

Workers' Compensation Claims by Industry Sector and Causation — Ohio, 2001–2010

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Presentation Outline

1. Background
2. Methods
3. Surveillance results: Workers' compensation (WC) claims by industry sector
 - Musculoskeletal disorders (ERGO)
 - Slips, trips, and falls (STF)
 - Other causes
4. Discussion



Ohio Bureau of Workers' Compensation (OHBWC)

- Exclusive source for WC Insurance in Ohio for small employers
- Employers (private and some public) with > 500 employees can self insure
- 250,000+ WC policy holders
- Insures two-thirds of Ohio workers



OHBWC-NIOSH Collaboration Goals

- Understand industry risk trends
- Tailor safety, health, and disability management services
 - Identify industries and employers in most need of service
 - Evaluate effectiveness of BWC programs and services
 - Focus on what works better



WC Data Uses

- Ohio Employers
 - Benchmark safety and health performance
 - Compare versus industry peers
 - Develop data-driven plans for prevention and care



NIOSH WC Trending Methods

- OHBWC combines WC claims data with state unemployment insurance data by employer:
 - North American Industry Classification System (NAICS) industry code (up to 6 digits)
 - Annual Average number of employees at each employer
 - Part- and full-time employees combined
- OHBWC and NIOSH classify employers as
 - OHBWC-insured (single, multiple location)
 - Self-insured (single, multiple location)



NIOSH WC Trending Methods Cont'd

- NIOSH estimates rates: claims rates per full time equivalent (FTE) for each employer
 - Adjust number of employees using average hours per employee by industry
 - Current Population Survey data at the NIOSH Sector level — 2001–2010
- NIOSH auto-codes causation of claims



Causation Auto Coding Methods

- Liberty Mutual, Purdue University, BLS, NIOSH, and others have been developing automated text mining approaches to code claims
 - 1/16/14 webinar
 - <http://www.youtube.com/watch?v=cJA7T0VLNIg&feature=youtu.be>
 - 4/9/14 webinar
 - <http://www.cdc.gov/niosh/topics/workercomp/cwcs/news.html>



NIOSH Causation Auto Coder

- NIOSH method
 - Based on claim narrative and injury/illness category (ICD diagnoses)
 - The approach is fast, accurate, and reliable
 - Codes claims as three causation types (ergonomic, slip/ trip/ fall, other) but increasing to more types with future versions
 - NIOSH will share free SAS code and built-in word frequencies- request at cwcs@cdc.gov



Mutually Exclusive and Exhaustive Claim Causation Categories

- **Ergonomic (ERGO)**

- Musculoskeletal disorders caused by one or more ergonomic risk factors: excessive force, awkward postures, repetitive motion, contact stress, vibration

- **Slip/ Trip/ Fall (STF)**

- Slips or trips without a fall
- Fall from height or on same level

- **Others (OTH)**

- Struck by/ against, caught between, motor vehicle, etc.



OHBWC-Insured Private Employers Data Summary 2001–2010

- OHBWC covers approximately 2/3 of all Ohio employees for workers' compensation
- Analyses focus on data from OHBWC-insured employers
- During this period, approximately 80% of private industry claims were from single-location employers
- Results reported in this presentation are for privately owned, single-location (single-establishment) employers only



Prevention Index¹ (PI) by Industry

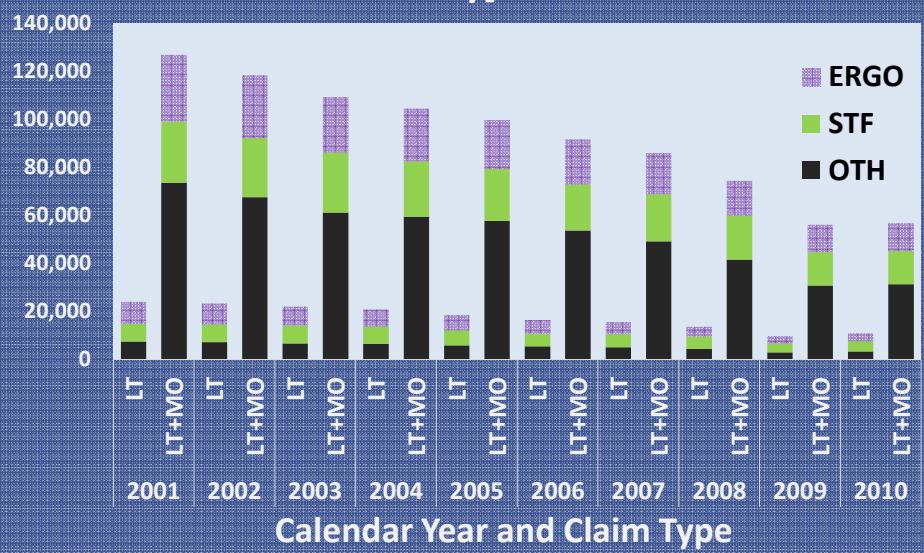
- Claims for 2006–2010 were pooled and ranked by WC claim frequency and WC claim rate
- $$\text{Prevention Index} = \frac{\text{Frequency Rank} + \text{Rate Rank}}{2}$$

