STANDARDS PRESENTATION TO CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD

Petition to add new Title 8 Section related to Musculoskeletal Injury Prevention through the use of Ergonomic Disposable Large Capacity Poly Bags with Secondary Handle

Application prepared by Mark Sale on June 1st 2017
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Table of Contents

1. Petition to add new Title 8 Section related to Musculoskeletal Injury Prevention through the use of Ergonomic Disposable Large Capacity Poly Bags with Secondary Handle.

2. Report following pilot study at Stanford Hospital and Clinics performed by Dr. Georgi Popov and economist Elyce Biddle Evaluation of Benefits of Litelift Ergonomic Bags.

3. Excerpt from Risk Assessment: A Practical Guide to Assessing Operational Risks, by Dr. Georgi Popov and Elyce Biddle.

4. Comparison of traditional bag vs. two-handled bags per NiOSH Lifting Guidelines.

5. Excerpts from case summaries taken from search results in www.dir.ca.gov for trashbag injuries (see also linen bag injuries, dumpster injury, recycle injury).

6. Ergonomic of Study of Custodial, Housekeeping and Environmental Service Positions at the University of California, May 2011.

7. Prevention through Design (PtD): Combining Risk Assessment, Productivity and Sustainability, Drs. Popov and Ney, University of Central Missouri. Continuing documentation; Automative Waste Collection - How to Make Sure It Makes Sense for Your Community, a related work resulting in the implementation of automated waste collection.

8. Bureau of Labor Statistics show janitors (those most likely to be tasked with carrying trash bags) are at the highest risk of injury and days away from work.

9. CAL/OSHA DIR descriptions of "Safe Lifting and Carrying"

1.

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History

For over 60 years the traditional disposable poly, trash, linen, contractor, recycle and landscape bag has been used in every workplace. Throughout the institutional workplace, disposable poly bags are the most universal and frequently lifted object and one of the most repetitive-motion tasks.

Large, disposable, poly-bags, in the 33-60 gallon range, are handled approximately 12 billion times per year in the US alone. Custodians, janitors, landscapers, maintenance staff, housekeepers, laborers, waste collectors, nurses, laundry workers, to name a few, have been assigned the task of handling these bags.

Typically, traditional disposable poly bags are lifted and carried as a one handed lifting task due to the nature of the product's design. Related injuries have been acknowledged by workers and EH&S departments for as many years as they've been produced and, until now, there has been no alternative.

The attempts to mitigate the problem have come in the form of additional equipment such as mechanical lifts, back belts, structural changes to dumpster platforms, wheeled carts and ergonomic training programs. The problem with all the existing fixes and training programs, is that the best practices that have been taught are only best practices based on a poorly designed product. Past efforts have never attacked the root cause. In addition, the majority of studied data that lead to risk reduction improvement has been focused on the end of the working chain; waste collectors, not taking into account the numerous other individuals that are tasked to handle the bags to the point of collection.

Unlike other pre-packaged goods which often have the weight clearly labeled on the package, "fillable" poly-bags do not have, and never could have, a labeled weight. It always depends on what is put in the bag, often by someone else, than the person tasked with carrying it. Typically, large capacity bags have a tested load rating of between 80 and 100 pounds, they are inherently unsafe by definition because that weight exceeds the 51 pound suggested maximum RWL.

Proposal to Mandate

This section sets forth the requirements for the protection of employees associated with the handling of large capacity disposable poly bags. The use of disposable poly bags is ubiquitous throughout all sectors of industry. The traditional product and its handling is so culturally ingrained, even with its shortcomings, it has become the norm regardless of the inherent danger. Even with its well documented history of injuries, an intervention of sorts is needed to change the current embedded paradigm.

Proactive assistance, in the process of getting a viable solution into the hands of the California workforce, is required. As typically the lowest tier in the workplace, this category are the ones most affected and their voice is often unheard. Their collective voice can only be heard in the form of a mandate. If/when issued, it will bypass any negligence, personal opinion, procurement cycles, budget restraints, or lack of EH&S presence in the workplace. Cal/State OSHA has the opportunity to lead the Nation in this inevitable transition.

1. Proposal to create an independent Section _____ under Title 8.

2. Proposal to mandate the use of large capacity* disposable poly bags in all industries.

3. Proposal to mandate employers throughout all industries to provide, at no cost to the employee, large capacity disposable poly bags* with a secondary handling point.

4. Proposal to mandate the re-training process of lifting and carrying large capacity two handled disposable poly bags, using new best practices.

5. Proposal to create educational material to support the introduction of two-handled disposable poly bag handling.

* (load capacity between 33 and 60 gallons)

Ergonomic Benefits

"Two handled ergonomic bags will allow bag handling tasks to change from a one handed lift, to a two handed lift. This will allow workers to distribute the load evenly, promote correct ergonomic posture while lifting and carrying and reduce the risk of injury."

Georgi Popov

- Two handled bags allow workers to conform to the NIOSH lifting guidelines or other preferred handling teachings and techniques.
- Two handed bag handling will allow safety professionals, agencies and employers to use the revised NIOSH lifting equation to calculate and set RWL's. The tradition bag design does not meet requirements to perform a safe two-handled lift, or to use the NIOSH lifting equation.
- Two handled bags will allow safety professionals in the EH&S field to re-train millions of employees Nationwide on how to correctly handle the most basic, repetitive, labor intensive task, in the workplace today.
- The secondary handle prevents workers from grabbing at other random locations of the body of the bag, avoiding potential lacerations from sharp non-visible objects inside.
- Two handled bags will allow ADA individuals an advantage to compete in the workforce.
- Two handled bags will assist injured workers that are returning to work, when performing bag handling tasks
- Two handled bags should be considered as a PPE unit, just like safety glasses, respirators or steel toed shoes.

- Combined, these large distributor groups, make up the majority of the initial offering, freely available under various brands and price competitive, across all sectors of the California institutional marketplace.
- Poly bag manufacturers do not sell direct, nor do they have a brand/ private label of their own.
- Hundreds of smaller distributors & resellers have access to this product through mainstream bag manufacturers.
- Four major manufacturers produce 70% of the Nation's bags.
- Poly bags are sold as a commodity by the pound.
- Estimated additional cost for a bag with secondary handle across all sizes & gauges is approx (1.5¢-6¢ per unit).

33-60 gallon applications include:

- Recycle
- Trash
- Linen
- Landscape/ Yard
- Medical
- Construction
- Paper waste
- Abatement

Cost to Employers:

"Unfortunately, instituting a solution is not always inexpensive let alone "free"to the organization. But a mandate for the use of secondary handle on disposable poly bags is one of the few solutions that can be seen as an positive economic decision, as well as a safety decision."

Elyce Biddle

The most typical size of bags requiring a two-handed lift is bags between 33 and 60-plus gallons. Based on the average spread of 33 to 60-plus gallon bags in use, their film gauge and overall dimensions, the addition retail cost to employers to remediate this hazard, cost is only 1.5¢-6¢ per unit. A small price to pay to provide a PPE on every site, every time, for every lift, for every user, to either allow a two-handed lift or a two-person lift.

Perhaps, even more importantly, from a cost perspective to businesses, it has been shown that using a two-handled lift has the potential actually save companies money when compared to use of traditional bags. At a recent pilot study conducted at Stanford Hospital, in association with NIOSH and PtD, Elyce Biddle, Senior Research Economist at the National Institute for Occupational Safety and Health (NIOSH calculated that **two-handled bags would produce an ROI against Workman's Compensation Claims of $25 to $1 for every dollar spent on ergonomic bags.**

California's Competitive Availability and Estimated Cost of

Disposable Poly, Two-handled Bags

These listed 10 major WESTERN REGION distributors have private label brands with CA statewide coverage:

Distributor	Brand
Janitorial Supply	
Waxie Sanitary Supply	DuraStar
Assendant	Jaguar
Grainger	Tough Guy
Veritiv	Reliable
Food Service	
Sysco Foodservice	Sysco
U.S. Foodservice	Monogram
Catalog	
Uline	Uline
Healthcare	
Owens & Minor	MediChoice
McKesson	Medi-Pak
Vizient	Nova Plus

Challenges of Adoption Process; Need for Mandate
(History & Timeline)

University of California Schools

UC System is a reputable institution with adequate health & safety resources. Three EH&S professionals, from three separate UC campuses, were introduced to ergonomic poly bags at 2014 National Safety Congress & Expo. All three were followed up with, given supporting documentation and received a generous amount of sample bags. Over the next three years we contacted multiple other EH&S departments at 10 out of the 16 UC campuses with no action taken beyond requesting information and samples.

On January 25 2017, we contacted the UCOP Risk-Services Dept, the EH&S Dept, and the Procurement Dept. We provided information from their own archives showing a study revealing bag handling as their #1 custodial injury:

"At the University of California, custodians, housekeepers and environmental service workers are exposed to ergonomic risk factors such as repetitive motions and awkward postures. In fiscal year 2010, custodial injuries accounted for 761 workers' compensation claims, with an actuarial estimated ultimate direct cost of $7.1 million. Loss data was valued as of June 30, 2010.The study revealed that a large number of injuries are due to how custodians "throw" bags into trash dumpsters."

We exposed this UCOP department to ergonomic bags once again. We have spent the last 5 months communicating through 16 separate people, 45 emails, 18 documented phone calls. Finally on May 28th 2017, we received the first confirmation that ergonomic bags have been attached to the UCOP procurement offering. We are excited they have begun the process but realize the exercise is far from over, as the ergonomic bag adoption process has now just begun. Starting with a handful of SKU's, amongst hundreds, a few select custodians that are documented to be at high risk of injury, will finally have a safer working environment.

This is UCOP risk services mission statement:

"The Office of Risk Services is responsible for developing and implementing Enterprise Risk Management systemwide, identifying and developing strategies to minimize the impact of risk, developing a center of excellence for managing risk, reducing costs and improving safety by executing new ideas and strategic plans in a rapid manner. By strategically managing risk we can reduce the chances of loss, create greater financial stability and protect our resources in support of UC's mission."

Stanford Hospital

Stanford Risk Management / Voc Solutions contacted us inquiring about ergonomic poly bags in April 2013. They were experiencing an extremely high volume of injuries in their Hospital and Clinics soiled linen department. Heavy 33 gallon blue disposable poly bags was the issue. In October 2013, we supplied 10's of thousands of ergonomic, blue, 33 gallon bags to the Hospital for weeks of use during a NIOSH lead audit and Pilot Study. Results led to an immediate reduction in risk, but the bag was manufactured out of the country and they couldn't purchase outside of their existing distributor.

In January of 2017 we contacted Stanford's Risk Services, EH&S, Voc Solutions, to let them know poly ergonomic bags were now manufactured domestically and available through their existing distributor. To date, twelve phone conversations and 14 emails later, all sharing the study, have been dead ends. Every point of contact resulted in multiple handoffs throughout their EH&S system and still none of the employees who have suffered injury, have seen any relief in the form of a two-handled trash or linen bag.

Conclusion

In the two examples described above, even with several key EHS representatives in the loop, the process to adoption has been painstaking in one case and non-existent in the other-- even when both entities knew there was a solution! Maybe even worse, are those custodial/ service workers throughout the state of California, tasked with handling millions of large bags every day, that don't have EH&S resources nearly as elaborate as these organizations, and surely aren't aware of the solution.

These are examples of why this petition for a mandate is so important. It is why the implementation of ergonomic large capacity disposable poly bags, like safety glasses, hard-hats, harnesses and the like, need to be addressed and mandated at the legislative level and not left to employer's discretion.

2.

Report following pilot study at Stanford Hospital and Clinics performed by Dr. Georgi Popov and economist Elyce Biddle Evaluation of Benefits of Litelift Ergonomic Bags.

PtD Business Case

Reducing the risk of musculo-skeletal injury in a hospital

CASE SYNOPSIS:

Substituting current trash and linen bags with ergonomic bags reduced the risk of musculo-skeletal injuries to housekeeping staff. The financial analysis estimated a positive return on investment when adopting this PtD based solution for this hospital.

CURRENT OSH CONDITION:

Management of a large not-for-profit hospital planned to replace all existing soiled linen and trash collection receptacles with new containers of a single size and shape. This provided an opportunity for the risk management authority responsible for the safety and health of workers to explore alternative trash bags with the goal of reducing occupational injury and illnesses associated with lifting and carrying bags containing linen and trash.

Over the past year there were 90 injuries associated with the use of trash or linen bags among the 195 housekeeping staff members. Medical and indemnity expenses of $985,044 were drawn from the company reserves and just over 8,000 hours of staff time was lost due to the injuries. The primary hazards for these injuries were ergonomic and affected the hands and fingers, back, and shoulders.

With that knowledge a team of staff who had either interest in the project, were safety and health professionals, or had resource allocation authority or understanding was formed. The team identified the following project objectives concerned with occupational safety and health and operations:

Occupational Safety and Health

- Decrease occupational injuries
- Decrease workers' compensation costs
- Maintain employee satisfaction

Operations

- Decrease time to collect and dispose of trash and linen
- Lower cost of operations
- Reduce administrative recordkeeping time

RISK ASSESSMENT:

Using multiple methods, the risk of musculo-skeletal injuries from pushing, pulling, lifting, or twisting trash or linen bags under the current conditions was derived using multiple methods. The risk from all methods was determined to be high to very-high, indicating attention was needed. Table 1 provides the risk measurements using one of the methods.

Risk Assessment Matrix (RAM)			
Hazard Number and Short Name	Ergo-Back	Ergo-Shoulder	Ergo-Hand/Fingers
Severity:	**3**	**4**	**3**
Probability:	**4**	**4**	**3**
Total Score	**12**	**16**	**9**
Very high risk: **15 or greater** High risk: **10 – 14** Moderate risk: **6 – 9** Low risk: **1-5**			

Table 1. Risk Assessment Matrix for Ergonomic Hazards Before PtD Solution

CHANGES FROM CURRENT OSH CONDITION:

The decision was made to substitute ergonomically designed trash and linen bags. The Litelift™ bags are specially designed with a handle in the bottom of the bag, allowing for the use of two handles to lift the bags. Use of two handles allows the carriers to balance the load while lifting and carrying.

At the time of substituting bags, the receptacles had not yet been replaced. There was no change in the number of bags or sizes of those bags ordered. Furthermore, the substitution in bags required no change in process. Figure 1 below contains pictures of the current and the substitute bags being used.

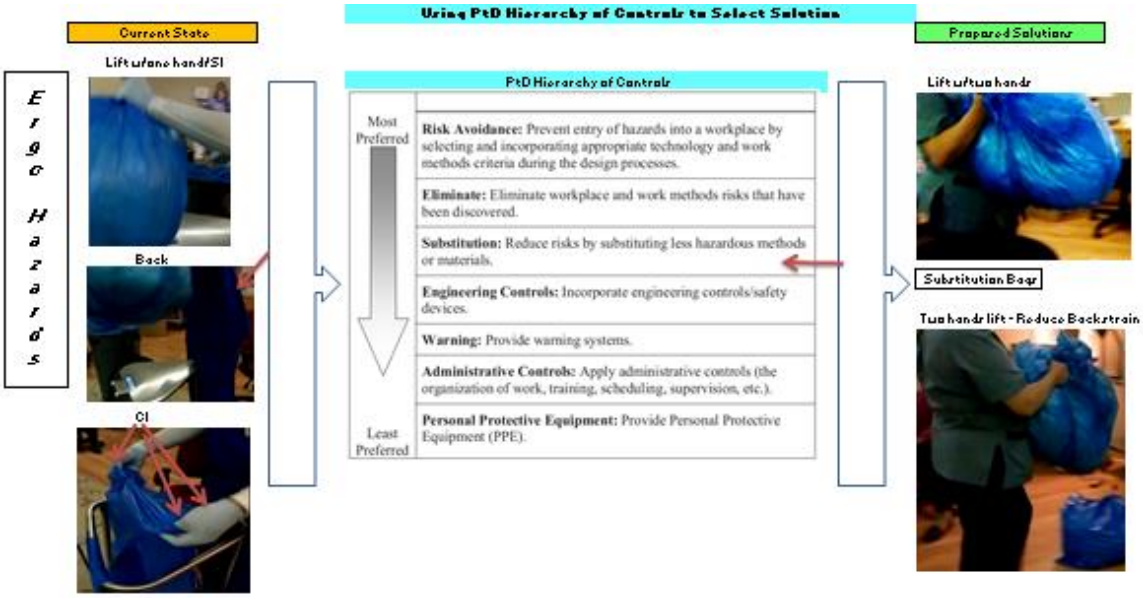

Figure 1. Selection of PtD Solution through Hierarchy of Control

VALUE OF THE PTD SOLUTION:

This PtD business case evaluated the benefits of the ergonomic bags (Litelift™) compared to bags being used in linen collection and disposal at the time of the beginning of this work, beginning with determining the change in the risk of worker injury associated with the ergonomic hazards. Two of the three hazards showed substantial risk reduction—50% less (see Table 2).

Safety and Health Risk Reduction from PtD Solution				
Hazards	Total Risk Factor Original Bags	Total Risk Factor Ergo Bags	Percent Risk Reduction	Percent Residual Risk
Ergo-Back	12	6	50.00%	50.00%
Ergo-Shoulder	16	8	50.00%	50.00%
Ergo-Hand/Fingers	9	9	0.00%	100.00%
Totals	37	23	37.84%	62.16%

Table 2. Changes in Safety and Health Risk Resulting from the PtD Solution

The project team conducted behavioral observations and personal interviews with the housekeeping staff during a period to test using the Litelift™ ergonomic bags. The most important result was that the workers lifted the bags using both hands consistently, insuring reduction of risk of musculo-skeletal injury. The time to collect and dispose trash and linen loads were reduced by approximately 5%. This increase in production was not large enough to eliminate positions but was sufficiently large enough to improve employee morale as it pertained to workload expectations.

Financial results, as show in Table 3, were very positive for this organization. The majority of the financial benefit was associated with a reduction in the number of injuries expected and their associated cost. The substitution would result in nearly $685,000 in workers' compensation expenditures and an additional $123,000 in eliminating the need for temporary replacement workers. There was also an additional savings of over $110,000 by eliminating risk management work load.

Net Present Value (NPV)	$1,163,040.91
Internal Rate of Return (IRR)	18.96
Return on Investment	24.67
Payback Period (years)	.056 years

Table 3. Financial Metrics Resulting from the PtD Solution

Recommendations:

The project team determined that adoption of this PtD solution would be beneficial to the organization. The financial results were presented to the management chain for their adoption decision. Although it was anticipated that benefits would remain positive, the project team also recommended the analysis be repeated upon purchase of new receptacles.

Evaluation of the Benefits of Litelift™ Ergonomic Bags

The main purpose of this collaborative evaluation was to determine the advantages of Litelift™ ergonomic bags compared to conventional trash bags currently being used in a large not-for-profit health care organization.

Litelift™ bags are specially designed with a handle on the bottom of the bag. As the employees tie the top of the bag it becomes a second handle, which allows the employee to evenly distribute the load evenly (or share the load with another employee). During the course of the evaluation, we tested two of the four different types of ergonomic Litelift™ bags: large trash can liners and laundry linen bags.

The research team employed the NIOSH Prevention through Design (PtD) techniques found in the ANSI/ASSE Z590.3-2011 standard. The results to date include:

1. Employees who routinely collect trash/ linen considered the Litelift™ bags easier to lift and felt more comfortable and felt less physical strain with the redistribution of weight because of the additional handle.

2. The risk of injury to the employees using the Litelift™ bag compared to the standard bag was reduced by **37%.**

3. It was not expected that a reduction in the number of injuries would be reduced given the short study period. However, with a **37%** reduction of risk, it is expected that the number of injuries will be reduced significantly. Per injury prevented, this company on average would realize a direct savings of over $36,000 in worker's compensation costs.

Research Team
Georgi Popov, Ph.D. QEP
University of Central Missouri

Elyce Biddle, Ph.D.
National Institute for Occupational Safety and Health
West Virginia University

Ergonomics Risk Assessment Tool (ERAT) - Post-Controls Assessment

Job Task Trash pick up and disposal | **Dept**

Evaluator(s) Dr. Georgi Popov, QEP and Elyce Biddle, PhD | **Date**

Risk Factor	Duration of Task				Score C1	Control Measure
Repetition	<1hr	1-4hrs	>4hrs	N/A		
Every few minutes	0	0	1		1	New ergo bags
Every few seconds	0	1	3		0	
Lift	<1hr	1-4hrs	>4hrs	N/A		
5 to 15 lbs	0	0	1		0	
15 to 30 lbs	1	1	2		0	
30 to 50 lbs	2	2	3		3	
Over 50 lbs	3	3	3		0	
Push/Pull	<1hr	1-4hrs	>4hrs	N/A		
Easy	0	0	1		0	
Moderate	0	1	2		2	
Heavy	1	2	3		0	
Carry >10ft	<1hr	1-4hrs	>4hrs	N/A		
5 to 15 lbs	0	0	1		0	
15 to 30 lbs	0	1	2		2	
Over 30 lbs	1	2	3		0	
Lift from can	<1hr	1-4hrs	>4hrs	N/A		
w/one hand	0	1	2		2	
w/two hands	0	0.5	1		0	
* C1 = Category 1			Sub-total C1		10	

Risk Factor	Duration of Task				Score C2	Control Measure
Postures	<1hr	1-4hrs	>4hrs	N/A		
Head Tilt	0	1	2		1	
Shoulder Reaching	0	1	2		1	New ergo bags
Flying Elbow	0	1	2		0	
Bent Wrist-Pinch Grip	0	1	2		0	
Bending/Twisting	0	1	2		1	
Disposal w/one hand	0	1	2		0	
Potential to drop load/Slip	0	1	2		0	
Environment	<1hr	1-4hrs	>4hrs	N/A		
Impact/Compression	0	1	2		0	
Power Tools/Vibration	0	1	2		0	
Excessive Pace	0	1	2		1	
Humidity	0	1	2		0	
Extreme Temperature	0	1	2		0	
Lighting/Glare	0	1	2		0	
Sub-total C2					4	
Total (C1 + C2)					14	
* C2 = Category 1				Total AL	14	Residual Risk% 0.7
						Risk Reduction% 0.3

Developed by Bruce Lyon CSP, PE, ARM, CHMM - Hays Companies
in collaboration with Georgi Popov, PhD, QEP - UCM

Modified from the draft ANSI Z-365-1993 Checklist *7/4/13*

1	Action Level 1: Total score of 10 or more requires further analysis
2	Action Level 2: Total score of 11 -22 requires intervention in the near future
3	Action Level 3: Total score of 23 -36 requires immediate intervention

Use: The Ergonomic Risk Assessment Tool is limited to assessment of ergonomic risk factors impacting the upper extremities, and is appropriate for office work, services, assembly and process line work environments. The Post Control/Future State Ergonomics Risk Assessment (FSERA Worksheet) is used to develop a post control risk score and action level with the new control measures to reduce risk factor scores. It is suggested that videotape analysis be used to study task repetition, postures, lifts, pulls, pushes, carries, and other factors covered by the assessment tool.

Instructions: For each row that applies, score the task based on the duration and observed risk factor. For individual scores of 2 or more, control measures may be needed and included in the screening tool worksheet. Add the scores in the sub-total and total columns. If the total sum of ergonomic risk factors identified is equal to or greater than "10' (Action Level 1), it indicates the need for further evaluation; if the total is between 11 and 22 (Action Level 2) it requires intervention in the near future; if the total exceeds 22 (Action Level 3) immediate intervention is required.

Ergonomics Risk Assessment Tool (ERAT) - Initial Assessment

Job Task Trash pick up and disposal | **Dept**

Evaluator(s) Dr. Georgi Popov, QEP and Elyce Biddle, PhD | **Date**

Risk Factor	Duration of Task				Score C1	Control Measure
Repetition	<1hr	1-4hrs	>4hrs	N/A		
Every few minutes	0	0	1		1	
Every few seconds	0	1	3		0	
Lift	<1hr	1-4hrs	>4hrs	N/A		
5 to 15 lbs	0	0	1		0	
15 to 30 lbs	1	1	2		0	
30 to 50 lbs	2	2	3		3	
Over 50 lbs	3	3	3		0	
Push/Pull	<1hr	1-4hrs	>4hrs	N/A		
Easy	0	0	1		0	
Moderate	0	1	2		2	
Heavy	1	2	3		0	
Carry >10ft	<1hr	1-4hrs	>4hrs	N/A		
5 to 15 lbs	0	0	1		0	
15 to 30 lbs	0	1	2		1	
Over 30 lbs	1	2	3		0	
Lift from can	<1hr	1-4hrs	>4hrs	N/A		
w/one hand	0	1	2		2	
w/two hands	0	0.5	1		0	
* C1 = Category 1			Sub-total C1		9	

Risk Factor	Duration of Task				Score C2	Control Measure
Postures	<1hr	1-4hrs	>4hrs	N/A		
Head Tilt	0	1	2		1	
Shoulder Reaching	0	1	2		1	
Flying Elbow	0	1	2		1	
Bent Wrist-Pinch Grip	0	1	2		2	
Bending/Twisting	0	1	2		2	
Disposal/lift w/one hand	0	1	2		2	
Potential to drop load/Slip	0	1	2		1	
Environment	<1hr	1-4hrs	>4hrs	N/A		
Impact/Compression	0	1	2		0	
Power Tools/Vibration	0	1	2		0	
Excessive Pace	0	1	2		1	
Humidity	0	1	2		0	
Extreme Temperature	0	1	2		0	
Lighting/Glare	0	1	2		0	
Sub-total C2					11	
Total (C1 + C2)					20	
* C2 = Category 1				Total AL	20	

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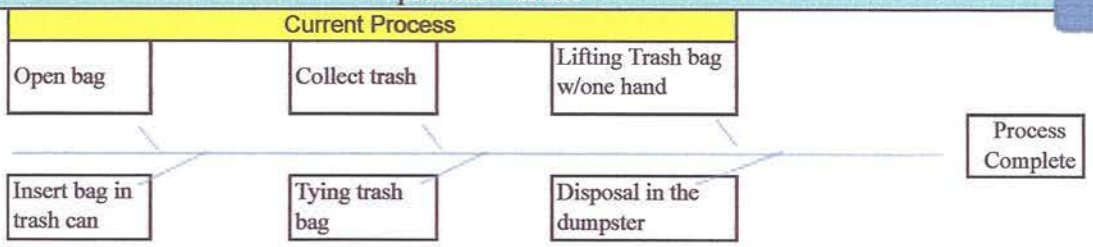
Instructions: For each row that applies, score the task based on the duration and observed risk factor. For individual scores of 2 or more, control measures may be needed and included in the screening tool worksheet. Add the scores in the sub-total and total columns. If the total sum of ergonomic risk factors identified is equal to or greater than "10' (Action Level 1), it indicates the need for further evaluation; if the total is between 11 and 22 (Action Level 2) it requires intervention in the near future; if the total exceeds 22 (Action Level 3) immediate intervention is required.

Hiearchy of Ergonomic Risk Controls			
Control Method	**Phase/Application**	**Control Examples**	**Effectiveness**
Avoidance	Conceptual Stage Design/Redesign	Prevent entry of hazard into workplace by design through selection of technology and work methods.	High
Elimination	Existing Processes Redesign	Eliminate hazard by changes in design, equipment and methods	High
Substitution	Existing Processes	Substitute materials, sizes, weights and other aspects to a lower hazard severity or likelyhood	Moderately High
Engineering Controls	Existing Workstations Redesign	Reduce hazard by changes to workplace, tools, equipment, fixtures, adjustability, layout, lighting, work environment	Moderate
Administrive Controls:	Existing Practices	Reduce exposure to hazard by changes in work practices, traning, job enlargement, job rotation, rest breaks, work pace	Moderately Low
Personal Protective Equipment	Existing Workplaces	Reduce impact of hazard to employee by use of protective equipment and materials such as vibration attenuation gloves	Low

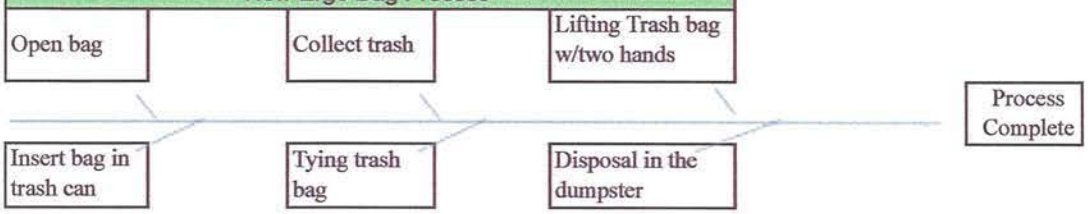
PtD BC Ergo Bags

process - Trash

Current Process



New Ergo Bag Process



3.

Excerpt from Risk Assessment: A Practical Guide to Assessing Operational Risks, by Dr. Georgi Popov and Elyce Biddle.

Excerpt from

RISK ASSESSMENT

A Practical Guide to Assessing Operational Risks

Georgi Popov

Bruce K Lyon

Bruce Hollcroft

John Wiley & Sons

2016

RESEARCH SPECIALISTS FOR THE STANFORD HOSPITAL LINEN DEPARTMENT PILOT STUDY

Elyce Biddle is a Senior Research Economist at the National Institute for Occupational Safety and Health (NIOSH) and Adjunct Professor at West Virginia University. She focuses on occupational injury and fatality cost modeling, including drafting CDC Guidelines on constructing business cases for health promotion and prevention, drafting with ORC Worldwide the initial American Industrial Hygiene Association's sponsored Value of the Industrial Hygiene Profession Strategy and applying these methods in field studies at collaborating firms. She was Coordinator of the NIOSH Economic Evaluation of Occupational Health and Safety Interventions at the Company Level Task Force, National Occupational Research Agenda Social and Economic Consequences of Workplace Illness and Injury team co-chair and CDC Health Economics Research Group steering committee member.

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19

BUSINESS ASPECTS OF OPERATIONAL RISK ASSESSMENT

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19.1 OBJECTIVES

- Introduce business aspects
- Present Prevention through Design's role in making the business case
- Present case studies that support the business case

19.2 INTRODUCTION

The main objective of a safety, health, and environmental (SH&E) professional is to control the risk of hazards to the worker and environment to an acceptable or tolerable level. An initial risk assessment is necessary to reveal the existence of hazardous conditions that need control through elimination, reduction, or avoidance. Unfortunately, instituting a solution is not always inexpensive let alone "free" to the organization.

