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Mobility Action Group: Using Quality Improvement Methods to Create a Culture of Hospital Mobility

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Conflict of Interest: Burrows and Press were previously employed by CMS. Press currently serves on the scientific advisory board of VAL health. There are no other conflicts to disclose.

Conflict of Interest Table

Author	Financial Conflicts	Personal Conflicts
Lorgunpai	None	None
Finke	None	None
Burrows	Previously employed by CMS.	None
Brown	None	None
Rubin	None	None
Wierman	None	None
Heisey	None	None
Gartaganis	None	None
Ling	None	None
Press	Previously employed by CMS. Currently serving on scientific advisory board of VAL health.	None
Inouye	None	None

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Abstract

Objectives: To describe the Mobility Action Group (MACT), an innovative process to enhance implementation of hospital mobility programs and create a culture of mobility in acute care.

Design: Continuous quality improvement intervention with episodic data review.

Setting: Inpatient units including medical, surgical, and intensive care settings.

Participants: 42 hospitals of varying sizes across the U.S.

Interventions: The MACT and Change Package were developed to provide a conceptual framework, roadmap, and step-by-step guide to enable mobility teams to successfully implement mobility programs and meet their mobilization goals. Participants were encouraged to select 2–3 change tactics to pursue during the first action cycle and select and implement additional tactics in subsequent cycles. Nine learning sessions were held via webinar from 4/27/17 – 10/5/17 during which faculty provided brief presentations, facilitation, and group discussion.

Measurements: Implementation of programs, walks per day, use of bed and chair alarms, participant satisfaction.

Results: Successful implementation of mobility programs was achieved at the majority (76%) of sites. The proportion of patients who received at least 3 walks per day increased from 9% to 19%. The proportion of patients who were placed on a bed or chair alarm decreased from 36% to 20%. On average, 69% of participants reported they were “strongly satisfied” with the learning sessions. The majority of participants found the change package (58%) and toolkit (63%) “very helpful”. Since the conclusion of the active initiative, the Change Package has been downloaded 1200 times. Of those who downloaded it, 48% utilized it to establish a mobility program, and 58% used it at their organization at least once a month.

Conclusion: The MACT and Change Package provides an innovative approach emphasizing system-wide change that can help catalyze cultures of mobility in hospitals across the nation, improving the quality of care for hospitalized older adults.

Keywords

Mobility; hospital; older adults; quality improvement; fall prevention

Background

Immobility in the hospital is well-recognized to contribute to a multitude of adverse patient outcomes, including increased risk of injurious falls, delirium, aspiration pneumonia, pressure ulcers, functional decline, prolonged length of stay, institutionalization, readmissions, increased healthcare costs, and mortality^{1–11}. Despite this reality, the majority of older adults are largely immobilized throughout their hospital stay. According to estimates in 2009 and 2013, hospital patients spend more than 95% of their time in a bed or chair^{4,12}.

One contributory factor to the epidemic of immobility is the tension between fall prevention and maintaining mobility¹³. In 2008, the Centers for Medicare and Medicaid Services (CMS) enacted new payment provisions that would no longer reimburse hospitals for higher-paying diagnosis-related groups resulting from 8 hospital-acquired conditions (which have come to be known as “Medicare no pay conditions”), including falls with injury¹⁴. As an unintended consequence, hospitals responded by limiting mobility to prevent falls. In fact, many hospitals now routinely use bed and chair alarms as part of their fall prevention programs¹⁵, which can substantially restrict patient mobility. This practice continues despite large randomized clinical trials that have clearly demonstrated that bed and chair alarms are ineffective at reducing either falls or injurious falls^{16,17}.

To counteract these trends, several mobility programs have been developed and tested to date, demonstrating that the hazards of immobility can be avoided. The Hospital Elder Life Program (HELP), which utilizes trained volunteers to ambulate patients three times daily, has demonstrated reduced falls, decreased hospital length of stay, decreased incidence of delirium, and maintenance of activities of daily living function^{18–25}. A clinical demonstration program consisting of a targeted gait and balance assessment by a physical therapist, followed by daily walks supervised by a recreation therapy assistant, increased discharges to home and decreased discharges to skilled nursing facilities²⁶. Another program using a trained research assistant to offer assistance with ambulation twice a day enabled patients to maintain their prehospitalization community mobility²⁷. In the intensive care unit, a program that initiated earlier physical therapy improved functional outcomes, decreased delirium, and increased ventilator-free days²⁸.

