetings with employees. A monthly newsletter with information about accidents and how they can be prevented can also be helpful. Empowering employees to recognize and correct hazards can help foster a culture of safety.

The type of media used to provide safety training and information can also be a factor, particularly with young workers. Times have changed. In this age of cell phones, Blackberries, Ipods, You Tube, text messaging, a “safe lifting” poster on the employee bulletin board just isn’t going to get the message across.

Many large retail chains have distribution centers that feed the retail store outlets. Skill sets between distribution centers and the store can present unique challenges. For example, most distribution centers have shrink wrapping equipment and forklift trucks. However, when the

shipment is dropped off on the store loading dock, the store may not even have a forklift truck to move the load.

Customer service can sometimes conflict with safety. Retail stores place customer satisfaction at the top of their list of priorities. However, going the extra mile for a customer can conflict with safety. For example, an employee may offer to carry a large item out to a customer's car, place it on top the roof, and tie it down. However, this complimentary service may put the employee at risk of a back injury.

Motor Vehicle-Related Injuries

Workplace injuries involving motor vehicles can occur from movement of vehicles, workers, or pedestrians within the premises. Off-site motor vehicle-related injuries involving trucking and sales persons can also occur. There are a number of engineering controls that can be implemented to reduce the risk of vehicle-related injuries onsite.

Separate entrance and exit roads will reduce or eliminate the risk of vehicle-to-vehicle collisions. Drive through loading and unloading areas eliminate the need for backing up. Sensor-based obstacle detection, camera-based video systems in blind spots, and using "spotters" can reduce the risk of vehicle collisions when backing up. Vehicle back-up alarms should be in good working condition. Mirrors should be placed at blind corners.

Employee parking lots should be separated from busy work areas and work vehicle lots. If possible, employee and customer walkways leading from parking areas should be constructed so that people do not have to cross a roadway to get to the building. Crossing areas should be clearly marked, well-lit, and provide clear pedestrian and vehicle visibility.

In addition to engineering controls, there are administrative procedures. Defensive driver training can help reduce offsite motor vehicle injuries. Drivers should be given a refresher course every two years. Lane departure warning alarms are an engineering control that can be incorporated to warn a company driver when the vehicle drifts into another lane.

Falls and Contact-Related Injuries

Falls and contact-related injuries can result from slipping or tripping on walking surfaces, falling from height, and contact from falling objects or moving trucks. The potential for slips and falls increases whenever liquids or foreign substances accumulate on walking surfaces. Floor drains can be installed to drain standing water. Non-skid mats or skid-resistant floor treatment should be used in areas where floor are likely to be wet. Entrance mats should be placed in foyers and entries into the property. Adequate spill response materials should be available to clean small and large spills. Employees should be trained to remove foreign substances from walking surfaces.

Guardrails should be installed at open-side floors and mezzanines to prevent employees and merchandise from falling off the edge (see Figure 1). Shrink-wrapping pallets and rack guards

should be used to prevent merchandise from falling from warehouse racks such as those found in “warehouse” or “big box” superstores.



Figure 1. This photo shows a guardrail along the open side of a loft used for storage.

Musculoskeletal Injuries

Musculoskeletal injuries refer to a variety of injuries that include muscle strains and back injuries, tendonitis, carpal tunnel syndrome, rotator cuff injuries, and trigger finger. Musculoskeletal injuries may result from gradual wear and tear caused from frequent or prolonged periods of materials handling, sudden damage from intense material handling, or direct trauma.

Engineering solutions to materials handling hazard include modifying the workplace layout, controlling the load, and controlling the work environment. Heavy items should be stored at waist level. Mobile cranes and lift devices should be used to avoid manual lifting. Self-adjusting platforms can be used to raise the work to waist level. Heavy loads should be modified or re-packaged into small loads. Step stools should be used to reach items on shelves. Figures 2 and 3 show depict several engineering solutions to material handling.

Design cashier stations to eliminate or reduce ergonomic stresses such as using anti-fatigue mats and adjustable checkout stations. Powered in-feed conveyors should be used to bring the items to the cashier rather than reaching for them. Install a “sweeper” on the conveyor so that items are deflected towards the cashier. Provide footrests and anti-

fatigue mats where cashiers stand for prolonged periods. Use front facing checkstands to reduce twisting motions. Provide adjustable height checkstands and keyboards.

Design display cases with shelves that slope from back to front, so that products remain accessible. This reduces the likelihood that people will reach into deep display cases when stocking or retrieving merchandise.



Figure 2. This photo shows an expandable skate wheel conveyor for unloading cartons. The height of the conveyors can be adjusted.

Workplace Violence

Workplace violence can range from a threat, to verbal abuse, to physical assault and homicides. No worker is immune from workplace violence. It is a random event. The WRT sector is particularly vulnerable for several reasons. Retail stores are open to the public. Employees exchange money with the public. Many employees work alone or in small groups. Small convenience stores, gas stations, and other stores are open late at night.

There are two sources of workplace violence, domestic and random. Domestic sources arise from domestic issues that get carried over to the workplace. Random sources are off the street. Workplace violence can be classified by four types, as listed in Table 3.

There are steps that an employer can take to reduce the odds of a violent act. These include engineering controls and administrative procedures. Secure the workplace as much as possible.



Figure 3. Spring-loaded totes are used so that the merchandise to be removed is always at waist height.

Install video surveillance, extra lighting, and alarm systems. Lock delivery doors. Limit unlocked access from the outside to the extent feasible. Provide panic bars locked from the outside on doors where outside access is not needed.