¹Silverstein, B., E. Vilkari-Juntura, and J. Kalat. "Use of a Prevention Index to Identify Industries at High Risk for Work-Related Musculoskeletal Disorders of the Neck, Back, and Upper Extremity in Washington State, 1990-1998." *American Journal of Industrial Medicine* 41, no. 3 (2002): 149-69.



MAR(11)

OHBWC-insured WC claim frequency by cause, year, and claim type [all claims and lost-time claims only]



Slide 14

MAR(11) replaced chart 5/22 pasted and embedded table, not sure that was the best idea

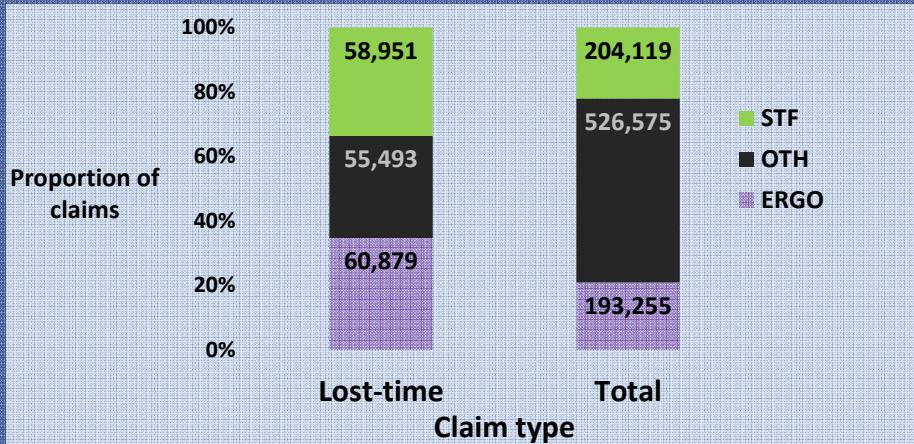
Meyers, Alysha R. (CDC/NIOSH/DSHEFS), 5/22/2015

NIOSH National Occupational Research Agenda (NORA) Industry Sectors by NAICS Codes

- Agriculture, Forestry, Fishing/ Hunting = 11
- Construction = 23
- Health Care and Social Assistance= 62, 54194 , 81291
- Manufacturing = 31, 32, 33
- Mining = 21
- Oil & Gas = 211, 213111, & 213112
- Public Safety = 92212, 92214, 92216, 62191 (*For private industry, PSA only includes 62191, Ambulance Services*)
- Services (except Public Safety) = 51-56, 61, 71, 72, 81, 92
- Transportation, Warehousing, Utilities = 22, 48, 49
- Wholesale Trade/ Retail Trade =42, 44, 45