Although proof of preventing occupational injury, illness, or fatality alone has often driven industry to make changes, the lack of adoption of known effective solutions has clearly demonstrated that there were other reasons behind SH&E business decisions (Biddle, 2013). Organizations continually face increased global competition, rapidly changing technology, and decreased access to scarce resources. Under these conditions, SH&E efforts to ensure a safe and healthful work environment must compete with other organizational needs. Without compelling information about the value of SH&E efforts to the organization, management may view these programs and activities as a lower priority than projects that have established a clearer connection to their bottom line. The challenge for occupational safety

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and health professionals is to describe the value of SH&E efforts in terms that are understood and accepted within the business community. A business case addresses that challenge.

A business case in occupational safety and health can be defined as a method that captures the effects of implementing programs or activities on employee health (injury or illness), risk management, and the business process. Capturing detailed cost and benefit data through the use of a business case provides for generating customary financial business metrics, such as net present value (NPV), internal rate of return (IRR), return on investment (ROI), and discounted payback period (DPP), which are meaningful to business management. It is important to note that these are not just terms used in the finance department, but they are terms universally understood by those making resource decisions, creating effective tools to demonstrate the value of your initiatives. Additionally, the business case provides a mechanism for capturing nonfinancial impacts, those that cannot be directly or easily monetized, such as changes in customer satisfaction, corporate social responsibility, product defects, presenteeism, and corporate reputation. In reality, the business case answers the question: What's in it for the company? Or in this instance Why should the company implement programs and practices that reduce the risk of adverse worker health effects?

The aim of this chapter is to describe methods of the Business Case Development Tool to systematically appraise both the costs and consequences of an action implemented at the worksite in an effort to reduce or eliminate the risk of adverse health effects to the worker – to derive the business value of your efforts. Examples include how these methods have been applied to small and large organizations and before and after the solutions have been implemented. Being able to develop a business case will assist in positioning environmental health and safety (EHS) as essential contributor to the business function through completing your primary objective of reducing health risk.

19.3 THE BUSINESS CASE DEVELOPMENT TOOL

There are a number of general business case guidelines, but few address the needs of the occupational safety and health field in general let alone tied to hazard evaluation and risk assessment. Additionally, there are a limited number of models that include strategic, descriptive, or analytic tools and instructional documentations to capture the benefits and costs to the business of implementing occupational EHS solutions (Biddle et al., 2011). Finally, an easy-to-use computerized tool to develop the business case did not exist.

Building on the collaborative efforts of NIOSH and ORC supported by the American Industrial Hygiene Association and the American Conference of Governmental Industrial Hygienists (AIHA, 2009) to determine the value of the industrial hygiene profession and using the wisdom contained in the ANSI/ASSE Z590.3-2011 and the ISO 31000 (ISO 31000:2009, 2009; ANSI/ASSE/ISO Z690), a Business Case Development Tool was designed. Specifically, this tool can be used to generate a business case to demonstrate the value to an employer of Prevention through Design (PtD) efforts to an employer integrated into the occupational safety and health management systems.

The Business Case Development Tool was designed to ease development of the business case by SH&E professionals for use in making decisions or for presentation to the organizational managers charged with making resource decisions. The tool can be used to select among alternative solutions or demonstrate the wisdom of a solution already selected. The information provided by the tool is expressed in the language understood by all management, not just those in occupational safety and health. Yet, the tool includes the critical components that define the SH&E profession – risk management.

The tool consists of a five-step process and individual descriptive or analytic tools or instruments to complete each of the steps. Figure 19.1 illustrates the major components of the tool, while Figure 19.2 provides an illustration of the selection of tools or instruments available for use in performing Step 1 when a specific Tool has been selected by the analyst.

Business Case Developer			
About an Occupational Safety and Health Business Case			
Step 1	Describe current OSH condition	Show/hide modules	Description
Step 2	Conduct risk assessment	Show/hide modules	Description
Step 3	Identify changes from current OSH condition	Show/hide modules	Description
Step 4	Determine value	Show/hide modules	Description
Step 5	Develop recommendations report	Show/hide modules	Description
Instructions Manual			

Figure 19.1 Opening Page of the Business Case Developer Tool

Step1	Describe the Current Situation	
	Tool 1a	Identify problem and desired outcomes
	Tool 1b	Draft list of key business and EHS objectives
	Tool 1c	Draft business case project assumptions

Figure 19.2 The Business Case Developer Tool – Step 1

19.3.1 Steps of the Tool

The first step of the process represents the formative phase providing the background for determining the value of SH&E activities in current and future time frames. Assessing the current situation involves identifying the health protection problem(s), describing what actions are currently in place to address the problem(s), and determining the business objectives and their importance to the successful operation of the business. Understanding the current situation provides critical baseline information needed to identify interyentions or solutions that could be implemented, continued, or revised to improve the current state of safety and health.

The second step of the development takes an in-depth look at the SH&E hazards and risks within the business process at the current time. More specifically, hazards are identified first so that the risks arising from those hazards can be evaluated and determined if they are tolerable or not. Hazards include all aspects of technology and activity that produce risk. Hazards can be physical, biological, chemical, mechanical, or psychosocial; risks can be focused on the health and safety of the worker or the business. In the end these are three main issues that must be addressed:

1. What can go wrong? – the hazard
2. How bad could it be? – the consequences of the hazard
3. How often might it happen? – the likelihood of the consequences.

The next step begins by identifying the solution(s) to hazard(s) recognized in Step 2. Consideration of PtD concepts, including the hierarchy of controls, is used to evaluate and select possible solutions for continued analysis. The business processes identified in Step 2 are revisited to determine what changes to those business processes result from the intervention or solution being considered. These changes again include both the risk of business loss or interruption and the risk of adverse worker health outcomes or environmental risks. A second risk analysis is performed considering the effect

of implementing the solution(s) being considered. The relationship of hazard and consequences is evaluated using tools recommended in ANSI Z690.3/ISO/IEC 31010:2009. This step ends with providing a final risk measure – one that calculates the remaining business and SH&E risk, providing the decision maker a full understanding of the effect on risk of implementing the solution to mitigate or eliminate the hazard.

Step 4 shows the costs and benefits of the changes from the current state that were pinpointed in Step 3. The costs and benefits can be captured in dollars, percent, numbers, or simple narrative phrases. These costs and benefits are the basis for computing the metrics commonly used to evaluate business investments within a corporation or commercial enterprise setting. Financial metrics, the effects that an investment has on profit and financial condition of the company, use the costs and benefits associated with the solution or intervention being analyzed expressed in dollars. NPV, ROI, and DPP are some of the more meaningful metrics to business management. Additionally, those costs and benefits that are not expressed in dollars, such as contributions to business objectives, are summarized and presented in specific terms.

Step 5 is the last step, but by no means the least important step, in developing a business case. The final report integrates all the previous steps into a language and form that is understood and appreciated by those in the decision-making team. The report can be a lengthy written document that includes all the findings – from the hazards identified to changes in risk measures and financial and nonfinancial metrics – sources of the information used, and the members of the working team. It can also take the form of an executive summary or a PowerPoint presentation. The content and format is strongly dependent on the desires of those receiving the report.

In addition to the Business Case Development Tool being easy to use by analysts that are not trained in finance or economics, it is also flexible as it can be used under a variety of situations or conditions. It can be used in any of the stages of implementing solutions – preoperational, operational, postoperational, or postincident – defined in ANSI/ASSE Z590.3-2011.

19.4 BUSINESS CASE EXAMPLES

The following case examples help illustrate the flexibility of the tool and the benefits it provides when fully utilized.

19.4.1 Case Example One: Post Incident

In July 1999 three workers were killed in a crane collapse during the construction of a stadium pictured in Figure 19.3. A crane was lifting a section of the roof weighing over 450 t when it collapsed (pictured after the collapse in Figure 19.4). OSHA's investigation revealed that the crane's rated load was exceeded when the roof section was first lifted off the ground; workers were not kept clear of the suspended 450 tons load during the moving of the lift; and personnel platforms were used to lift workers during dangerous weather conditions. On the day of the collapse, winds gusted up to 26 miles per hour and workers indicated that it was too dangerous to operate the crane. Unfortunately, following a dispute over accelerating production to ensure meeting the opening day, the safety director left the company. It was decided that work would proceed as originally planned (OSHA, Abbott Laboratories, and Georgetown University, 2005).

Table 19.1 provides the financial information that was derived as part of the analysis. In the end, the project was over a year behind schedule and more than $620 million over budget.

Despite the importance and the impact that these costs provided when discussing the lessons learned from this case, use of the Business Case Development Tool could have added the financial metrics and nonfinancial losses associated with the project. Perhaps even more important would be the addition of the exploration of risk management, including defining the work processes in the construction project, which should have led to the adoption of PtD methodologies.

N/A

4.

Comparison of traditional bag vs. two-handled bags per NiOSH Lifting Guidelines.

National Institute for Occupational Safety and Health

NIOSH LIFTING GUIDELINES

Make use of handles whenever possible.

Get help if the load is too heavy.

Bend at the knees when lifting a load from the ground.

Keep object controlled and close to your body.

Maintain correct posture when lifting and carrying.

Place trash bag into dumpster, do not toss.

Never carry anything that obstructs your legs while walking.

5.

Excerpts from case summaries taken from search results in www.dir.ca.gov for trashbag injuries (see also linen bag injuries, dumpster injury, recycle injury).

Case Number:	CM15-0146785		
Date Assigned:	08/07/2015	Date of Injury:	10/18/2006
Decision Date:	09/04/2015	UR Denial Date:	07/24/2015
Priority:	Standard	Application Received:	07/28/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: North Carolina
Certification(s)/Specialty: Family Practice

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 55 year old male, who sustained an industrial injury on 10-18-2006. He reported right shoulder pain while lifting a trash bag. The injured worker was diagnosed as having frozen shoulder, rotator cuff syndrome, bursitis, and thoracic outlet syndrome. Treatment to date has included diagnostics, right and left shoulder surgery in 2010 and 2011, physical therapy, injections, and medications. Currently (7-09-2015), the injured worker complains of pain in his shoulders, neck, low back, and hands. Pain was rated 7 out of 10 and was relieved by medications, ice, and transcutaneous electrical nerve stimulation unit. Associated symptoms included numbness and tingling, spasms, fatigue, swelling, locking, and weakness. He rated difficulty with activities of daily living as 7 out of 10. He rated pain interference with sleep, mood, ability to concentrate, relationships with others, and enjoyment of life as 8-9 out of 10. Current medications included Tizanidine, Valium, Norco, and Metoprolol. Exam of the neck, back, and extremities noted crepitus in the right shoulder and palpable trigger points. Motor strength was 4 out of 5 in bilateral elbow flexion. Apprehension, Hawkin's, and Speed's tests were positive on the right. Range of motion was limited in the lumbar spine and shoulders. The treatment plan included prescriptions for Lidoderm patch, Tizanidine, Valium, and Norco. A Spinal Q dynamic support vest was also recommended. His current work status was not noted. Urine toxicology was not noted. The use of Norco was noted since at least 3-2015 and the use of Tizanidine and Valium was noted since at least 5-2015.

IMR ISSUES, DECISIONS AND RATIONALES

Case Number:	CM15-0078534		
Date Assigned:	04/29/2015	Date of Injury:	09/20/2013
Decision Date:	05/28/2015	UR Denial Date:	04/07/2015
Priority:	Standard	Application Received:	04/24/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: New York
Certification(s)/Specialty: Internal Medicine, Pulmonary Disease

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 50 year old female, who sustained an industrial injury on 9/20/2013. She reported a back injury while lifting trash bags. The injured worker was diagnosed as having cervical sprain, lumbar radiculopathy, and derangement of joint, shoulder. Treatment to date has included medications, physical therapy, chiropractic, acupuncture, and diagnostics. The use of nonsteroidal anti-inflammatory drugs was noted since 9/2013. A complete progress report (3/26/2015), with subjective complaints with regards to the current requested treatment, was not submitted. The treatment plan included acupuncture, and continued medications, including Ibuprofen and Salonpas patches. Her work status was modified, total temporary disability if unavailable. On 1/29/2015, she continued to report pain in her neck, right shoulder, arm and hand, and mid and low back. She reported stress, anxiety, and depression due to health concerns, and was not working. Pain was rated 4-7/10.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Ibuprofen 600mg #60: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Non-steroidal anti-inflammatory drug Page(s): 67-68.

Case Number:	CM14-0168974		
Date Assigned:	10/17/2014	Date of Injury:	04/13/2013
Decision Date:	11/19/2014	UR Denial Date:	09/29/2014
Priority:	Standard	Application Received:	10/14/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Internal Medicine and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is an injured worker with a history of Achilles tendon injury. Date of injury was 04-13-2013. The patient sustained a traumatic laceration of right Achilles tendon on 04/13/13, and had operative repair. Agreed medical evaluation (AME) report dated 05/20/14 noted that range of motion in dorsiflexion and plantarflexion was decreased. Regarding the mechanism of injury, the patient was carrying trash bags in each hand and a trash bag hit a wall and bounced back, hitting the back of his right ankle. There was broken glass in the trash bag. The patient had sustained a laceration of his right Achilles tendon. He was referred to an orthopedic surgeon, who would perform a repair of the right lacerated Achilles tendon and debridement of the traumatic laceration. He was placed on temporary total disability for a period of time until he could weight-bear. He was placed on sedentary work on July 18, 2013. The diagnosis was traumatic lacerated Achilles tendon and repair. Physical therapy was performed. He was permanent and stationary on October 23, 2013. The patient was seen by a chiropractor. The patient saw the doctor for approximately one month and had some physical therapy and chiropractic treatment. The patient was referred to a pain management specialist on February 3, 2014. Repair of right lacerated Achilles tendon was performed on August 14, 2013. Subjective complaint was ankle pain. Current medications included Ibuprofen. Physical examination was documented. Visual inspection reveals swelling over the Achilles tendon, where there has been a repair. There is a traumatic laceration, which measures 6 cm. There are dysesthesia below the traumatic laceration, consistent with sural nerve injury. Upon gait inspection, the patient demonstrates a very antalgic gait, favoring the right lower extremity. He utilizes a cane. X-rays of the right ankle reveal normal overall bony alignment, no fracture or dislocation. Joint spaces are well maintained. Diffuse osteopenia noted periarticular. Magnetic resonance imaging MRI of the right ankle dated April 15, 2014 showed moderate diffuse thickening of the Achilles tendon

Case Number:	CM15-0078534		
Date Assigned:	04/29/2015	Date of Injury:	09/20/2013
Decision Date:	05/28/2015	UR Denial Date:	04/07/2015
Priority:	Standard	Application Received:	04/24/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: New York
Certification(s)/Specialty: Internal Medicine, Pulmonary Disease

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 50 year old female, who sustained an industrial injury on 9/20/2013. She reported a back injury while lifting trash bags. The injured worker was diagnosed as having cervical sprain, lumbar radiculopathy, and derangement of joint, shoulder. Treatment to date has included medications, physical therapy, chiropractic, acupuncture, and diagnostics. The use of nonsteroidal anti-inflammatory drugs was noted since 9/2013. A complete progress report (3/26/2015), with subjective complaints with regards to the current requested treatment, was not submitted. The treatment plan included acupuncture, and continued medications, including Ibuprofen and Salonpas patches. Her work status was modified, total temporary disability if unavailable. On 1/29/2015, she continued to report pain in her neck, right shoulder, arm and hand, and mid and low back. She reported stress, anxiety, and depression due to health concerns, and was not working. Pain was rated 4-7/10.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Ibuprofen 600mg #60: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Non-steroidal anti-inflammatory drug Page(s): 67-68.

Case Number:	CM15-0040425		
Date Assigned:	03/10/2015	Date of Injury:	02/21/2013
Decision Date:	04/13/2015	UR Denial Date:	02/19/2015
Priority:	Standard	Application Received:	03/03/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: District of Columbia, Virginia
Certification(s)/Specialty: Internal Medicine

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 39-year-old female who sustained a work related injury on February 21, 2013, incurring back injuries from lifting a 50-pound trash bag. Magnetic Resonance Imaging (MRI) and X rays of the lumbar spine was unremarkable. She was diagnosed with a lumbar sprain, low back pain and sciatica. Treatments included rest, assistive cane, and pain medications. Currently, the injured worker complained of ongoing low back pain with radiating symptoms down the left extremity to the foot. She also complained of ongoing ankle pain from another injury. Treatment plan for the persistent pain was pain medications.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Retrospective Norco 10/325 mg #180 dispensed on 1/14/2015: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Opioids Page(s): 78.

MAXIMUS guideline: Decision based on MTUS Chronic Pain Treatment Guidelines 9792 Page(s): 75, 91, 124-127.

Case Number:	CM14-0200603		
Date Assigned:	12/10/2014	Date of Injury:	08/31/2011
Decision Date:	01/27/2015	UR Denial Date:	11/12/2014
Priority:	Standard	Application Received:	12/01/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Internal Medicine and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker (IW) is a 33-year-old man with a date of injury of August 31, 2011. The mechanism of injury occurred due to lifting 50-pound trash bags. The injured worker's working diagnoses are lumbar radiculopathy; bilateral inguinal pain; bilateral inguinal hernia repair in 2012; and herniated intervertebral disc at L4-L5, and L5-S1. Pursuant to the progress note dated October 21, 2014, the IW complains of lumbar pain and bilateral inguinal pain. Examination of the lumbar spine revealed painful range of motion of 40 degrees forward flexion, and 10 degrees extension. The IW has positive seated straight leg raising test bilaterally. The IW has diminished sensation to the right L4 dermatome and left L2, L3, L4, L5, and S1 dermatomes. The IW was unable to tiptoe walk or heel to toe walk because of secondary to lower back pain. Deep tendon reflexes of the lower extremities were noted to be 2/4 bilaterally. Current medications include Norco, Butrans patch, Xanax, and Flexeril. The current request is for 12 physical therapy sessions for the lumbar spine. Documentation by the treating orthopedic surgeon dated August 28, 2014, indicates the IW has failed all conservative treatment measures over the last 3 years including rest, activity modifications, chiropractic care, physical therapy, and acupuncture to the lumbar spine.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Twelve (12) physical therapy sessions for the lumbar spine: Upheld

Case Number:	CM14-0141564		
Date Assigned:	09/12/2014	Date of Injury:	05/16/2013
Decision Date:	10/23/2014	UR Denial Date:	08/07/2014
Priority:	Standard	Application Received:	09/02/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Orthopedic Surgery and is licensed to practice in Texas. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 43 year old female who sustained an injury on 05/16/13. Per the clinical reports, the injured worker's 1st date of injury was 09/15/10 while taking out a trash bag. The injured worker felt a pain in the right wrist with a popping sensation. The injured worker has had multiple surgical procedures for the upper extremities to date as well as a recent cervical fusion completed in April of 2014. The injured worker has also been followed for complaints of low back pain which has not improved with prior conservative treatment to include multiple injections, physical therapy, work modifications, and various types of medications. No imaging studies of the lumbar spine were available for review. Per the appeal letter dated 08/14/14, the injured worker was reported to have L4-5 degenerative changes contributing to stenosis as well as evidence of instability on flexion and extension views. No imaging studies were available for review confirming any evidence of instability from L4 through S1. The requested services to include an L4 through S1 anterior interbody fusion followed by a posterior spinal fusion as well as preoperative workup, use of a co-surgeon, and postoperative DME were all denied by utilization review on 08/07/14

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Stage (1) L4-S1 Anterior Lumbar Interbody fusion, Stage (2) L4-S1 minimally invasive posterior spinal fusion: Upheld

Case Number:	CM14-0047034		
Date Assigned:	07/02/2014	Date of Injury:	06/24/2012
Decision Date:	04/09/2015	UR Denial Date:	03/24/2014
Priority:	Standard	Application Received:	04/14/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Minnesota, Florida
Certification(s)/Specialty: Orthopedic Surgery

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 27-year-old female with a date of injury of 6/24/2012. The mechanism of injury was from picking up trash bags weighing 30-45 pounds. She complained of pain in her feet, back and arm while throwing the trash bags into a dumpster. This has progressed into a chronic pain syndrome involving cervical radiculopathy, right shoulder pain, and lumbar radiculopathy with radicular pain in the upper and lower extremities. Pain levels are reported to be 6-7/10 in the neck and 6-7/10 in the low back. The right shoulder pain is reported to be 8-9/10. Diagnostic studies have not been included with the documentation submitted but according to the notes, MRI scans of the cervical and lumbar spine and right shoulder were performed in the year 2013. The cervical MRI showed degenerative disc disease at C5-6. The lumbar MRI showed multilevel protrusions and bony hypertrophy of facet joints and moderate decrease in the anteroposterior diameter of the lumbosacral canal. The shoulder MRI reportedly showed evidence of impingement and a rotator cuff tear. However, it is not known if this was a partial-thickness tear or a full-thickness tear. Detailed physical examinations or results of diagnostic testing have not been submitted. Recent examinations are not available. Treatment to date has included medications, rest, massage, acupuncture, traction, ultrasound, exercise, a TENS unit, injections in the neck and low back, and chiropractic manipulation with myofascial release. Response to treatment has not been provided. Treatment requested is for caudal epidural decompression neuroplasty at L5-S1 x 1 with local anesthetics, steroids, Wydase (Hyaluronidase) and associated drugs, facet injections at bilateral L4-5, L5-S1 x 1, and myoneural injections. The response to prior treatment and the rationale for the requested

Case Number:	CM15-0072400		
Date Assigned:	05/13/2015	Date of Injury:	01/09/2015
Decision Date:	06/10/2015	UR Denial Date:	03/30/2015
Priority:	Standard	Application Received:	04/16/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: California, Indiana, Oregon
Certification(s)/Specialty: Orthopedic Surgery

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 35-year-old female with an industrial injury dated 01/09/2015. The mechanism of injury is documented as lifting a heavy trash bag and feeling a pulling sensation in her right shoulder. She developed discomfort and pain to the anterolateral aspect of her right shoulder that remained persistent. Her diagnosis was chronic impingement syndrome of right shoulder. Prior treatments included physical therapy, acupuncture, medication and subacromial steroid injection. MRI showed considerable inflammation of her rotator cuff without any full thickness tears (per provider). At presentation on 03/18/2015, she was complaining of a sharp stabbing pain located along the anterolateral aspect of the right shoulder associated with any type of activity that requires her to reach, lift, push or pull with her right arm. She denies any numbness or tingling. She states whenever she rolls onto her right shoulder at night it frequently wakes her due to discomfort. Physical examination of the cervical spine revealed some mild tenderness in the trapezius muscle at the base of the right side of her neck. Range of motion was normal in the cervical spine and right shoulder. Impingement sign and cross are test were positive. Neurological examination of the upper extremities was normal. The provider discussed conservative treatments along with surgical options. The injured worker states she was completely frustrated with non-operative treatments and "was not going anywhere with all the treatments she had had thus far" and wanted to proceed with surgical intervention to improve her shoulder discomfort. The treatment plan included a request for right shoulder arthroscopic subacromial decompression with open distal clavicle excision and possible rotator cuff repair,

Case Number:	CM14-0035555		
Date Assigned:	06/23/2014	Date of Injury:	02/19/2010
Decision Date:	07/18/2014	UR Denial Date:	03/12/2014
Priority:	Standard	Application Received:	03/24/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine and Rehabilitation, and is licensed to practice in Minnesota. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 27-year-old female who reported an injury on 02/19/2010. The injury reported was while lifting a trash bag she experienced a snapping sensation of the right wrist. The diagnoses include right upper extremity complex regional pain syndrome, severe vertigo, severe migraine, morbid obesity, alopecia, and depression. Previous treatments include cervical laminectomy placement, medication, spinal cord stimulator, stellate ganglion blocks. The clinical note dated 04/10/2014, reported the injured worker complained of ongoing severe pain involving both upper extremities and severe migraine headaches, as well as findings of left piriformis syndrome with intermittent left leg cramping. Upon the physical examination the provider noted the injured worker had severe discoloration of the right upper extremity with allodynia and weakness. She continued with left scalene tenderness, positive left Roos and Adson tests and left costoclavicular abduction test. Provider requested Botox scalp injections for headaches. However, the request for authorization was not submitted for clinical review.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Botox scalp injections: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines. Decision based on Non-MTUS Citation National Guideline Clearinghouse document entitled "Treatment of Primary Headaches:Chronic Daily Headache;Standards of care for Headache Diagnosis and Treatment.

Case Number:	CM14-0142881		
Date Assigned:	09/10/2014	Date of Injury:	02/13/2014
Decision Date:	10/16/2014	UR Denial Date:	08/29/2014
Priority:	Standard	Application Received:	09/03/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine and Rehabilitation and is licensed to practice in Nevada. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The records, presented for review, indicate that this 37-year-old was reportedly injured on February 13, 2014. The mechanism of injury was noted as lifting a heavy trash bag. The most recent progress note, dated August 22, 2014, indicated that there were ongoing complaints of low back pain greatest on the left side radiating to the left lower extremity at the L4, L5, and S1 nerve distributions. The injured employee rated her pain at 5/10 to 6/10. Current medications include ibuprofen, Flexeril, and Norco. There was a normal physical examination on this date. Diagnostic imaging studies of the lumbar spine revealed disc degeneration at L3-L4, L4-L5, and L5-S1. There was partial effacement of the left lateral recess at L5-S1. Previous treatment included physical therapy and oral medications. A request had been made for Norco 10/325 and was not certified in the pre-authorization process on August 29, 2014.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Norco 10/325 mg, sixty count: Upheld

Claims Administrator guideline: Decision based on MTUS ACOEM,Chronic Pain Treatment Guidelines Opioids.

MAXIMUS guideline: Decision based on MTUS Chronic Pain Treatment Guidelines 8 C.C.R. 9792.20 - 9792.26; MTUS (Effective July 18, 2009) Page(s): 74-78, 88, 91 OF 127.

Case Number:	CM14-0091820		
Date Assigned:	07/25/2014	Date of Injury:	03/11/2004
Decision Date:	08/28/2014	UR Denial Date:	06/10/2014
Priority:	Standard	Application Received:	06/18/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Licensed in Clinical Psychology, and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

According to the records that were provided for this independent medical review, this patient is a 60 year old female who reported an industrial, work-related, injury on March 11, 2004 when in the course of her normal work duties as a housekeeper for [redacted], she was lifting a trash bag and injured her lower back. She felt an acute, severe onset of pain and in February of 2005 had a spinal fusion L5-S1 that did resolve her pain condition. Her pain radiates into the left lower extremity. She developed over the subsequent years: neck pain and upper left extremity pain, left shoulder, and was diagnosed with CRPS. Psychologically, she developed symptoms of anxiety, depression, and sleep disturbance. She has been diagnosed with reactionary depression/anxiety, and has been treated with the psychiatric medication: Cymbalta and Klonopin as well as other psychiatric medications. Her diagnosis was changed following a psychological evaluation and is now major depression, single episode; and pain disorder. A request for six sessions of cognitive behavioral therapy, and six sessions of biofeedback, was made and non-certified. The request for treatment was not denied, but rather was modified downward from 6 to 4 sessions. The utilization review rationale for non-certification w/modification was that this is an initial request for treatment. This independent review will address a request to overturn that decision.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Cognitive Behavioral Therapy x6: Upheld

Case Number:	CM14-0069974		
Date Assigned:	07/16/2014	Date of Injury:	04/11/2003
Decision Date:	09/10/2014	UR Denial Date:	04/24/2014
Priority:	Standard	Application Received:	05/15/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine & Rehabilitation and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This 61 year-old male Janitor sustained a low back and right leg injury on 4/11/2003 from lifting a 50-pound trash bag while employed by [redacted]. Request(s) under consideration include Left sided L5-S1 medial Branch Block and Left SI joint diagnostic block (left S1-S3 Diagnostic Block for left SI joint). The patient has been deemed P&S per report of 9/10/03 with future medical care. There is report in December 2013 noting patient s/p recent medial branch block at bilateral L4-5 and L5-S1 with excellent relief and s/p left sacroiliac joint block with near pain free for 2-3 days. Report of 3/11/14 from the pain management provider noted patient with ongoing low back pain rated at 5/10 taking 4 Tylenol #4/day. Pain decreased 75% for 2-3 days after MBB but had returned with pain traveling down posterior gluteal are not pass upper thighs. Exam noted positive Kemp's, left SI joint; spasm, motor and sensory intact. Treatment plan included radiofrequency rhizotomy at bilateral L4-5 and L5-S1 with Flexeril, Tylenol #4. Report of 4/17/14 from the pain management provider noted the patient with ongoing lower back pain rated at 6/10. Exam showed positive left SI joint pain on maneuvers (Patrick's); provocative facet maneuvers positive on left and right Baer point tenderness. Diagnoses include lumbar disc displacement without myelopathy; lumbago; back disorder; muscle spasm. Request(s) for Left sided L5-S1 medial Branch Block and Left SI joint diagnostic block (left S1-S3 Diagnostic Block for left SI joint) were non-certified on 4/24/14 citing guidelines criteria and lack of medical necessity.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

MAXIMUS
Federal Services

Case Number:	CM15-0006654		
Date Assigned:	01/28/2015	Date of Injury:	09/13/2013
Decision Date:	03/18/2015	UR Denial Date:	12/19/2014
Priority:	Standard	Application Received:	01/12/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: California, Indiana, New York
Certification(s)/Specialty: Internal Medicine

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This 55 year old female sustained a work related injury on 09/13/2013 while dumping a plastic trash bag weighing more than 5 pounds into a 5 foot high cardboard dumpster. According to a progress report dated 10/23/2014, the injured worker, on 02/05/2014, underwent right shoulder arthroscopy along with rotator cuff repair, extensive glenohumeral debridement, labral resection, coracoacromial ligament release, subacromial decompression with acromioplasty. Post-surgery she went to physical therapy. She injured her right shoulder. A new MRI was performed on 07/31/2014. Following the findings, she was scheduled for right shoulder arthroscopy with lysis of adhesions, manipulation under anesthesia and possible rotator cuff repair. According to a progress report dated 11/13/2014 the injured worker returned for follow-up for right shoulder arthroscopy with lysis of adhesion, capsulotomy and manipulation of the shoulder under anesthesia. She had some pain in her shoulder girdle. The wounds were healing and the neurological exam was normal. Recommendations included physical therapy with range of motion and strengthening of the right shoulder three times per week. Work status included total temporary disability for four weeks. Plan of care included oral nonsteroidal anti-inflammatory medications.On 12/19/2014, Utilization Review non-certified additional post-op physical therapy quantity 12. According to the Utilization review physician, guideline criteria have been partially met. Therefore the request was modified to 6 to allow for continued demonstration of functional improvement. Guidelines cited for this request included CA MTUS Postsurgical Treatment Guidelines, Shoulder. The decision was appealed for an Independent Medical Review.

