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Our Mission: Helping to prepare Iowa's health practitioners to care for our growing population of elders. *E-NEWS* is one of our methods of teaching through technology.

Each month, *E-NEWS* delivers abstracts from current multidisciplinary healthcare journal articles related to a specific geriatric topic. This month's *E-NEWS* focuses on FALL PREVENTION.

FALL PREVENTION

In this issue of the *E-NEWS*, you will find abstracts for:

- An article that describes the development, implementation, and evaluation of an Interprofessional Falls Prevention Program (IFPP) for community-dwelling older adults.
 - An article that reviews single and multifactorial fall prevention programs for older adults.
 - An article that discusses fall prevention in assisted living.
 - An article that assesses a guideline for preventing acute care falls.
 - An article that analyzes the effectiveness of multifactorial versus exercise-alone interventions for preventing falls in older adults.
 - A study that evaluates the effectiveness of a multifactorial fall prevention program in the nursing home setting.
 - A study that seeks to determine the effects of exercise on the prevention of falls in older adults.
 - A study that investigates the efficacy of a multidisciplinary falls prevention clinic with an extended step-down community program.
 - An article that examines a fall prevention program and its effects on the incidence of falls in geriatric hospital wards.
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- Banez C, Tully S, Amaral L, Kwan D, Kung A, Mak K, Moghabghab R, Alibhai SM. Development, implementation, and evaluation of an Interprofessional Falls Prevention Program for older adults. *J Am Geriatr Soc.* 2008 Aug;56(8):1549-55.

This article describes the development and implementation of an Interprofessional Falls Prevention Program (IFPP) designed for community-dwelling seniors. The program was a collaborative pilot research study conducted in a retirement home and an outpatient hospital setting. The pilot was successful and was positioned into a permanent falls prevention program. The IFPP aimed at improving physical function and balance and reducing the fear of falling in seniors with a history of falls. The pilot study included an interprofessional falls assessment followed by a 12-week program of once-weekly group education and exercise sessions, 3- and 6-month follow-up visits, and individual counseling. To measure program effectiveness, the Berg Balance Scale, the Timed Up and Go Test, the Falls Efficacy Scale, and the Morse Fall Risk Scale were used at baseline, upon program completion, and at 3- and 6-month follow-up. Process measures were also collected, including patient satisfaction. Persistent improvements were found in participants' balance, strength, functional mobility, and fear of falling. Patient satisfaction with the program was high. Challenges faced in program implementation are also highlighted.



- Costello E, Edelstein JE. Update on falls prevention for community-dwelling older adults: review of single and multifactorial intervention programs. *J Rehabil Res Dev.* 2008;45(8):1135-52.

The incidence of falls, fall-related injuries, and fall-associated costs continue to rise along with the increase in the aging population. Community-based fall prevention programs for the elderly are proliferating in an attempt to address this health problem. Prevention programs vary widely in their scope, ranging from single intervention strategies to comprehensive multifactorial approaches. Programs have been offered to targeted groups of elderly individuals at high risk for falls and to nonselect groups of community-dwelling elderly adults. This article presents a review of randomized controlled trials that investigated the effectiveness of fall prevention programs for community-dwelling older adults. Following a comprehensive critical analysis of the literature, we present the following guidelines: (1) multifactorial fall prevention programs appear to be more effective for older individuals with a previous fall history versus a nonselect group; (2) medication and vision assessment with appropriate health practitioner referral should be included in a falls screening examination; (3) exercise alone is effective in reducing falls and should include a comprehensive program combining muscle strengthening, balance, and/or endurance training for a minimum of 12 weeks; and (4) home hazard assessment with modifications may be beneficial in reducing falls, especially in a targeted group of individuals.



- Mitty E, Flores S. Fall prevention in assisted living: assessment and strategies. *Geriatr Nurs.* 2007 Nov-Dec;28(6):349-57.

Residents in assisted living residences have similar risk factors for falls as do community-residing older adults and, as such, can benefit from the research findings on falls prevention conducted with that population. Some risk factors can be managed, such as, medication side effects, and muscle weakness; others such as degenerative neurological changes, cannot. Knowing a resident's falls history and conducting a full risk assessment, in combination with appropriate interventions, can reduce the probability of a future fall. Exercise appears to be the most effective factor in reducing the risk of falls and injuries from falls. The fear of falling, whether or not associated with a previous fall, is more common among older women and can seriously restrict their quality of life. This article describes evidence-based falls risk assessment instruments and interventions to reduce falls risk. Tai chi, for example, can reduce falls risk by improving balance. The article describes a standard fall prevention program for older adults that can be part of a resident's care or service plan, criteria for an occurrence report, quality improvement monitoring, and a formula to calculate the residence's monthly falls rate.