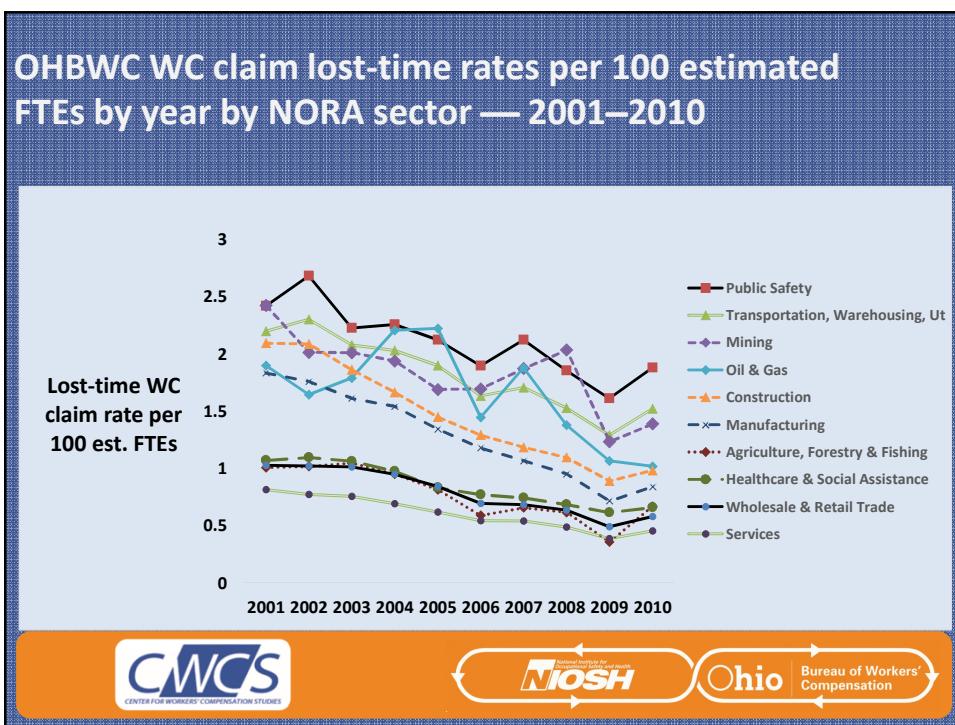
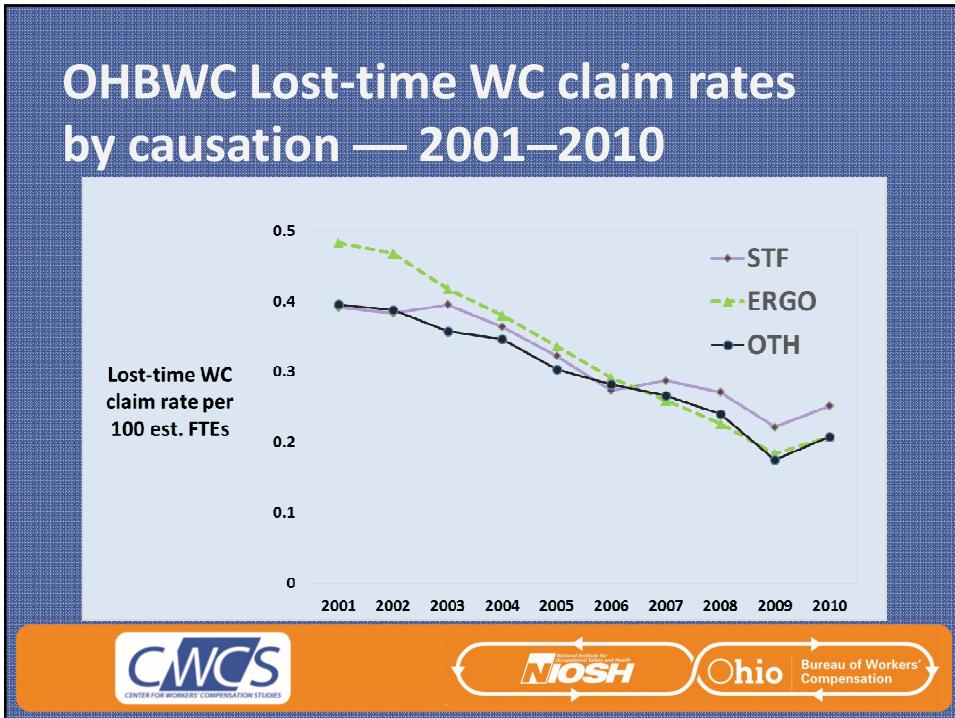


