



# Safe Resident Lifting in Long-Term Care (LTC)

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# Twenty years of accrued evidence shows:

## 1. Manual resident lifting causes caregiver Injury

Marras et al, 1999

Marras et al. 2000

## 2. Use of Powered Mechanical Lifts reduces caregiver injuries/workers compensation costs:

Evanoff et al 2003

Collins et al. 2004

Brophy et al, 2001

Park et al. 2009

However, there was a lack of such data

1. National Samples and

2. When separating lift numbers or use from a safe lift process

# Safe Resident Lifting in Long-Term Care (LTC)

## Benefits Workers and Residents

### Worker Benefits

**Caregiver  
Injuries**

and

**Workers'  
Compensation  
Lift-Related  
Costs**

Data from National Council on  
Compensation Insurance (NCCI)

**Safer  
Resident  
Lifting  
Attitudes,  
Policies and  
Procedures  
and  
Powered  
Mechanical  
Lifts**

Data from survey of Directors of Nursing  
at Long-term Care facilities, N=271

### Resident Benefits

**Physical Restraints**

**Antipsychotic Drugs**

**Bedfastness**

**Bed sores**

**Falls**

**Fractures**

Data from the Centers for Medicaid and  
Medicare Services (CMS)

# Safe Lift Index: Elements Derived from our DON Survey

(N=271 from 23 states)

*For residents not able to move around on their own*

1. Do procedures require powered mechanical lift (LIFTS) use?
2. Do their care plans require the use of LIFTS?

*For all caregivers*

3. When a CNA's job performance is being evaluated, is the use of LIFTS mentioned?
4. Are newly hired CNAs trained in how to use LIFTS?
5. May two caregivers lift a resident manually?

*DON preferences for using LIFTS to*

6. Lift a resident weighing 150 lbs from bed to chair
7. Lift a resident weighing 90 lbs from bed to chair

*DON perceived barriers to lift use*

8. Resident rooms too small
9. Residents afraid of LIFTS
10. Maintenance problems, not enough slings, battery dead etc.
11. Stringency of enforcement of violations



## How many LIFTS in your facility? Asked of DONs in our survey



Full lift  
Resident is passive



Sit-Stand lift  
Resident works to raise him/herself

Facility Safe Lift Index predicts ↓ workers compensation costs

Table 2

Workers Compensation Total Costs Tobit Model

Explanatory Variable	Coefficient	Standard Error	Significance
(intercept)	-0.1465	0.2283	
Lifts per Resident	-0.0101	0.0110	
→ Safe Lift Index	-0.0209	0.0082	**
State Frequency	0.4995	0.1703	***
For Profit	-0.1744	0.0887	**
Government	-0.1713	0.1430	
(Log of scale parameter)	-0.8347	0.0549	***

Note\*\*\*, \*\*, \* significance at 1%, 5% and 10% levels, respectively

An ↑ of 1 lift/100 residents is associated with an 11% ↓ in costs

A one standard deviation ↑ in the safe lift index is associated with a 33% ↓ in costs

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# Resident outcomes derived from Centers for Medicare & Medicaid Services (CMS) Minimum Data Set (MDS)

The MDS tracks well-being measures (i.e. restraint use and bed sores in facilities receiving Medicare or Medicaid).

(Omnibus Reconciliation Act of 1987 (OBRA-1987)).

MDS data are collected on site and submitted quarterly.


We used these CMS data for resident outcomes.





# **Resident Mobility-Related Well-being Outcomes: From the CMS Minimum Data Set (MDS)**

Percent of Residents who:

- Were physically restrained
  - Were given antipsychotic drugs w/o a dx of psychosis
  - Spent most of their time in bed or in a chair
  - Had pressure ulcers while at high risk
  - Fell in the past 30 days
  - Broke a bone in the last quarter
- 

## Resident well-being outcomes stratified by levels of the safe lift index: 2007

### Percent of facility residents who

Safe Lift index by low vs. high*		Physical restraint	Antipsychotic medication without psychosis	Bedfast	Pressure Ulcers	Fell	Broke a bone
low n=126	Mean	4.03	21.33	3.06	13.72	15.42	1.59
	SD	5.64	9.12	3.68	8.72	5.27	1.09
high n=132	Mean	3.72	20.51	2.49	12.45	14.49	1.51
	SD	5.31	10.54	3.27	6.63	4.32	1.09
Total n=258	Mean	3.87	20.91	2.77	13.07	14.94	1.55
	SD	5.47	9.86	3.48	8.43	4.84	1.09
anova		p=.615	p=.507	p=.186	p=0.190	p=0.121	p=0.538

\* cut is by mid point of the index frequency values in the safe lift index (SLI)

# Correlations between LIFT Availability and Resident Outcomes, over 3 Years

Percent of Facility Long-term care residents who:

Were physically restrained

Received antipsychotic use w/o diagnosis of psychosis

Spent most of their time in bed or in a chair

Had pressure ulcers while at high risk

Fell in the past 30 days

Broke a bone in the last quarter

Total Lifts <sup>a</sup>			Full Lifts			Sit Stand Lifts		
2005 N=233 <sup>b</sup>	2006 n=247	2007 n=263	2005 N=234	2006 N=248	2007 N=264	2005 N=243	2006 N=251	2007 N=266
-.144*	-0.201**	-.234***	-.100	-.107	-.115	-.159*	-0.234***	-.265***
-.240***	-.166**	-.183**	-.161*	-.072	-.066	-.240***	-.187**	-.213**
-.239***	-.224**	-.219***	-.138*	-.148*	-.077	-.238***	-0.193**	-.238***
-.304***	-.261***	-.260***	-.214**	-.111	-.014	-.322***	-.280***	-.278***
.232***	.169**	.126*	.176**	.040	.036	.217**	0.269***	.159*
.209**	.157*	.086	.153*	.034	.040	.157*	.243***	.181**

Correlations are non parametric, using

Spearman tests of significance, \* <.05 prob., \*\* <.01 prob., \*\*\* <.001 prob.

## Resident Well-being Improves as Lift Number Increases

### Sit Stand Lifts / 100 Residents (2007)

Percent of facility residents who		0 to 1 LIFTS	>1 to 2 LIFTS	> 2 to 3 LIFTS	>3 LIFTS	Tukey post hoc 0-1 to >3
		n=65	n=56	n=42	n=102	Prob
Were physically restrained	Mean	5.73	5.11	2.62	2.60	0.001
	SD	6.89	5.89	3.96	4.20	
Had pressure ulcers while at high risk	Mean	16.10	14.34	11.95	9.62	0.000
	SD	9.01	8.19	6.59	6.12	

## Multivariate Analysis: Significant associations<sup>a</sup> between resident well-being outcomes and safe lift predictors

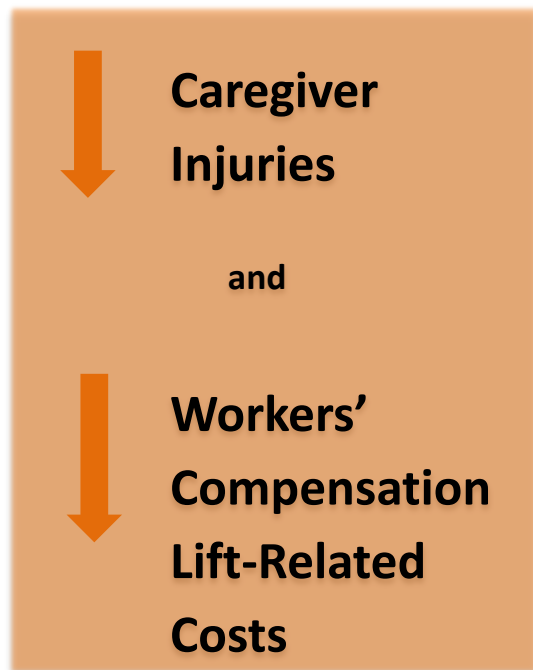
Predictor variables	Resident Well-Being Outcomes											
	Physical restraint		Antipsychotic drug use		Bedfastness		Pressure ulcers		Falls		Broken bones	
	sign	p value	sign	p value	sign	p value	sign	p value	sign	p value	sign	p value
Sit stand PML/100 residents					neg	**	neg	***	pos	**	pos	***
Full lifts/100 residents							neg	*				
Safe lift index									neg	*		
Adjustment variables												
Size (number of occupied beds)	pos	**							neg	***	neg	***
Year	neg	*	neg	**	neg	*	pos.	*				
* p<.05, ** p<.001, *** p < .000												

<sup>a</sup> Results from generalized estimating equations (XTGEE in Stata 11), negative binomial distribution, robust SE, and auto regressive correlation among subjects (facilities)

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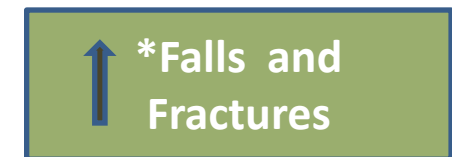
Restrepo T. et al. JOEM. 55. 27-35. 2013.

Safer Resident Lifting Attitudes, Policies and Procedures and More Sit-Stand Powered Mechanical Lifts

The central text is contained within a vertical rectangular box with a light-to-dark orange gradient. It is flanked by two large orange curly braces, one on the left and one on the right, indicating its role as a bridge between worker and resident benefits.

Data from survey of Directors of Nursing at Long-term Care facilities, N=271

### Resident Benefits



Data from the Centers for Medicaid and Medicare Services (CMS)

Gucer P. et al. JOEM. 55. 36-44. 2013.

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**Falls  
Bedfastness  
Bed sores**



**\*Falls and Fractures**

**\*Use of assistive devices increases fall risk**

**Mann, et al, Geriatrics. 1995 Vol 13. 1-23**

**Mahoney, et, J Gerontology A Biol. 1999, Vol 54. M83-M88**

**Exercise reduces fall risk**

**Carter, et al, Sports Med. 2001. Vol 21, 127-138**



# **Safe Lifting Benefits Both Workers and Residents**





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**Thank You!**