- Naqvi F, Lee S, Fields SD. Appraising a guideline for preventing acute care falls. *Geriatrics.* 2009 Mar;64(3):10-3, 26.

Although falling may seem like a simple event, in reality it is a complex medical issue leading to serious injuries including fractures, lacerations, soft tissue and traumatic brain injuries, and even death. The Nurses

Improving Care for Health System Elders (NICHE) guideline for falls prevention in acute care unit was formulated by incorporating recommendations from systematic reviews of the literature and advice from expert consensus. Recommendations include pre-fall risk assessment, utilization of a post-fall assessment tool, follow-up monitoring for 48 hours, and implementation of an individualized, multidisciplinary plan of care to address treatable problems that contributed to the fall and to prevent future falls. The guideline also calls for staff education.



- Petridou ET, Manti EG, Ntinapogias AG, Negri E, Szczerbinska K. What works better for community-dwelling older people at risk to fall?: a meta-analysis of multifactorial versus physical exercise-alone interventions. *J Aging Health*. 2009 Aug;21(5):713-29.

OBJECTIVE: To compare and quantify the effectiveness of multifactorial versus exercise-alone interventions in reducing recurrent falls among community-dwelling older people. METHOD: A meta-analysis of recently published studies on fall prevention interventions was conducted. Measure of the overall effectiveness was the combined risk ratio for recurrent falls, whereas heterogeneity was explored via metaregression analyses. RESULTS: Ten of the 52 identified studies met the preset criteria and were included in the analysis. The exercise-alone interventions were about 5 times more effective compared to multifactorial ones. Short-term interventions, smaller samples, and younger age related to better outcomes. DISCUSSION: From cost-efficiency and public health perspectives, exercise-alone interventions can be considered valuable, as they are more likely to be implemented in countries with less resources. Further qualitative research is needed, however, to explore determinants of willingness to participate and comply with interventions aiming to prevent recurrent falls among older people.



- Rapp K, Lamb SE, Büchele G, Lall R, Lindemann U, Becker C. Prevention of falls in nursing homes: subgroup analyses of a randomized fall prevention trial. *J Am Geriatr Soc*. 2008 Jun;56(6):1092-7.

OBJECTIVES: To evaluate the effectiveness of a multifactorial fall prevention program in prespecified subgroups of nursing home residents. DESIGN: Secondary analysis of a cluster-randomized, controlled trial. SETTING: Six nursing homes in Germany. PARTICIPANTS: Seven hundred twenty-five long-stay residents; median age 86; 80% female. INTERVENTION: Staff and resident education on fall prevention, advice on environmental adaptations, recommendation to wear hip protectors, and progressive balance and resistance training. MEASUREMENTS: Time to first fall and the number of falls. Falls were assessed during the 12-month intervention period. Univariate regression analyses were performed, including a confirmatory test of interaction. RESULTS: The intervention was more effective in people with cognitive impairment (hazard ratio (HR)=0.49, 95% confidence interval (CI)=0.35-0.69) than in those who were cognitively intact (HR=0.91, 95% CI=0.68-1.22), in people with a prior history of falls (HR=0.47, 95% CI=0.33-0.67) than in those with no prior fall history (HR=0.77, 95% CI=0.58-1.01), in people with urinary incontinence (HR=0.59, 95% CI=0.45-0.77) than in those with no urinary incontinence (HR=0.98, 95% CI=0.68-1.42), and in people with no mood problems (incidence rate ratio (IRR)=0.41, 95% CI=0.27-0.61) than in those with mood problems (IRR=0.74, 95% CI=0.51-1.09). CONCLUSION: The effectiveness of a multifactorial fall prevention program differed between subgroups of nursing home residents. Cognitive impairment, a history of falls, urinary incontinence, and depressed mood were important in determining response.



- Sherrington C, Whitney JC, Lord SR, Herbert RD, Cumming RG, Close JC. Effective exercise for the prevention of falls: a systematic review and meta-analysis. *J Am Geriatr Soc*. 2008 Dec;56(12):2234-43.