Despite the successes of these programs, widespread implementation of mobility programs has been limited. Thus, we conceptualized a new process—a Mobility Action Group (MACT) and Change Package—to catalyze change and enhance implementation at participating hospitals. We adapted an innovative Institute for Healthcare Improvement approach, which provided a framework that emphasizes engaging leaders and other key stakeholders to create system-wide, sustainable change. In this paper, we provide a description of MACT, where over 40 participating hospitals of all sizes across the U.S. were

provided with the framework, Change Package and other resources, and flexibility to select their change tactics and implementation plan.

Model Description: The Mobility Action Group and Change Package

Overview

As part of the Health and Aging Policy Fellowship (2016–2017), Dr. Sharon Inouye worked with the Centers for Medicare and Medicaid Innovation (CMMI) to develop a new care delivery model designed to facilitate quality improvement related to mobility in hospitals participating in CMMI's bundled payment programs. The overarching goal of the initiative was to improve mobility and decrease use of bed and chair alarms in hospitalized older adults. The MACT was based loosely on the Institute for Healthcare Improvement's Breakthrough Series²⁹, which recommends recruiting expert faculty, enrolling participating organizations and teams, and interspersing learning sessions with cycles of active testing and action. The active initiative occurred from March 23, 2017 through October 5, 2017. Figure 1 provides an overview of the MACT procedures.

Change Package and Toolkit

A MACT Change Package and Toolkit (Table 1 and Supplementary Table S1) was developed to provide a conceptual framework, roadmap, and step-by-step guide to enable teams to successfully implement mobility programs and to meet their mobilization goals at their hospitals. Toolkit materials (Supplementary Table S1) provided practical resources to facilitate implementation of a mobility program, and included mobility protocols, mobility assessments, implementation assessment tools, bed and chair alarm information, patient educational materials, staff-targeted materials, and a comprehensive bibliography of relevant articles.

Participating Hospitals

All hospitals participating in CMMI's bundled payment programs, Bundled Payments for Care Improvement (BPCI) and Comprehensive Care for Joint Replacement (CJR), were invited to attend a webinar titled "Increasing Mobility in Acute Care: Implications and Interventions in BPCI and CJR" held on March 23, 2017. At the end of the webinar, the MACT was announced, and the registration link for the April 27, 2017 kickoff session was publicized to those BPCI and CJR participant hospitals that attended the introductory webinar. A total of 191 individuals representing 110 hospitals expressed interest in participating in MACT and were considered as "potential participants". The individuals representing these hospitals were clinicians, including physicians, nurses, therapists, and social workers. Of the potential participating hospitals, 55% were large, 20% were medium, and 25% were small, as defined by the Healthcare Cost and Utilization Project National Inpatient Sample method³⁰. These organizations were geographically diverse, with 36% in the Midwest, 28% in Northeast, 17% in the West, and 17% in the South. Given that our program was ideally intended for about 20–25 hospitals, we put into place a formal agreement process, which needed to be signed by the hospital leader by week 8, that committed to assembly of a mobility team, regular participation in the action group sessions, provision of data, and ultimately, successful implementation of a mobility program. Forty

two hospitals completed the agreement and were considered formal “participants.” Twenty nine hospitals participated in five or more learning sessions, and fourteen hospitals submitted data. The fourteen hospitals that submitted data ranged in size from 14 to 634 beds, were located across the U.S., and included medical, surgical, and intensive care units. Supplementary Table S2 further describes the characteristics of the fourteen hospitals that submitted data.

MACT Learning Sessions

Nine learning sessions were held via webinar between April 27 to October 5, 2017. The MACT included five core faculty, with 2–3 faculty present during each session. The faculty provided brief presentations, highlighted the mobility programs in their organizations, and facilitated group discussion. Topics were chosen for each learning session to provide foundational concepts and to address questions posed by participants. Table 2 describes the topics discussed in each session. During the sessions, participants could view the speakers’ slides, respond to live polls, share and download resources, ask questions via chat or audio, and share experiences.

Selection of Change Tactics

During the first learning session, the MACT Change Package and Toolkit was introduced to participants, who were encouraged to select 2–3 change tactics to pursue during MACT. To provide examples, an abbreviated listing of change tactics can be seen in Table 1. Among the 110 potential participants, 59 potential participants had selected change tactics prior to the third learning session. The change tactics chosen by the most potential participants were: 1) to train and demonstrate safe mobility and body mechanics for nurses, nursing aides, sitters, physical therapy technicians or aides, and other “ambulators” (including volunteers), chosen by 17 (29%), 2) to set a baseline ambulation goal with a target of 3 walks a day, chosen by 10 (17%), and 3) to always consider maintaining mobility in all corrective actions for fall prevention, chosen by 8 (14%). As participants successfully implemented change tactics, they were encouraged to select and implement additional tactics. Implementation challenges were addressed in the toolkit and discussed throughout the learning sessions.