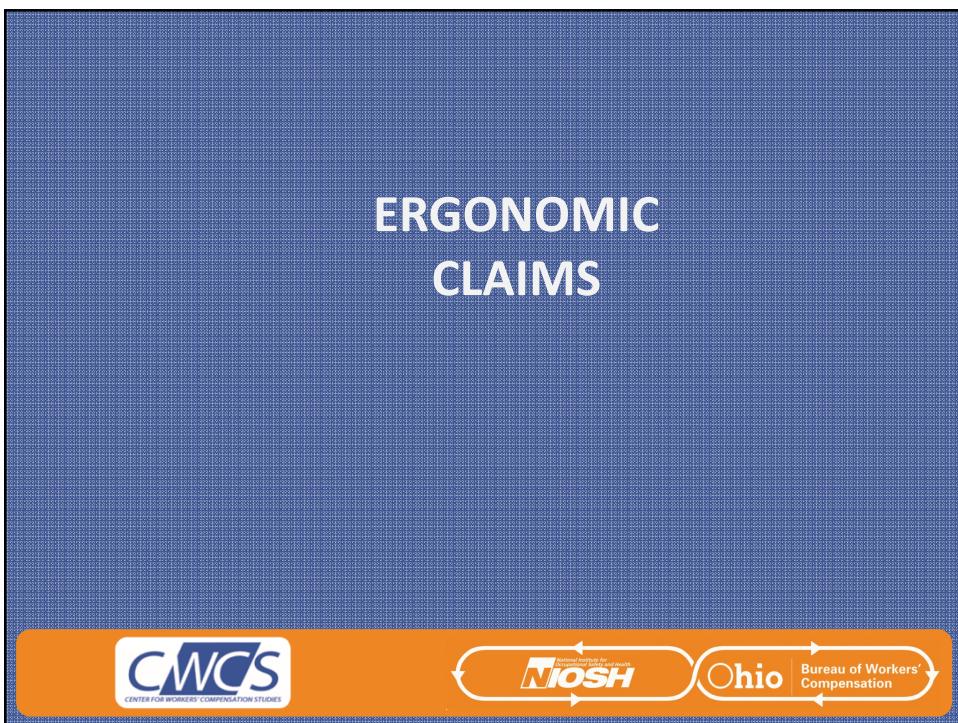
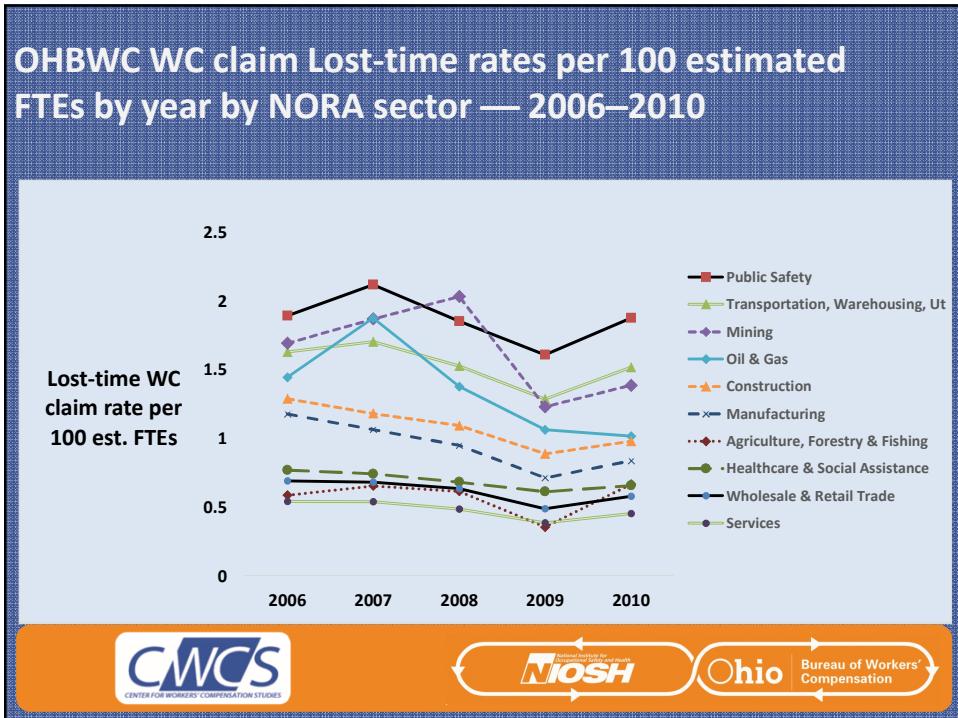
Summary of Proportions of Claims by Causation by Claim Type for OHBWC-Insured Single Location Private Employers, 2001–2010 combined



Proportion of claims	Lost-time	Total
100%	58,951	204,119
80%		
60%	55,493	526,575
40%	60,879	193,255
20%		
0%		







NIOSH ERGONOMIC Case definition

- Work-related musculoskeletal disorders (ERGO) caused by ergonomic hazards
- In OHBWC-NIOSH WC claims database ERGO claims meet these two criteria:
 1. Assigned one of several specific medical diagnoses (*e.g. carpal tunnel syndrome, lumbosacral sprain/strain*)
 2. Claim associated with ergonomic hazards at work (*e.g. bending, twisting, lifting, reaching, repetitive motion*) as stated in claims' narratives