Case Number:	CM14-0069435		
Date Assigned:	07/14/2014	Date of Injury:	06/24/2012
Decision Date:	10/01/2014	UR Denial Date:	04/15/2014
Priority:	Standard	Application Received:	05/14/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Family Medicine and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 26 year old female whose date of injury is 06/24/2013. The mechanism of injury is described as picking up trash bags and throwing them in the dumpster at work. The treatment to date includes lumbar facet blocks on 10/16/13, physical therapy, acupuncture, chiropractic treatment and medication management. Cervical magnetic resonance image dated 02/25/14 revealed 1-2 mm posterior disc bulge at C3-7 without evidence of canal stenosis or neural foraminal narrowing. Lumbar magnetic resonance image dated 03/13/14 revealed disc bulging at L2-3 through L5-S1.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Rental of a heating pad with pump,QTY: 1 for a 4 month period of time: Upheld

Claims Administrator guideline: The Claims Administrator did not base their decision on the MTUS. Decision based on Non-MTUS Citation Official Disability Guidelines (ODG), Neck and Upper Back Chapter

MAXIMUS guideline: The Expert Reviewer did not base their decision on the MTUS. Decision based on Non-MTUS Citation Official Disability Guidelines (ODG), Low back Chapter, Cold/heat packs

Case Number:	CM15-0045650		
Date Assigned:	03/18/2015	Date of Injury:	08/31/2012
Decision Date:	05/05/2015	UR Denial Date:	03/10/2015
Priority:	Standard	Application Received:	03/10/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Illinois, California, Texas
Certification(s)/Specialty: Orthopedic Surgery

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 50-year-old female who sustained an industrial injury on 8/31/12. Injury occurred while she was throwing a trash bag into the back of a dumpster, and she felt something pinching in the back. Past medical history was positive for diabetes mellitus. She underwent posterior left L5/S1 microdiscectomy and foraminotomy on 11/19/14. Records indicated initial positive surgical response with improved left leg pain and paresthesias. Post-operative treatment included pain medications. The 1/20/15 treating physician report cited complaints of left leg numbness and pain. Clinical findings were consistent with residual left S1 radiculopathy and an MRI was ordered. The 2/7/15 lumbar spine MRI conclusion documented left hemilaminectomy at L5/S1 since the prior study with recurrent or residual disc protrusion or scarring effacing the left subarticular recess. There was effacement of the fat around the left S1 nerve root and concern for left S1 nerve impingement. She underwent a left L5/S1 transforaminal epidural steroid injection on 2/20/15. The 2/23/15 treating physician report cited moderate to severe back and left leg pain, with occasional giving out of the left leg. Physical exam documented moderate tenderness to palpation over the mid-lumbar spine, positive left straight leg raise at 45 degrees, diminished sensation in the bottom of the left foot, absent left ankle reflex, and left plantar flexion strength 4/5. MRI showed recurrent disc herniation on the left causing left subarticular recess stenosis and compression against the left L5 and S1 nerve roots. The diagnosis was continued L5/S1 radiculopathy on the left with recurrent disc herniation at L5/S1. The injured worker was deemed a surgical candidate for redo discectomy and facetectomy at L5/S1 on the left, which would create intraoperative instability requiring fusion. The 3/10/15 utilization

Case Number:	CM15-0089995		
Date Assigned:	05/14/2015	Date of Injury:	06/06/2013
Decision Date:	06/16/2015	UR Denial Date:	04/24/2015
Priority:	Standard	Application Received:	05/11/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: California
Certification(s)/Specialty: Physical Medicine & Rehabilitation, Pain Management

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 27 year old female who sustained an industrial injury on 06/06/2013 while throwing out heavy trash bags. The injured worker was diagnosed with shoulder sprain/strain, cervical radiculopathy, lumbosacral radiculopathy and hip sprain/strain. Treatment to date includes diagnostic testing with lumbar magnetic resonance imaging (MRI) and electrodiagnostic testing of the lower extremities in October 2014, physical therapy, and series of lumbar epidural steroid injections, acupuncture therapy, modified work restrictions, home exercise program and medications. According to the primary treating physician's progress report on April 6, 2015, the injured worker continues to experience low back pain radiating to both lower extremities with numbness and tingling. The injured worker reports difficulty sleeping due to pain. Examination demonstrated spasm, tenderness and guarding in the paravertebral muscles of the lumbar spine with decreased range of motion on flexion and extension. The injured worker has an antalgic gait. Current medications are listed as Norflex, Relafen, Ultram ER and Prilosec. Treatment plan consists of activity and work modifications and the current request for a Functional Capacity Evaluation (FCE) related to trunk and lower extremities.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Functional Capacity Evaluation Related To Trunk And Lower Extremities Qty 1: Upheld

Case Number:	CM15-0131032		
Date Assigned:	07/17/2015	Date of Injury:	10/26/1999
Decision Date:	08/19/2015	UR Denial Date:	06/28/2015
Priority:	Standard	Application Received:	07/07/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Arizona, Michigan
Certification(s)/Specialty: Preventive Medicine, Occupational Medicine

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 57-year-old female, with a reported date of injury of 10/26/1999. The mechanism of injury was the throwing of two trash bags weighing about 20 pounds into the dumpster. The injured worker's symptoms at the time of the injury included pain in the neck and upper back all the way to her skull. The pain also radiated down her right arm. The diagnoses include neck strain, cervical degenerative disc disease, right shoulder strain, and right hand numbness due to neck and right shoulder strain, possibly representing radiculopathy. Treatments and evaluation to date have included oral medications, and chiropractic treatment. The diagnostic studies to date have included an MRI of the cervical spine on 09/12/2014 which showed posterior bulging at C5-6, mild degenerative changes in the facets, and posterior spurring and bulging at C6-7. The initial comprehensive report dated 06/23/2015 indicates that the injured worker complained of neck pain with radiation down into her right shoulder and down her arm into her hand. She had some numbness of the right hand. The injured worker rated her neck pain 6 out of 10. The objective findings include mild to moderate acromioclavicular tenderness in the right shoulder, right shoulder abduction at 90 degrees, right shoulder flexion at 150 degrees, non-tender right arm, mild decreased sensation throughout the right hand, and no significant weakness. The injured worker is currently unemployed. The treating physician thought about placing the injured worker on modified duty with no overhead work above the right shoulder and no repetitive or strong use of the right arm. The treating physician requested Cyclobenzaprine 7.5mg #60 and Diclofenac Sodium ER 100mg #60. The rationale for the request is not indicated.

Case Number:	CM15-0028858		
Date Assigned:	02/20/2015	Date of Injury:	09/15/2010
Decision Date:	03/31/2015	UR Denial Date:	01/29/2015
Priority:	Standard	Application Received:	02/17/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: California
Certification(s)/Specialty: Physical Medicine & Rehabilitation

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 30 year old female with an industrial injury dated 09/15/2010. The mechanism of injury is documented as occurring when she lifted a trash bag weighing approximately 40 pounds. She felt pain, a pull and a pop in her right wrist as well as pain in her right shoulder. She presented on 12/05/2014 with complaints of sharp right shoulder pain radiating down the arm to the fingers rated as 7-8/10. She was status post carpal tunnel release surgery of the right wrist. She rates wrist pain as 6-8/10. Right shoulder was tender to palpation at the supraspinatus insertion site and at the levator scapula. Range of motion was limited. There was decreased range of motion of the right wrist with a positive Tinel's and Phalen's sign.Prior treatment includes surgery, acupuncture and medications.Diagnoses were right shoulder joint derangement and status post right carpal tunnel release with residual pain.On 01/29/2015 the request for 12 infrared, manual acupuncture, 15 minutes, elect acupuncture 15 minutes and capsaicin patch two times per week for 6 weeks for the right shoulder completed on 10/28/2014, 11/04/2014, 11/13/2014, 11/18/2014, 11/21/2014 was non-certified by utilization review.MTUS/ACOEM and ODG were cited.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

12 Infrared, manual acupuncture, 15 minutes, elect Acupuncture 15mins: Upheld

Case Number:	CM13-0030595		
Date Assigned:	03/03/2014	Date of Injury:	05/16/2008
Decision Date:	04/23/2014	UR Denial Date:	09/12/2013
Priority:	Standard	Application Received:	09/30/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine and Rehabilitation, has a subspecialty in Neuromuscular Medicine and is licensed to practice in Maryland. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is a 57-yoar-old female that had a work injury on 5/16/08 when she was changing and cleaning trash bags. Her diagnoses include: cervical musculoligamentous injury, cervical radiculopathy, thoracic musculoligamentous injury, lumbar musculoligamentous injury/lumbar radiculopathy, left shoulder impingement syndrome, left shoulder sprain/strain, right shoulder impingement syndrome, right shoulder sprain strain, left elbow sprain/wrist, right elbow sprain/strain, left wrist sprain/strain /, status post surgery, left wrist ,right wrist sprain/ strain, status post surgery, right wrist, loss of sleep, anxiety and depression. The patient has undergone numerous physical therapy and chiropractic treatments including multiple right hand surgeries. There is a request for the medical necessity of a consult with [redacted] for medication. The provider submits a progress report dated 11/5/13 stating that the patient has complaints of pain in the cervical, thoracic and lumbar spine, shoulders, elbows and wrists. There is low back pain radiating into the legs and numbness/tingling in the wrists. Findings include tenderness upon palpation in the cervical spine, thoracic, lumbar spine and both wrists. There was a denial of an authorization for a request for a consult with [redacted] dated 9/13/13.There is an 8/23/13 urine toxicology screen which lists numerous medications and inconsistencies in the way they were prescribed on testing.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

CONSULT WITH [redacted] FOR MEDICATION: Upheld

Case Number:	CM14-0070062		
Date Assigned:	08/13/2014	Date of Injury:	12/31/2013
Decision Date:	09/11/2014	UR Denial Date:	04/25/2014
Priority:	Standard	Application Received:	05/15/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Internal Medicine and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is an injured worker with the diagnoses of lumbar spondylosis with myelopathy, partial tear of rotator cuff tendon of the right shoulder, medial epicondylitis of the left elbow, lateral epicondylitis of the left elbow, thoracic sprain strain. Date of injury was 12/31/13. Regarding the mechanism of injury, the low back injury occurred while trying to prevent herself from falling. Initial evaluation report PR-1 dated 02/19/14 indicates that the patient sustained injury while carrying a tray full of plates and slipped on an object with the right foot. It is noted that the patient developed pain in the right shoulder and left elbow sometime in 01/2014. The pain was attributed to repetitive use of arms when cleaning, cooking, and lifting heavy trash bags and the injury on 12/31/13. The patient participated in 6 conservative therapy sessions. The patient reports constant severe aching pain in the thoracic spine aggravated by prolonged standing and prolonged sitting; severe sharp pain in the lumbar spine aggravated by bending forward at the waist, prolonged walking, and prolonged standing; constant moderate to severe aching pain in the right shoulder which is aggravated by overuse and raising of the arm; and constant severe sharp pain in the left elbow which is aggravated by lifting and overuse. There was a pain that radiated into the left lower extremity. The patient felt tingling at the bottom of the feet. It is noted that the patient is able to barely perform standing and walking. The patient is also able to perform sitting for prolonged periods of time, washing dishes, and cooking however, causes pain. Thoracic spine examination reveals spasm and tenderness in the bilateral paraspinal muscles from T8 to T12. Lumbar spine examination reveals spasm and tenderness in the bilateral paraspinal muscles from L1 to S1 and multifidus. There was a trigger point to the left piriformis muscle. Lumbar spine range of motion through left rotation is 15/30 degrees and right rotation is 20/30 degrees with noted pain in all planes. The patient demonstrates positive Kemp's test bilaterally, positive straight leg raise test on the left, and positive Yeoman's bilaterally. The left

Case Number:	CM13-0037418		
Date Assigned:	06/09/2014	Date of Injury:	12/26/2012
Decision Date:	07/25/2014	UR Denial Date:	10/04/2013
Priority:	Standard	Application Received:	10/23/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Occupational and Preventative Medicine,and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient underwent QME on 03/04/2014. The patient reported 3 injuries to the lumbosacral spine. Approximately March 2011 he slipped and fell emptying a street sweeper. The next injury occurred when he was lifting a water pump, and the third injury occurred when he was lifting 3 trash bags. The patient indicated it was with the 12/26/2012 industrial injury he noted onset of pain in both shoulders and both knees. The patient reported a history of medication and acupuncture treatment. Following injuries, the patient continued in his regular job duties until 06/28/2013 (the patient reported, "I'm am [sic] retired now since 06/28/2013."). Complaints of constant pain in the cervical spine, bilateral shoulders, lumbosacral spine, bilateral knees and bilateral ankles were noted. Following examination diagnoses were noted as 1) lumbosacral musculoligamentous strain/sprain with resolved radiculopathy, 2) cervical musculoligamentous strain/sprain, 3) bilateral upper extremity sensory neuropraxia, 4) right shoulder sprain with possible impingement and internal derangement, 5) left shoulder sprain with possible impingement and internal derangement, 6) right knee sprain with possible internal derangement, and 7) left knee sprain with possible internal derangement.The medical provider's PR-2 of 06/19/2014 reports the patient was seen in follow-up with symptoms unchanged. The patient continued with low back pain, neck pain, and shoulder pain. By examination bilateral shoulders exhibited flexion and abduction 160, internal and external rotation 70, adduction and extension 20; motor strength 5-/5; cervical spine extension 35, flexion 30, right and left rotation 70; paraspinal muscle tenderness; dorsolumbar spine flexion 80, extension 20, bilateral bending 20; negative SLR, and lower extremity motor strength 5/5. Diagnoses were noted as low back pain with disc disease and facet disease multilevel, right > left shoulder pain with internal derangement, chronic neck pain, and lumbar spine spondylosis. The provider noted acupuncture had helped the patient in the past, and he recommended acupuncture 2 times a week for 3 weeks.

Case Number:	CM14-0187802		
Date Assigned:	11/18/2014	Date of Injury:	01/31/2012
Decision Date:	01/23/2015	UR Denial Date:	10/15/2014
Priority:	Standard	Application Received:	11/11/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Chiropractor (DC), has a subspecialty in Acupuncture, and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 41 year old male who reported bilateral elbow and shoulder pain from injury sustained on 01/31/12 while unloading trash bags. Patient is diagnosed with rule out shoulder tendinopathy; bilateral lateral elbow epicondylitis. Patient has been treated with medication and therapy. Per medical notes dated 09/17/14, patient complains of bilateral shoulder and bilateral elbow pain. In regards to bilateral shoulder pain, he describes this pain as shooting from his neck through to his arms bilaterally. He states that with certain activities he has pain that will shoot down from the base of the neck into the hand. He states that he feels tiredness and weakness in bilateral upper extremity. He describes sharp pain over the base of his skull. In regards to his right elbow pain he has pain rated 6-7/10 and is constant. In regards to his left elbow, he has pain rated at 8/10 and is constant bilateral elbow pain is increased with heavy lifting or pulling objects. Provider requested initial trial of 8 chiropractic treatment for bilateral elbow and bilateral shoulder pain which was non-certified by the utilization review on 10/15/14. Therefore, the Utilization Review decision was appealed for an Independent Medical Review.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Chiropractic rehabilitative therapy 2 times a week for 4 weeks to bilateral elbows and bilateral shoulders: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Page(s): 58-59.

Case Number:	CM15-0077625		
Date Assigned:	04/29/2015	Date of Injury:	05/09/2010
Decision Date:	05/28/2015	UR Denial Date:	04/01/2015
Priority:	Standard	Application Received:	04/23/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Maryland
Certification(s)/Specialty: Internal Medicine, Rheumatology

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 52 year old female, who sustained an industrial injury on 05/09/2010. She reported that while lifting a large trash bag into a container she experienced pain to the low back. The injured worker was diagnosed as having lumbar three to four herniated disc and lumbar five to sacral one protrusion. Treatment to date has included home exercise program, medication regimen, and lumbar epidural steroid injection. In a progress note dated 02/23/2015 the treating physician reports complaints of low back pain that radiates to the left lower extremity with tingling. The pain level is rated a nine out of ten. The treating physician requested the medication of Norco, but the documentation provided did not indicate the specific reason for this requested medication. The documentation provided did not contain the requested medication of Menthoderm 15%-10% 240gms.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Menthoderm 15% - 10%, 240 grams, no refills: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Page(s): 78 - 81, 105.

Case Number:	CM14-0113425		
Date Assigned:	08/15/2014	Date of Injury:	11/05/2001
Decision Date:	09/25/2014	UR Denial Date:	07/09/2014
Priority:	Standard	Application Received:	07/21/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Internal Medicine and is licensed to practice in New York. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The claimant is a 51-year-old female who sustained an industrial injury on 11/05/2010. The mechanism of injury was while pulling a cart of trash bags weighing 250 pounds the handle broke. Her diagnoses include right elbow, right shoulder, and neck pain. She is s/p right shoulder arthroscopic subacromial decompression, excision of acromioclavicular joint arthroplasty, rotator cuff debridement, intra-articular injection and Marcaine pump catheter placement. She continues with neck and right shoulder pain. On physical exam the neck is tender to touch with pain with range of motion. The right shoulder has pain with range of motion. Sensory exam of the upper extremity is normal. Treatment has included medications, physical therapy, chiropractic therapy and acupuncture. The treating provider has requested a Solar Care FIR Heating System for the cervical spine and right shoulder.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Solar Care FIR Heating System for the cervical spine and right shoulder: Upheld

Claims Administrator guideline: Decision based on MTUS ACOEM Chapter 8 Neck and Upper Back Complaints Page(s): 173-174.

MAXIMUS guideline: Decision based on MTUS ACOEM Chapter 8 Neck and Upper Back Complaints Page(s): 173-174. Decision based on Non-MTUS Citation Other Medical Treatment

Case Number:	CM15-0100664		
Date Assigned:	06/03/2015	Date of Injury:	09/16/2014
Decision Date:	07/01/2015	UR Denial Date:	05/21/2015
Priority:	Standard	Application Received:	05/26/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: New Jersey, Alabama, California
Certification(s)/Specialty: Neurology, Neuromuscular Medicine

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This 59 year old woman sustained an industrial injury on 9/16/2014 while lifting a trash bag to throw away. Diagnoses include rule out carpal tunnel syndrome. Treatment has included oral medications and physical therapy. Physician notes dated 5/12/2015 show complaints of right wrist pain. Recommendations include Tramadol.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Tramadol 50mg quantity 60: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Tramadol; Opioids.

MAXIMUS guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Tramadol Page(s): 113.

Decision rationale: According to MTUS guidelines, Ultram (Tramadol) is a synthetic opioid indicated for the pain management but not recommended as a first line oral analgesic. In addition and according to MTUS guidelines, ongoing use of opioids should follow specific rules: (a) Prescriptions from a single practitioner taken as directed, and all prescriptions from a single

Case Number:	CM14-0091826		
Date Assigned:	07/25/2014	Date of Injury:	10/14/2013
Decision Date:	09/29/2014	UR Denial Date:	06/12/2014
Priority:	Standard	Application Received:	06/17/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Chiropractic and Acupuncture, and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 57 year old male who reported low back pain from injury sustained on 10/14/13. He was throwing a trash bag into a crew cab truck when he hurt his back. X-rays of the lumbar spine revealed L4 on L5 spondylolisthesis. MRI of the lumbar spine revealed fluid filled facet joint at L4-5 and some degeneration of disc at multilevel. Patient is diagnosed with spondylolisthesis, sciatica. Patient has been treated with medication, physical therapy, steroid injection, chiropractic. Per medical notes dated 02/25/14, patient complains of low back pain with radiating pain to the right hip. It is a sharp pain especially upon standing from bending. Pain increases with range of motion. Per medical notes dated 05/15/14, patient complains of low back pain. Pain is increased with waking in the morning, bending forward and walking. Pain is constant but worse in the morning. He denies any current symptoms into this leg. Pain levels have not changes even though he notes that the exercises are getting easier. Provider is requesting initial trial of 12 acupuncture treatments. Requested visits exceed the quantity of initial acupuncture visits supported by the cited guidelines.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Acupuncture 2xwk x 6wks to lumbar spine: Upheld

Claims Administrator guideline: Decision based on MTUS Acupuncture Treatment Guidelines.

Case Number:	CM15-0113435		
Date Assigned:	06/19/2015	Date of Injury:	08/19/2006
Decision Date:	07/20/2015	UR Denial Date:	05/19/2015
Priority:	Standard	Application Received:	06/12/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Arizona, California
Certification(s)/Specialty: Family Practice

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 62-year-old male, who sustained an industrial injury on 08/19/2006. He has reported injury to the low back. The diagnoses have included low back pain; aggravation versus exacerbation of symptomatic anterolisthesis L3-L4; and aggravation versus exacerbation of right L3 radiculopathy. Treatment to date has included medications, diagnostics, physical therapy, and home exercise program. Medications have included Tramadol, Gabapentin, Nabumetone, Soma, Norco, and Voltaren gel. A progress report from the treating physician, dated 05/13/2015, documented an evaluation with the injured worker. The injured worker reported an increase in low back pain following dumping a trash bag weighing about twenty pounds and twisting; constant aching pain in the center and to the right of the low back; also noted aching pain of the right thoracolumbar region; and he reports radiation of his back pain down his right lower extremity traveling anterolaterally. Objective findings included decreased lumbar spine range of motion; tenderness to palpation of the supraspinous ligament at T10-12 and L1-L3; tenderness to palpation of the right erector spinae; and positive Lasegue's sign. The treatment plan has included the request for Voltaren gel 15 #100g.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Voltaren gel 1% #100g: Upheld

Case Number:	CM13-0064295		
Date Assigned:	01/03/2014	Date of Injury:	05/27/2006
Decision Date:	10/23/2014	UR Denial Date:	11/27/2013
Priority:	Standard	Application Received:	12/11/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is licensed in Acupuncture and Chiropractic Care and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 58 year old male who reported low back pain from injury sustained on 05/27/06, while lifting trash bags. There were no diagnostic imaging reports. Patient is diagnosed with lumbago, lumbar radiculopathy, status post right inguinal hernia, status post lumbar fusion. Patient has been treated with surgery, medication, physical therapy and chiropractic. Per medical notes dated 09/16/13, patient complains of low back pain which is rated at 7-8/10. Pain is described as constant and moderate. It is associated with numbness and tingling of the bilateral lower extremity. Pain is aggravated by prolonged positioning including sitting, standing, walking, and bending. Examination revealed decreased lumbar spine range of motion. Per medical notes dated 11/06/13, patient complains of low back pain rated at 5-7/10, constant and moderate with numbness and tingling of the bilateral lower extremity. Patient states that the symptoms persist but the medications do offer him temporary relief of pain and improves his ability to have restful sleep. Provider requested acupuncture on 11/6/13; however, the number of visits, frequency and the goals of treatment were not documented. It is unclear if the patient has had prior acupuncture treatment or if the request is for initial trial of care.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

ACUPUNCTURE TO LUMBAR SPINE: Upheld

Claims Administrator guideline: The Claims Administrator did not cite any medical evidence for its decision.

Case Number:	CM15-0027678		
Date Assigned:	02/20/2015	Date of Injury:	06/06/2003
Decision Date:	04/02/2015	UR Denial Date:	02/03/2015
Priority:	Standard	Application Received:	02/13/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: California
Certification(s)/Specialty: Physical Medicine & Rehabilitation, Pain Management

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 64 year old female, who sustained an industrial injury on 6/6/03. She has reported hurting her back while lifting a trash bag and throwing it into a container. The diagnoses have included cervical facet arthropathy, cervical radiculopathy, and status post cervical fusion. Treatment to date has included Physical therapy, diagnostics, medications, epidural steroid injections, and surgery. Currently, the injured worker complains of neck pain that radiates to bilateral upper extremities and head accompanied by tingling in the bilateral upper extremities and hands. She also complains of occipital headaches. She complains of low back pain that radiates to left lower extremity and accompanied by numbness to the feet. There are frequent back spasms in the low back. The pain is rated 8/10 with medication and 10/10 without medication. The pain has worsened. The injured worker reports medication associated with gastrointestinal upset. She has had epidural injection 10/29/13 with good overall improvement 50-80 percent. She reports moderate improvement in pain with use of medications and ability to perform activities of daily living (ADL's). Magnetic Resonance Imaging (MRI) dated 5/2/07 revealed degenerative changes, disc protrusion, disc bulge, disc desiccation, and facet arthropathy. Magnetic Resonance Imaging (MRI) of the cervical spine dated 2/15/05 revealed disc bulge, disc desiccation, loss of disc height, and spinal canal narrowing. Physical exam of the cervical spine revealed trigger points with twitch response in the right and limited range of motion due to pain. The thoracic and lumbar areas revealed spasm, trigger points with twitch response, limited range of motion due to pain, and straight leg raise was positive bilaterally. The current medications were documented. The urine drug screen dated 1/14/15 was consistent with

Case Number:	CM15-0100664		
Date Assigned:	06/03/2015	Date of Injury:	09/16/2014
Decision Date:	07/01/2015	UR Denial Date:	05/21/2015
Priority:	Standard	Application Received:	05/26/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: New Jersey, Alabama, California
Certification(s)/Specialty: Neurology, Neuromuscular Medicine

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This 59 year old woman sustained an industrial injury on 9/16/2014 while lifting a trash bag to throw away. Diagnoses include rule out carpal tunnel syndrome. Treatment has included oral medications and physical therapy. Physician notes dated 5/12/2015 show complaints of right wrist pain. Recommendations include Tramadol.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Tramadol 50mg quantity 60: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Tramadol; Opioids.

MAXIMUS guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Tramadol Page(s): 113.

Decision rationale: According to MTUS guidelines, Ultram (Tramadol) is a synthetic opioid indicated for the pain management but not recommended as a first line oral analgesic. In addition and according to MTUS guidelines, ongoing use of opioids should follow specific rules: (a) Prescriptions from a single practitioner taken as directed, and all prescriptions from a single

Case Number:	CM14-0091826		
Date Assigned:	07/25/2014	Date of Injury:	10/14/2013
Decision Date:	09/29/2014	UR Denial Date:	06/12/2014
Priority:	Standard	Application Received:	06/17/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Chiropractic and Acupuncture, and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 57 year old male who reported low back pain from injury sustained on 10/14/13. He was throwing a trash bag into a crew cab truck when he hurt his back. X-rays of the lumbar spine revealed L4 on L5 spondylolisthesis. MRI of the lumbar spine revealed fluid filled facet joint at L4-5 and some degeneration of disc at multilevel. Patient is diagnosed with spondylolisthesis, sciatica. Patient has been treated with medication, physical therapy, steroid injection, chiropractic. Per medical notes dated 02/25/14, patient complains of low back pain with radiating pain to the right hip. It is a sharp pain especially upon standing from bending. Pain increases with range of motion. Per medical notes dated 05/15/14, patient complains of low back pain. Pain is increased with waking in the morning, bending forward and walking. Pain is constant but worse in the morning. He denies any current symptoms into this leg. Pain levels have not changes even though he notes that the exercises are getting easier. Provider is requesting initial trial of 12 acupuncture treatments. Requested visits exceed the quantity of initial acupuncture visits supported by the cited guidelines.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Acupuncture 2xwk x 6wks to lumbar spine: Upheld

Claims Administrator guideline: Decision based on MTUS Acupuncture Treatment Guidelines.

Case Number:	CM15-0113435		
Date Assigned:	06/19/2015	Date of Injury:	08/19/2006
Decision Date:	07/20/2015	UR Denial Date:	05/19/2015
Priority:	Standard	Application Received:	06/12/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Arizona, California
Certification(s)/Specialty: Family Practice

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 62-year-old male, who sustained an industrial injury on 08/19/2006. He has reported injury to the low back. The diagnoses have included low back pain; aggravation versus exacerbation of symptomatic anterolisthesis L3-L4; and aggravation versus exacerbation of right L3 radiculopathy. Treatment to date has included medications, diagnostics, physical therapy, and home exercise program. Medications have included Tramadol, Gabapentin, Nabumetone, Soma, Norco, and Voltaren gel. A progress report from the treating physician, dated 05/13/2015, documented an evaluation with the injured worker. The injured worker reported an increase in low back pain following dumping a trash bag weighing about twenty pounds and twisting; constant aching pain in the center and to the right of the low back; also noted aching pain of the right thoracolumbar region; and he reports radiation of his back pain down his right lower extremity traveling anterolaterally. Objective findings included decreased lumbar spine range of motion; tenderness to palpation of the supraspinous ligament at T10-12 and L1-L3; tenderness to palpation of the right erector spinae; and positive Lasegue's sign. The treatment plan has included the request for Voltaren gel 15 #100g.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Voltaren gel 1% #100g: Upheld

Case Number:	CM13-0064295		
Date Assigned:	01/03/2014	Date of Injury:	05/27/2006
Decision Date:	10/23/2014	UR Denial Date:	11/27/2013
Priority:	Standard	Application Received:	12/11/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is licensed in Acupuncture and Chiropractic Care and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 58 year old male who reported low back pain from injury sustained on 05/27/06, while lifting trash bags. There were no diagnostic imaging reports. Patient is diagnosed with lumbago, lumbar radiculopathy, status post right inguinal hernia, status post lumbar fusion. Patient has been treated with surgery, medication, physical therapy and chiropractic. Per medical notes dated 09/16/13, patient complains of low back pain which is rated at 7-8/10. Pain is described as constant and moderate. It is associated with numbness and tingling of the bilateral lower extremity. Pain is aggravated by prolonged positioning including sitting, standing, walking, and bending. Examination revealed decreased lumbar spine range of motion. Per medical notes dated 11/06/13, patient complains of low back pain rated at 5-7/10, constant and moderate with numbness and tingling of the bilateral lower extremity. Patient states that the symptoms persist but the medications do offer him temporary relief of pain and improves his ability to have restful sleep. Provider requested acupuncture on 11/6/13; however, the number of visits, frequency and the goals of treatment were not documented. It is unclear if the patient has had prior acupuncture treatment or if the request is for initial trial of care.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

ACUPUNCTURE TO LUMBAR SPINE: Upheld

Claims Administrator guideline: The Claims Administrator did not cite any medical evidence for its decision.