Peer support by sites

Throughout MACT, participants learned from others’ experiences. During the first two learning sessions, faculty shared lessons they learned from mobility programs at their organizations. In subsequent sessions, participants shared the successes and challenges they faced in their institutions and received insights from faculty and other sites. Surveys at the beginning and end of each learning session as well as multiple polls during sessions allowed participants to share their experiences with the group in real time. Participants also connected with each other outside of the learning sessions in an online community created for the MACT on a web platform hosted by CMMI, and shared resources on the platform.

Data Collection

Participants were encouraged to continuously collect data to evaluate the effectiveness of the implementation of their change tactics and to use that data to inform future cycles of change

tactics selection and implementation. Participants were asked to track and submit on a monthly cycle two standardized measures: the proportion of patients who walked at least 3 times daily and the proportion of patients who were on a bed or chair alarm daily. Participants were also encouraged to track and submit non-standardized measures important to their institutions, such as the use of physical restraints, falls, functional status, and staff injuries. Data collected from each participant was tabulated and shared at the learning sessions. Data collection challenges were addressed in the toolkit and discussed in detail during learning sessions.

Qualitative Feedback

Participants received feedback on their submitted data and the experiences shared during learning sessions. This feedback came from both faculty and participants from other sites and was intended to help participants as they proceeded to select and implement change tactics. After each session, participants were asked to fill out a short survey regarding the helpfulness of the session and whether they planned to take action as a result of something learned in the session. After the eighth learning session, participants were also asked to fill out a survey providing feedback on the helpfulness of the Change Package, Toolkit, and MACT more generally. At the conclusion of the MACT, nine participants volunteered to participate in in-depth qualitative interviews regarding their experience with the MACT.

Effectiveness: Outcomes of Program

Quantitative Data

The quantitative results were derived from the formal survey data as well as data collected from sites.

Implementation of mobility programs.—A formal feedback survey was obtained following the 8th learning session. Among the 42 formal participating hospitals, successful implementation of mobility programs was achieved at 32 (76%) of sites, with 18 (43%) considered fully implemented and an additional 14 (33%) considered partially implemented. The majority (54%) of organizations that implemented indicated a high likelihood that their mobility program would continue long-term.

Walks per day.—Among 14 hospitals submitting data, the proportion of patients who received at least 3 walks per day increased from 9% to 19% over the 14 weeks of active data collection (Figure 2), a 2-fold increase.

Use of bed and chair alarms.—Among 14 hospitals submitting data, the proportion of patients who were placed on a bed or chair alarm decreased from 36% to 20% over the 14 weeks of active data collection (Figure 2), a 1.8-fold reduction.

Qualitative Feedback

The qualitative feedback was derived from formal surveys, site interviews, and commentary (chat logs and brief surveys) from each learning session.

Implementation of mobility programs.—The majority of sites reported successful implementation, either partial or full. The Director of Innovations and Value-Based Programs at a participating hospital shared the following: *“We used the Change Package to create a training guide for staff. Mobility volunteers were recruited from nearby colleges. We used the Safe Patient Mobility Assessment from the Package to train volunteers, nursing assistants, and nurses. Within three weeks of starting the program, we had data sheets to give patients, markers on the walls for walking, and icons to put on the patient boards in their rooms. The basis of the program was simple and doesn’t take too much involved training, so it was easy to get moving.”*

Walks per day.—The majority of sites reported improvements in rates of ambulating patients, along with important clinical outcomes at their site. One nurse shared the following: *“We have a team of 11 specifically for mobility. Having a team specific to mobility has really helped and our hospital has really benefited from it. We have gotten up to about 367 walks per week. We have seen a reduction in length of stay, a decrease in the amount of patients needing to go to skilled facilities, and a decrease in our readmissions.”*

Use of bed or chair alarms.—A nurse manager at a participating hospital shared the following: *“Participating in this program helped us realize that bed and chair alarms are more of a deterrent for the patient to move. We educated our staff constantly saying it’s not a matter of using it but using it more appropriately in the right way. We have slowly gone from 95% to 74% of patients on alarms.”*

Key learnings for implementation.—Based on formal surveys, site interviews, and feedback during learning sessions, participants identified key learnings for future sites, summarized in Table 3. Participants emphasized the importance of involving as many leaders and disciplines as possible, identifying individuals responsible for ambulating patients, and ensuring all staff are trained in safe mobility. Participants also highlighted the value of documenting and reporting outcomes of interest to leaders for sustaining and expanding mobility programs.

