

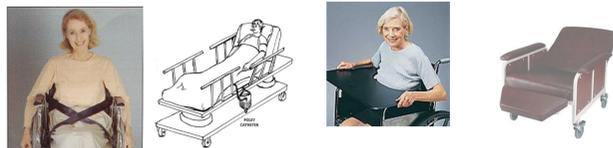
A Quality Improvement Initiative to Reduce the Use of Physical Restraints among Older Hospitalized Medical Patients

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Background

Physical restraints are commonly used in an attempt to keep an older patient safe.



Although often ordered for falls prevention, no studies have shown physical restraints to actually prevent falls. They increase an older patient's risk of delirium and agitation. They lead to de-conditioning, functional decline, walking dependency and incontinence. Restraints can cause injury including strangulation, asphyxiation, trauma, aspiration and cardiac arrest. And yet, we were guilty of using them within Canadian Hospitals. The culture had become one of acceptance, as if physical restraints were a necessary evil.

Methods

A stepped wedge trial design, involving the sequential rollout of our intervention, one unit per month, was conducted on four medical units within an acute care hospital in Calgary, Alberta.

The intervention involved three components:

1. the development of opinion leaders among the nursing leadership;
2. the education of physicians and unit nurses;
3. implementation of least restraint rounds.

The primary outcome was the rate of restraint use as determined from walk-around audits of the medical units.

A secondary outcome was the reporting of falls measured from voluntary safety learning reports.

Educational Strategies: Alternatives to Physical Restraints

Physician-targeted messaging

Delirium and Falls Preventive Strategies

Cognitive Impairment	<ul style="list-style-type: none"> • Orient patient to date and place daily • Provide clocks and calendars • Encourage family/caregiver presence
Functional Impairment	<ul style="list-style-type: none"> • Mobilize early • Physiotherapy and occupational therapy as needed
Fluid and Electrolyte Imbalances	<ul style="list-style-type: none"> • Restore electrolyte and glucose levels to normal limits • Detect and treat dehydration or fluid overload
High-Risk Medications	<ul style="list-style-type: none"> • Discontinue or minimize use of benzodiazepines, anticholinergics, antihistamines, dimenhydrinate and meperidine • Start low and go slow with: narcotics, antipsychotics and benzo's, (when required) • Modify dosages or discontinue drugs in order to minimize drug interactions and adverse effects
Pain	<ul style="list-style-type: none"> • Use standing orders for acetaminophen rather than PRN • Treat breakthrough pain starting with low dose narcotics (morphine 1-2mg IV/sc or 2.5-5mg po, HYDROMORPHONE 0.25 mg IV/sc, oxycodone 5-10mg po; avoid meperidine)
Impaired Vision and Hearing	<ul style="list-style-type: none"> • Ensure appropriate use of glasses, hearing aids and adaptive equipment
Malnutrition	<ul style="list-style-type: none"> • Ensure proper use of dentures, proper positioning, assistance with eating if required and use of supplements if required
Iatrogenic complications	<ul style="list-style-type: none"> • Avoid urinary catheters and remove them as soon as possible • Screen for urinary retention and incontinence, assisted toileting protocols • Implement a skin-care program • Implement a bowel regimen to ensure regular bowel movements • Provide chest physiotherapy and supplemental oxygen if indicated • Use appropriate deep vein thrombosis prevention therapy • Screen for and treat symptomatic urinary tract infections
Sleep deprivation	<ul style="list-style-type: none"> • Implement unit-wide strategies to reduce noise • Schedule medications and procedures to allow for proper sleep • Use non-pharmacologic measures to promote sleep such as warm milk

Adapted from: How can delirium best be prevented and managed in older patients in hospital? Holroyd-Leduc MD et al. CMAJ March 23, 2010; 182(5):465-470.