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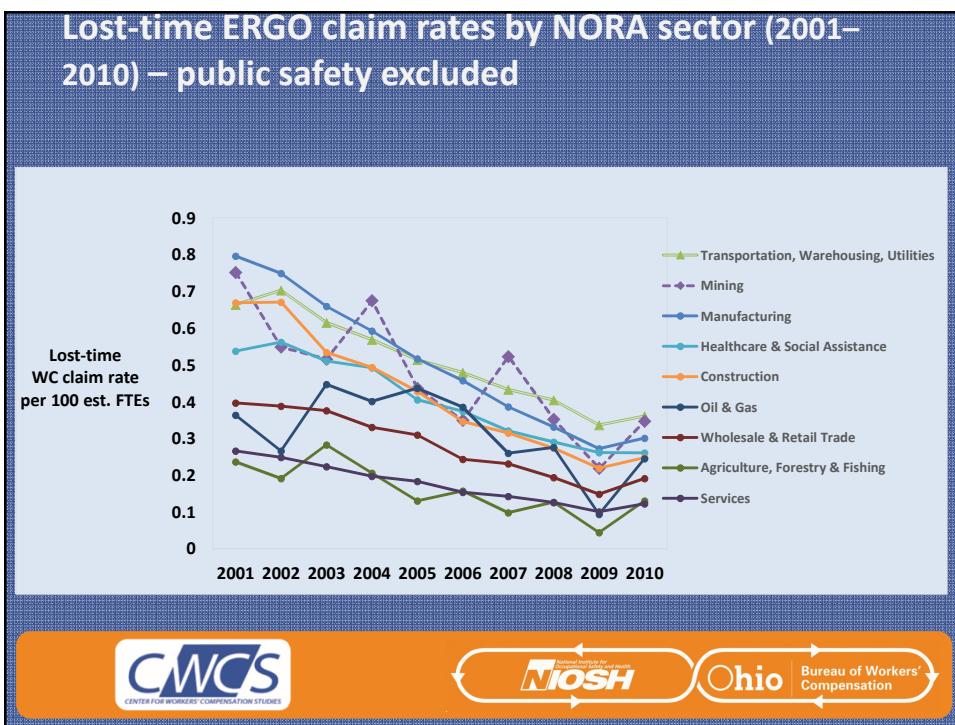
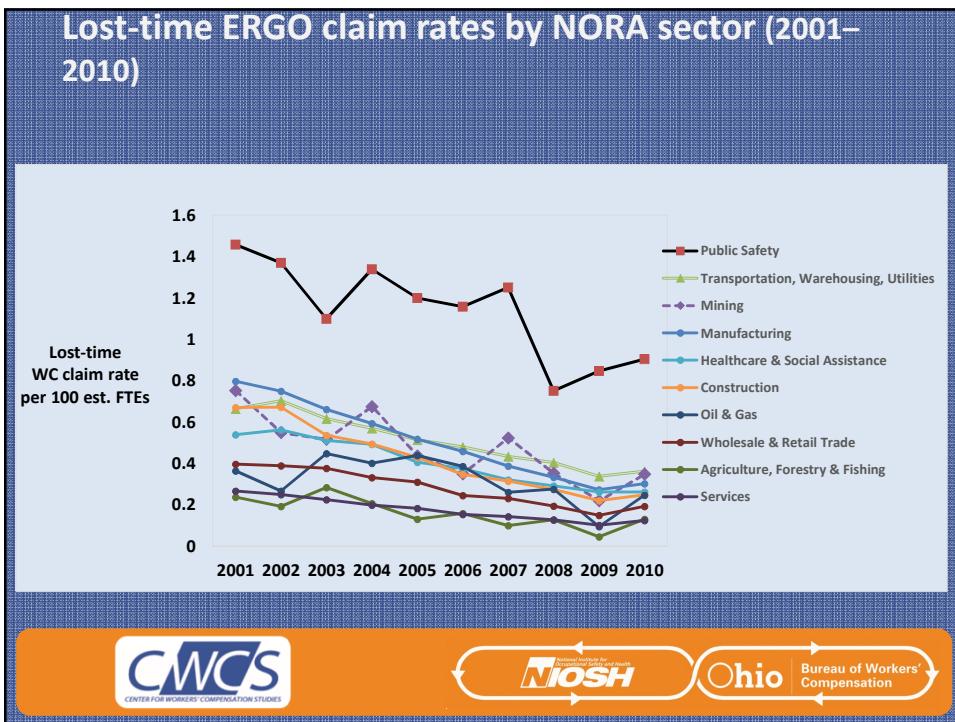
Top 10 Lost-time Injury Categories for ERGOs by cause — 2001–2011