Participant satisfaction and intent to take action.—There were very high satisfaction ratings and high intent to take action based on the ratings following the learning sessions. On average, 69% of session attendees report that they are “strongly satisfied with the event” and 56% of session attendees “strongly agree they will take action” as a result of something learned from the session. There was also very high satisfaction ratings based on the survey sent out after the 8th learning session. The majority of participants found the change package and toolkit “very helpful” (Change Package 58%, Toolkit 63%, respectively). One participant shared *“I loved the connections, the examples from other hospitals, the toolkits.”* Another shared *“I feel the group was very helpful in getting our program up and running. I appreciate the guidance and sharing from other facilities.”*

Participant engagement.—Participant engagement in live sessions became more robust during the later sessions. During the course of the action group, fourteen new resources were shared by participants, and these were downloaded 208 times.

Dissemination: Evidence of Feasible Implementation and Dissemination to Other Settings

After conclusion of the Mobility Action Group, the Change Package and Toolkit was revised based on participant feedback and made freely available online at <https://www.hospitalelderlifeprogram.org/for-clinicians/mobility-change-package>. Currently, the Mobility Toolkit has been downloaded >1200 times, and 52 individuals responded to a post-download survey. Of these respondents, 48% utilized the materials to establish a mobility program, 58% used the toolkit items at least monthly, 51% rated the mobility roadmap as extremely helpful, and 48% rated the bibliography as extremely helpful.

When asked to comment on how helpful the Mobility Change Package and Toolkit was for program implementation, the feedback was overwhelmingly positive. One respondent stated *“The packet was extremely helpful! It helped provide the foundational framework used for our program.”* Another found it was *“very helpful to coordinate all of the single efforts scattered across the system into a focused approach.”*

Discussion

The MACT and Change Package provided over 40 participating hospitals of varying sizes across the U.S. with an innovative framework, peer support, expert faculty, and resources to successfully create a culture of mobility in hospitalized older adults. While acknowledging the potential for selection bias, our results indicate that successful implementation of mobility programs was achieved at the majority (76%) of participating sites in medical, surgical, and intensive care units, with 43% of mobility programs fully implemented and an additional 33% partially implemented by the end of the active initiative. The majority (54%) reported a high likelihood that their mobility program would continue long-term. There was an over 2-fold increase in the proportion of patients who received at least 3 walks per day and a 1.8-fold reduction in use of bed or chair alarms across sites. As the lines in Figure 2 seem likely to continue their trajectory at the end of the study, we suspect that with more time, the increase in patient ambulation and reduction in use of bed or chair alarms might have continued in these positive trends. On average, 69% of participants were “strongly satisfied with the event” and 56% “strongly agree they will take action” following the sessions. The majority of participants (~60%) found the change package and toolkit “very helpful”.

In terms of subsequent dissemination, the Mobility Change Package and Toolkit has been disseminated to over 1200 additional individuals. Of those responding to a post-download survey, more than half found the materials extremely helpful and accessed its resources at least monthly; and 48% utilized the materials to establish a mobility program. This widespread uptake reinforces the usefulness of evidence-based development and evaluation of mobility programs with built-in flexibility allowing hospitals to align the program with their goals and priorities.

Strengths of this model include the adaptation of the innovative Institute for Healthcare Improvement’s approach focused in part on providing a framework that emphasizes

engaging leaders and other key stakeholders to create system-wide, sustainable change. The model is very flexible, allowing learning sessions to be targeted to learners and their concerns, and allowing participants to select their own change tactics and implementation plan according to local needs. The structural elements of a common aim and of a small set of common measures facilitates sharing among participants; the adaptation of integrating measures already in use by the hospitals decreased the threshold for participants. The model also provides participants with multiple resources, peer support, access to expert faculty, and opportunities to ask questions and receive real-time feedback and suggestions on implementation challenges from peers and expert faculty.

A challenge that several hospitals encountered was identifying people who could be responsible for ensuring frequent patient ambulation. One hospital successfully re-allocated job duties to make one nurse aide's duties entirely focused on ambulating patients. Another hospital effectively added responsibility for their physical therapy aides to ambulate a certain number of patients each day. Multiple hospitals successfully utilized volunteers to ambulate patients.