Case Number:	CM13-0043531		
Date Assigned:	06/09/2014	Date of Injury:	04/02/2013
Decision Date:	07/31/2014	UR Denial Date:	09/20/2013
Priority:	Standard	Application Received:	10/24/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine and Rehabilitation, and is licensed to practice in California and Washington. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 49-year-old with a date of injury reported on April 20, 2013. She was an employee as a janitor and she stated that she was throwing a heavy trash bag upward into a dumpster. She had to bend over, twist and thrust upward to throw the bag into the dumpster and she felt immediate pain in her lower back. She is still currently working but with modified duties. The injured worker complained that the pain was exacerbated by movement throughout the day. She felt as if her condition is not changing. She rated her pain as an 8/10 and she also complained of sharp and intense pain with radiation down her left leg. The injured worker's activities of daily living scores were 8/10 for general activity, 6/10 for mood, 8/10 for walking ability, 7/10 for normal work, 5/10 for relations with other people, 9/10 for sleep and 7/10 for enjoyment of life. Her medications list included naproxen, acetaminophen with Codeine and carisoprodol. The injured worker did have a positive Kemp's test bilaterally and the straight leg raise test was positive on the left side at 60 degrees. The recommended plan of treatment was to have followup with a urine drug screen, to discontinue the Soma and the naproxen, to discontinue physical therapy for now, because it is exacerbating her pain, although there were no physical therapy notes provided, they are going to add the tramadol 50 mg, the Voltaren, Colace, Medrox patch and then she is to followup for re-evaluation. The Request for Authorization was signed and dated on June 19, 2013 and the rationale was provided with it.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Voltaren 75mg, sixty count: Upheld

Case Number:	CM15-0027678		
Date Assigned:	02/20/2015	Date of Injury:	06/06/2003
Decision Date:	04/02/2015	UR Denial Date:	02/03/2015
Priority:	Standard	Application Received:	02/13/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: California
Certification(s)/Specialty: Physical Medicine & Rehabilitation, Pain Management

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 64 year old female, who sustained an industrial injury on 6/6/03. She has reported hurting her back while lifting a trash bag and throwing it into a container. The diagnoses have included cervical facet arthropathy, cervical radiculopathy, and status post cervical fusion. Treatment to date has included Physical therapy, diagnostics, medications, epidural steroid injections, and surgery. Currently, the injured worker complains of neck pain that radiates to bilateral upper extremities and head accompanied by tingling in the bilateral upper extremities and hands. She also complains of occipital headaches. She complains of low back pain that radiates to left lower extremity and accompanied by numbness to the feet. There are frequent back spasms in the low back. The pain is rated 8/10 with medication and 10/10 without medication. The pain has worsened. The injured worker reports medication associated with gastrointestinal upset. She has had epidural injection 10/29/13 with good overall improvement 50-80 percent. She reports moderate improvement in pain with use of medications and ability to perform activities of daily living (ADL's). Magnetic Resonance Imaging (MRI) dated 5/2/07 revealed degenerative changes, disc protrusion, disc bulge, disc desiccation, and facet arthropathy. Magnetic Resonance Imaging (MRI) of the cervical spine dated 2/15/05 revealed disc bulge, disc desiccation, loss of disc height, and spinal canal narrowing. Physical exam of the cervical spine revealed trigger points with twitch response in the right and limited range of motion due to pain. The thoracic and lumbar areas revealed spasm, trigger points with twitch response, limited range of motion due to pain, and straight leg raise was positive bilaterally. The current medications were documented. The urine drug screen dated 1/14/15 was consistent with

Case Number:	CM13-0021205		
Date Assigned:	11/08/2013	Date of Injury:	04/20/2013
Decision Date:	02/09/2015	UR Denial Date:	08/27/2013
Priority:	Standard	Application Received:	09/06/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is licensed in Chiropractor (DC), has a subspecialty in Acupuncture and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This 33 year old man sustained an industrial injury on 4/20/2013 while picking up trash bags weighing 30 pounds. The worker experienced pain to his right shoulder, neck, and bilateral shoulder blades. Evaluations included a cervical spine MRI performed on 8/6/2013, which showed minimal effacement of anterior thecal sac, mild right neural foraminal narrowing, and right paracentral disc protrusion. Orthopedic surgeon notes dated 8/13/2013, states current complaints of intermittent achy, burning neck pain that radiates to the right shoulder blade. Physical exam showed tenderness of the posterior neck, muscle spasm noted to the trapezius muscle on palpation bilaterally, and restricted range of motion. There was also tenderness noted over the acromioclavicular joint and anterior ascpect as well as restricted range of motion. Recommendations include oral medications and acupuncture therapy. The worker was determined to be temporarily totally disabled if work restrictions can not be accommodated. On 8/27/2013, Utilization Review evaluated a prescription for eight sessions of acupuncture to the cervical spine. The UR physician noted no documentation of objective functional deficits of the cervical spine. The request was denied and subsequently appealed to Independent Medical Review.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Acupuncture for the cervical spine (8 sessions): Upheld

Case Number:	CM14-0087938		
Date Assigned:	07/23/2014	Date of Injury:	01/29/2014
Decision Date:	08/27/2014	UR Denial Date:	05/28/2014
Priority:	Standard	Application Received:	06/11/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine and Rehabilitation and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 42-year-old male who was reportedly injured on 1/29/2014. The mechanism of injury was noted as a laceration to the right palm below his thumb on the edge of an aluminum lid while lifting a trash bag. The most recent progress note, dated 7/14/2014, indicated that there were ongoing complaints of right shoulder pain and right wrist and thumb pains. Physical examination demonstrated some increased range of motion with abduction, opposition, apposition and increased grip strength and tenderness over the right palm laceration. Positive Hawkin's and impingement sign of the right shoulder. Plain radiographs of the right hand in both wrists were normal. Previous treatment included physical therapy. A request was made for physical therapy 3 times a week for 4 weeks and was partially certified for physical therapy 2 times a week for 3 weeks in the utilization review on 5/28/2014.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Physical Therapy 3x week x 4 weeks: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Physical Medicine Guidelines. Decision based on Non-MTUS Citation Official Disability Guidelines-Forearm, Wrist and Hand Procedure Summary.

MAXIMUS guideline: The Expert Reviewer did not base their decision on the MTUS. Decision based on Non-MTUS Citation Official Disability Guidelines (ODG) Treatment in

Case Number:	CM13-0042462		
Date Assigned:	12/27/2013	Date of Injury:	08/21/2012
Decision Date:	02/28/2014	UR Denial Date:	10/03/2013
Priority:	Standard	Application Received:	10/30/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to a physician reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The physician reviewer is Board Certified in Physical Medicine and Rehabilitation, has a subspecialty in Pain Management and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The physician reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This is a female patient with a date of injury of August 21, 2012. 8 utilization review determination dated October 3, 2013 recommends non-certification of MRI for the left ankle. Non-certification was recommended due to lack of documentation of ligamentous instability or chondral surface injuries. Additionally, an avulsion fracture in the table as has already been identified. A progress report dated August 20, 2013 includes a subjective complaints of left ankle pain with frequent radiation up to the low back to the top of the foot with burning and numbness sensation. The note indicates that the patient fell while carrying a vacuum and trash bag and heard a cracking sensation in the left ankle. The patient was diagnosed with a fracture and a cast was applied. The patient underwent a nerve conduction study and was informed of "nerve damage" in her left foot. Physical examination identified and marked tenderness in the anterior lateral ankle joint and over the peroneal tendons, decreased left ankle range of motion, decreased left sub talar joint eversion strength, and trace positive left anterior drawer testing. X-ray identifies an avulsion fracture measuring 3 mm from the lateral process. Impressions staging tables and fracture lateral process of the talus and evidence of peroneal tendon tear. The treatment plan indicates that the patient had an injury 13 months ago and has not undergone immobilization. The patient has signs and symptoms of a peroneal tendon tear as well as a possible partial tear of the anterior talofibular ligament with avulsion of the lateral process of the talus. At this juncture she is likely a surgical candidate. In the meantime she can work modified duties wearing an ankle brace. A progress note dated October 1, 2013 indicates that the patient continues to wear the ankle brace, but the symptoms have increased.

IMR ISSUES, DECISIONS AND RATIONALES

Case Number:	CM13-0066349		
Date Assigned:	01/03/2014	Date of Injury:	02/19/2013
Decision Date:	05/23/2014	UR Denial Date:	12/05/2013
Priority:	Standard	Application Received:	12/16/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Orthopedic Surgery and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is a 40 year old female who was injured on 02/19/2013 while taking out trash bags. She was lifting them up sequentially with two hands and bringing them across the body to the right. She had immediate pain in her neck. Prior treatment history has included injections to the AC joint and subacromial joint on 11/20/2013; 12 sessions of chiropractic therapy; Gabapentin which helps a little and Tramadol which helps her some. Diagnostic studies reviewed include MRI of brachial plexus without contrast dated 12/06/2013 revealed no abnormality is seen in the right brachial plexus and degenerative changes C4-C5 and C5-C6 disc with small posterior disc protrusion at C5-C6. An EMG/NCV dated 05/10/2013 demonstrates an abnormal EMG and nerve conduction study in the bilateral upper extremities. The study showed evidence of bilateral carpal tunnel syndrome, mild on the right and minimal on the left with prolonged median sensory latencies across the wrist. There is no evidence of ulnar and radial neuropathy or significant cervical radiculopathy. An MRI of the upper extremity joint without contrast right shoulder dated 03/22/2013 shows mild degenerative changes of the right acromioclavicular joint and lateral down sloping of the acromion. These may predispose to impingement syndrome and clinical correlation is suggested. There is no evidence of rotator cuff or labral tear. Sports neurology and pain management report dated 11/20/2013 reports the patient has shoulder dyskinesia on the right side so she is recommended a scapular brace to prefer posturing to improve the shoulder girdle mechanics. It is suggested that the patient's Gabapentin is increase from 600 mg to 1800 mg daily. The goal is to increase the patient's ability to self-manage pain and related problems; reduce subjective pain intensity; maximize and maintain optimal physical activity and function; and return to productive activity at home, socially, and /or at work. The progress note dated 11/20/2012 states the patient presents with right arm pain. The patient has requested ultrasound guided injection to his right trapezius, physical therapy after injections and

Case Number:	CM14-0199425		
Date Assigned:	12/09/2014	Date of Injury:	08/17/2012
Decision Date:	01/23/2015	UR Denial Date:	11/18/2014
Priority:	Standard	Application Received:	11/28/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine Rehabilitation, has a subspecialty in Pain Medicine & Spinal Cord Medicine and is licensed to practice in Massachusetts. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The claimant has a history of work injury occurring on 08/17/12 when she was lifting a 45 pounds trash bag and twisted, had back pain, and then fell. Treatments included physical therapy. She had gastric upset with anti-inflammatory medication. An MRI is referenced as having shown an L5-S1 annular tear and foraminal stenosis. She was seen on 11/18/14. She had been diagnosed with major depressive disorder. She was having radiating back pain, shoulder pain, and tingling in her legs. Medications were Naprosyn, Vicodin, and Prilosec. The assessment references the claimant as walking her daughter to school every morning and being able to perform light housework. She was independent in activities of daily living. Physical examination findings included the presence of pain behaviors. There was severely limited lumbar spine range of motion. She had breakaway weakness in the lower extremities. There was thoracolumbar paraspinal muscle spasm and guarding with pain reported at 10/10 with minimal palpation. There is reference to possible participation in a functional restoration program as well as the claimant's severe depression and decreased activity tolerance. Recommendations included a multidisciplinary evaluation to determine whether she would be appropriate for participation in the program.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Round trip transportation for a consultation (this is a functional restoration program (FRP) evaluation): Upheld

Case Number:	CM13-0043361		
Date Assigned:	04/25/2014	Date of Injury:	04/02/2013
Decision Date:	06/12/2014	UR Denial Date:	09/20/2013
Priority:	Standard	Application Received:	10/23/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine & Rehabilitation, has a subspecialty in Pain Medicine, and is licensed to practice in California and Virginia. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is a 49 year old female who was injured on 04/02/2013 while the patient was taking out trash on that day and the bag was really heavy. When she picked it up to throw it away, the weight of the trash bag caused the patient to twist suddenly at the waist and then immediately she felt a pop/crack in the back and experience severe pain on the left side of the waist. Prior treatment history has included physical therapy. Her medications included Naproxen 500 mg, Acetaminophen with codeine300 mg and Carisoprodol 350 mg. Progress note dated 06/12/2013 documented the patient saying the pain is a little better, 6/10, but she admits that she is not getting better because her employer is making her do regular duty. She has to do mopping and sweeping which actually makes the pain worse. Objective findings on examination reveal the patient is alert and oriented times three. Mood and affect are appropriate to situation. Sitting comfortably as I walked into the room. The neck reveals full range of motion without pain or discomfort. On evaluation of the back she has a normal gait. She has a normal heel-toe walk. She has a normal tilt right to left. She has normal flexion and extension. She has normal squat and duck walk. Pedal pulses are intact. Sensation is intact. Capillary refill is immediate. She has a normal gait. Assessment: Lumbosacral spine pain with sacroiliac joint dysfunction. Plan: 1. 2 times a week for 3 weeks. 2. Tylenol with codeine one tablet at bedtime prn. 3. She is returned to modified duty which is no pushing, pulling or lifting more than 20 pounds. No repetitive grasping or pulling with both hands. No twisting, mopping or sweeping. UR report dated 09/20/2013 denied the request for a Functional Capacity Evaluation because it is not supported at this time as the record review does not reveal evidence of a vocational plan of care or specific job descriptions that are available to the patient and require further analysis. Generally, these evaluations are most useful when a specific vocational plan of care has been established.

Case Number:	CM15-0089018		
Date Assigned:	05/13/2015	Date of Injury:	02/10/2014
Decision Date:	06/15/2015	UR Denial Date:	04/17/2015
Priority:	Standard	Application Received:	05/11/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: North Carolina
Certification(s)/Specialty: Family Practice

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The Injured worker is a 53 year old female patient who sustained an industrial injury on 02/10/2014. The accident was described as while lifting a trash bag out of the can she felt the acute onset of lower back cracking, causing immediate pain in the low back region. She did report she thought the bag was going to be lighter than it was intended. An initial evaluation dated 10/06/2014 reported the patient with subjective complaint of having a sharp, dull, aching pain the in the lumbar region that radiates to the lower extremities. She reports exacerbations twice weekly lasting for several minutes. She stated that she is feeling slightly better this day after having physical therapy session, rest, medications and chiropractic care. She is not currently taking medications. Objective findings showed the lumbar spine with tenderness to palpation over the paraspinals and the quadratus lumborum. The following diagnoses are applied: lumbar strain; quadratus lumborum strain; ligament and muscle strain and spasm; multiple trigger points in the lumbar spine, and bilateral lumbar S1 radiculopathy. The plan of care noted the patient with additional chiropractic therapy sessions. A recent primary treating office visit dated 02/26/2015 reported objective findings showed palpation of lumbar spine positive for spasm in the paraspinous muscles. The impression noted the patient with lumbar radiculopathy. The plan of care involved the patient undergoing a course of chiropractic care to improve function. She is to continue with medications. Current medications are: Naproxen, Omeprazole, Tramadol, and Orphenadrine. She will remain on temporary total disability for 6 weeks.

Case Number:	CM15-0139330		
Date Assigned:	07/29/2015	Date of Injury:	09/28/2008
Decision Date:	09/02/2015	UR Denial Date:	07/02/2015
Priority:	Standard	Application Received:	07/17/2015

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
State(s) of Licensure: Pennsylvania, Ohio, California
Certification(s)/Specialty: Physical Medicine & Rehabilitation

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The injured worker is a 57 year old female patient who sustained an industrial injury on 09/28/2008. The accident was described as while working as a custodian she was throwing a large trash bag into a dumpster and felt a "pulling sensation" in her neck and subsequently had symptoms of cervicothoracic and upper extremity pains. Treatment consisted of modified work duty, physical therapy, acupuncture session, and epidural injections. She was able to return to work. A recent pain management follow up visit dated 06/29/2015 reported electric nerve conduction testing done on 01/21/2013 that showed evidence of moderate median mononeuropathy at the right wrist. A magnetic resonance imaging study of the lumbar spine done on 07/26/2012 showed L3-4 left foraminal disc protrusion with mild left foraminal stenosis; L5-s1 broad-based left paracentral disc protrusion with minimal posterior displacement of the left S1 nerve root; and partial inclusion of the inferior aspect of the liver with numerous cysts. An abdominal ultra sound is recommended. The following diagnoses were applied: cervical spinal stenosis; pain in joint shoulder, neck pain, C5-6 anterior discectomy, bilateral foraminotomy and anterior cervical fusion on 09/21/2009, and status post fusion, cervical on 09/21/2009. There is recommendation that the patient be evaluated for a functional restoration program.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Case Number:	CM13-0035607		
Date Assigned:	01/10/2014	Date of Injury:	01/08/2010
Decision Date:	03/25/2014	UR Denial Date:	09/25/2013
Priority:	Standard	Application Received:	10/17/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to a physician reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The physician reviewer is Board Certified in Psychiatry & Neurology, has a subspecialty in Geriatric Psychiatry, Addiction Medicine and is licensed to practice California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The physician reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

Records reviewed include 221 pages of medical and administrative records. The injured worker is a 63 year old male who's sustained an industrial injury to his left shoulder, elbow, wrist, and hand on 01/08/2010 when moving 30-40lb trash bags to an electric cart. He was treated conservatively with epidural steroid injections, medications and topical creams, with subsequent surgery for bilateral lateral epicondylitis. His diagnoses are major depressive disorder single episode mild, generalized anxiety disorder, male hypoactive sexual desire disorder due to chronic pain, and insomnia. He has been under the care of [redacted], psychiatrist. Past medical history is positive for diabetes mellitus, diverticulosis, hypertension, and ethanol abuse. From records reviewed it appears that the patient has been on this medication regimen since at least July 2012. 9/14/13 Progress report, [redacted]: the patient had improved mood and was sleeping better. He was cooperative, engaging, affect was appropriate, speech and thought processes were normal. He remained on Wellbutrin SR 100mg at bedtime and Trazodone 25mg at bedtime. 10/4/13 Requested progress report, [redacted]: The patient reported improvement of sleep with sleep medication. He felt anxious, tense, irritable and angry, worried excessively about his financial circumstances. He lacked motivation and energy, and tended to socially isolate. He had difficulty concentrating, remembering things, and making decisions. He was learning to manage his anger using coping strategies. 11/2/13 progress/treatment report/request for authorization of treatment, [redacted]: the patient was cooperative, engaging, appropriate affect, and with normal speech. There was no evidence of suicidal or homicidal ideation, insight and judgment were fair. [redacted] refers to "same diagnoses" but does not elaborate further. He continued Wellbutrin SR 100mg at bedtime and

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Case Number:	CM14-0041032		
Date Assigned:	06/27/2014	Date of Injury:	06/24/2012
Decision Date:	01/05/2015	UR Denial Date:	03/14/2014
Priority:	Standard	Application Received:	04/07/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Family Medicine and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This is a 27-year-old female patient who reported an industrial injury to the feet, back, and arm on 6/24/2012, 2 years ago, attributed to the performance of her usual and customary job tasks reported as throwing trash bags into the dumpster. The patient was diagnosed with cervical radiculopathy, right shoulder arthropathy; and lumbar radiculopathy. The patient complains of lower back pain that radiates to the lower extremities; neck pain that radiates to the upper extremities; and right shoulder pain. Heat, cold, acupuncture, ESWT (extracorporeal shock wave therapy), massage, traction, ultrasound, exercise, TENS unit, chiropractic care/CMT, Anaprox, Prilosec, Orphenadrine, and Medrox. The MRI of the lumbar spine documented evidence of multilevel disc protrusions, thickening of the ligamentum flavum, boney hypertrophy of articular facets, and moderate decrease in the AP sagittal diameter. The MRI of the cervical spine documented moderate disc dehiscence. The MRI of the right shoulder documented evidence of tendinosis of the rotator cuff with a tear and moderate impingement syndrome. The patient was prescribed topical compounded analgesics x2.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Compound cream, Ketoprofen/Lidocaine 20%/10%: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Topical Analgesics, Ketamine, Lidocaine Page(s): 111-113.

Case Number:	CM14-0013179		
Date Assigned:	03/26/2014	Date of Injury:	11/05/2001
Decision Date:	07/29/2014	UR Denial Date:	01/22/2014
Priority:	Standard	Application Received:	02/03/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Physical Medicine and Rehabilitation and is licensed to practice in California. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The underlying date of injury in this case is 11/05/2001. The treating diagnoses include cervical sprain with possible cervical radiculopathy, right shoulder impingement syndrome with partial-thickness rotator cuff tear, right elbow pain, and right wrist sprain/strain. On 11/27/2013, the primary treating orthopedic surgeon saw the patient in initial comprehensive orthopedic evaluation. The patient's injury from 2001 was noted when the patient was pulling a cart full of trash bags and was pulling the cart with her right hand and her arm was extended behind her and the handle of the cart broke off. The treating physician planned to obtain prior medical records including cervical and shoulder MRI imaging of December 2007; in order to accurately assess the patient's condition and future medical treatment needs. The treating provider also prescribed a topical cream and Naprosyn and recommended an interferential unit, right wrist brace and planned further follow-up.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

Physical therapy treatment for the right shoulder/elbow/wrist, quantity 12: Upheld

Claims Administrator guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Physical Medicine Page(s): 98-99.

MAXIMUS guideline: Decision based on MTUS Chronic Pain Treatment Guidelines Physical Medicine Page(s): 99.

MAXIMUS
Federal Services

Case Number:	CM13-0047786		
Date Assigned:	12/27/2013	Date of Injury:	07/30/2004
Decision Date:	03/11/2014	UR Denial Date:	10/07/2013
Priority:	Standard	Application Received:	11/04/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to a physician reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The physician reviewer is Board Certified in Physical Medicine and Rehabilitation and is licensed to practice in New York and Texas. He/she has been in active clinical practice for more than five years and is currently working least at 24 hours a week in active practice. The physician reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is a 53-year-old female who reported an injury on 07/30/2014 resulting from frequent bending and stooping, as well as lifting trash bags between 30 to 40 pounds. It was reported the patient had left lateral knee pain, which radiated distally and proximally. The patient underwent a nerve conduction study on 08/10/2007, which had findings of abnormal evidence consistent with left knee and left ankle peroneal nerve peripheral neuropathy clinically correlating at the left knee. The findings further stated there were findings of right knee peroneal nerve peripheral neuropathy. The patient was seen on 09/16/2013, which noted the patient had ongoing neck and low back pain which she rated from 6/10/ to 7/10 on the pain scale. The documentation noted the patient stated that her pain radiated down her left arm into her forearm, as well as down her left leg into her ankle. The patient's current treatment was tramadol 50 mg 2 times a day, Terocin patches which she used to decrease pain, and the patient was encouraged to stop taking Prilosec. The documentation noted the patient had an MRI on 04/18/2012 of the lumbar spine, which was not submitted for review but was noted to have findings of degenerative disc disease with transitional anatomy and retrolisthesis at L5-S1, and L5-S1 moderate canal stenosis was present with severe bilateral neural foraminal narrowing with contact of the exiting L5 nerve root suggested. The documentation states the patient is permanent and stationary.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

1 prescription of Terocin patch (10 patches): Upheld

Case Number:	CM13-0006151		
Date Assigned:	12/27/2013	Date of Injury:	03/15/2013
Decision Date:	04/14/2014	UR Denial Date:	07/02/2013
Priority:	Standard	Application Received:	08/02/2013

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. The expert reviewer is Board Certified in Orthopedic Surgery and is licensed to practice in Arizona. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/services. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

This is a 35-year-old male who was unloading trash bags when he twisted his right knee. The patient complains of persistent medial joint line pain and tenderness. A knee exam revealed range of motion of the knee 0 to 130 degrees, there is a small effusion, no instability, and normal strength. There is tenderness along the medial joint line and the McMurray test is negative. There are findings consistent with a medial collateral ligament tear. The MRI shows a medial collateral ligament strain plus a tiny incomplete meniscal capsular tear. The patient has been tried on physical therapy, activity modification, and medication without relief of symptoms.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

OUTPATIENT RIGHT KNEE ARTHROSCOPY: Upheld

Claims Administrator guideline: Decision based on MTUS ACOEM. Decision based on Non-MTUS Citation Official Disability Guidelines ODG

MAXIMUS guideline: Decision based on MTUS ACOEM Chapter 13 Knee Complaints Page(s): 329-360.

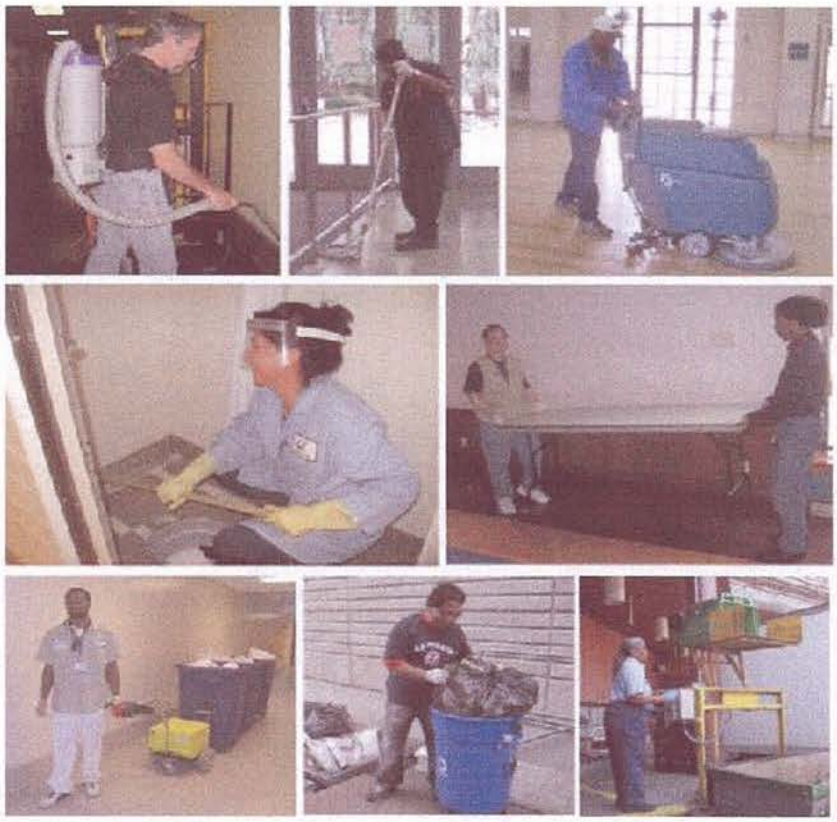
Decision rationale: This patient has nonspecific symptoms of medial joint line pain, at best an equivocal McMurray test, a minor effusion and an MRI scan that reveals only a tiny meniscal ligamentous injury. In addition, he does have evidence of a medial collateral ligament strain

6.

Ergonomic of Study of Custodial, Housekeeping and Environmental Service Positions at the University of California, May 2011.

Ergonomics Study of Custodial, Housekeeping, and Environmental Service Positions At the University of California

May 2011



Prepared By:
The UC System-wide Ergonomics Project Team

Be Smart About Safety

Contents

Executive Summary 2

Project Sponsors and Team 3

Introduction 4

Findings and Recommendations 5

Conclusion 8

Bibliography 9

Appendices 10

Project Charter 11

Basic Questionnaire: Identifying At-Risk Tasks for Custodians 15

Basic Questionnaire Summary for At-Risk Tasks for Custodians 16

Basic Questionnaire: Interventions, Outcome and Next Steps 17

Second Questionnaire for Top 6 At-Risk Tasks 24

Best Practices Bulletin for Trash/Recycle and Linen Handling 30

Recommended Product Sheets for Trash/Recycle and Linen Handling 33

Best Practices Bulletin for Mopping 42

Recommended Product Sheets for Mopping 45

Best Practices Bulletins for Bathroom Cleaning 52

Recommended Product Sheets for Bathroom Cleaning 55

Best Practices Bulletin for Vacuuming 61

Recommended Product Sheets for Vacuuming 64

Best Practices Bulletin for Moving/Lifting Furniture 68

Recommended Product Sheets for Moving/Lifting Furniture 71

Custodial Design Guidelines for New Construction and Existing Buildings 73

Pilot Project Application 75

Equipment Effectiveness Tool 77

Executive Summary

At the University of California, custodians, housekeepers and environmental service workers play a critical role in keeping building interiors well-maintained. To perform these physical tasks, these workers are exposed to ergonomic risk factors such as repetitive motions and awkward postures. In fiscal year 2010, custodial injuries accounted for 761 workers' compensation claims, with an actuarial estimated ultimate direct cost of $7.1 million. Loss data was valued as of June 30, 2010.

UCOP Risk Services tasked the UC System-wide Ergonomics Work Group with conducting an ergonomic study of this group to identify problem areas and develop strategies to address those problems. A project team comprised of ergonomists from various UC locations was formed.

Various approaches were used to meet the project objectives. Workers' Compensation data and task analysis were used to identify high risk tasks. The high risk tasks include: trash, recycle and linen handling, mopping, bathroom cleaning, vacuuming, lifting and moving furniture. A literature review was conducted and the ergonomists drew upon front line experiences at their individual locations.

From the compiled data, a set of reference documents was developed including *Best Practices Bulletins, Recommended Product Sheets* and *Ergonomic Design Guidelines for New Construction and Existing Buildings*. The Best Practices Bulletins provide recommendations to reduce ergonomic risk factors. Each Best Practice Bulletin also includes information on equipment selection, training concepts, and work and staffing guidelines. The Recommended Product Sheets offer equipment recommendations that have proven successful at various UC locations. The Ergonomic Design Guidelines for New Construction and Existing Buildings offer important criteria to implement at the beginning of construction projects.

In addition to these reference documents, a few specific strategies were initiated by this project:

- A newly designed tool was developed through the collaboration of Ira Janowitz (LBNL) and Howard Silverberg (Flexible Scientific) to hold dumpster lids open. These will be piloted at each location to determine their effectiveness.
- UCOP is developing a streamlined purchasing program to obtain effective pricing for the recommended tools and equipment.
- UCOP is creating a website to post the documents for easy access and implementation. Content will be updated bi-annually.

Lastly, the project team created a project application and brief evaluation tool to develop and implement location-specific interventions to address one of the high at-risk tasks. UCOP Risk Services will provide funding, up to $5,000 per location, to facilitate implementation.

Project Sponsors

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Erike Young, Director of Environment Health and Safety, Office of the President

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Introduction and Project Overview

At the request of UCOP Risk Services, the UC System-wide Ergonomics Work Group was requested to perform an ergonomic study of the five occupations within UC that have the highest incurred workers' compensation cost with the purpose of developing system-wide strategies that reduce ergonomic risks. In reviewing actuarial data, UCOP Risk Services determined that custodians, food service workers, lab technicians (animal health), grounds and building maintenance workers have the highest incurred costs. At the 2010 Risk Summit, it was agreed upon that the first ergonomic study would focus on custodial/housekeeping/environmental service positions.