Nursing-unit-targeted messaging

Promoting Safety Least Restraint Use

Comprehensive Assessment	<ul style="list-style-type: none"> • What is the Reason for Restraint? • Initiate Assessment by Multidisciplinary Team
Analyze the Assessment	<ul style="list-style-type: none"> • Review the case with Multidisciplinary Team
Reason for Restraint	Alternative options
Medical Problems	<ul style="list-style-type: none"> • Prompt treatment and ongoing evaluation
Unmet Care Need	<ul style="list-style-type: none"> • Regularly attend to needs <ul style="list-style-type: none"> ○ toileting ○ nutrition ○ hydration ○ comfort ○ sleep
Tampering with Tubes or Lines	<ul style="list-style-type: none"> • Frequent reassessment of need for therapy/treatment
Agitated patient	<ul style="list-style-type: none"> • Reassure and calm approach • Consider unmet needs
Falls	<ul style="list-style-type: none"> • Have a family member/friend visit • Determine the cause(s) of the fall and initiate management plan
Planning	<ul style="list-style-type: none"> • Develop Individualized Plan of Care.
Documentation/Evaluation	<ul style="list-style-type: none"> • Document • Team Assessment and Care Plan • Implementation of Care Plan • Alternative Interventions attempted • Adherence to Restraint use protocol/policy

Key Culture Change Strategies:

❖ **Least Restraint Rounds:** Each nursing unit identified an older patient who was frequently physically restrained. The QI project team and unit staff worked together to create individual care plans using alternatives to physical restraints. This was revisited each week (one week PDSA cycles). Successes with particularly challenging patients created confidence amongst staff to remain persistent.

❖ **Educational rounds, signage, pocket cards and written information** on alternatives were provided for the healthcare team. Discussions with families and physician orders on admission and during the hospital stay set the stage for successful avoidance of physical restraints.

Results

Table 2: Rate of restraint use by intervention period, unadjusted for unit or month

Manual Audit	Pre-Intervention Median Rate (25 th , 75 th percentile)	Post-Intervention Median Rate (25 th , 75 th percentile)	P-value
Morning (7am)			
Total restraints	0.22 (0.15, 0.40)	0.06 (0.04, 0.16)	0.015
Restraints excluding bedrails	0.05 (0.00, 0.08)	0.00 (0.00, 0.03)	0.064
Bedrails			
Afternoon (2pm)	0.20 (0.11, 0.31)	0.04 (0.04, 0.13)	0.020
Total restraints	0.13 (0.00, 0.23)	0.06 (0.00, 0.08)	0.184
Restraints excluding bedrails	0.00 (0.00, 0.00)	0.00 (0.00, 0.02)	0.808
Bedrails			
Night (midnight)	0.12 (0.00, 0.23)	0.04 (0.00, 0.07)	0.341
Total Restraints	0.22 (0.13, 0.29)	0.11 (0.08, 0.15)	0.214
Restraints excluding bedrails	0.00 (0.00, 0.04)	0.00 (0.00, 0.00)	0.422
Bedrails			
Bedrails	0.19 (0.09, 0.29)	0.11 (0.08, 0.14)	0.302

Table 3: Percentage of patients > 65 years restrained by unit and type of restraint.



- ❖ Prior to the intervention 13-27% of patients were being restrained on the medical units at any given time. Restraint use decreased to 7-14% following the intervention ($p=0.015$). Though no longer statistically significant, this trend continued after adjusting for unit and month ($p=0.065$).
- ❖ The median number of monthly fall reports did not change (3 pre; 3 post; $p=0.597$).

Conclusion

A multi-component quality improvement initiative that incorporated opinion leaders, education with reinforcing strategies and targeted rounding showed a trend towards decreased restraint use within acute care. In fact, a statistically significant reduction in restraint use was noted in the mornings, a time point when forms of restraints other than bed rails were more commonly utilized pre-intervention. Consistent with the literature, reduction in restraint use was not shown to increase fall reports on the units.

A multi-component team-focused quality improvement intervention has the potential to decrease the use of physical restraints among older hospitalized medical patients. This could improve outcomes for the vulnerable frail older hospitalized patient.

Acknowledgements

This project was supported by a grant from the Department of Medicine, University of Calgary.