Another challenge faced by several hospitals were risk management concerns regarding falls during volunteer ambulation. Hospitals were able to alleviate risk managers' concerns by creating job descriptions for the volunteers, ensuring volunteers receive proper training both on safe ambulation and assisting patients to the ground when they do fall, and evaluating volunteers' competencies at regular intervals. Hospitals were assured that volunteers, with proper orientation and training, are considered unpaid hospital employees who are covered by the liability umbrella of the hospital. Hospitals with HELP volunteers shared that volunteers have successfully ambulated thousands of patients without any injurious falls or lawsuits. All participating hospitals were asked to ascertain and report falls during volunteer ambulation or other activities implemented through MACT. No such falls were reported throughout the initiative.

Another challenge several hospitals encountered was concerns from staff, especially nurses, that increasing ambulation and decreasing the use of bed and chair alarms would lead to increased falls. MACT participants were able to alleviate those concerns by educating staff that evidence from multiple studies have shown that ambulating patients actually decreases the risk of falls and that bed and chair alarms do not decrease the risk of falls. Hospitals benefited from having key nursing leaders on their mobility team promote the evidence for increasing mobility and ensuring nurses from all shifts were aware of the ineffectiveness and adverse effects of bed and chair alarms.

A limitation of this model is that a substantial number of participating hospitals became less involved over time, with only 29 out of 42 hospitals participating in five or more learning sessions. Given that participation in the program was voluntary, and half of the sessions occurred over the summer, we did not expect full retention and in fact achieved higher retention than expected. Another limitation is that only 14 participating hospitals submitted data over the course of the learning sessions. It was anticipated that only a portion of participants would submit data given this was a pragmatic study conducted in real-world settings, using manual data collection, without any funding for data collection. A

consideration for future Mobility Action Groups would be to provide incentives for participation and submission of data. Additionally, while the improving trends in mobility were substantial, they did not achieve the levels we had anticipated. Given that the intervention was of short duration, we believe that with more time, coupled with financial incentives, a more robust response might have emerged. Since this was a short-term program, ongoing support for the hospitals was not available after the MACT period ended due to feasibility constraints. This is an important limitation, since we anticipate that ongoing support (e.g., Google groups, webinars, conference calls, hotline) would be needed for long-term sustainability of these programs. Finally, generalizability may be limited given that only a limited number of hospitals from bundled payment programs participated; yet the hospitals themselves were diverse in size, type, and geographic location.

In summary, the MACT and Change Package provided over 40 participating hospitals of all sizes across the U.S. with an innovative framework, peer support, expert faculty, and resources to successfully create a culture of mobility in hospitalized older adults and implement mobility programs. Successful implementation of mobility programs was achieved at the majority (76%) of sites, with the majority of hospitals reporting that it is highly likely their mobility program will continue. Hospitals were able to significantly increase the proportion of older adults walking at least three times a day and decrease the proportion of older adults on bed or chair alarms. While our work is promising, it will be important to have future clinical trials to document whether an initiative like this could lead to decreased injurious falls, delirium, aspiration pneumonia, pressure ulcers, functional decline, prolonged length of stay, institutionalization, readmissions, healthcare costs, and mortality. This innovative and flexible approach emphasizing system-wide change can help catalyze cultures of mobility in hospitals across the nation, improving the quality of care for hospitalized older adults.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviated Title:

MACT	Mobility Action Group
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References