After a Project Charter (Appendices) was developed, a Project Team was established to lead this study. The objectives of the project were to help reduce ergonomic risk factors and injuries by developing:

1. *Best Practices Bulletins* so each location can use the resources and guidelines to make improvements
2. *Recommended Product Sheets* for equipment that has proven successful
3. *Ergonomic design guidelines* for new construction and existing buildings (remodels)
4. *An evaluation process* for effectively engaging staff in the purchase and evaluation of new equipment
5. *Pilot project proposal guidelines* to assist each location in developing and implementing location-specific interventions to address one of the high risk tasks. For these interventions, UCOP Risk Services will provide funding, up to $5,000 per location.
6. *Evaluation tool and metrics for effectiveness*

To begin the process, a questionnaire was developed to help identify the most common at risk job tasks. This questionnaire was sent to ergonomists at each location. To complete the questionnaire, the ergonomists used workers' compensation data, previous job analyses, recorded injury history, and interviews and feedback from managers, supervisors and employees. The results showed the most common at risk job tasks were 1) trash and recycle handling, 2) mopping, 3) vacuuming, 4) lifting and moving furniture, and 5) cleaning bathrooms. In addition, linen handling was added to the list as a special task unique to the medical centers. During the data collection phase, the project team split up into three subgroups 1) Trash, Recycle and Linen Handling, 2) Bathroom Cleaning and Mopping and 3) Vacuuming and Lifting/Moving Furniture to conduct further research and analysis.

A second questionnaire was developed to determine the types of equipment and products being used, maintenance and storage issues, training protocols, and design guidelines. The questionnaire also inquired as to the effectiveness of those factors in reducing injuries, increasing productivity, and improving cleanliness. Ergonomists from each location were charged with administering this questionnaire with their respective cleaning units.

From the data results, literature review and front line experiences, *Best Practices Bulletins*, *Recommended Product Sheets* and *Custodial Design Guidelines for New Construction and Existing Buildings* were created for the at-risk job tasks. These documents will be posted at http://ucanr.org/sites/ucehs/Workgroups/Ergonomics/ and should be utilized as part of the system-wide strategies to reduce risk and decrease workers' compensation injuries and costs.

Findings and Recommendations

Literature Review and Background Data

For the University of California, custodians, housekeepers and environmental service workers (herein referred to as cleaners) play a critical role in keeping building interiors clean. They perform manual labor and their physical tasks expose them to a variety of ergonomic risk factors. Research studies highlight a number of risk factors that are strongly associated with the development of muscular skeletal disorders: (1) working in awkward postures, (2) high static postures, (3) repetitive work, (4) using high forces, (5) working with vibration and (6) a combination of all these factors (Village et al 2009, Balogh et al 2004, Norman et al 2003, Andrew et al 1998, Gunn et al 2002). Cleaners are exposed to all of these risk factors; therefore, their risk to injury is heightened.

Psychosocial issues, such as staffing levels, availability of equipment, work schedules, recovery time, work pace, work procedures, and task variety play an underlying role in the exposure to risk factors and the development of injuries (NOHSC, 2004). The types of equipment being purchased, maintenance issues, training protocols, and overall safe operating procedures should also be taken into consideration. Therefore, it will be important to incorporate all of these factors into system-wide strategies.

Data Analysis and Recommendations

In order to determine the most common five at-risk job tasks throughout the UC system, the Project Team developed a questionnaire (Appendices) that was sent to all locations for completion. Of the 16 locations, 15 responses were received. A summary of the results can be seen below, while detailed results are in the appendices (Appendices).

Summary of Results

Top At Risk Tasks **1= Highest Risk**	***Number of Locations with this concern***
1. Trash/Recycle Handling	14
2. Mopping	10
3. Vacuuming	6
4. Lifting and Moving Furniture	6
5. Cleaning Restrooms (includes cleaning showers)	6

6. Linen Handling (to include medical centers)	3

From the data results, 3 subgroups were established to address the 6 top at risk job tasks. Two tasks were assigned to each group as follows:

Group 1: Trash/Recycle and Linen Handling
Group 2: Mopping and Bathroom Cleaning
Group 3: Vacuuming and Lifting/Moving Furniture

Each group compiled and reviewed questionnaire responses in order to evaluate interventions and subsequent outcomes (Appendices).

Trash/recycle and linen handling interventions include:

- Collection containers with receptacles for both trash and recycle on one cart are helpful
- Dumpster heights placed at 36 inches reduce lifting bags above shoulder height
- Propping a dumpster lid open with a pole allows the cleaner to use both arms to throw the filled bag, linen or recycled material
- Transporting a full dumpster with a mechanical assistive device, such as an Ergo Tug, eliminates pushing and pulling the dumpster by hand
- Training to limit the weight of the bags to 25 pounds has not proven successful

Mopping/bathroom cleaning interventions include:

- Self-propelled walk behind auto scrubbers have reduced repetitive mopping for larger areas
- Lightweight mopping systems, such as microfiber, clean more efficiently than traditional mopping
- Mop buckets designed to dump dirty water into toilets or floor drains eliminates higher level lifting to sink-height
- No touch cleaning systems have reduced repetitive motions, awkward, forceful postures and reduced injuries
- Utilizing shower head hose adaptors is a simple improvement that decreases forceful awkward postures while rinsing showers
- An adjustable smart handle, with a doodle bug tool, helps clean higher areas
- A long angled brush improves toilet bowl cleaning and reduces bending forward at the waist

Vacuuming and moving/lifting furniture interventions include:

- Light weight upright vacuums with hose attachments and powerful suction reduces using forceful postures
- Back pack vacuums are best for stairs and hard-to-reach areas
- Large area vacuums are useful in bigger areas
- Lightweight tables and chairs reduces risk when frequently set-up, moved and taken down
- Wheeled storage carts with lockable casters makes it safer and easier to transport lightweight tables and chairs

Based on the above data results, the Project Team developed additional questionnaires in order to gather more information about products and equipment, work flow, training, maintenance, and storage and design issues. The information received was consolidated and reviewed and helped create the *Best Practices Bulletins,*

Recommended Product Sheets and Design Guidelines for New Construction and Existing Buildings (Appendices).

Best Practice Bulletins

The bulletins are designed for supervisors and offer strategies to reduce ergonomic risk factors. The literature review suggests an increase in ergonomic risk is partially due to a lack of assessment and trial of equipment prior to purchase, a lack of consultation with users, unsuitable or non-existent maintenance/replacement schedules, and confusion over roles/responsibilities regarding equipment purchase, maintenance, and storage (Woods et al 1999; Woods & Buckle in press 2004; Gaudry 1998; Aickin & Carasco 1998; Paver et al 1997). Therefore, some of the strategies focus on the type of equipment, the equipment selection process, and the importance of having maintenance schedules.

The bulletins also focus on training strategies. The questionnaire data showed that when training was provided it was in a very inconsistent manner. It was difficult to determine what was being taught and by whom. These bulletins recommend new hires be trained within the first 30 days of hire with annual refreshers. In addition, training must include safe equipment use and proper body mechanics. Training is most successful in small groups with the active involvement of supervisors, leads, ergonomists, and vendors.

Work and staffing guidelines also play a critical role. Due to budget constraints and cut backs, many locations are understaffed. In addition, there are no temporary pools of staff available to help with vacations, illnesses or other staff shortages. The level of cleanliness deteriorates and cleaners are asked to do more in the same time frame. They are under time constraints which add to the challenge. This increases exposure and the risk of injury. It is important to develop a back up staffing plan for the UC locations.

Unfortunately, there is also a lack of standard operating procedures. Developing procedures that look at the whole task process allows for improved cleanliness, increased productivity and a way to incorporate a maintenance and replacement schedule for the equipment. This in turn can decrease the ergonomic risk factors and reduce injuries.

Recommended Product Sheets

The product sheets offer equipment recommendations that have proven successful at various UC locations. Carefully selecting appropriate equipment is an important step in reducing ergonomic risk factors. As a starting point, it is important to try a demonstration model from the recommended product sheets prior to purchasing new equipment.

The Best Practices Bulletins and Recommended Product Sheets are posted at http://ucanr.org/sites/ucehs/Workgroups/Ergonomics/ and will be updated on a bi-annual basis. As equipment and products change and improve, so will these documents.

Custodial Design Guidelines for New Construction and Existing Buildings

The design guidelines (Appendices) were developed from first hand experiences, best practices and the literature review. They provide risk information to share with campus partners, such as architects and project

managers, whose designs directly impact the work of cleaners. These guidelines offer recommendations for reducing risk exposures by designing buildings from an ergonomics-perspective from the beginning.

Conclusion

This project has confirmed that the custodial/housekeeper/environmental service workers are exposed to a variety of ergonomic risk factors and have a high risk of injury. In order to reduce injuries, both physical and psychosocial risk factors must be considered when developing system-wide strategies. These strategies should focus on trash/recycle and linen handling, mopping and bathroom cleaning and vacuuming and lifting/moving furniture.

The Campus ergonomists are pleased to contribute to what will be an ongoing process in developing and implementing these strategies at each location. Through the creation of the *Best Practice Bulletins*, *Recommended Product Sheets* and *Design Guidelines for New Construction and Existing Buildings* and the $5,000 per location funding by UCOP Risk Services, a solid foundation has been formed on which to build in the future.

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Appendices

Project Charter

Project Title

Ergonomics Study of High-Injury Occupations at the University of California

Project Objective

At the request of UCOP Risk Services, the UC-Wide Ergonomics Work Group will conduct ergonomic studies of the five occupations within UC that have the highest incurred workers' compensation cost with the purpose of developing system wide strategies that address current issues. UCOP Risk Services looked at actuary data that indicate custodians, food service workers, lab technicians (animal health), grounds and building maintenance workers have the highest incurred costs. At the 2010 Risk Summit, it was agreed upon that the first ergonomic study would focus on custodial/housekeeping/environmental service positions because all of the locations have one of these positions.

Project Scope

The scope of the project is to identify the top five at-risk tasks within these positions and develop strategies to reduce injuries and decrease workers' compensation costs. This will be achieved by developing:

- *Best practices* so each location can use the resources and guidelines to make improvements
- *Product information sheets* for equipment that has proven successful. Sheets will include specifications, features, and appropriate applications.
- *An evaluation process* for effectively engaging staff in the purchase and evaluation of new equipment.
- *Ergonomic design standards* for new construction and existing buildings (remodels).
- *Pilot project proposal guidelines* to assist each location to develop and implement location-specific interventions to address one of the high risk tasks. For these interventions, UCOP Risk Services will provide funding, up to $5,000 per location.
- *Evaluation tool and metrics for effectiveness*

Project Methodology

Data will be collected from each location by asking the following three questions:

- What are the top five at risk tasks within your custodial/housekeeping/environmental services departments? (this information will be gathered from resources such as: recorded injury history; interviewing management of departments; feedback from employees; IVOS system and injury statistics; ergo coordinators and accident investigators)
- What interventions has your location already implemented to address these high at risk tasks and what has been the outcome?
- What other things might your campus need to reduce these risks?

The data will be analyzed by the Project Team via conference calls and work group meetings. If needed, each location may be contacted for further information/data.

The data collected will help the group design and develop best practices, product evaluation processes, product information sheets, design standards and a pilot project proposal guideline.

Project Team Members

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Project Milestones

Milestones	Deliverables	Estimated Date
Confirm project charter	Approved project charter document	9/2/2010
Identify top five at-risk tasks	Results ready for analysis	9/2/2010
Project Team meeting in Oakland (Facilitated by Mallory et al.)	• Develop questions to ask work group members • Develop template for best practices (think about design	9/24/2010

	standards) • Develop template for product information sheets • Project Team members assigned to top risk job tasks to gather more information from locations	
Development of documents	Documents finalized	10/6/10
Send email to entire work group to have them gather further information from their locations		10/6/10
Project Team members begin contacting locations for additional information	Collect data	11/6/10
Complete data collection	Data analysis	11/12/10
Conference call	Data analysis and next steps	11/12/10
Project Team meeting in Oakland (Facilitated by Mallory et al.)	• Develop and review best practices for top five high at-risk tasks • Develop and review product information sheets for successful equipment being used at locations • Develop an evaluation process for equipment review and purchase • Project Team members assigned to top risk job tasks to develop design standards	12/10/10
Conference call	Analyze results and review action items from 12/10/10 Project Team meeting; next steps	1/20/10
Project Team meeting in Oakland (Facilitated by Mallory et al.)	• Develop design standards for top five risk job tasks • Develop pilot project proposal guideline • Develop evaluation tool and metrics for effectiveness	2/11/11
Document development	Send documents out for review	2/25/11

Conference call	• Review documents • Project Team members divided into teams to work on assigned section of final report; next steps	3/11/11
Report development	Draft report	4/15/11
Conference call	Review final report and make necessary changes	4/29/11
Final report due	Final project report	5/20/11
Presentation to Erike Young and others at UCOP (1-2 team members)	Presentation summarizing research, analysis, and recommendations	5/27/11

Project Success Measurements

This project will be a success if it culminates in specific actionable steps for each location to implement that will result in the reduction in the frequency and severity of injuries related to these top five at-risk job tasks. Since the field of ergonomics is dynamic, our goal is to continuously improve and incorporate lessons learned into the work practices. Therefore, this report is intended to be a living document and updated with new information as available.

Success measurements include:

- Develop best practices so each location can use the resources and guidelines to make improvements
- Recommend equipment to reduce the risk of injury and provide product information sheets as a resource
- Develop design standards for new construction and existing buildings (remodels)
- Obtain UCOP support to implement recommended design standards
- All locations implement a one-year pilot project that also includes training and evaluation
- Develop tracking tool and incorporate lessons learned and work practices into living document

Questionnaire: Identify Top At-Risk Custodial Tasks

The following form was sent to the ergonomist at each location to help determine the top 5 at-risk tasks for the Custodial/Housekeeping/Environmental Service Positions.

What are the top five at risk tasks within your Custodial/Housekeeping/EVS department?
What interventions have you implemented for these at risk tasks and what was the outcome?
What other things does your campus need to reduce the risk?

CAMPUS	RANK ACCORDING TO RISK	CUSTODIAL HOUSING KEEPING EVS TASK	PREVIOUS INTERVENTION	APPROX. COST OF INTERVENTION	OUTCOME	NEW OR ALTERNATE IMPLEMENTATION
Example: UCB	*1*	*THROWING TRASH/RECYCLE*	*TRAINING TO LIMIT WEIGHT TO 25 LBS*	*$0*	*DIFFICULT TO MEASURE*	*TRIAL OF PROTOTYPE TOOL FROM LBNL*
			TYING OFF BAGS TO REDUCE SUCTION	*$0*		*TRIAL OF TIPPER*
	2	*CLEANING SHOWERS*				

Questionnaire Results: Identify Top At Risk Custodial Tasks

UC LOCATIONS

At Risk Tasks 1=Highest	**B**	**D**	**DMC**	**SF**	**SC**	**M**	**I**	**IMC**	**SB**	**R**	**LA**	**LAMC**	**SD**	**SDMC**	**LBNL**	**ANR**
Placing trash/recycle into large dumpsters	1		1	1		5	4	1	1	1	1		2		1	
Picking up and throwing trash/recycle		1								4		2	1	2	2	
Cleaning above shoulders and below knees						4			6		2					
Lifting heavy items above shoulder height													3			
Cleaning showers	2					1				3						
Restroom cleaning					1		2								4	
Dusting						2										
Vacuuming	4				2	6			5		3		5			
Mopping	3		4	3		3		2	3	2	4		4		3	
Waxing											5					
Burnishing	5															
Scrubbing									2							
Lifting/moving furniture				2		7	3		4					1		2
Slip/trip/fall					4		1	3								1
Carrying equipment																3
General fatigue and leg pain					3											
Lifting soiled linen from hampers			2									1				
Lifting/carrying pharmaceutical waste			3													
Changing bed sheets												3				
Pushing laundry carts												4		3		
Transporting full laundry carts to loading dock												5				
Stress					5											
Lack of education					6											

Summary of Results

***Top At Risk Tasks* (1= Highest Risk)**	***Number of Locations with this concern***
1. Trash/Recycle Handling	14
2. Mopping	10
3. Vacuuming	6
4.Lifting/Moving Furniture	6
5. Cleaning Restrooms (includes cleaning showers)	6
6. Linen Handling (to include medical centers)	3

Questionnaire: Intervention, Outcome and Next Steps At UC locations

Trash/Recycle	INTERVENTION	OUTCOME	NEXT STEPS
UCB	Tandem Brute dolly (Rubbermaid) - 2 separate containers for trash and recycle on one cart.	Eliminated pushing and pulling two separate containers; easy to maneuver in and outside building and over thresholds	New buildings: Design standards for clear short access to large containers and ways to dump so height of large container is no more than 36 inches in height. Existing buildings: Trial of lid lifter and research into portable ramp to place in front of containers as needed.
UCD	Trial of foot pedal operated dumpster lid lifter design	Created problem with dumpster pick up by trucks (abandoned concept)	
	Gradually replacing dumpsters with new lower heights from 55" to 39" - Consolidated Fabricators Corporation, 901 Simmerhorn Road, Galt, CA 95632	Custodian satisfaction/ need more time to see if injuries go down	
	Dumpster lid change from metal to plastic to reduce force required to open		
	Dumpster lid holding rod to reduce reach (design from UCSB)		
UCD MC	Training to limit weight to 25 lbs.; tying off bags to reduce suction	Not successful as this is now our # 1 risk /cause of injury in Env. Svs. this past fiscal year	Use of alternate trash can, side opening
UCSF	Brute Receptacles	Involved MB Campus only, none measured	
UCI	Throwing trash into small trucks – training		Hydraulic lift for the trucks - In Housing they have a small truck that goes around to dump the contents into the truck - they would like a lifter to empty into the truck and also into the larger dumpsters
UCI MC	Trash removal: most common injury associated with this task has been "needlestick" or "sharps" injury (8 of 17); meetings with nurse manager - attempt to identify cause of improper sharps disposal; some	Short term improvements followed by periods of increased incidence	Initiate study to determine primary causes of improper sharps disposal; focused training or procedural -policy changes as indicated by study.

	training on how to handle trash safely		
	Implementation of accident investigation		
UCSB	Facilities- Megabrute Toters (Rubbermaid) Cart	Yes	In process of installing below the ground dumpsters for green waste and some trash - working with local garbage company
	Facilities - Vestal T Auto Dumpster	Starting a pilot	
	Facilities - Dumpster Lid Brace	Yes	
	Facilities - Gloves - Protection of Hands	Yes	
	Dining - Auto Lift Dumpster	Yes	Re-design of custodial closets
UCR	Pushing full trash dumpsters - Administrative controls: require 2 persons for task	Department implemented the procedure; reduced risk but prefer to provide mechanical assistance for transportation of dumpsters	Ergo Tug or similar powered mover (waiting for funding)
	Lifting trash - Training to limit weight of trash bag to 20-25 pounds	Poor compliance	Recommended porta safe racks to reduce the suction: http://www.sibleylabs.com/pdf/coreless.pdf
UCLA	Throwing trash/recycle training to recognize and limit weight to <30 pounds	Increased awareness but unable to determine if effective in reducing injuries	Design standards to lower height of dumpsters to <36" or place dumpsters adjacent to loading docks at ground level
	Developed ergonomics training course for supervisors to include awareness of high risk tasks and providing positive feedback	Basic awareness developed; needed more consistent follow-up and reinforcement	
UCSD	Conducted department wide back safety and safe lifting training in English and Spanish to re-emphasize proper lifting techniques	Recently completed in select departments- monitoring outcome	Behavior and awareness training
	In tailgate meetings reinforced safe practices including: limiting the size of the load, dividing loads in 2 and using the buddy system	Recently completed- not yet able to measure	Create an added component of safety training to include additional stress relief techniques. Develop or enhance safety incentive program with positive reinforcement and recognition.
	Placing trash into large dumpsters: limited location- provided Queen Mary receptacles and a dumpster with an electric lift	Successfully working in one area. Need to investigate cost of smaller units or quantity discount	Research alternative dumpsters-compactors (possible smaller sizes) with lifts; where possible, reposition dumpster for easier access and off-loading of trash
LBNL	Training fill bags only ½ way	Custodians will still hold lid open with one hand or improvised	Working on prototype of dumpster lid brace

		dumpster sticks using various implements to hold open lids	
	Carrying heavy bags of trash/recycle paper and books. Training to fill bags only ½ way.	Some custodians minimized # of trips by filling bags with heavy loads	

Mopping	INTERVENTION	OUTCOME	NEXT STEPS
UCB	Unger Mopping System for small areas www.ungerglobal.com	Reduced weight - Successful mostly with Housing - supervisors buy in helped to make it successful. In Dining, these mops were unsuccessful mainly because the buckets did not roll very well. Staff continue to use the string mops but love the auto scrubber for the large areas	Research how all main depts (PPCS, RSSP, and Intercollegiate Athletics) are cleaning their bldgs.
	Walk behind Auto scubbers for larger areas, Tennant T1/T3 http://www.tennantco.com	Reduced repetition	
	Walk behind burnisher, no torque burnishers, Tennant 2550 http://www.tennantco.com	Reduced vibration/torque	
UCD MC	General housekeeping, i.e. mopping, high dusting, filling dispensers- training, purchase of some ergonomic equipment	Changing to mostly microfiber mops has had a significant impact on the decrease of severity and frequency of these types of claims (back, shoulder injuries).	Continue to purchase quality ergonomic equipment as new items come on the market.
UCSF	Unger Mopping System	Involved all campus custodians ($27,000), none measured	
UCSC	Ergonomic microfiber mops: Upper body injuries from restroom cleaning- training to use mop closer to body and or limit mopping time due to injury	Microfiber mops decrease dust particles, reduced upper body injuries due to lighter weight equipment. The microfiber mops seem to be best on smooth floors best. Main down side is having to clean mop head. This was solved with purchasing mini washing machines placed in each custodial locker. Problem with singular purchases of washing machines, cost, limited closet space, staff time lost to cleaning mop heads and maintenance repairs for washing machines. Hallways, use longer fiber dry mop heads best for transition from old type mop to microfiber instead of the smaller looped mop	
UCI MC	Mopping or use of floor	little impact	

	scrubber: most common injury with this task has been "slip and fall" - Daily "huddle meetings"; repeaters view video specific to slip & fall issues; recommendation to workers to use "slip-resistant" shoes		
	implementation of accident investigation		
UCSB	Housing - using Smart Handle and some microfiber mops		
	FM - using some microfiber mops		
UCR	Lifting full mop buckets into waist-height sinks - Implemented Unger Systems	Eliminate lifting mop buckets. Employees use either floor drains or toilets to empty water	
UCLA	Floor scrubber in large corridors. Textured Floors.	Improved efficiency and reduced injuries ROI 3 months	Expanding program to purchasing 7 additional scrubbers
			Need to provide improved storage areas for scrubbers; need to plan for washers and dryers in building design; need to provide for floor level custodial sinks to reduce lifting associated with mop buckets.
UCSD	Investigated alternative mopping system	Currently being used in some areas and not in others	Conduct survey on current usage. If needed, investigate alternatives
			Look at plausible solutions for mop sinks that are too high
LBNL	Promote use of microfiber mops	Mixed, many custodians kept cotton string mops partly due to inadequate training and availability of microfiber mop equipment	

Vacuuming	INTERVENTION	OUTCOME	NEXT STEPS
UCB	Backpack Vacuums, Proteam http://www.pro-team.com/pt/vacuums/default.aspx backpacks and hip style models	Reduced repetition	
	Light weight vacuums (10lbs) Rubbermaid	Reduced weight	
UCSC	Ergonomic Backpack Proteam vacuums for Day custodial staff: Wrist pain due to general work duties, old vacuums and equipment	Possibly reduction in wrist injuries due to lighter weight vacuums. Opens up need for large (walk behind) industrial vacuums needed for larger surface areas. Thorough training must be done before	

		handing out vacuums otherwise staff won't use and refuse to use.	
UCSB	FM - ORECK XL20 Commercial Vacuum Cleaner		
UCLA	Replaced heavy vacuum with Javelin vacuum with lighter weight handle and more powerful suction	Too slow to evaluate effectiveness	Currently purchasing 50 vacuums to speed up replacement process
	Purchased backpack vacuums for appropriate areas	Very effective in high traffic areas, stairs, areas with large amounts of furniture and equipment (dining, halls, gyms) females more resistive due to perceived weight and discomfort	
UCSD	Demonstration of 2 types of backpack vacuums	To be determined- currently in trial demonstration phase	Complete trial phase. Investigate alternative styles and provide pre-use training

Lift/Move Furniture	INTERVENTION	OUTCOME	NEXT STEPS
UCB	Mity Lite tables/chairs and carts http://www.mitylite.com	Reduced weight being lifted; not reaching up for stacked chairs; easier to transport	Incorporating more of the lightweight furniture where needed on campus
	Testing of a permanent glide showed a 30% reduction in initial force; however, the Housing department has not yet implemented. http://www.ezmoves.com		Matching funds to implement the glides
UCD	Plastic sliders that attach to the bottom of the dorm room furniture, (desks, chest of drawers, closets) **to reduce friction and force required to move** them so staff can adequately clean. 1-2 inches purchased from Ace Hardware		
UCI	Training		Teflon gliders and purchase lighter furniture to replace old ones
UCSB	Housing - installed some furniture sliders		Purchasing Mattress Dollies
	Housing - Lighter furniture		Replacing wheels on move-in carts

Cleaning Bathrooms	INTERVENTION	OUTCOME	NEXT STEPS

UCB	CLEANING SHOWERS: Shower head hose adaptor for area that do not have water, Rinse Ace - 6 foot hose sprayer and power sprayer valve, http://www.rinseace.com/shower-products/power-sprayer	Cost $15 - Reduced repetitive arm motions	
	C3 Cleaning Companion, http://www.cleanbetter.com/	Reduced repetitive squeezing of spray bottle/Improved process	Kaivac Cleaning Systems
UCD	Handle extenders for the window and shower washers (Doodlebugs is the name of the scrubber), Unger products		
UCSC	Upper body injuries from Restroom Cleaning - Training to use mop closer to body and or limit mopping time due to injury resulting in other coworkers picking up extra work.	Microfiber mops decrease dust particles, reduced upper body injuries due to lighter weight equipment. The microfiber mops seem to be best on smooth floors best. Main down side is having to clean mop head. This was solved with purchasing mini washing machines placed in each custodial locker. Problem with singular purchases of washing machines, cost, limited closet space, staff time lost to cleaning mop heads and maintenance repairs for washing machines. Hallways, use longer fiber dry mop heads best for transition from old type mop to microfiber instead of the smaller looped mop.	
UCI	Unger long brush for toilets	Too early to tell	Cleaning systems
	Stanley Steam Vacuum for the showers and the floors to reduce scrubbing	Too early to tell	
	Training		
UCSB	Housing - Steam vapor cleaning system	Unsuccessful; Budget constraints - critical periods of time that need extra staff	Behavior based program with positive reinforcement
	Housing - Battery operated scrubber	Unsuccessful	
	FM -Windsor COMPASS II cleaning system (compatible with Buckeye products)		
UCR	Cleaning showers (ladies are short and cannot reach) - Implemented Smart Handle Pro	Good. Telescoping handles allow employees to reach the top of the shower and then shorten the handle	

	handles with doodle bug - http://www.smarthandlepro.com/	to clean mid-height	
	Cleaning mirrors- Recommended squeegees with telescoping handles to reduce the extended reaches	Employees did not want to use a squeegee because they felt it didn't clean as well. Continue to reach too far to clean mirrors.	None
UCLA	Cleaning above shoulders and below knees (mirrors, toilets, chalkboards) Ergonomics training (posture, back safety, body mechanics); purchase telescoping hand tools, longer handled tools	Reduced injuries to staff using tools	Replace all tools for entire staff $20,000
LBNL	Wiping outside of toilet bowls (bending trunk)- trial of brush with handle to wipe	Minimal: Rejected as ineffective vs. hand-held cloth or paper towel	

Linen Handling	**INTERVENTION**	**OUTCOME**	**NEXT STEPS**
UCD MC	Handling Linen- training	Minimal success, this was the highest risk for frequency and severity of WC claims.	Created a Linen Crew with designated staff to handle linen- transports linen carts with tugs- and an auto lifter dumps into laundry vendor's carts.** However with the opening of a new building additional toters will likely be needed but were not part of original plans. Also new cleaning equipment will likely be needed to clean OR rooms based on new ceiling mounted equipment that was installed.
UCLA MC	Lifting soiled linen from hampers -Training to staff to reduce the amount of linen per bag	No reduction in injuries	Foot lever that assists lifting bags from hamper
	Pushing laundry carts - Training to staff to push one cart at a time and not push and pull two carts	None, employees feel pressured to perform at a faster pace	Purchase smaller carts
	Transporting full laundry carts to loading dock - purchased 2 Ergo tug devices	Slight reduction in claims	Purchase smaller carts

Be Smart About Safety

QUESTIONNAIRE
TRASH, RECYCLE, AND LINEN HANDLING

QUESTIONS	YES	NO	EXPLAIN
Products and Equipment			
What types of containers do you use to collect trash and recycle **inside** the buildings? (Please provide manufacturer and model #'s)			
What types of containers do you use to collect trash and recycle **outside** the buildings? (Please provide manufacturer and model #'s)			
How effective are they?			
Benefits			
Limitations			
Medical Centers only: Clarify what equipment is being used in patient rooms vs. office type or other setting for trash handling.			
How effective are they?			
Benefits			
Limitations			
Are **assistive devices** for lifting/transporting used to handle trash, recycle or linen?			
If yes, provide the manufacturer and model #'s			
How long has the equipment been in use?			
Any maintenance issues? Who maintains?			
Would you buy this particular type of equipment again? (specify model)			
Has the use of this equipment resulted in:			
Reduced injuries			
Increased productivity			
Improved cleanliness			
What product or process have you used to reduce injuries related to liner suction issues when pulling trash/recycle out of containers?			
How effective has this been?			
Pros and cons			
Limitations			
Please identify any other products or equipment that is being used to reduce the risk of employee injury when moving trash, linen, and recycle?			
Workflow and Processes			
What is your current collection system for:			
Trash inside buildings, room to room			
Trash between buildings and dumpsters			
Recycle inside buildings			
Recycle between buildings and dumpsters			
Patient room trash to dumpster			
Linen			

Be Smart About Safety

QUESTIONNAIRE
TRASH, RECYCLE, AND LINEN HANDLING

What changes to your current systems do you feel would reduce injuries and increase efficiency?			
Do you use trash/linen teams or other creative staff deployment strategies?			
If yes, how many are allocated to the team per shift?			
If teams aren't used how many staff are allocated to handle trash, linen, recycle?			
Does staff other than Environmental Services or Custodial Services handle trash?			