OBJECTIVES: To determine the effects of exercise on falls prevention in older people and establish whether particular trial characteristics or components of exercise programs are associated with larger reductions in falls. DESIGN: Systematic review with meta-analysis. Randomized controlled trials that compared fall rates in older people who undertook exercise programs with fall rates in those who did not exercise were included. SETTING: Older people. PARTICIPANTS: General community and residential care. MEASUREMENTS: Fall rates. RESULTS: The pooled estimate of the effect of exercise was that it reduced the rate of falling by 17% (44 trials with 9,603 participants, rate ratio (RR)=0.83, 95% confidence interval (CI)=0.75-0.91, P<.001, I(2)=62%). The greatest relative effects of exercise on fall rates (RR=0.58, 95% CI=0.48-0.69, 68% of between-study variability explained) were seen in programs that included a combination of a higher total dose

of exercise (>50 hours over the trial period) and challenging balance exercises (exercises conducted while standing in which people aimed to stand with their feet closer together or on one leg, minimize use of their hands to assist, and practice controlled movements of the center of mass) and did not include a walking program. CONCLUSION: Exercise can prevent falls in older people. Greater relative effects are seen in programs that include exercises that challenge balance, use a higher dose of exercise, and do not include a walking program. Service providers can use these findings to design and implement exercise programs for falls prevention.



- Sze PC, Cheung WH, Lam PS, Lo HS, Leung KS, Chan T. The efficacy of a multidisciplinary falls prevention clinic with an extended step-down community program. *Arch Phys Med Rehabil.* 2008 Jul;89(7):1329-34.

OBJECTIVE: To investigate the efficacy of a falls prevention clinic and a community step-down program in reducing the number of falls among community-dwelling elderly at high risk of fall. DESIGN: Prospective cohort. SETTING: Community. PARTICIPANTS: Community-dwelling elderly (N=200) were screened for risk of fall; 60 were identified as being at high risk and were referred to the intervention program. INTERVENTION: Twelve sessions of a once-a-week falls prevention clinic, including fall evaluation, balance training, home hazard management program, and medical referrals, were provided in the first 3 months. The community step-down program, including falls prevention education, a weekly exercise class, and 2 home visitations, was provided in the following 9 months. MAIN OUTCOME MEASURES: Fall rate, injurious fall, and its associated medical consultation were recorded during the intervention period and the year before intervention. Balance tests included the Berg Balance Scale (BBS), Sensory Organization Test, and limits of stability test; fear of falling, as evaluated using the Activities-specific Balance Confidence (ABC) scale, was measured at baseline and after the training in the falls prevention clinic. RESULTS: Significant reductions in fall rate (74%), injurious falls (43%), and fall-associated medical consultation (47%) were noted. Significant improvement in balance scores (BBS, $P < .001$; endpoint excursion in limits of stability test, $P = .004$) and fear of falling (ABC scale, $P = .001$) was shown. CONCLUSIONS: The programs in the falls prevention clinic were effective in reducing the number of falls and injurious falls. The community step-down programs were crucial in maintaining the intervention effects of the falls prevention clinic.



- von Renteln-Kruse W, Krause T. Incidence of in-hospital falls in geriatric patients before and after the introduction of an interdisciplinary team-based fall-prevention intervention. *J Am Geriatr Soc.* 2007 Dec;55(12):2068-74.

Falls are among the most common unwanted events in older hospital inpatients, but evidence of effective prevention is still limited compared with that in the community and in long-term care facilities. This article describes a prevention program and its effects on the incidence of falls in geriatric hospital wards. It was a prospective cohort study with historical control including all 4,272 patients (mean age 80, 69% female) before and 2,982 (mean age 81, 69% female) after introduction of the intervention. The intervention included fall-risk assessment on admission and reassessment after a fall; risk alert; additional supervision and assistance with the patients' transfer and use of the toilet; provision of an information leaflet; individual patient and caregiver counseling; encouragement of appropriate use of eyeglasses, hearing aids, footwear, and mobility devices; and staff education. Measurements included standardized fall-incidence reporting, activity of daily living and mobility status, number of falls and injurious falls, and number of patients who fell. Before the intervention was introduced, 893 falls were recorded. After the intervention was implemented, only 468 falls were recorded (incidence rate ratio (IRR)=0.82, 95% confidence interval (CI)=0.73-0.92), 240 versus 129 total injurious falls (IRR=0.84, 95% CI=0.67-1.04), 10 versus nine falls with fracture (IRR=1.40, 95% CI=0.51-3.85) and 611 versus 330 fallers. The relative risk of falling was significantly reduced (0.77, 95% CI=0.68-0.88). A structured multifactorial intervention reduced the incidence of falls, but not injurious falls, in a hospital ward setting with existing geriatric multidisciplinary care. Improvement of functional competence and mobility may be relevant to fall prevention in older hospital inpatients.



Next Month's Issue:

Urinary Incontinence in Older Adults

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