1. Covinsky KE, Pierluissi E, Johnston CB. Hospitalization-associated disability: “She was probably able to ambulate, but I’m not sure”. *JAMA*. 2011;306(16):1782–1793. [PubMed: 22028354]
2. Hoyer EH, Needham DM, Atanelov L, Knox B, Friedman M, Brotman DJ. Association of impaired functional status at hospital discharge and subsequent rehospitalization. *J Hosp Med*. 2014;9(5):277–282. [PubMed: 24616216]
3. Fisher SR, Kuo YF, Sharma G, et al. Mobility after hospital discharge as a marker for 30-day readmission. *J Gerontol A Biol Sci Med Sci*. 2013;68(7):805–810. [PubMed: 23254776]
4. Brown CJ, Redden DT, Flood KL, Allman RM. The underrecognized epidemic of low mobility during hospitalization of older adults. *J Am Geriatr Soc*. 2009;57(9):1660–1665. [PubMed: 19682121]
5. Mahoney JE, Sager MA, Jalaluddin M. New walking dependence associated with hospitalization for acute medical illness: incidence and significance. *J Gerontol A Biol Sci Med Sci*. 1998;53(4):M307–312. [PubMed: 18314571]
6. Hirsch CH, Sommers L, Olsen A, Mullen L, Winograd CH. The natural history of functional morbidity in hospitalized older patients. *J Am Geriatr Soc*. 1990;38(12):1296–1303. [PubMed: 2123911]
7. Ostir GV, Berges IM, Kuo YF, Goodwin JS, Fisher SR, Guralnik JM. Mobility activity and its value as a prognostic indicator of survival in hospitalized older adults. *J Am Geriatr Soc*. 2013;61(4):551–557. [PubMed: 23527951]
8. Wald HL, Ramaswamy R, Perskin MH, et al. The Case for Mobility Assessment in Hospitalized Older Adults: American Geriatrics Society White Paper Executive Summary. *J Am Geriatr Soc*. 2019;67(1):11–16. [PubMed: 30276809]
9. Brown CJ, Friedkin RJ, Inouye SK. Prevalence and outcomes of low mobility in hospitalized older patients. *J Am Geriatr Soc*. 2004;52:1263–1270. [PubMed: 15271112]
10. Lord RK, Mayhew CR, Korupolu R, et al. ICU early physical rehabilitation programs: Financial modeling of cost savings. *Crit Care Med*. 2013;41:717–724. [PubMed: 23318489]
11. Creditor MC. Hazards of hospitalization in the elderly. *Ann Intern Med*. 1993;118:219–223. [PubMed: 8417639]
12. Pedersen MM, Bodilsen AC, Petersen J, et al. Twenty-four-hour mobility during acute hospitalization in older medical patients. *J Gerontol A Biol Sci Med Sci*. 2013;68(3):331–337. [PubMed: 22972940]
13. Growdon ME, Shorr RI, Inouye SK. The Tension Between Promoting Mobility and Preventing Falls in the Hospital. *JAMA Intern Med*. 2017;177(6):759–760. [PubMed: 28437517]
14. Inouye SK, Brown CJ, Tinetti ME. Medicare nonpayment, hospital falls, and unintended consequences. *N Engl J Med*. 2009;360(23):2390–2393. [PubMed: 19494213]
15. Hempel S, Newberry S, Wang Z, et al. Hospital fall prevention: a systematic review of implementation, components, adherence, and effectiveness. *J Am Geriatr Soc*. 2013;61(4):483–494. [PubMed: 23527904]
16. Shorr RI, Chandler AM, Mion LC, et al. Effects of an intervention to increase bed alarm use to prevent falls in hospitalized patients: a cluster randomized trial. *Ann Intern Med*. 2012;157(10):692–699. [PubMed: 23165660]
17. Sahota O, Drummond A, Kendrick D, et al. REFINE (REducing Falls in In-patieNt Elderly) using bed and bedside chair pressure sensors linked to radio-pagers in acute hospital care: a randomised controlled trial. *Age Ageing*. 2014;43(2):247–253. [PubMed: 24141253]
18. Inouye SK, Bogardus ST, Charpentier PA, et al. A multicomponent intervention to prevent delirium in hospitalized older patients. *N Engl J Med*. 1999;340(9):669–676. [PubMed: 10053175]
19. Inouye SK, Bogardus ST, Baker DI, Leo-Summers L, Cooney LM. The Hospital Elder Life Program: a model of care to prevent cognitive and functional decline in older hospitalized patients. Hospital Elder Life Program. *J Am Geriatr Soc*. 2000;48(12):1697–1706. [PubMed: 11129764]
20. Rubin FH, Neal K, Fenlon K, Hassan S, Inouye SK. Sustainability and scalability of the hospital elder life program at a community hospital. *J Am Geriatr Soc*. 2011;59(2):359–365. [PubMed: 21314654]