Training

What type of training is provided for staff who handle trash, recycle, and linen?			
Frequency; who provides?			
Has your training program resulted in reduced injuries?			

Design Issues

What are your biggest design challenges related to the following:			
Handling trash			
Handling recycle			
Handling linen			
Types of containers or carts used (i.e. product material, height, size)?			
What success has your location had related to improving design of equipment or space that reduced the risk of injury related to transporting/lifting trash, linen, recycle?			
How are the ergonomic needs of the custodial department considered when new buildings or spaces are being planned?			

General Questions

Have you implemented an injury reduction program for trash, recycle or linen?			
What type of program?			
Was it successful?			
Do you have best practices related to trash, recycle, or linen handling injury prevention developed at your location? (please list)			
To what extent is the custodial staff at your location involved in selecting new equipment or ideas for injury reduction?			
Do you involve other staff in preventing injuries related to custodial work? (i.e. end user training related to trash weight)			
Are there any additional products or systems related to trash, recycle, or linen that you are aware of that warrant investigation?			

Be Smart About Safety

QUESTIONNAIRE
MOPPING AND BATHROOM CLEANING

ACTIVITY	QUESTIONS	YES	NO	EXPLAIN
Cleaning Systems	Do you use no-touch cleaning systems?			
Cleaning Systems	If yes, where are they used and what types, brands and models (surfaces, square footage, size, type restroom)?			
Cleaning Systems	How effective are they?			
Cleaning Systems	Pro & Cons			
Cleaning Systems	Limitations			
Cleaning Systems	What type of training is required for users?			
Cleaning Systems	Length, who provides, frequency			
Cleaning Systems	How long has equipment been in use?			
Cleaning Systems	Any maintenance issues? Who maintains?			
Cleaning Systems	Would you buy this particular type of equipment? (and specify model again)			
Cleaning Systems	Has equipment resulted in:			
Cleaning Systems	Reduced injuries			
Cleaning Systems	Increased productivity			
Cleaning Systems	Improved Cleanliness			
Cleaning Systems	Have you had any storage issues?			
Cleaning Systems	Where do you keep it?			
Auto-Scrubbers	Do you use electric and/or battery operated floor scrubbers?			
Auto-Scrubbers	If yes, where (surfaces, square footage) and what types (brands, models)?			
Auto-Scrubbers	How effective are they?			
Auto-Scrubbers	Pro & Cons			
Auto-Scrubbers	Limitations			
Auto-Scrubbers	What type of training is required for users?			
Auto-Scrubbers	Length, who provides, frequency			
Auto-Scrubbers	How long has equipment been in use?			
Auto-Scrubbers	Any maintenance issues? Who maintains?			
Auto-Scrubbers	Would you buy this particular type of equipment? (and the specific model)			
Auto-Scrubbers	Has equipment resulted in:			
Auto-Scrubbers	Reduced injuries			
Auto-Scrubbers	Increased productivity			
Auto-Scrubbers	Improved Cleanliness			
Auto-Scrubbers	Have you had any storage issues?			
Auto-Scrubbers	Where do you keep it?			
Mopping	What type of mopping system(s) do you use? (Bucket, mop head, handle, ringer)			
Mopping	What types of surfaces is each system used on?			

Mopping	What types of chemicals are used?			
Mopping	How are mop heads laundered?			
Mopping	What type of training is required?			
Mopping	How do custodians transport equipment?			
Mopping	Are guidelines used to assign square footage?			
Please answer the questions below for the following tasks: Cleaning bathroom mirrors, toilets-latrines, showers, walls, sinks, counters, and doors				
Bathroom Hand Cleaning	What equipment is used for cleaning?			
Bathroom Hand Cleaning	What cleaning products/chemicals are used?			
Bathroom Hand Cleaning	What type of training is provided?			
Bathroom Hand Cleaning	What style carts are used to organize and transport equipment/supplies?			
Bathroom Hand Cleaning	Do they work well? If not, what are limitations or problems?			
Bathroom Hand Cleaning	Where are the carts/supplies/equipment stored?			
Bathroom Hand Cleaning	Do you have hard water issues? If yes, are special products or equipment used?			
Bathroom Hand Cleaning	Do you use hoses? If so, what kind and how are they attached?			
Bathroom Hand Cleaning	Are standards established for:			
Bathroom Hand Cleaning	Cleaning processes (SOPs)			
Bathroom Hand Cleaning	Type of paper, soap, dispensers			
Bathroom Hand Cleaning	Do you have touch-less towel or soap dispensers, faucets or air hand dryers?			
Bathroom Hand Cleaning	Do they work well? If not, what are the limitations or problems?			
Design Issues	Are there guidelines established for custodian closets for specific issues such as:			
Design Issues	Floor sink availability			
Design Issues	Hoses, connectors			
Design Issues	Size			
Design Issues	Location + number per building			
Design Issues	Storage systems for supplies			
Design Issues	Cleaning product dispensers			
Design Issues	Elevators			
Design Issues	Storage for specialty equipment (i.e. scrubbers)			
Design Issues	Storage for supplies			
Design Issues	Are you willing to share your guidelines?			
Design issues	Do all buildings have service elevators? If not, how do custodians get equipment to other floors?			
General	Do you have ideas for improving your work area that you would like to share?			

Be Smart About Safety

QUESTIONNAIRE
Vacuuming and Furniture Moving

QUESTIONS	YES	NO	EXPLAIN
Back Pack Vacuums			
Do you use ***Back-Pack Vacuums*** at your facility?			
If so, in what areas of your facility?			
What make and model of this type of vacuum are you using?			
Has this make/model been identified as the "best tool for the job"?			
Pros and cons of using this type of vacuum?			
How long have you been using this model of vacuum?			
Are there any maintenance issues associated with this vacuum?			
What type of training, if any, is required for the users of this equipment?			
Length of training, who provides training, frequency of training			
Has use of this equipment resulted in:			
Reduced injuries?			
Increased productivity?			
Improved cleanliness?			
Where do you store them?			
Have you had any storage issues?			
Upright Vacuums			
Do you use standard, ***Upright Vacuums*** at your facility?			
If so, in what areas of your facility?			
What make and model of this type of vacuum are you using?			
Has this make/model been identified as the "best tool for the job"?			
Pros/ cons of using this type of vacuum?			
How long have you been using this model of vacuum?			
Are there any maintenance issues associated with this vacuum?			
What type of training, if any, is required for the users of this equipment?			
Length of training, who provides training, frequency of training			
Has use of this equipment resulted in:			
Reduced injuries?			
Increased productivity?			
Improved cleanliness?			
Where do you store them?			
Have you had any storage issues?			
Large Area Vacuums (Walk Behind)			
Do you use ***"Large Area" Vacuums*** at your facility?			
If so, in what areas of your facility?			
What make and model of this type of vacuum are you using?			

Be Smart About Safety

QUESTIONNAIRE
Vacuuming and Furniture Moving

Has this make/model been identified as the "best tool for the job"?			
Pros/ cons of using this type of vacuum?			
How long have you been using this model of vacuum?			
Are there any maintenance issues associated with this vacuum?			
What type of training, if any, is required for the users of this equipment?			
Length of training, who provides training, frequency of training			
Has use of this equipment resulted in:			
Reduced injuries?			
Increased productivity?			
Improved cleanliness?			
Where do you store it?			
Have you had any storage issues with this equipment?			

Event Set-Up and Tear-Down

Is furniture frequently moved for various events?			
If so, who is responsible?			
Do you use light-weight furniture for event set-up?			
What brand/type of furniture are you using?			
Has use of this equipment resulted in:			
Reduced injuries?			
Increased productivity?			
Have you had any storage issues with this type of furniture?			

General Furniture Moving

Is furniture frequently moved in your facility?			
Who does this type of furniture-moving at your facility?			
Is furniture frequently moved by cleaning crews?			
Do you use hand trucks (hand dollies)?			
If so, what type have you found to be most effective?			
Do you use shoulder dollies (moving straps)?			
If so, what type/ brand and model?			
Are they effective?			
Do you use flat bed dolly or cart?			
If so, which type/ specs are most efficient?			
Are employees who frequently move furniture trained in proper lifting?			
Length of training, who provides training, frequency of training			
Are you using furniture "gliders" or something similar?			
If so, which type/ specs are most efficient?			

Risk Services Best Practices Bulletin

Trash, Recycle, Linen Handling

Presented by Office of the President Risk Services – May 13, 2011

Throughout the UC system, custodians are among the highest occupational groups at-risk for injury. Their high frequency and severity of injury is due to the physical nature of their work that often involves awkward postures, repetition of motion, and forceful exertion.

The following Best Practices are offered to guide those responsible for supervising and/or ensuring the health and safety of these custodial workers.

Best Practices:

Reduce the frequency of manually handling trash, recycle and linen materials at all stages of collection, transportation and dumping. This can reduce the risk of injury and increase workers' productivity.

- Purchase receptacles that have venting channels to reduce force needed to overcome suction.
- Use wheeled containers to collect and transport materials. When the design of the trash enclosures or dumpster itself is such that the overall height of the dumpster is higher than 36 inches, or, if the trash is usually more than (25#), use an automated dumping device.[1,2] **Refer to Recommended Product Sheets**
- Use an extension device to push and hold the dumpster lid open. This will help eliminate holding the lid open with one arm and throwing the bag of material with the other. Train custodians to use both hands to place material in dumpster. **Refer to Recommended Product Sheets**
- When automated equipment is not available, the following considerations should be made:[3-5]
    - Provide side opening receptacles to reduce lifting above shoulder height. Empty containers more frequently to reduce weight of containers.

- Prepare to lift bag or empty receptacles. This includes testing the weight of the bag, checking for contents such as sharp objects and heavy items such as books, fluid-filled containers, or glass.
- In the wheeled container, tie off bags when they are half full (or no more than 25 pounds) and start a new bag on top of the first
- Where applicable, tip container over and pull bag out from the side to reduce force needed to overcome suction
- Consider ways to reduce the walking distance when transporting containers to dumpster. **Refer to Recommended Product Sheets**
- Avoid saving all lifting tasks to perform continuously or at the end of the shift. Physically-challenging tasks should rotate between less strenuous tasks in an effective work flow.

General Considerations

- Develop a system where the building occupants bring trash and recycled materials to a central location for custodian to transport to dumpster. This will reduce picking up materials.
- Leave a larger wheeled container in a closeable room for areas with a high volume of recycled materials. This will reduce the manual handling needed to discard and/or condense materials before transport to dumpster.
- Establish a dedicated team to reduce the number of staff exposed to trash/recycle linen handling injuries.

Equipment[5-7]

Selecting the most appropriate equipment is an important decision. Prior to purchasing:

- Contact the campus ergonomist to help with the selection process
- Include custodial staff in the selection process
- Arrange for demonstration of product by manufacturer or distributor
- Refer to the Recommended Product Sheets for applications and recommendations
- Pilot the preferred equipment for a minimum two–week trial period

During the pilot period, consider the following:

- Adjustability, size and weight of equipment to accommodate wide range of body types
- Appropriate sized casters and swivel design to allow for easy rolling and maneuverability
- Size, and type of surfaces to be cleaned
- Location of controls and ease of operation
- Noise and vibration levels
- Storage and transporting needs
- Equipment maintenance and replacement parts

- Battery life and charging time
- Need for back-up equipment

Training[5]

Initial training should be provided for new employees within the first 30 days and annually thereafter. Training is best provided in small groups with the involvement of supervisors, leads, ergonomists and vendors.

Training should include:

- Hands-on performance of job tasks and related activities
- Equipment use, maintenance, storage, safety procedures and use of personal protective equipment (PPE) as required
- Instruction in proper body mechanics
- Verbal, written and illustrative materials to accommodate non-English speaking workers

Work and Staffing Guidelines[5]

Work and staffing guidelines insure that employees are adequately trained and assigned reasonable workloads. Guidelines include:

- Staff levels that provide adequate coverage to complete assigned work tasks
- Cross-training to allow for job rotation as needed
- Staff levels to avoid overtime
- Backup staffing to accommodate unplanned absences
- Use of task and job rotation to limit repetition and fatigue
- Use of teams for heavy lifting and moving tasks
- Pre-shift exercises to warm up muscles to prepare for work
- Frequent rest breaks
- Implementation and support of a work hazard notification system to identify problems such as excessive weight in trash containers

References: (1) UC Berkeley Indoor/Outdoor Enclosure Design Criteria, September 2010. Contact mlynch@uhs.berkeley.edu; (2) Consolidated Fabricators Corporation 901 Simmerhorn Rd, Galt, Ca 95632; (3) British Columbia School Safety Association, WorkSafeBC, "A Clean Sweep, Safe Work Practices for Custodians", Available at http://www.worksafebc.com/publications/health_and_safety/by_topic/assets/pdf/clean_sweep.pdf; (4) Industrial Accident Prevention Association, "A Health and Safety Guideline for Your Workplace", 2008, pp. 1-6. Available at www.iapa.ca/pdf/manmat.pdf; (5) Cal/OSHA Consultation Service, Department of Industrial Relations, *Working Safer and Easier for Janitors, Custodians, and Housekeepers*, 2005; (6) Hansen, Steve, "Understanding Ergonomics and How it Affects Your Cleaning Business", *Custodial Workers' Resource*. Available at http://custodian.info/ergonomics.html; (7) Eastman Kodak Company, "Ergonomic Design for People at Work", Vol. 2, pp. 374 (Hand Carts and Trucks), 1986

Recommended Product Sheet

Trash and Linen Transporting

Motorized Tug

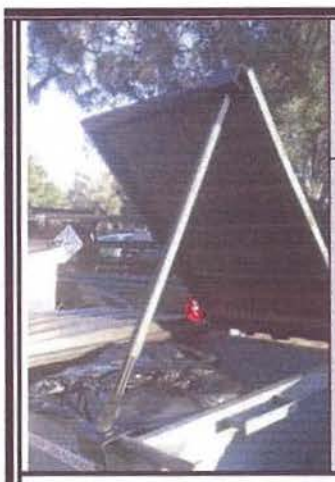
Criteria:	Motorized Tug fits multiple carts using "universal coupling hitch" Custom design attachments can link or "train" multiple carts
Application:	Transporting trash and linen container

Make	Model	Comments (Pros and Cons)	
Ergo Tug	Motorized Tug Model 4000	**PROS:** • Universal hitch system or custom hitch built to user specifications • Easily attaches to cart • Can pull up to 2,000 lbs. • Can tow multiple carts • Easily maneuverable • Meets JACHO requirements	**CONS:** • Indoor use only • Works best on smooth and level surface
	Approximate cost	$7,000	
	For more information	**North:** Joyce Rhoades joyce.rhoades@ucsf.edu **South:** David Wilson dwilson@mednet.ucla.edu	
URL:	http://www.phswest.com		

Recommended Product Sheet

Trash /Recycle Handling

Dumpster Pole



Criteria:	Assists custodians and others who carry loads to dumpsters by holding the lid open
Application:	Loading trash and recyclables into dumpsters

Make	Model	Comments (Pros and Cons)	
Flexible Scientific	Dumpster Prop®	**PRO:** • Eliminates the need to twist body while one hand holds up the lid • Reduces strain on shoulders and back	**CON:** • Need to locate storage for it near dumpster or on cart
	Approximate cost	$50.00 per pole at UC discount	
	For more information	**North:** Ira Janowitz ILJanowitz@LBL.GOV **South:** Flexible Scientific 8451 Miralani Drive, Suite A San Diego, CA 92126 Phone: 888-538-8715 Fax: 888-538-8716	
URL:	http://www.flexiblescientific.com/dumpster-prop		

Recommended Product Sheet

Handling Clean Linen

Spring-lift platform carts

Criteria:	Spring-lift platform raises load up to the worker as weight is reduced
Application:	Handling clean linen Spring-lift reduces bending over to handle linen

Make	Model	Comments (Pros and Cons)	
Maxi-Movers	Model 2914 Model M2820	**PRO:** • Reduces bending over to handle linen • Easily maneuverable • Two cart sizes (25" wide x 36" long and size 36" wide x 67" long) • 4 class ratings from 250 to 420 lbs. • Powder coated base with replaceable casters	**CON:** • Indoor use only
	Approximate cost	$500-$725	
	For more information	Jill Evans-Grinbergs jill.evansgrinbergs@ucdmc.ucdavis.edu	
URL:	http://www.maxi-movers.com		

Recommended Product Sheet

Dumping Trash and Linen
Stationary Large Load Lifter

Criteria:	Lifts multiple container sizes Dump heights 48" -70" Load capacity 2500 lbs.
Application:	Dumping large trash or linen containers

Make	Model	Comments (Pros and Cons)	
Toter	Universal Lifter 3078-XX-6000	**PRO:** • Lifts multiple container sizes • Universal adapter available for caster and two-wheel carts • Load capacity 2500 lbs. • Power supply 208/230/460V three phase, 5HP • Adapter available for caster and two wheel carts	**CON:** • Requires compatible containers • Requires storage space
	Approximate cost	$9000-$10,000	
	For more information	Joyce Rhoades joyce.rhoades@ucsf.edu	
URL:	http://www.toter.com		
Toter	Universal Lifter Low Profile 3078-LP-5000	**PRO:** • Dump height 35" • Load capacity 3500 lbs. • Power supply 208/230/460V three phase, 5HP	**CON:** • Require compatible containers • Requires storage space
	Approximate cost	$8500-$9500	
	For more information	Joyce Rhoades joyce.rhoades@ucsf.edu	
URL:	http://www.toter.com		

Recommended Product Sheet

Trash/Recycling

Stationary Container Lifters

Criteria:	Power lift unloads trash and recycling into large dumpsters Designed for permanent mounting in concrete or metal pad
Application:	Lifts various container sizes with weight capacity up to 350lbs. with a dump height range between 34" – 74" depending on the size of the container

Make	Model	Comments (Pros and Cons)	
Toter	Atlas Stationary Lifter 3081-ST-1000	**PRO:** • Eliminates manual lifting of containers when unloading materials • Two container sizes can be used, 32 and 44 gallon • 115/230V single phase battery supply • Unloads into multiple style container systems; front load, side load, and roll-off open top	**CON:** • Requires transporting containers to permanent dumpster locations vs. staging locations • Requires 42" x 42" footprint
	Approximate cost	$4000-$4500	
	For more information	**North:** Joyce Rhoades joyce.rhoades@ucsf.edu **South:** Cindy Burt burt@ehs.ucla.edu	
URL:	http://www.drum-handlers-dumpers.com/Drum-Lifters-Tilters-and-Dumpers.htm		
Toter	Saddle Stationary Lifter 3081-MT-5000	**PRO:** • Eliminates manual lifting of containers for unloading materials • Containers sizes include 30-60-90 gallon 2 wheel and caster carts • 115/230Vsingle phase power supply • Designed for dumping into multiple collection systems: front load, side load and roll-off open top containers • Can be used at self-contained	**CON:** • Requires transporting containers to permanent dumpster locations vs. staging locations • Requires dedicated space of 42" x 42"

		compactors	
	Approximate cost	$4500-$5000	
	For more information	**North:** Joyce Rhoades **South:** Cindy Burt	joyce.rhoades@ucsf.edu burt@ehs.ucla.edu
URL:	http://www.drum-handlers-dumpers.com/Drum-Lifters-Tilters-and-Dumpers.htm http://toter.com		

7.

Prevention through Design (PtD): Combining Risk Assessment, Productivity and Sustainability, Drs. Popov and Ney, University of Central Missouri. Continuing documentation; Automative Waste Collection - How to Make Sure It Makes Sense for Your Community, a related work resulting in the implementation of automated waste collection.

Prevention through Design (PtD): Combining Risk Assessment, Productivity and Sustainability

Georgi Popov, PhD, QEP, CMC.
Associate Professor
University of Central Missouri
Warrensburg, MO

John N. Zey, CIH, EdD.
Professor
University of Central Missouri
Warrensburg, MO

Introduction

Prevention through Design (PtD) addresses occupational safety and health needs in the design and redesign processes to prevent or minimize the work-related hazards and risks associated with the construction, manufacture, use, maintenance, and disposal of facilities, materials, equipment, and the service sector. One of the goals is to educate designers, engineers, machinery and equipment manufacturers, environmental, health and safety (EHS) professionals, business leaders, and workers to understand and implement PtD methods and apply this knowledge and skills to the design and re-design of new and existing facilities, processes, equipment, tools, and organization of work.

One of the many challenges EHS professionals are facing is developing skills to convince management to maximize the effectiveness of the safety program and consequently increase productivity. EHS professionals have to help management transform safety into an accepted business value for the organization. In order to be successful, the EHS students and professionals have to learn to use the PtD principles and incorporate them into standard business practices. A major hurdle to the adoption of PtD is the perception that the PtD cost/benefit ratio is unfavorable. EHS professionals should recognize business cost drivers and justify PtD design

expenditures in the early product development stage. Therefore, the authors developed a PtD model that incorporates risk assessment, hierarchy of controls, productivity, financial analysis and future state projections. To demonstrate the applicability of the model; the authors selected a case study that was suitable for practical demonstration and for use as an educational module. A Value-added project for refuse trucks improvements is presented. In the model PtD principles were combined with risk assessment tools, productivity evaluation and sustainability. This case study demonstrates how EHS professionals can play a significant role in the development of new business plans and implementation of Lean Six Sigma practices, designed to minimize injuries and improve productivity.

History of PtD

Prevention through design is not a new concept and as with many worthwhile endeavors has roots in the work of several previous individuals and organizations (Manuele, 2007, ANSI/SIHA, 2005). The work of Edward Demming via his total quality management process certainly provided foundational underpinnings for PtD (Manuele, 2008, Deming, 1982). Deming gives credit to others for the TQM process and thus the circle continues to turn and involve many participants. ASSE published a position paper on Designing for Safety, in the 1990s (1994). NIOSH gave the PtD movement a boast via a variety of meeting and publications, starting in the 1990s. In late 2010, NIOSH released its PtD plan (2010). ASSE and AIHA has also provided significant support for PtD. ASSE is the Secretariat for the recently published ANZI PtD standard.

PtD has been gaining momentum for the past several years as evidenced by the inclusion of PtD in current occupational safety and health textbooks (Blunt, Zey, Greife, Rose, 2011). The authors believe this trend will continue for the foreseeable future. This idea is also supported by recent publications (Manuele, 2008, Manuele, ND).

Project Description

Trash collection requires significant amount of repetitive movements. Musculoskeletal Disorders (MSD's) including lower back, and Carpal Tunnel Syndrome (CTS) injuries were recognized as a main concern for business continuity and sustainability of the company. Human Resources (HR) reported difficulties in hiring new employees and the organization had experienced a high turnover rate. In today's global economy the management had to take the necessary steps to reduce ergonomic injuries and improve productivity. This study demonstrated potential savings an organization can realize from PtD implementation. The purchase of new refuse trucks had to be justified. The organization formed a safety and risk management team and prepared a business case for the investment. The team had to identify priorities and developed a project model. PtD was identified as a key component of the project. The main requirement was that the new refuse trucks were to be designed in a way to eliminate or minimize ergonomics injuries. Our recommendation was to utilize PtD, Lean and Six Sigma tools to perform current state of the art risk assessment and develop intervention priorities. PtD and Failure Mode and Effects Analysis (FMEA) tools may also be used to develop future state projections for reduced risk. Productivity gains may be evaluated utilizing common LEAN tools. Project Cycle Efficiency (PCE) could be calculated for current state productivity and future state projections. Value Stream Mapping (VSM) was used to evaluate current state vs. future state process.

A new tool for business investment analysis was developed for the project. Different solutions were evaluated and prioritized. The Excel-based tool helped EHS professionals involved in the project

and the team to compare total annual incidence cost before the improvements/intervention; total annual incidences cost after the improvements/intervention, and calculate incident benefit and cost savings. The EHS professionals next calculated the Return on Safety, Health and Environmental Investments (ROSHEI) by simply adding net savings, new revenue (generated from increased productivity), and other benefits (maintenance, fuel savings, insurance, etc). Net Present Value (NPV) and the payback period for the safety investment were also calculated. Return on investment (ROI) was calculated next and is displayed as a numerical value as well as percentage. Internal Rate of Return (IRR) is another business term and is usually considered a simplified alternative to NPV. The tool calculates and displays IRR as a percentage. Based on our experience, we found that business managers would prefer to see comparisons of different proposals rather than a single solution. Therefore, a worksheet to compare four different proposals was developed. NPV's for the different proposals are compared and displayed as a numerical value, while IRR's and ROI's for all proposals/solutions are displayed as a percentage. To satisfy the new expectations and gain support for EHS improvements, the team had to complete a cost – benefit analysis for mitigating potential hazards.

Business analysis revealed a payback period of a little more than four years. IRR was only 12%. The management of the organization requested non-financial benefits to be included in the model for complete evaluation. The organization requested assistance from a team of UCM students to evaluate the existing truck emissions and compare them to the new trucks emissions. The new trucks run on Compressed Natural Gas (CNG) and the existing trucks use diesel fuel. Particulate matter (PM 2.5 and PM 10), NO_2, SO_2, O_3, and CO levels were evaluated. In addition, VOC's levels were also compared.

The management was not fully convinced based on the safety aspects alone. Therefore, gains in productivity and non financial benefits had to be included. "Projecting a green image" and reduced air pollutants emissions played a substantial part in the decision making process.

Methods

A new decision making model was developed to improve the refuse collection process. This research identified potential areas for EHS professional involvement in the decision making process. The authors developed a new PtD model that incorporates risk assessment, hierarchy of controls, productivity, financial analysis and future state projections. The model follows Define, Measure, Analyze, Improve, and Control (DMAIC) logic. Separate tools were developed for each phase. For instance, Delphi, brainstorming and Preliminary Hazard Analysis may be used in the "Define" phase. Modified Bow Tie, Risk Assessment matrix, and Failure Mode Effect Analysis (FMEA) may be used in the "Measure" phase. (Popov, 2011).

The FMEA tool was used to prioritize the hazards and modify the procedure to demonstrate and quantify the risk reduction after the proposed EHS intervention. Several other tools were used during this evaluation, such as VSM, PCE and Pareto 80/20 analysis. Next, adjustments were made and the improvements were evaluated utilizing Lean Six Sigma tools.

Air pollutants levels were evaluated for the current diesel trucks and were compared to the new CNG trucks. The emissions were evaluated utilizing direct reading instruments.

To demonstrate the applicability of the newly developed PtD model, the authors present the following case study. Due to confidentiality agreements, the team members and company name can't be shared.

Case Study

The refuse collection companies that still use manual trash collection technique usually have very high musculoskeletal disorders (MSD) injury rate. That results in high turnover rate, high absenteeism rate and significant financial losses for the company. Therefore, a value added business plan for replacement of old refuse trucks with new automated trucks had to be developed. EHS professionals may be hired to coordinate and manage the process to convince various levels of management, that such significant investment is justified.

Ergonomics risk assessment was completed utilizing PtD and Six Sigma tools. High priority areas for improvements had to be evaluated first. The study included initial cost-benefit analysis. Gross Cost Savings from Environmental, Health, and Safety (EHS) interventions were calculated. NPV, Payback Period, simple ROI and IRR calculations from EHS interventions were included in the study. A worksheet to compare proposals and interventions benefits was developed.

The main purpose of the project was to demonstrate the benefits of automated refuse collection trucks vs. conventional refuse collection trucks that are currently in use (Fig. 1).

Fig. 1. Refuse collection trucks

Conventional refuse collection trucks >>>>>>> Automated refuse collection trucks

To understand the process and develop possible intervention plan, simple digital images were used. However, the authors had to develop a comprehensive management plan that would lead to complete analysis of the process and convince the management of the benefits of investing in new trucks. The team members observed the process and recorded the time required for each step. The steps are presented below.

Step 1. Position the truck.

Step 2. Lift two polyethylene bags.

Step 3. Dump the bags.

Step 4. Repeat steps 2 and 3 lifting and dumping two more bags. Four poly bags are allowed per household.

Step 5. Compress the trash.

Step 6. Refuse collector steps on the side platform (step) and holds on to the handle.

Step 7. Drive to the next house.

The first task was to perform Failure Mode and Effects Analysis. The process of potential injuries analysis was evaluated. After several meetings with risk managers and accounting professionals, a worksheet with automated calculations options was developed. Risk Priority Number (RPN) was also included in the worksheet. Please see the worksheet below.

Fig. 2 FMEA and RPN worksheet

FMEA & RPN WORKSHEET

Part or Process Name	Trash Pick up	Suppliers & Plants Affected				Prepared By									
Design/ Mfg Responsibility		Model Date				FMEA Date					Go to ROI				
Other Areas Involved		Engineering Change													
Process Operation, Function or Purpose	Potential Failure Mode	Potential Effect(s) of Failure	SEV	Potential Cause(s) of Failure	OCC	Current Controls Evaluatio	DET	S x O	RPN	Recommended Action(s)	Area/Individual Responsible & Completion	Action Results Actions	SEV 2	OCC 2	DET 2	RPN 2
Trash pick up	Back injur	Back	4	Rep. motion	3	None	3	12	36	Automate	Management	Reduced Exposure	3	1	1	3
Lift bags	Back injury and elbows	Back and elbows	4	Rep. motion	2	None	3	8	24	Automate	Management	Reduced Exposure	3	1	1	3
Fall/slip probability	Fall/slip injuries	Legs/arms	4	Fall	1	None	3	4	12	Eliminate (1 operator)	Management	Eliminated Exposure	3	1	1	3

FMEA analysis shows high potential for back and shoulder injuries. Risk Priority Number was the highest for trash bags pick. In addition to the injuries, MSD's resulted in $ 49,822 workers compensation cost per year. The financial expenses were clearly communicated to the risk manager. The next task was to collect data and compare the Return on Investment (cost-benefit) analysis (Figure 3).