Lost-time Claim Count	% Lost-time Claims	Injury Category	ERGO	OTH	STF
44,713	14.91	Sprains-Back	66%	12%	22%
34,175	11.4	Sprains - upper extremity	58%	16%	26%
23,565	7.86	Disc Disorders	63%	14%	23%
17,443	5.82	Soft tissue/Enthesopathy	66%	14%	20%
7,283	2.43	Hernia of abdominal cavity	96%	1%	3%
5,510	1.84	Carpal Tunnel Syndrome	95%	3%	2%
30,419	10.14	Sprains - lower extremity	14%	8%	79%
13,649	4.55	Dislocation	23%	8%	69%
8,485	2.83	Sprains - Neck	29%	50%	21%
2,208	0.74	Sprains - other	86%	5%	9%



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Lost-time ERGOs by NORA sector — 2006–2010

NORA Sector	Est. FTEs	Claim Count	Claim count rank	Claim rate rank	PI	PI rank
Manufacturing	1,664,241	5,955	1	4	2.5	1
Healthcare & Social Assistance	1,204,710	3,661	3	5	4	3
Public Safety	23,328	229	7	1	4	3
Transportation, Warehousing & Utilities	363,059	1,485	6	2	4	3
Construction	851,100	2,461	5	6	5.5	5.5
Services	3,332,630	4,400	2	9	5.5	5.5
Mining	18,148	65	9	3	6	7.5
Wholesale & Retail Trade	1,417,225	2,916	4	8	6	7.5
Oil & Gas	16,246	41	10	7	8.5	9
Agriculture, Forestry & Fishing	58,761	67	8	10	9	10

Top 10 4-digit NAICS subgroups for Lost Time ERGOs

1. 6231-Nursing Care Facilities
2. 3363-Motor Vehicle Parts Manufacturing
3. 6233-Community Care Facilities for the Elderly
4. 3315-Foundries
5. 6219-Other Ambulatory Health Care Services
6. 4931-Warehousing and Storage
7. 3262-Rubber Product Manufacturing
8. 4248-Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
9. 4841-General Freight Trucking
10. 4842-Specialized Freight Trucking



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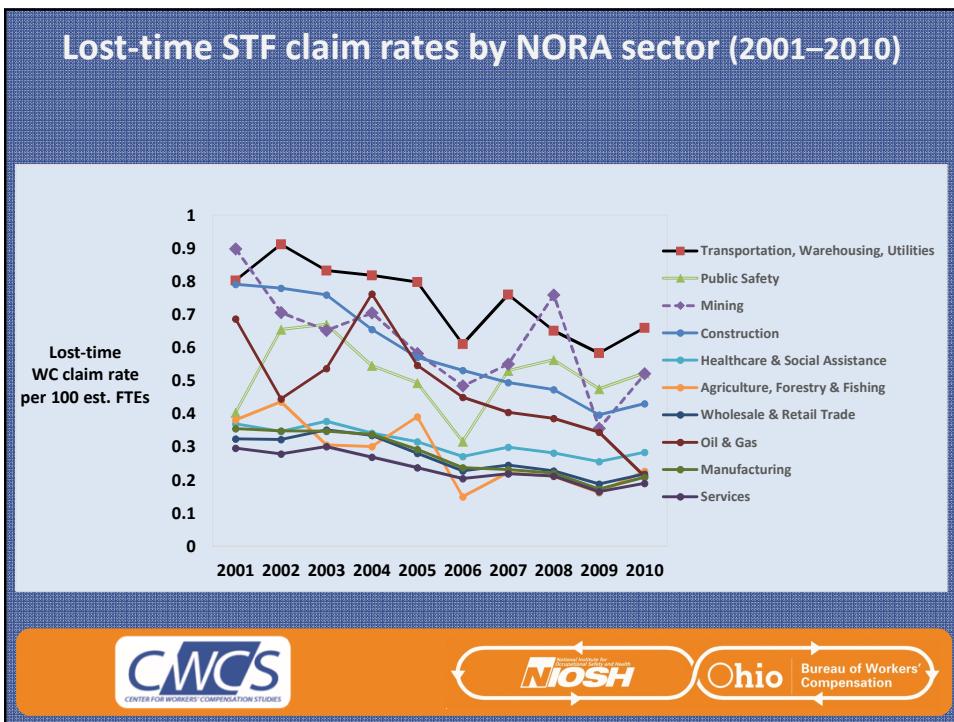
Top 10 4-digit NAICS subgroups for Lost Time ERGOs