21. Hsieh TT, Yue J, Oh E et al. Effectiveness of multicomponent nonpharmacological delirium interventions: A meta-analysis. *JAMA Intern Med.* 2015;175(4):512–520. [PubMed: 25643002]
22. Martinez FT, Tobar C, Beddings CI, Vallejo G, Fuentes P. Preventing delirium in an acute hospital using a non-pharmacological intervention. *Age Ageing.* 2012;41(5):629–634. [PubMed: 22589080]
23. Stenvall M, Olofsson B, Lundstrom M, et al. A multidisciplinary, multifactorial intervention program reduces postoperative falls and injuries after femoral neck fracture. *Osteoporos Int.* 2007;18(2):167–175. [PubMed: 17061151]
24. Babine RL, Farrington S, Wierman HR. HELP prevent falls by preventing delirium. *Nursing.* 2013;45(5):18–21.
25. Caplan GA, Harper EL. Recruitment of Volunteers to Improve Vitality in the Elderly: the REVIVE study. *Intern Med J.* 2007;37(2):95–100. [PubMed: 17229251]
26. Hastings SN, Sloane R, Morey MC, Pavon JM, Hoenig H. Assisted early mobility for hospitalized older veterans: preliminary data from the STRIDE program. *J Am Geriatr Soc.* 2014;62(11):2180–2184. [PubMed: 25354909]
27. Brown CJ, Foley KT, Lowman JD, et al. Comparison of Posthospitalization Function and Community Mobility in Hospital Mobility Program and Usual Care Patients: A Randomized Clinical Trial. *JAMA Intern Med.* 2016;176(7):921–927. [PubMed: 27243899]
28. Schweickert WD, Pohlman MC, Pohlman AS, et al. Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. *Lancet.* 2009;373(9678):1874–1882. [PubMed: 19446324]
29. Institute for Healthcare Improvement. The Breakthrough Series: IHI's Collaborative Model for Achieving Breakthrough Improvement 2003 (online). Available at <http://www.ihl.org/resources/Pages/IHIWhitePapers/TheBreakthroughSeriesIHIsCollaborativeModelforAchievingBreakthroughImprovement.aspx> Accessed September 10, 2019.
30. Agency for Healthcare Research and Quality. Healthcare Cost and Utilization Project NIS Description of Data Elements 2008 (online). Available at https://www.hcup-us.ahrq.gov/db/vars/hosp_bedsizes/nisnote.jsp Accessed October 29, 2019.

Figure 1:

Overview of Mobility Action Group. The Action Group was created with 110 potential participating hospitals which was later narrowed down to 42 formal participating hospitals. The action cycles were centered around 9 webinar learning sessions. Participants were encouraged to select and implement 2–3 change tactics during the first action cycle and add other change tactics in subsequent cycles based on data collected and feedback received from peers and faculty. Participants were expected to go through multiple action cycles during the initiative.

Figure 2:

Outcomes by Week: Walks or Bed/Chair Alarms. Line graphs representing proportion of hospitalized patients on a bed or chair alarm per day and proportion of patients who walked three or more times per day. Fourteen hospitals reported data for bed and chair alarms and walks per day. Weeks 1–14 represent the active data collection period from 5/12/17 – 8/18/17. This also represents Program Weeks 3–17 of the active webinar session.

Table 1.**Abbreviated Mobility Action Group Change Package**

Strategies	Change Concepts	Change Tactic Examples (truncated list)
1 – Create engagement in a mobility culture	Engender buy-in and engagement from patients and families	Communicate expectations for mobilization to patients and families (e.g., via patient/family brochures, white boards, or during rounds)
	Engender buy-in and engagement from executive, clinical and non-clinical staff	Enlist an interdisciplinary team to design the mobility program
2 – Assess and plan for mobility	Assess function and mobility throughout hospitalization	Use a progressive mobility tool or mobilization algorithm to re-assess patient mobility throughout their hospital stay and increase their activity/ambulation accordingly
	Include mobilization plan in every patient's Care Plan	Set baseline ambulation goal (distance), with target of 3 times/day
	Revise clinical protocols to promote mobility/ambulation (with assistance as needed)	Justify all bedrest orders, and the default should be ambulation
3 – Provide early mobilization with safe approaches for patients and staff	Train all staff in safe mobility	Train and demonstrate safe mobility and body mechanics for nurses, aides, sitters, PT techs, volunteers, 'ambulators'
	Ambulate/mobilize patients early and often	Walk patients at least 3 times/day
	Have appropriate assistive devices for every patient	Make walkers, canes, crutches, gait belts centrally available with easy and reliable 24-hour access
	Transition Falls Team to Mobility Team	Always consider maintaining mobility in all corrective actions for fall prevention
4 – Minimize immobilizing devices	Reduce/minimize bed and chair alarms	Develop system on floor/ward for purposeful hourly rounding (RNs and CNAs) and rapid response to call-bells
	Daily 'Patient Mobility' Scan to identify mobility barriers	Identify and reduce all tethers (urinary catheters, oxygen with short tubing, compression devices)

Full change package available at: <https://www.hospitalelderlifeprogram.org/for-clinicians/mobility-change-package/>

Table 2.

