

Safe Resident Lifting in Long-Term Care (LTC)

Patricia W. Gucer, PhD

Marc Oliver, RN, MPH

Joanna Gaitens, BSN, PhD

Melissa A. McDiarmid, MD, MPH

Occupational Health Program

University of Maryland School of Medicine

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



shutterstock · 151629476

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

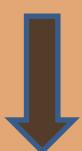
Safe Resident Lifting in Long-Term Care (LTC)

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

Resident Benefits

Physical Restraints
Antipsychotic Drugs

Bedfastness

Bed sores

Falls

Fractures

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

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

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
	SD	5.64	9.12	3.68	8.72	5.27
high n=132	Mean	3.72	20.51	2.49	12.45	14.49
	SD	5.31	10.54	3.27	6.63	4.32
Total n=258	Mean	3.87	20.91	2.77	13.07	14.94
	SD	5.47	9.86	3.48	8.43	4.84
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:

	Total Lifts ^a			Full Lifts			Sit Stand Lifts		
	2005 N=233 ^b	2006 n=247	2007 n=263	2005 N=234	2006 N=248	2007 N=264	2005 N=243	2006 N=251	2007 N=266
Were physically restrained	-.144*	-.201**	-.234***	-.100	-.107	-.115	-.159*	-.234***	-.265***
Received antipsychotic use w/o diagnosis of psychosis	-.240***	-.166**	-.183**	-.161*	-.072	-.066	-.240***	-.187**	-.213***
Spent most of their time in bed or in a chair	-.239***	-.224**	-.219***	-.138*	-.148*	-.077	-.238***	-.0193**	-.238***
Had pressure ulcers while at high risk	-.304***	-.261***	-.260***	-.214**	-.111	-.014	-.322***	-.280***	.278***
Fell in the past 30 days	.232***	.169**	.126*	.176**	.040	.036	.217**	0.269***	.159*
Broke a bone in the last quarter	.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					Tukey post hoc 0-1 to >3	
	0 to 1 LIFTS	>1 to 2 LIFTS	> 2 to 3 LIFTS	>3 LIFTS		
	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^a between resident well-being outcomes and safe lift predictors

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	
Predictor variables											
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

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

Safe Resident Lifting in Long-Term Care (LTC)

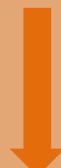
Benefits Workers and Residents

Worker Benefits

Caregiver
Injuries

and

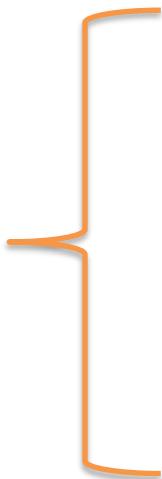
Workers'
Compensation
Lift-Related
Costs



Data from National Council on Compensation
Insurance (NCCI)

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

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



Resident Benefits

Falls
Bedfastness
Bed sores



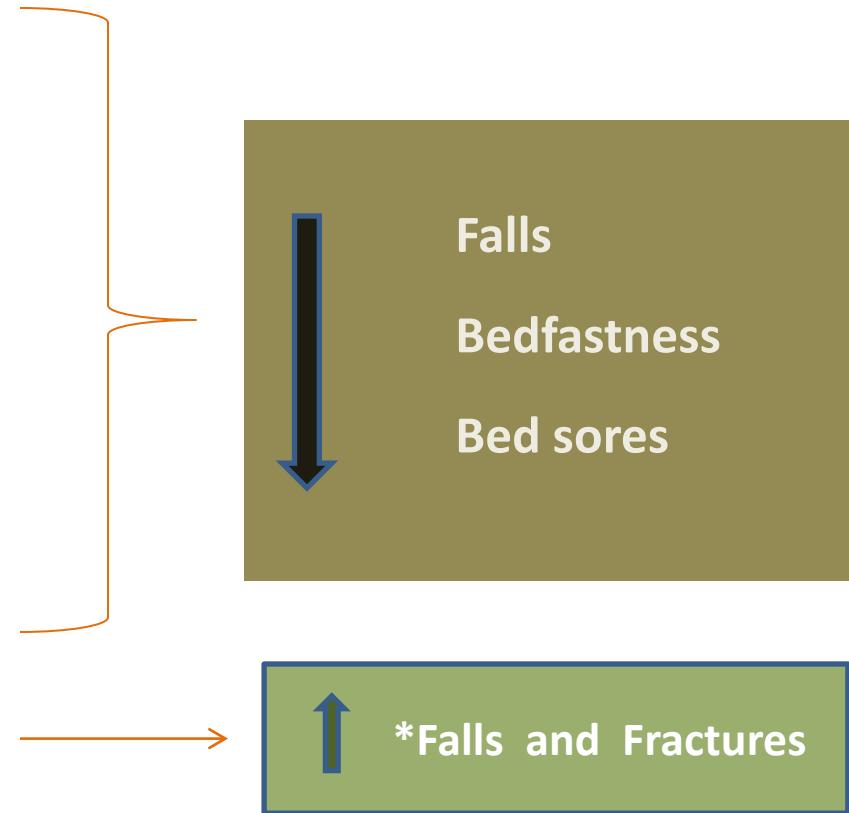
*Falls and
Fractures

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

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

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

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



***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



Thank You!