Limit the amount of cash available on site. Provide a minimal amount of cash in registers during late night hours. Drop safes can also be used to limit the amount of cash. Install panic button silent alarms at checkouts to notify police. At least two people should be working at any time. Two people should open the store and two people leave at night. If possible, avoid building a store or facility in a high crime area.

Beyond that the employer should establish a zero-tolerance policy toward workplace violence. New hires should undergo a criminal background check. An employee that is arrested or convicted during employment should be re-evaluated.

The employer should also establish a workplace violence prevention program. Such a program starts with having a good relationship with the local police. A rapidly developing incident is probably best dealt with by the local police. A slowly developing incident can be dealt with by the store personnel.

Trained store loss prevention employees, store emergency response employees, or store security guards should be the only personnel confronting a theft or potential violent act. Untrained employees should inform store management without confronting a potential perpetrator of violence.

The workplace prevention program must depend on employee education and trust. Employees should receive yearly training on work place violence. Employees should be encouraged to bring problems to management quickly. Anonymous reports should be encouraged. For example, a “tip box” could be placed in the restrooms. Employees could submit suggestions on improving productivity, worker morale, job safety, and problems that could lead to violent acts.

Table 3. NIOSH has classified workplace violence acts into four types (*Source: NIOSH, 2004*)

<u>Type</u>	<u>Description</u>
I. Criminal Intent	The perpetrator has no relationship to the business or the employee and is in the process of committing a crime. These crimes include robbery, shoplifting, trespassing, and terrorism.
II. Customer/Client	The perpetrator has a relationship with the business and becomes violent while being served by the business.
III. Worker on Worker	The perpetrator is an employee or former employee of the business who attacks or threatens another employee or past employee in the workplace.
IV. Personal Relationship	The perpetrator usually does not have a relationship with the business but has a personal relationship with the intended victim. This group includes victims of domestic assaults while at work.

Small Business

The WRT includes large store chains down to the one or two person family convenience store. Small businesses do not have the staff or the resources that large companies do. What works for a large company cannot be extrapolated to small businesses. There are also cultural differences. Many small retail businesses are run “on the back of the envelope”. The head of the company may be the head of the family.

Simply providing the owner of a small business a NIOSH or OSHA guide for small business is not going to work. Perhaps the best way to reach small business is through trade associations, local groups, chambers of commerce, small business associations, or insurance agents.

Conclusion

The Wholesale and Retail Trade (WRT) sector of the economy consists of businesses involved in the intermediate and final steps in the sale of merchandise. The wholesaler usually operates from a warehouse or office providing merchandise to the retail store in large quantities. Retail

businesses receive merchandise from a wholesaler and sell it to the public in small quantities. The WRT sector is one of the largest and most diverse sectors of the economy.

The majority of WRT injuries fall into the areas of motor vehicle related, fall and contact injuries, musculoskeletal, and workplace violence related. Engineering and administrative controls focused in each of these areas can reduce the numbers of injuries. Workplace violence related injuries the most difficult of the four because workplace violence acts are random.

Bibliography

- Anderson, V. and Linn, H. "Hidden Dangers: Risks of Wholesale and Retail Work Largely Unnoticed." *The Synergist*. Volume 20, No. 3., March 2009.
- Anderson, V. and Nguyen, L. "Wholesale/Retail Trade: Fatalities, Injuries, Illnesses Hotspots". Washington, D.C.: National Institute for Occupational Safety and Health, NIOSH.
- Bureau of Labor Statistics (BLS) (retrieved February 3, 2010)
(<http://www.bls.gov/iif/osh/os/osth2063.pdf>).
- Casteel, C, et al. "A Study of the Effectiveness of a Workplace Violence Intervention for Small Retail and Service Establishments." *JOEM*, Volume 50, Number 12, December 2008.
- McDonald, C. "Risk Management Teamwork Allows Belk to End Silo Mentality, Slash Comp Losses." *National Underwriter*, August 13, 2007.
- Mroszczyk, John. "Wholesale and Retail Trade Sector." *Journal of Safety Research*, Volume 39, Number 2, 2008.
- Mroszczyk, John. 2002. "Warehouse Superstores: Hazards of Shopping in a Working Warehouse." *Professional Safety*, March 2002.
- National Safety Council Defensive Driving Courses.
(<http://www.nsc.org/international/defensivedriving>)
- National Institute for Occupational Safety and Health (NIOSH). "Workplace Violence Prevention Strategies and Research Needs," NIOSH Partnering in Workplace Violence Prevention: Translating Research to Practice Conference Report, November 17-19, 2004 Baltimore.
- Speilhotz, P. et al, "Field Evaluation of a New Grocery Checkstand Design" *Applied Ergonomics*. 39(2008)
- Sullivan, J. and Unks, R. "Workplace Violence Survey and White Paper" *ASSE Risk Management/Insurance Division Newsletter*, November 1999.
- Van Der Beek, et al. "Loading and Unloading by Lorry Drivers and Musculoskeletal Complaints". *International Journal of Industrial Ergonomics*, 12 (1993).

Occupational Safety and Health Administration (OSHA). 2004. OSHA 3192, *Guidelines for Retail Grocery Stores*. Washington, D.C.: U.S. Department of Labor.

Western Australia Commission for Occupational Safety and Health. "Safe Movement of Vehicles at Workplaces", June 2006.

Western Australia Commission for Occupational Safety and Health. "Manual Handling", June 2006.