Fig. 3 ROI worksheet

Return on Investment (ROI)

Current State	Annual Cost Items:		Line Item Description
	16		1 Number of employees - Refuse Collector I
	Cost ($)		
1	$49,822.06	$49,822.06	2 Workers Compensation cost
16	$34,595.00	$553,520.00	3 Annual cost Refuse Collector I salary
16	$10,378.50	$166,056.00	4 Annual cost Refuse Collector I benefits (30% salary)
1	$280,685.00	$280,685.00	5 Trucks maintenance
1	$181,546.00	$181,546.00	6 Fuel
		$40,000.00	7 Accident investigation/Admin time?
		$50,000.00	8 Insurance?
			9 EMR?
			10 Turn over rate
			11 HR Cost to hire new employees
			12 Other
			13 Other
			14 Other
			15 Other
			16 Other
			17 Other
			18 Other
			19 Other
			20 Other
			21 Other
Total	$557,027.58	$1,321,630.06	

Go to NPV

Future State	Annual Cost Items:		Line Item Description
	10		1 Number of employees - Refuse Collector I
	Cost ($)		
1	$12,455.00	$12,455.00	2 Workers Compensation cost
10	$34,595.00	$345,950.00	3 Annual cost Refuse Collector I salary
10	$10,378.50	$103,785.00	4 Annual cost Refuse Collector I benefits (30% salary)
1	$0.00	$0.00	5 Trucks maintenance
1	$132,528.00	$132,528.00	6 Fuel
		$10,000.00	7 Accident investigation/Admin time?
		$35,000.00	8 Insurance?
			9 EMR?
			10 Turn over rate
			11 HR Cost to hire new employees
			12 Other
			13 Other
			14 Other
			15 Other
			16 Other
			17 Other
			18 Other
			19 Other
			20 Other
			21 Other
Total	$189,956.50	$639,718.00	
Simple annual benefit		$581,912.06	

$$ROI = \frac{P_e - P_c}{P_c}$$

Simple ROI = -0.51596 or -51.60%

The worksheet was developed specifically for this project. However, it could be used for other projects as well. The form is a comprehensive analysis of different categories and the financial impact of each category. Some of the categories are easily quantifiable. For instance, workers compensation cost was obtained from the accounting department. Annual salaries and benefits were also obtained from the accounting department. Fuel and maintenance cost was obtained from the maintenance department. Experience Modification Rating (EMR) measures worker compensation claims. Maintained exclusively by the insurance industry, EMR is the objective measurement of each employer's claims experience. The published manual rate for each state is multiplied by the employer's EMR to determine the premium rate paid by the employer. An EMR below 1.00 indicates that the employer will pay premiums below the manual rate. The company was approaching an EMR of 1.00 and it was vitally important to lower the rate to avoid increased insurance premiums. Due to confidentiality concerns, EMR impact was not disclosed and could not be included in the calculations. Cost to hire new employees was not disclosed by the client. Therefore, it was not included in the calculations.

The financial analysis shows that the project is not beneficial after the first year. Therefore, more detailed financial analysis was requested. Three and five year's NPV was calculated (Figure 4).

Fig. 4 NPV calculations

Net Present Value (NPV)

$$\sum_{t=0}^{n} A_t (1+i)^{-t}$$

*A_t represents the annual net discounted cash flow of program or intervention
i represents the designated discount rate
$(1+i)^{-t}$ is called the 'Discount Factor' - DF

A_{t0} =	-2,800,000	A_{t1} =	681,912	A_{t2} =	681,912	A_{t3} =	681,912	A_{t4} =	681,912	A_{t5} =	681,912
i =	0.04										

For t=3, NPV =	-907632
For t=5, NPV =	235751.1

If the discount factor is given instead of discount rate use the following:

A_{t0} =	-2,800,000	A_{t1} =	681,912	A_{t2} =	681,912	A_{t3} =	681,912	A_{t4} =	681,912	A_{t5} =	681,912
DF_0 =	0.4	DF_1 =	0.9259	DF_2 =	0.8573	DF_3 =	0.7938	DF_4 =	0.735	DF_5 =	0.6806

For t=3, NPV =	637287.2
For t=5, NPV =	1602602

*These calculations will differ slightly from above due to rounding of the discount factor.

The analysis clearly shows that NPV is negative after three years, but after five years we can expect some benefits. Therefore, the Pay Back period had to be calculated precisely (Figure 5).

Fig. 5 Payback period calculations

Payback Period

$$\sum_{t=0}^{p} A_{t,x} \geq 0$$

*$A_{t,x}$ represents the annual net cash flow of a program or intervention. The simple payback period does not consider the value of time; the cash flow entries are not discounted. The discounted payback period uses cash flow entries which have been discounted.

$t =$	0	1	2	3	4	5
$A_t =$	-2,800,000	681912	681912	681912	681912	681912
Comulative Net Cash Flow =	-2800000	-2118088	-1436176	-754264	-72352	609560

Payback Date =					4.106102

Next, complete financial analysis was requested by the client. Following two meetings with various levels of the company management, a worksheet was developed to calculate and capture financial benefits of the project. Typical business tools and statistics were used to develop the worksheet (Figure 6).

Fig. 6 Financial analysis

Interest Rate		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
7%	Cost							
	New Trucks	2,800,000	0	0	0	0	0	0
	Other	0	0	0	0	0	0	
	Other		0	0	0	0	0	
	Total Costs to Implement	2800000	0	0	0	0		

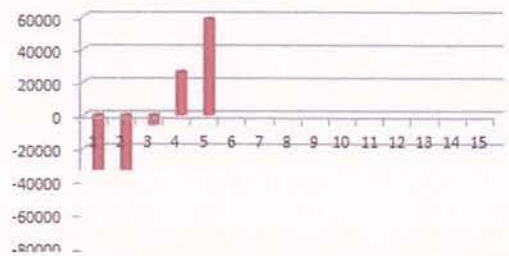
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Benefits							
Benefits		681,912	681,912	681,912	681,912	681,912	681,912
Total Benefits	0	681912	681912	681912	681912	681912	681912

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Net Savings	$ (2,800,000)	$ 681,912	$ 681,912	$ 681,912	$ 681,912	$ 681,912	$ 681,912
Cumulative Net Gain	$ (2,800,000)	$ (2,118,088)	$ (1,436,176)	$ (754,264)	$ (72,352)	$ 609,560	$ 1,291,472

PV(costs) =	$2,629,108
PV(savings)=	$3,099,667
NPV=	$470,559

Payback=		4.106101667
ROI (net) =	18%	

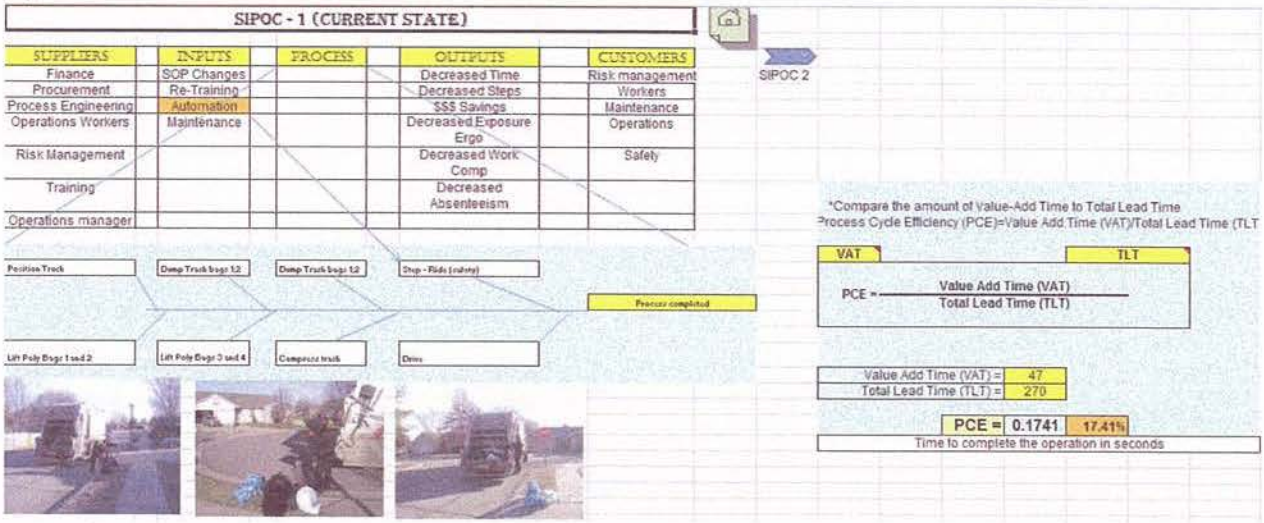
IRR =	12%



An interest rate of 7% was requested by the client. This is not a realistic interest rate at the moment. However, conservative estimates were required for this project. The worksheet and the built in formulas allow for interest rate adjustments. The worksheet also includes IRR calculations. The IRR is a rate of return used in capital budgeting to measure and compare the profitability of investments. The IRR calculated to 12%. For some companies IRR below 12% is not acceptable.

The payback period of 4.1 years was still not acceptable for the business managers. In order to capture other benefits and convince the management, a new LEAN Six Sigma tool had to be developed and the authors had to observe and measure productivity efficiency. Current state Project Cycle Efficiency (PCE) was evaluated and compared to future state PCE. A combination of Six Sigma "Suppliers, inputs, process, outputs, customers" (SIPOC) and LEAN Value Stream Mapping tools were utilized to present the benefits of the project (Figure 7).

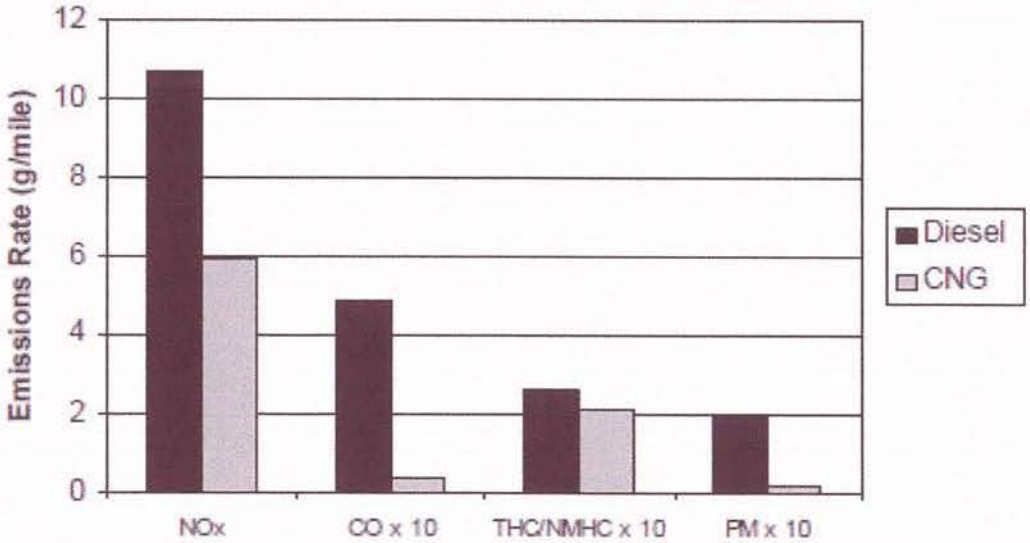
Fig. 7 Current state SIPOC and PCE



A typical Fish bone diagram was used to present VSM. It is easy to understand and a relatively simple tool to use.

However, it was noticed that the project may have non-financial benefits as well. A concern existed for emissions from the garbage trucks. Therefore, two students measured the emissions from the diesel trucks. Another company that already implemented automated Compressed Natural Gas (CNG) trucks was kind enough to let us sample the CNG emissions. Diesel emissions were higher in all categories for the older type truck, that we were able to measure. Figure 8 provides the airborne data and comparisons for both types of trucks.

Figure 8. Air pollution – Sustainability

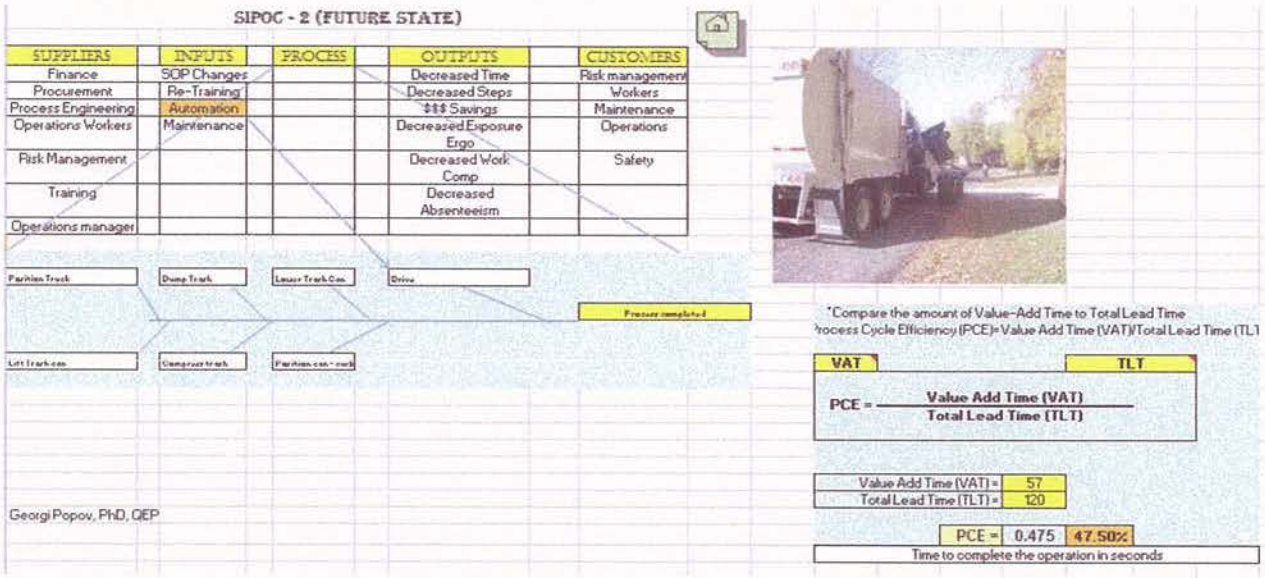


Results

Process improvements were evaluated utilizing Lean Six Sigma tools and modified risk assessment methodologies. The same SIPOC and PCE worksheet was used to evaluate future state improvements and process efficiency.

Future state SIPOC and PCE worksheets are presented in Figure 9.

Fig. 9 Future state SIPOC



SIPOC - 2 (FUTURE STATE)

SUPPLIERS	INPUTS	PROCESS	OUTPUTS	CUSTOMERS
Finance	SOP Changes		Decreased Time	Risk management
Procurement	Re-Training		Decreased Steps	Workers
Process Engineering	Automation		$$$ Savings	Maintenance
Operations Workers	Maintenance		Decreased Exposure Ergo	Operations
Risk Management			Decreased Work Comp	Safety
Training			Decreased Absenteeism	
Operations manager				

Parkion Truck | Dump Truck | Lesser Truck Con | Drive

Process completed

Lift Truck con | Compactor truck | Parkion con - curb

*Compare the amount of Value-Add Time to Total Lead Time
Process Cycle Efficiency (PCE)= Value Add Time (VAT)/Total Lead Time (TL)

VAT | TLT

PCE = Value Add Time (VAT) / Total Lead Time (TLT)

Value Add Time (VAT) =	57
Total Lead Time (TLT) =	120

PCE = 0.475 47.50%

Time to complete the operation in seconds

Georgi Popov, PhD, QEP

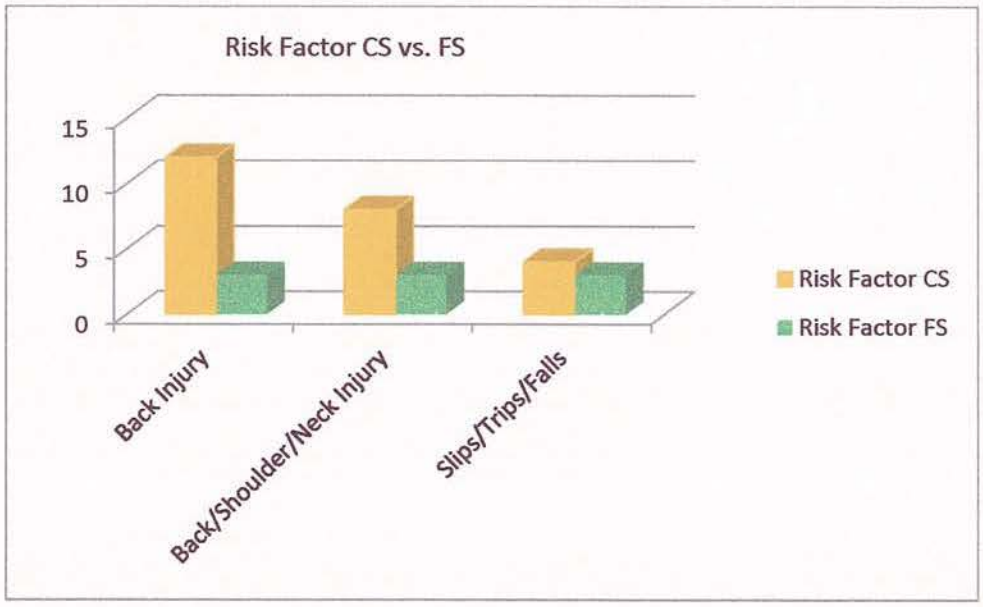
Utilization of PtD, FMEA and Risk Assessment processes and the implementation of a new model are estimated to significantly reduce the ergonomics injuries and reduce the probability of fall hazards. PCE was improved from 17.41% to 47.50% due to the implementation of Lean practices. Possible EHS involvement in the process was evaluated. Based on the comparison calculations, PCE increased from 17.41% to 47.5%.

Additionally, Residual Risk Reduction (R3™) was calculated. EHS improvements resulted in 62.50% risk reduction. (R3™ evaluation tool). Figure 10 presents current state vs. future state risk factor comparison.

Figure 10 Current state vs. future state risk factor comparison.

Residual Risk Reduction (R3™)		
Hazards	Risk Factor CS	Risk Factor FS
Back Injury	12	3
Back/Shoulder/Neck Injury	8	3
Slips/Trips/Falls	4	3
Total	24	9
% Reduction	0.375	37.50%
R3	0.625	62.50%
R3=(RF CS-RF FS)/RF CS*100 %		62.5

Figure 11 visualizes risk factor reduction and comparison of current state risk assessment vs. estimated future state risk factors.



Color codes could be used to present estimated risk reduction. The authors opted to use a PtD (5x5) composite of the matrix that include numerical values for probability and severity levels and their combinations are expressed as numerical risk scorings (ANSI/ASSE, 2011). As suggested in the standard, numerical values of 15 or higher suggests very high risk, therefore the color code is red. Numerical values of 10 to 14 suggest high risk and are highlighted in orange. Moderate risk is from 6 – 9 and highlighted in yellow and low risk is under 1 to 5 and it is highlighted in green. The suggested EHS project is estimated to reduce all high and moderate

risk ratings to low risk. Therefore, the chart visualizes significant risk reduction in all evaluated categories.

Conclusions

EHS professionals could play a significant role in the development of new business plans and implementation of Lean Six Sigma practices designed to minimize injuries, improve productivity and reduce waste time. PCE for this process was improved significantly and was made safer due to input from the EHS professional and involvement of a team of students. The project led to a decision by management to buy new safer refuse trucks, which presents opportunities to reduce injuries, reduce emissions and improve productivity.

It was concluded that Risk Management, LEAN Six Sigma tools and financial analysis could be used successfully to develop and present business case for Environmental, Health, and Safety interventions.

Lessons learned

EHS professionals have to develop management skills and diversify their knowledge to overcome difficulties during such projects. After the initial analysis, it became clear that significant investment projects can't not be easily justified based on risk assessment alone. Future leaders in the safety profession will have to develop statistical skills and demonstrate knowledge in financial management. In order to defend such projects, EHS professionals have to be familiar with variety of risk management techniques, LEAN Six Sigma tools and financial management principles. Being an expert in ergonomics is not enough to complete successful complex projects. Complex projects require multi-disciplinary knowledge and cross-disciplines management skills. Safety leaders have to become familiar with different organizational structures and the variety of stakeholders interests to complete such projects. EHS professionals have to be prepared to deal with various levels of the organizational management and demonstrate competencies.

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AUTOMATED WASTE COLLECTION – HOW TO MAKE SURE IT MAKES SENSE FOR YOUR COMMUNITY

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ABSTRACT

The decision to implement solid waste collection automation is a complex one and involves a number of factors that should be considered, including engineering, risk management, technology assessment, costs, and public acceptance. This paper analyzes these key issues and provides a case study of how waste collection automation was considered by the City of Lakeland, Florida.

HOW DID AUTOMATED COLLECTION GET STARTED?

The evolution of solid waste collection vehicles has been historically driven by an overwhelming desire by solid waste professionals to collect more waste for less money, as well as lessening the physical demands on sanitation workers. Evolving from horse drawn carriages and human powered carts to motor operated vehicles, collection equipment has been modernized, but it was not until the 1960s in the United States, however, that solid waste collection took a monumental leap in technology to improve overall efficiency.

During this era, public works departments in communities in mostly western states, which were experiencing rapid customer growth in suburbia in the post-World War II period, were exploring the concept of improving their labor productivity with their oftentimes limited resources. It is important to point out that these cities and agencies were less constrained by formal labor agreements, which were more typical of their larger sister, communities in the east and Midwest. Consequently, they began to explore ways of moving in the direction of improved vehicle automation as a substitute for labor to lift, tip, and empty garbage containers that were placed curbside.

Automated side-load trucks were first implemented in the City of Phoenix in the 1970s with the aim of ending the back-breaking nature of residential solid waste collection, and to minimize worker injuries. Since then thousands of public agencies and private haulers have moved from the once traditional read-load method of waste collection to one that also provides the customer with a variety of choices in standardized, rollout carts. These automated programs have enabled communities throughout the country to significantly reduce worker compensation claims and minimize insurance expenses, while at the same time offer opportunities to workers who are not selected for their work assignment based solely on physical skills.

MODERN APPLICATION OF AUTOMATION

In an automated collection system, residents are provided a standardized container into which they place their waste. Residents must place their cart at the curb on collection day. During collection, the driver positions the collection vehicle beside the cart. Using controls inside the cab of the vehicle, the driver maneuvers a side-mounted arm to pick up the container and dump its contents into the vehicle. The driver then uses the arm to return the container to its original location. Automated collection allows for the driver to service the entire route; the need for additional manual labor is eliminated. The savings in personnel and worker's compensation costs, as well as the increase in crew productivity for automated collection, are well documented throughout the solid waste industry.

Currently, the Waste Equipment Technology Association (WASTEC) estimates that there are roughly about 120,000 solid waste vehicles on the road in the United States and about 15% of all new waste collection vehicles purchased in 2003 (the most recent statistics available) were automated. This trend is rapidly increasing as many agencies and private haulers shift to

automation in an attempt to minimize increasing insurance costs and more effectively control their cost of labor, while at the same time provide increased customer service levels and opportunities for an aging work force.

ADVANTAGES AND DISADVANTAGES OF AUTOMATION

Some of the general advantages of automated collection often touted by its proponents include the following:

For Residents

- Convenient and easy method for residents to dispose of trash.
- Wheeled containers are easier, more maneuverable, and safer for residents because there is no carrying or lifting of heavy trash cans.
- The capacity of most cans provided in these programs is equal to three or four regular trash cans.
- The containers keep rodents and pets out of trash given the tight lids.
- Helps to eliminate "over service," as carts have a finite capacity as compared to manual bag programs.
- Containers are provided by and maintained by the community or hauler.
- Cleaner, healthier neighborhoods with no litter on streets after pickup.

For the Municipality

- Improved collection efficiency and reduced costs
- Reduced employee injuries.
- Lower turnover rate and increased productivity due to less time missed by injured employees.
- Reduced Worker's Compensation claims and insurance premiums.
- Reduced rodent problems.
- Cleaner, healthier neighborhoods with no litter on streets after pickup.
- Volume based containerized system helps limit overages.

IMPROVING SAFETY AND REDUCING WORK INJURIES

Solid waste collection workers are highly exposed to health and environmental safety risks due to exposure to heavy workloads, volatile compounds, potentially hazardous or even infectious materials. Typical rear-load operations require manually lifting materials into the collection vehicles. Statistics from such programs suggest that collection crews lift on average, over six tons (13,000 lbs.) per worker per day. In general, this heavy, repetitive, manual lifting combined with an aging workforce tends to generate an increasing number of injured staff.

A fully automated collection program enhances worker safety and comfort, minimizes manual lifting and exposure to possible hazards in the waste such as sharp objects. Fully automated collection eliminates heavy lifting, walking between setouts and frequent steps on and off the truck. The mechanical arms on modern, fully automated trucks are typically operated by the driver using a joystick control. Rather than slogging through rain and high temperature environments, operators of automated refuse collection systems spend their shifts in climate controlled comfort. The reduced physical requirement increases the diversity and longevity of the workforce that is able to collect waste. Automated collection has proven to significantly reduce collection worker injuries resulting in reduced workers compensation costs, decreasing disability claims, decreasing the number and cost of light duty assignments, and reducing salary fringe benefit costs in the future.

Automated collection programs are designed for right-side only collection routing. Similar to mail carrier routes, vehicles are forced to collect along the curb line making right hand only turns during its collection route. This right-hand only routing scheme enhances safety, reduces the number of unprotected left hand intersection turns, and eliminates the unsafe practices of zigzagging and double-sided collection commonly seen in rear end load collection systems.

ENABLING VARIABLE RATE STRUCTURES

Under the traditional manual collection system, customers in most communities are typically allocated a basic service level of two cans for garbage collected twice weekly. Those homeowners that are ardent recyclers and who reduce waste and regularly set out less than two full cans of garbage oftentimes do not see any savings as they pay the same as those residents that use two full cans.

Most communities have found that implementation of automated collection provides an opportunity to supply their customers with varied container sizes and thereby moving closer to a true utility-like user pay for garbage disposal system (pay-as-you-throw or "PAYT") where residents pay only for the service they need. Tailoring the size of the cart to the amount of garbage produced

and charging a higher cost for larger garbage cart sizes encourages residents to recycle and reduce the amount of waste disposed.

ENVIRONMENTAL AND AESTHETIC BENEFITS

The use of standardized containers for automated collection has proven to result in a number of clear environmental benefits. The rolling carts are more resistant to animals, thus reducing unsightly blowing litter and strewn garbage, and replaces unsightly set-outs with a single uniform container over an entire community. The carts are designed with closed lids which help to reduce odors and keep water out, reducing leakage from trucks and water weight at landfills. Automated yard trash collection programs also eliminate the need for residents to use plastic bags which end up in the landfill and reduce the quality and usability of mulch products while providing residents with a convenient wheeled cart to collect debris while landscaping.

Enhanced Level of Service

Automated solid waste collection is considered a higher level of service (versus manual collection) for residents. For most residents, wheeled carts are easier to move and set out than cans and bags that must be lifted. The wheeled containers are extremely durable, often lasting ten years or more, and are convenient to use as residents no longer need to buy replacement garbage cans or plastic yard trimmings bags. In most cases, carts are owned and maintained by the jurisdiction or servicing hauler.

DISADVANTAGES OF AUTOMATED COLLECTION PROGRAMS

The primary disadvantage of automated collection is the initial costs of purchasing specialized vehicles and providing carts to homeowners. On average, the capital cost of an automated side-load vehicle is 20 percent more than that of a manual rear load vehicle. Additionally, the useful life of an automated vehicle is often less than a rear load vehicle. Cart costs generally average between $35 and $50 each depending on container size. Additional general disadvantages include the following:

- Automated vehicles require more maintenance than traditional rear end load vehicles and require specialized training of technicians.
- Homeowners must be educated on where to place bins and what kinds of trash can be collected. Bulky items that do not fit in the cart usually require a separate collection. Overloaded containers, or waste left on the ground can impact the productivity of collection. Ordinances prohibiting waste left on the ground should be developed, while additional containers or additional bag fees can help cover or discourage the practice.
- Some cities have chosen to automate yard waste collection as part of a transition to automation; however the size and volume of yard waste makes it less conducive to cart programs, and typically requires separate collection with different vehicle types (claw-type trucks or rear end load units). In order to effectively automate yard waste collection, yard waste size limits must be enforced, and alternate methods developed to collect larger, bulk debris items. Some jurisdictions have instituted a volume-based fee for yard waste that exceeds a predefined limit, making the system conducive to automation.
- Automated collection does not work in densely populated areas with on-street parking on collection days. However, on-street parking does not prevent a cart based approach to collection. A hybrid system can be employed in these cases where carts are collected in a semi-automated fashion and many cart system benefits can still be enjoyed.

CASE STUDY TO ANALYZE IMPLEMENTATION FEASIBILITY

Last year, the City of Lakeland, Florida studied the feasibility of converting to an automated collection program for single-family, residential customers. Residential garbage collection for some 43,000 accounts is currently performed twice weekly with two separate routes structures (Monday/Thursday and Tuesday/Friday). Utilizing rear-end load compaction vehicles, 15 trucks are deployed on the Monday/Thursday routes, and 14 trucks are deployed on the Tuesday/Friday routes. Three-man crews are utilized on each of these routes including one driver and two loader collectors. Data indicated that setouts on the lead or first day of collection average about 80 percent, while the average setout rates on the trail or second day of collection is 58 percent.

INSURANCE CLAIMS

With manual collection, worker's compensation claims had escalated over the past five years (Table 1) with the most significant claims dealing with knee/ankle/wrist and back injuries.

TABLE 1
WORKER'S COMPENSATION CLAIMS FOR SOLID WASTE OPERATIONS 2005- 2009

Type of Injury	Number of Claims	Total Compensation ($)
Back/Neck	388	139,124
Eyes	60	4,474
Fall or Thrown from Vehicle	90	21,695
Groin	33	27,136
Hopper	8	614
Insect Bite	51	5,042
Knee/Ankle/Leg	1,316	828,673
Laceration or Stab	67	8,825
Miscellaneous	126	22,756
Shoulder	323	120,951
Toes/Foot	29	2,523
Wrist/Elbow/Arm	148	23,544
Total	**2,639**	**1,205,356**

CITY OF LAKELAND, FLORIDA

A Pro-Forma Model was constructed to help estimate the projected costs to the City to implement an automated, solid waste collection program. The Model estimated the financial impact of implementing an automated collection program that included once weekly collection of 95-gallon containers and once weekly collection of yard waste using the existing rear-end load system. The model did not include costs associated with the collection of curbside recyclables, as revenues are separate from garbage and yard waste collection.