1. 6231-Nursing Care Facilities	7. 3262-Rubber Product Manufacturing
2. 3363-Motor Vehicle Parts Manufacturing	8. 4248-Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
3. 6233-Community Care Facilities for the Elderly	9. 4841-General Freight Trucking
4. 3315-Foundries	10. 4842-Specialized Freight Trucking
5. 6219-Other Ambulatory Health Care Services	
6. 4931-Warehousing and Storage	



SLIP, TRIP & FALL CLAIMS





Lost-time STFs by NORA sector — 2006–2010

NORA Sector	Est. FTEs	Claim Count	Claim count rank	Claim rate rank	PI	PI rank
Construction	851,100	4,039	2	4	3	1
Transportation, Warehousing & Utilities	363,059	2,394	6	1	3.5	2
Healthcare & Social Assistance	1,204,710	3,371	4	6	5	3.5
Services (excluding Public Safety)	3,332,630	6,727	1	9	5	3.5
Mining	18,148	97	9	2	5.5	6
Manufacturing	1,664,241	3,612	3	8	5.5	6
Public Safety	23,328	112	8	3	5.5	6
Wholesale & Retail Trade	1,417,225	3,162	5	7	6	8
Oil & Gas	16,246	59	10	5	7.5	9
Agriculture, Forestry & Fishing	58,761	115	7	10	8.5	10

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NIOSH

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Top 10 4-digit NAICS subgroups for Lost Time STFs

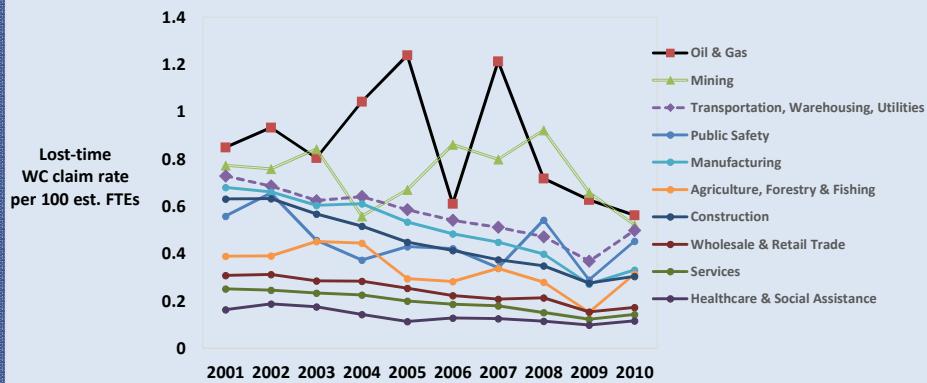
1. 4841-General Freight Trucking	7. 4244-Grocery and Related Product Wholesalers
2. 4842-Specialized Freight Trucking	7. 6243-Vocational Rehabilitation Services
3. 2381-Foundation, Structure, and Building Exterior Contractors	9. 2383-Building Finishing Contractors
4. 6231-Nursing Care Facilities	10. 2371-Utility System Construction
5. 4248-Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	10. 5617-Services to Buildings and Dwellings
7. 2382-Building Equipment Contractors	



OTHER CAUSATION CLAIMS



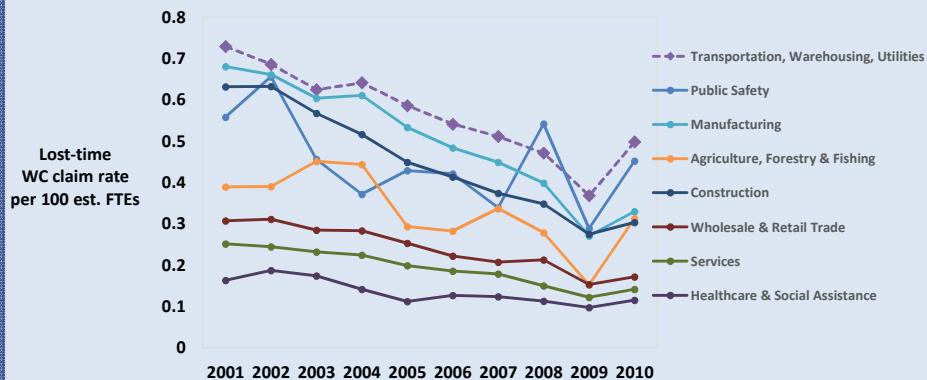
Lost-time OTH claim rates by NORA sector (2001–2010)