Description of Mobility Action Group Webinar Sessions

Session	Program Week	Goals	Topics discussed
1	1	Introduce program	<ul style="list-style-type: none"> -Overview of Mobility Action Group goals, structure, clinical framework, and change package -Risks of immobility and benefits of mobility -Strategies and tactics for initiating change -Recruiting and training mobility aides -Tracking and reporting measures
2	3	Importance of Measurement	<ul style="list-style-type: none"> -Importance of tracking key mobility measures and other measures in driving improved patient outcomes -Logistical considerations for tracking measures -Live demonstration of data entry
3	5	Choosing change tactics	<ul style="list-style-type: none"> -Change concepts and tactics -Assessing organizational readiness -Creating a culture of mobility
4	7	Forming and educating mobility teams	<ul style="list-style-type: none"> -Forming interdisciplinary teams and delegating roles -Educating staff and volunteers on safely providing early mobilization -Obtaining buy-in from leadership -Mobility measures and when they are most important -Assessing and enhancing function and mobility
5	9	Educating patients and families	<ul style="list-style-type: none"> -Educating patients and their families about mobility -Overcoming liability and risk management concerns about mobilization -Standardizing documentation of measurements
6	12	Reducing bed and chair alarms usage	<ul style="list-style-type: none"> -Evidence for reducing use of bed and chair alarms -Strategies and resources for reducing use of alarms -Educating staff to create large scale culture change around alarms
7	15	Using volunteers and non-professional staff	<ul style="list-style-type: none"> -Use of volunteers and non-professional staff to assist in mobility -Training, supporting, and recognizing volunteers and mobility aides -Overcoming concerns from risk management departments and staff unions -Outcomes noted by participating hospitals since starting mobility programs
8	17	Sustaining mobility programs	<ul style="list-style-type: none"> -Building sustainability in mobility programs -Developing a lasting culture of mobility -Communicating with and tracking outcomes important to hospital leaders -Publicizing mobility programs and outcomes -Practical next steps for mobility programs
9	24	Feedback and next steps	<ul style="list-style-type: none"> -Results of feedback survey -Accomplishments and lessons learned -Use of data for continuous quality improvement -Strategies and resources to sustain mobility programs

Table 3.**Key Lessons and Take Home Messages for Successfully Creating a Culture of Mobility in Acute Care****Start Up**

- Find your team: Form an interdisciplinary mobility team with as many disciplines (nursing, rehab, physicians, etc) as possible.
- Promote your program: Promote the mobility program widely (via staff meetings, flyers, emails, hallway markers, newsletters, local media, etc) and obtain buy-in from leadership, staff, and patients by letting them know how the program aligns with their goals.

Implementation

- Educate your staff: Educate staff on positive effects of ambulation and on ineffectiveness and adverse effects of bed and chair alarms.
- Identify your ambulators: Identify individuals responsible for ambulating patients. This can be PTs, PT aides, nurses, nurses' aides, volunteers, or family members.
- Train everyone: Train all staff and volunteers in safe mobility and body mechanics, including how to safely assist patients to the ground if they do fall. Train staff to conduct a brief physical or functional assessment to make sure a patient is safe to walk before having them walk.
- Describe their jobs: Provide job descriptions for volunteers and ensure that they receive proper education, training, and competency evaluations to help reassure risk management departments against liability risks.
- Provide equipment: Ensure proper equipment (gait belts, walker, canes, crutches, etc) is readily available in all hospital units.

Assessment

- Set goals: Set specific mobility goals, such as having patients ambulate 3 times per day.
- Document progress: Find a way to document walks and use of bed-chair alarm. Standardize where (whiteboard in patient's room, electronic medical record, etc) to document walks to ensure accurate tracking.
- Share successes: Generate unit-specific (and eventually hospital-wide) reports on mobility rates, falls rates, and other outcomes of interest so that staff can easily see progress towards goal. Be sure to obtain baseline rates first.

Sustainability

- Get leaders interested: Identify the outcomes hospital leaders are most interested in. These outcomes may include length of stay, hospitalization cost, readmissions, falls, restraints use, functional status, and patient satisfaction. Collaborate with other departments that track the outcomes of interest to obtain longitudinal data on patients in the mobility program and those who are not in the program.
- Get leaders invested: Present outcomes of mobility programs regularly to hospital leaders, committees, and other staff. Present business case for sustaining and expanding mobility programs.