Model Assumptions

The following assumptions were utilized to construct the Lakeland Model. Although the reader's mileage may vary, each of these items is important to consider when considering a conversion to automation:

- 43,000 residential customers.
- 90 homes per hour rate of production. Although higher production rates can be achieved with automation (up to 120 homes per hour), the City should not expect to reach higher levels until system is fully implemented, staff is fully trained, and education and outreach programs have demonstrated effective results.
- Four-day work week (garbage).
- Four-day work week (yard waste).
- Yard waste production estimates based on the City's current actual experience.
- Labor cost assumptions based on the median of salary ranges as provided by City, escalated 3% for 2010 CPI.
- Benefit costs calculated at 35% of total salaries.
- Fuel usage was based on per unit FY 2009 budget estimates. Fuel costs based on Energy Information Administration (EIA) average for low sulfur diesel for previous 2 years.
- Three-person yard waste routes (1-driver, 2-crew).
- Model does not consider revenues from sale of surplus equipment (can be factored into new purchases – City estimates a 40 percent residual value).
- Vehicle spare (backup) ratios calculated at 15%.
- Manpower backup ratio calculated based on City provided time off (vacation & sick time) benefits.
- Automated containers are depreciated for 10 years (coinciding with factory backed warranty of 10 years).
- Spare ratios for carts calculated at 5 % for spares and replacements.
- Self-insurance cost reduction estimated at 30% of current City experience. Rear load collection

exposure is projected to remain at 20% to account for continued manual yard waste collection.

Projected Results

The team was asked to conduct a financial analysis of the residential solid waste and yard waste system. To conduct this analysis, administrative costs (approximately $3.2 million), those that are considered part of the entire department, needed to be allocated to the residential services portion of the system in order to recognize a true cost of operations. The residential administrative allocations ($1,582,231) include the current costs experienced by the City and were allocated by a variety of methods including number of trucks, staffing, and percent of revenue, depending on the cost category. A minimum of 30 percent savings in the self-insurance fund was estimated to occur in the first year of automation. Similar systems have recognized greater than 50 percent in some cases. Figure 1 illustrates that with the assumptions in place, the City can reduce overall operating expenses by converting to automated collection. The monthly per household cost can potentially be reduced by $1,220,862, an estimated $2.06 per month from the current FY 2009 cost of $15.82. However, it is up to the City's elected officials to determine if the savings should be used to stabilize utility rates in future years, or if the savings can be immediately passed through to residents. The project also illustrated that the current cost to operate is currently higher than monthly residential fees charged ($15.75), and that the residential system is being subsidized by the City's commercial collection system.

FIGURE 1
ESTIMATED FINANCIAL RESULTS
CITY OF LAKELAND, FLORIDA

Factors	Current Program	Automated Program
Staffing	64	35
Vehicles	26	24 - 22
Collection Frequency	2 X Week	1 X Week
Cost ($/Month/Home)	$15.82[1]	$14.32 - $13.45[2]
Potential System Savings		$774,326 - $1,220,862

*Cost to operate is currently higher than monthly residential fee ($15.75). Residential rates are currently subsidized by commercial collection system.
**Projected rates (first year to full implementation)

Following meetings with City staff, the first model was further adjusted to account for no reduction in administrative costs using a current residential system allocation amount provided by the Division of $1,749,784. Applying this allocation method, the City can conservatively reduce the monthly per household cost by an estimated $1.73 per month. The majority of these savings can be seen in the personnel expense category, as the FTE headcount is reduced by approximately 20. This change to automated collection is projected to result in a cumulative first year savings for the Division as a whole of $774,326 in 2009 dollars. These total savings will not be fully recognized until the entire system has been converted to full automation.

Implementation Issues

Phase In Approach:

Implementing an automated collection program should preferably be in a series of steps. Implementation should be done in a phased in approach; adding subdivisions and areas of the City to the program over time. In most cases, implementation begins with a pilot program where a small consolidated sector of the city is converted to the new system. This sector size is based roughly on the collection capacity of one vehicle (900 – 1200 households), and is typically an active community with a high level of residents involved in the local community. Homeowner association meetings, mailings, and promotional activities are conducted three to six months in advance in order to brief the residents on the program, and feedback is solicited from the residents during the process in order to help anticipate future questions. Once the pilot community is active with the new system for at least three months, planning can begin on a full scale phased in implementation. The benefits to a phased in approach include:

- Acclimating residents to the program organically and not concurrently - Except for the first city area to be converted, other residents will be exposed to ongoing education and outreach programs about the new system and will have an understanding of the program when their neighborhood is ready for conversion. Also, a phased-in approach will allow the City to adjust program education based on initial feedback from the pilot program residents.

- Provides an opportunity for better capital management - A phased in approach to citywide conversion allows for the phased in purchase of new collection vehicles, rather than purchasing all at the same time. As vehicles age, the cost to repair increases, and at some future point, all vehicles again have to be replaced. In a phased approach, new vehicles can be purchased a few at a time each year, maintaining an average age of fleet of three to

four years, while at the same time maintaining a predictable level of variable maintenance expenses.

- Today there is a choice in automated collection vehicles and a phased-in approach allows the City the opportunity to test and experiment with different units on a smaller scale, rather than an initial commitment to one style, make, or model. The industry is working to develop options to address the higher operating costs of automation while still maintaining the gains in efficiencies. These new technologies should be examined through pilot scenarios to maximize the cost savings benefit on automation.

- A significant portion of program capital and the system's most noticeable feature are the containers. Carts can be purchased or leased from container manufacturers who can also provide the maintenance services required. Each supplier offers a different level of specifications that should be considered, including subsequent repair and maintenance.

  Although most cart suppliers offer a ten year warranty on manufacturer defects, all cart systems require a level of service to deliver, remove, and regularly repair carts that become damaged during day to day operations. In many cases, containers can be procured with and without a service maintenance program. If the cart company is not conducting the service, City staff will be required to maintain the cart system, and once fully implemented will require full time staffing. When procuring containers, the city should consider requests for pricing that include both cart purchases and a separate price for cart maintenance services in order to properly evaluate the cost associated with this service. Additionally, today's economic climate has resulted in very low interest rates that the City could leverage when making new equipment and container purchases.

- Conversions should begin in newly planned subdivisions. Newly planned subdivisions are designed with adequate turning radii and street width, and sufficient amounts of off street parking, which are conducive to automated collection systems. Conversions in these newer neighborhoods can occur quickly such that:

  - Adding contiguous subdivisions (of acceptable route size) to the first area maintains route density, enhances production, and assists with planning new equipment purchases.

  - Equipment is purchased in stages as new areas are developed.

  - Education programs are introduced 3 to 6 months in advance of equipment delivery, and can be accelerated as a greater percentage of the City is converted.

  - Older neighborhoods are added to the program last.

Manpower:

As staffing and personnel costs represent the largest portion of savings in an automated conversion, there are a number of issues that should be addressed by the City during the planning phase. In Lakeland's case, an automated conversion implementation plan was estimated to reduce the Division staffing levels for residential waste collection from 58 to 32 positions, 23 of which are solid waste collectors.

In our experiences with similar municipal programs, automation provides significant opportunities for current solid waste employees to cross-train and advance in the Division. Further, automation preserves the City's aging workforce by reducing physical labor requirements for waste collection.

Nonetheless, these new collection vehicles will have enhanced technology requiring specialized training for technicians in the Fleet Management Division. Although this can present a challenge, it also can provide opportunities for current Fleet Division employees to cross-train and advance in the division with advanced technical certifications.

Deploying the new automated program in a phased-in approach will allow the City to plan for staff reductions through attrition: In this way, retiring employees, or those lost through normal attrition, are replaced with temporary staffing until which time the conversion to automation reduces staffing permanently. Although this sounds daunting, normal turnover in solid waste hauling operations can range between 10 and 20 percent annually.

8.

Bureau of Labor Statistics show janitors (those most likely to be tasked with carrying trash bags) are at the highest risk of injury and days away from work.

NEWS RELEASE
BUREAU OF LABOR STATISTICS
U. S. DEPARTMENT OF LABOR

For release 10:00 a.m. (EST) Thursday, November 10, 2016 USDL-16-2130!

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NONFATAL OCCUPATIONAL INJURIES AND ILLNESSES REQUIRING DAYS AWAY FROM WORK, 2015

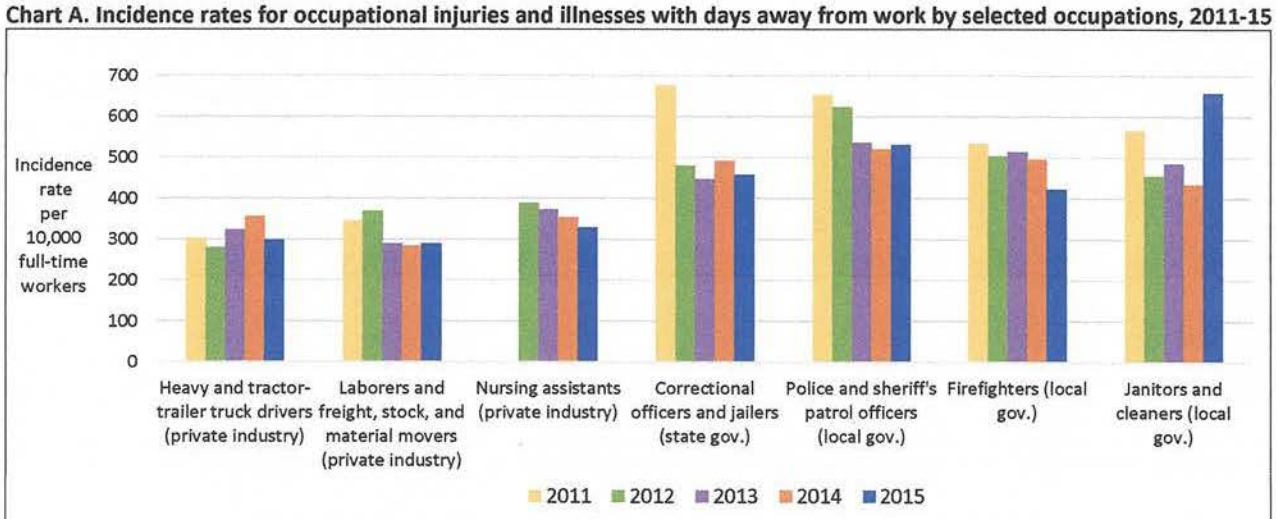
The overall incidence rate of nonfatal occupational injury and illness cases requiring days away from work to recuperate was 104.0 cases per 10,000 full-time workers in 2015, down from 107.1 cases in 2014, the U.S. Bureau of Labor Statistics reported today. In 2015, there were 1,153,490 days-away-from-work cases in private industry, state government, and local government—essentially unchanged from the number of cases reported in 2014. The median days away from work to recuperate—a key measure of severity of injuries and illnesses—was 8 days in 2015, 1 day fewer than reported in 2014. (See table 1.)

Private sector occupations

In the private sector, the incidence rate per 10,000 full-time workers was 93.9 cases in 2015, down from 97.8 cases in 2014. (See table 1.)

- ! Occupations that had among the highest number of cases in 2015 resulting in days away from work included heavy and tractor-trailer truck drivers; laborers and freight, stock, and material movers; and nursing assistants. (See table 3.)
- ! The incidence rates decreased for heavy and tractor-trailer truck drivers (298.7 cases per 10,000 full-time workers in 2015, down from 355.4) and nursing assistants (327.8 in 2015, down from 353.6).
- ! Private sector laborers and freight, stock, and material movers had 56,550 days-away-from-work cases in 2015, an increase from 2014 levels. However, the incidence rate of 289.4 cases was not significantly different from the rate reported in 2014 (284.5 cases). (See table 3 and chart A).

Chart A. Incidence rates for occupational injuries and illnesses with days away from work by selected occupations, 2011-15



Note: These occupations had at least 0.1 percent of employment and among the highest case counts in their respective ownership classes.
Source: U.S. Bureau of Labor Statistics

State and local government occupations

The incidence rates for nonfatal occupational injuries and illnesses with days away from work for state (149.2 cases per 10,000 full-time workers) and local government (177.5) were essentially unchanged in 2015. (See table 1.)

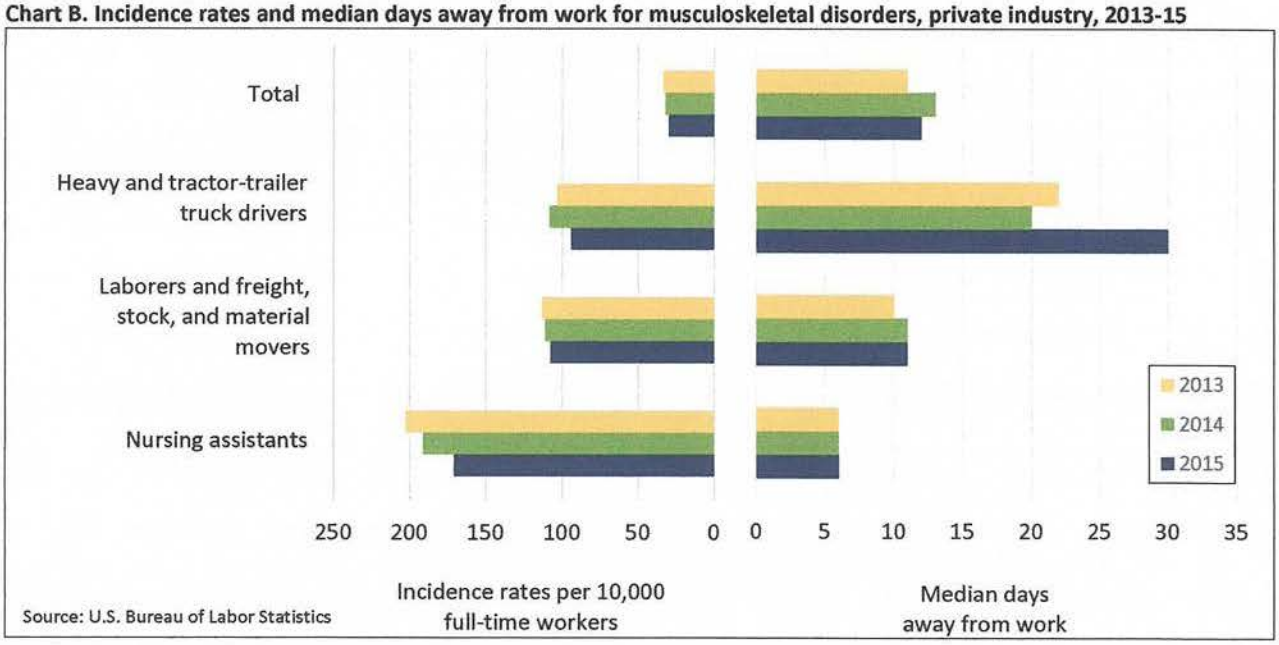
- In state or local government, there were five occupations with at least 10,000 cases: police and sheriff's patrol officers; firefighters; janitors and cleaners; and teacher assistants in local government and correctional officers and jailers in state government. (See table 3.)
- The incidence rate of injuries and illnesses to janitors and cleaners in local government increased to 657.4 cases per 10,000 full-time workers in 2015 from 434.0 cases in 2014. (See chart A.)
- The incidence rate of injuries and illnesses to firefighters in local government decreased to 422.2 cases per 10,000 full-time workers in 2015 from a rate of 495.2 in 2014. (See chart A.)

Musculoskeletal disorders

In 2015, musculoskeletal disorders (MSDs), such as sprains or strains resulting from overexertion in lifting, accounted for 31 percent (356,910 cases) of the total cases for all workers. Of the total MSD cases, 80 percent occurred to private industry workers. This resulted in an incidence rate of 29.8 cases per 10,000 full-time workers in 2015, down from 31.9 cases in 2014. Private industry workers who sustained an MSD required a median of 12 days (down from 13 days in 2014) to recuperate before returning to work in 2015, compared to 8 days for all days-away-from-work cases. (See chart B and table 9.)

- Laborers and freight, stock, and material movers (20,990), nursing assistants (16,860), and heavy and tractor-trailer truck drivers (14,900) each incurred at least 5 percent of the total private sector MSD cases in 2015.
- The MSD incidence rate for nursing assistants was 171.0 cases per 10,000 full-time workers in 2015, down from 191.1 in 2014.
- For heavy and tractor-trailer truck drivers, both the MSD rate (94.0) and number (14,900) of MSD cases in 2015 decreased from 2014 figures. However, the median days away from work increased to 30 days, up from 20 days in 2014. (See table 9 and chart B.)

Chart B. Incidence rates and median days away from work for musculoskeletal disorders, private industry, 2013-15

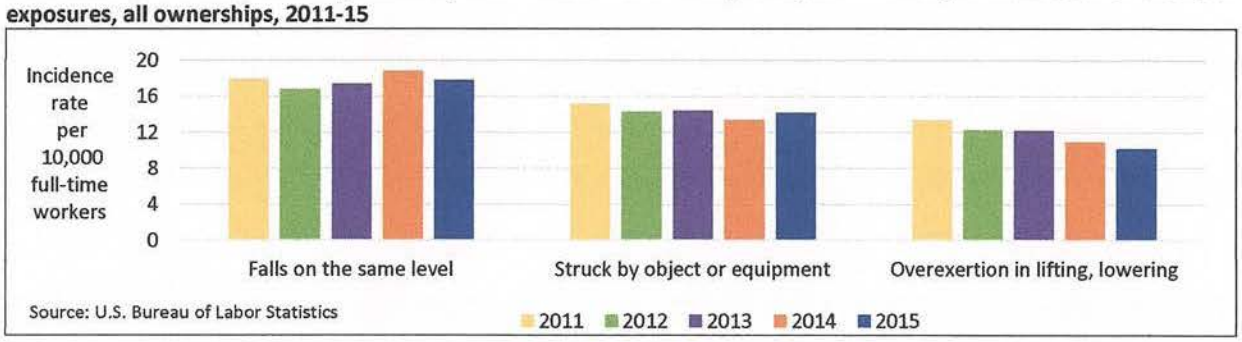


Event or exposure leading to injury or illness

The leading major event or exposure resulting in occupational injuries or illnesses for all ownerships in 2015 was overexertion and bodily reaction with 376,190 cases accounting for 33 percent of total cases. The 2015 incidence rate for overexertion or bodily reaction was 33.9 cases per 10,000 full-time workers, down from 35.6 in 2014. (See table 4.)

Falls, slips, and trips accounted for 27 percent (309,060 cases) of the total occupational injuries and illnesses in 2015 and decreased from 2014 levels. The incidence rate for falls, slips, and trips was 27.9 cases per 10,000 full-time workers and was a decrease from the rate reported in 2014 (29.3).

Chart C. Incidence rates for occupational injuries and illnesses with days away from work by selected detailed events or exposures, all ownerships, 2011-15



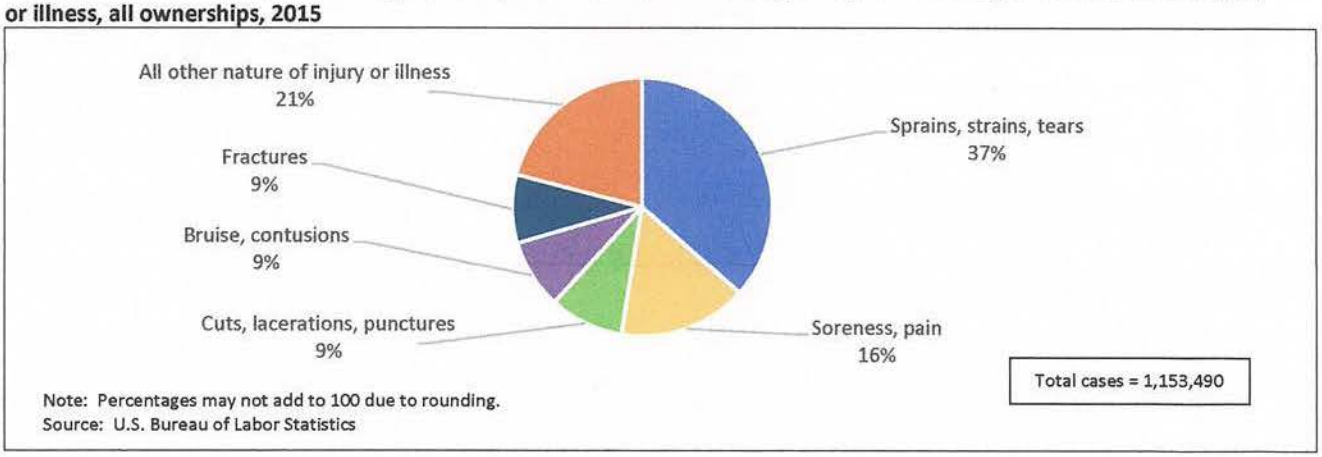
Source: U.S. Bureau of Labor Statistics

- The leading detailed types of event or exposure in 2015 included falls on the same level (197,260 cases), struck by object or equipment (157,490 cases), and overexertion in lifting or lowering (113,260 cases). (See table 4.)
- The incidence rate of workers being struck by an object or equipment increased to 14.2 cases per 10,000 full-time workers in 2015 from 13.4 cases in 2014. (See chart C.) The number of struck by object or equipment cases for laborers and freight, stock, and material movers increased to 12,240 cases in 2015 and contributed to the overall increase.

Nature of injury or illness

The leading nature (type) of injury or illness in 2015 for all ownerships was sprains, strains, or tears with 421,610 days-away-from-work cases accounting for 37 percent of total cases. The 2015 rate was 38.0 cases per 10,000 full-time workers, down from a rate of 38.9 in 2014. Workers who sustained sprains, strains, or tears required a median of 10 days away from work compared to 8 days for all types of injuries or illnesses. (See table 4 and chart D.)

Chart D. Percent distribution for occupational injuries and illnesses with days away from work by selected nature of injury or illness, all ownerships, 2015



Note: Percentages may not add to 100 due to rounding.
Source: U.S. Bureau of Labor Statistics

- The rate of injuries and illnesses resulting from cuts, lacerations, or punctures was 9.6 cases per 10,000 full-time workers in 2015, up from 8.8 cases in 2014. (See table 7.) Laborers and freight, stock, and material movers; maintenance and repair workers, general; and janitors and cleaners were among the occupations that had increases in the number of cuts, lacerations, or punctures cases in 2015.
- Fractures (31 days), carpal tunnel syndrome (28 days), and amputations (22 days) required 14 or more additional median days away from work to recuperate than all types (8 days) of injuries or illnesses in 2015. (See table 4.) However, less than 1 percent of total cases resulted in carpal tunnel syndrome or amputation. Occupational injuries and illnesses with days away from work resulted in a fractured bone in 9 percent of total cases. (See chart D.)

Industry

Three private industry sectors had more than 100,000 days-away-from-work incidents in 2015: health care and social assistance (158,410), retail trade (123,770), and manufacturing (122,610). These 3 industries also had rates greater than the total rate of 93.9 cases per 10,000 full-time workers. (See tables 1 and 2.)

Health care and social assistance

- The incidence rate was 113.6 cases in 2015, down from 121.3 cases in 2014. (See table 1.)
- The rate of fractures was 7.4 cases in 2015, up from 6.9 cases in 2014. (See table 2.)
- The median days away from work was 6 days in 2015, the same as reported in 2014.

Retail trade

- The incidence rate was 105.3 cases per 10,000 full-time workers in 2015, which was not statistically different from the rate of 104.5 reported in 2014. (See table 1.)
- Cuts and lacerations accounted for 11 percent (13,490) of the total cases in retail trade in 2015.
- The rate of cuts and lacerations was 11.5 cases in 2015, up from 10.6 cases in 2014. (See table 2.)

Manufacturing

- The incidence rate in manufacturing was 99.0 cases per 10,000 full-time workers in 2015, down from 103.1 in 2014. (See table 1.)
- The rate of amputations in manufacturing increased to 2.1 cases in 2015 from 1.7 cases in 2014. (See table 2.)
- The median days away from work in manufacturing decreased to 9 days in 2015 from 10 days in 2014.

Demographics

Gender

- The incidence rate for men in private sector, state government, and local government (all ownerships) was 113.5 cases per 10,000 full-time workers in 2015, down from 116.5 cases reported for 2014. (See table 5.)
- Injuries and illnesses to men accounted for 61 percent (702,400) of all cases and required a median of 10 days away from work, 3 days more than the median for women.
- The leading nature of injury or illness for both men and women was sprains, strains, or tears in 2015. The rate for men was 41.1 cases per 10,000 full-time workers and 34.1 cases for women.

Age

- Workers in the age group 45-54 for all ownerships had the highest number (280,100) of days-away-from work cases in 2015. This resulted in a rate of 112.8 cases per 10,000 full-time workers, down from 117.2 in 2014. (See table 5.)

- Workers in age group 55-64 had among the highest incidence rate in 2015 with 115.8 cases per 10,000 full-time workers. This was not significantly different from the rate of 116.3 reported in 2014.

Race or ethnicity

- There were 434,250 days-away-from-work cases reported among white workers in 2015, which accounted for 38 percent of all cases for all ownerships. (See table 5.)
- Hispanic or Latino workers had 142,170 occupational injuries or illnesses in 2015, accounting for 12 percent of the total cases.
- Black or African-American workers had 91,190 cases in 2015, accounting for 8 percent of total days-away-from-work cases.
- Race or ethnicity were unreported in 40 percent of all cases.

Notes

This release is the second in a series of releases from the BLS covering occupational safety and health statistics for 2015. The first release, in October 2016, covered the Survey of Occupational Injuries and Illnesses-Annual Summary (SOII-AS) and reported counts and rates of injuries and illnesses by detailed industry and case type for 2015. A third release is scheduled in December 2016 for the 2015 Census of Fatal Occupational Injuries.

Data in this release are a subset of the SOII-AS data and include additional detail about the case circumstances and worker characteristics for occupational injury and illness cases that required at least 1 day away from work to recuperate. While the data come from the same survey, they are reported at different levels of precision. For example, in this release, injury and illness incidence rates for days-away-from-work cases are reported as 104 cases per 10,000 full-time workers. However, the same incidence rate in the SOII annual summary news release is reported as 1.0 cases per 100 full-time workers. Data users are cautioned to take into account the different levels of precision when analyzing the data. Additional background and methodological information regarding the BLS occupational safety and health statistics program can be found in Chapter 9 of the BLS Handbook of Methods at www.bls.gov/opub/hom/pdf/homch9.pdf.

In 2014, the SOII began using the 2012 North American Industry Classification System (NAICS). Comparison of SOII estimates for 2014 to prior years is not advised below the sector level due to this change. For additional detailed information regarding NAICS revisions, visit www.bls.gov/bls/naics.htm.

This release does not present all the publishable estimates for days-away-from-work cases. Additional detailed data are available from BLS staff at (202) 691-6170, iifstaff@bls.gov, and the BLS website at www.bls.gov/iif/home.htm. Information in this release is available to sensory-impaired individuals upon request. Voice phone: (202) 691-5200; Federal relay service: (800) 877-8339.

Days of job transfer or restriction pilot study In January of 2012, the BLS Survey of Occupational Injuries and Illnesses (SOII) began to collect information on case circumstances and worker characteristics for days-of-job-transfer-or-restriction (DJTR) cases. The pilot included six industries: specialty trade contractors; food manufacturing; building material and garden equipment supplies dealers; air transportation; warehousing and storage; and nursing and residential care facilities. The 2011-13 data from this study were published in July 2015 in BLS Report 1056: www.bls.gov/opub/reports/iif/a-pilot-study-of-job-transfer-or-work-restriction-cases-2011-2013.pdf.

Beginning in January 2015, for the DJTR study a new set of six industries replaced the original pilot industries. The new industries for which detailed DJTR data are being collected are beverage and tobacco product manufacturing; general merchandise stores; couriers and messengers; waste management and remediation services; hospitals; and accommodation. The 2015 DJTR data for these industries will be

9.

CAL/OSHA DIR descriptions of "Safe Lifting and Carrying"

Cal/OSHA Guide to
Restaurant Safety

California Department of Industrial Relations

State of California CAL OSHA Department of Industrial Relations

Research and Education Unit
Cal/OSHA Consultation Service
Division of Occupational Safety and Health

Restaurant Safety

SAFER LIFTING AND CARRYING

Research & Education Unit

State of California
CAL OSHA
Department of Industrial Relations

1-800-963-9424

http://www.dir.ca.gov/dosh/dosh1.html

✓ Do

- ✓ Use mechanical devices and carts to lift and move heavy loads or get help. Limit lifting by hand.
- ✓ Keep your head up, your back straight and lift with your legs not your back.
- ✓ Bring the load as close to you as possible before lifting.
- ✓ Keep the load directly in front of your body. Move feet to turn so you don't twist your back.
- ✓ Perform lifts at waist height with your elbows in and close to your body.
- ✓ Limit lifting materials above shoulder level.
- ✓ Stay fit to help avoid injury.

✗ Don't

- ✗ Lift/carry heavy, bulky or uneven loads without help. Get help or use a cart.
- ✗ Rely on back belts.
- ✗ Reach out to lift a load.
- ✗ Reach to the side or lift while twisting.
- ✗ Stock heavy items on upper shelves.
- ✗ Obstruct your view by carrying large/bulky items.
- ✗ Carry stacks of plates or boxes above the shoulder level. Doing this puts undue strain on your neck, shoulders and lower back.

SAFER LIFTING AND CARRYING

Lifting and lowering heavy products, holding pots while using awkward body postures, grasping large bags, emptying containers, and carrying objects are common tasks in the restaurant industry. Continued and repeated performing of these tasks can cause fatigue, discomfort, back pain, shoulder and neck problems, decreased range of motion in the joints, decreased grip strength, and so on. Employers and employees can help in reducing or eliminating these problems by improving the fit between the worker's capabilities, the task, and the equipment used.

Some improvement options include rearranging workstations, providing carts, training employees, limiting the moving of heavy loads, calling a coworker for help, and using better tools. Good lighting in work areas also helps in preventing accidents and injuries.

Employees can prevent accidents and injuries while lifting and carrying loads related to kitchen works by following the **DOS** and **DON'TS** given in the next pages.

Easy Ergonomics

A Practical Approach for Improving the Workplace

Department of Industrial Relations
Cal/OSHA Consultation Service
Education and Training Unit

Improving work practices for manual lifting, carrying, pushing, and pulling

Ask yourself:

- *Does the load need to be moved at all?*

If **YES:**

- Can it be done mechanically or rolled or slid instead of lifted?

If it is necessary to handle the load manually:

- Use good lifting techniques.
- Get help.
- Know your personal limits.
- Maintain equipment.
- Warm up and stretch.

Maintain an upright posture by avoiding bending or twisting at the waist. If you must bend, bend the hips and knees, not the waist.

Keep the load or container close to the body (not more than a few inches away when lifting or carrying) and within the "lifting safety zone" (between the knuckles and midchest).

Use teams or get help for bulky materials and difficult work tasks; know your personal limits

Replace lifting with pushing or pulling when possible

Exercise, warm up, and stretch regularly