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Lost-time OTH claim rates by NORA sector (2001–2010) *excluding* Oil/Gas & Mining sectors



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Lost-time OTHs by NORA sector — 2006–2010							
NORA Sector	Est. FTEs	Claim Count	Claim count rank	Claim rate rank	PI	PI rank	
Manufacturing	1,664,241	6,647	1	5	3	1	
Transportation, Warehousing, Utilities	363,059	1,755	5	3	4	2	
Construction	851,100	3,003	3	6	4.5	3	
Mining	18,148	137	8	2	5	4.5	
Oil & Gas	16,246	123	9	1	5	4.5	
Services	3,332,630	5,289	2	9	5.5	6	
Wholesale & Retail Trade	1,417,225	2,796	4	8	6	7	
Agriculture, Forestry & Fishing	58,761	162	7	7	7	8.5	
Public Safety	23,328	95	10	4	7	8.5	
Healthcare & Social Assistance	1,204,710	1,433	6	10	8	10	



Top 10 4-digit NAICS subgroups for Lost Time OTHs

1. 3315-Foundries
2. 3321-Forging and Stamping
3. 4841-General Freight Trucking
4. 4235-Metal and Mineral (except Petroleum) Merchant Wholesalers
5. 5613-Employment Services
6. 2131-Support Activities for Mining
7. 3323-Architectural and Structural Metals Manufacturing
8. 4842-Specialized Freight Trucking
9. 4239-Miscellaneous Durable Goods Merchant Wholesalers
10. 3219-Other Wood Product Manufacturing



Top 10 4-digit NAICS subgroups for Lost Time OTDs

1. 3315-Foundries
2. 3321-Forging and Stamping
3. 4841-General Freight Trucking
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8. 4842-Specialized Freight Trucking
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SUMMARY DATA BY CAUSATION



**Percent Change in Lost-time Claim Rates by Causation
for BWC-Insured Single Location Private Employers
Across NIOSH Industry Sectors — 2001–2010**

NIOSH NORA Sector	ERGO	STF	OTH
All NORA Sectors	-10.5	-6.2	-8.0
Agriculture, Forestry and Fishing	-11.1	-9.0	-6.2
Construction	-12.4	-7.9	-9.1
Health Care and Social Assistance	-9.2	-3.9	-6.1
Mining (Except Oil and Gas Extraction)	-8.9	-7.1	-2.1
Manufacturing	-11.7	-7.6	-8.5
Oil and Gas Extraction	-8.9	-5.8	0.3
Public Safety	-5.7	-1.1	-4.0
Services (except Public Safety)	-10.0	-5.9	-7.3
Transportation, Warehousing, Utilities	-7.9	-3.9	-5.8
Wholesale/ Retail Trade	-10.0	-6.2	-7.1



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**Prevention Index Rank Summary
by Causation for Lost Time Claims
Across NIOSH NORA Sectors 2006–2010**

NIOSH Sector Description	ERGO	STF	OTH	Average Rank
Transportation, Warehousing & Utilities	3	2	2	2.3
Manufacturing	1	6	1	2.7
Construction	5.5	1	3	3.2
Services (except Public Safety)	5.5	3.5	6	5.0
Healthcare & Social Assistance	3	3.5	10	5.5
Public Safety	3	6	8.5	5.8
Mining	7.5	6	4.5	6.0
Wholesale & Retail Trade	7.5	8	7	7.5
Oil & Gas	9	9	4.5	7.5
Agriculture, Forestry & Fishing	10	10	8.5	9.5



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Highest priority 4-digit NAICS subgroups — PI rank by cause for Lost-time claims

NIOSH Sector Description	PI Rank		
	ERGO	STF	OTH
4841-General Freight Trucking	9	1	3
4842-Specialized Freight Trucking	10	2	8
3315-Foundries	4	43	1
6231-Nursing Care Facilities	1	4	74
4248-Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	8	5	79



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Limitations for surveillance data

- We have OHBWC data through 2010 ready now and 2011 is in house but not ready to be analyzed
- Results presented today are for the smallest OHBWC insured employers – single location, private
- Limited to three causation categories in this analysis



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Discussion

- Although WC rates have decreased overall, risk varies by industry and causation
- Rate data for 2011 will be available soon
- Target more in depth analyses and interventions for industry subsectors with a high PI
- More detailed analyses are underway for
 - Ambulance Services claims data
 - Temporary Agency claims data



Thank you

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To request a copy of
 the NIOSH SAS-based
 auto-coding program
 please contact
cwcs@cdc.gov

