



**Regional Geriatric Program  
of Toronto**

*Affiliated with the University of Toronto*

Reference List on Geriatric Emergency Management – June 30, 2005

Adams, J. G. and L. W. Gerson (2003). "A new model for emergency care of geriatric patients." *Academic Emergency Medicine* 10: 271-274.

Adunsky, A., Levy, R, Heim, M, Mizrahi, E and Arad, M. (2002). "Meperidine analgesia and delirium in aged hip fracture patients." *Archives of Gerontology and Geriatrics* 35(3): 253-259.

Aminzadeh, F. and W. B. Dalziel (2002). "Older adults in the emergency department: a systematic review of patterns of use, adverse outcomes and effectiveness of interventions." *Annals of Emergency Medicine* 39: 238-247.

Basic, D., D. Conforti, et al. (2002). "Standardised assessment of older patients by a nurse in an emergency department." *Australian Health Review* 25(4): 50-8.

The primary aim of this study was to evaluate the ability of a nurse practitioner in geriatrics, working in the emergency department of a tertiary referral hospital, to assess high-risk elderly patients comprehensively. A secondary aim was to explore patient characteristics associated with referral to community aged care services. Of 469 patients assessed by the nurse, 327 (70%) were admitted to the hospital. A comprehensive set of data was obtained for 334 (71%) patients. For 142 patients not admitted, 163 new referrals were made, mostly to the Aged Care Assessment Team. Those referred were more likely to be living alone and non-English speaking. They were also less satisfied with the support they received from family and friends. A single nurse working in a busy emergency department can successfully identify patients with increased care needs, and direct high-risk patients to existing services.

Beveridge, R., Ducharme, J, Janes, L., Beaulieu, S., Walter, S. (1999). "Reliability of the Canadian emergency department triage and acuity scale: Interrater Agreement." *Annals of Emergency Medicine* 34: 155-159.

Birrer, R., Singh, U. and Kumar, D.N. (1999). "Disability and dementia in the emergency department." *Emerg Med Clin North Am.* 17(2): 505-517.

Bridges, J., J. Meyer, et al. (2000). "A health visitor for older people in an accident and emergency department." *British Journal of Community Nursing* 5(2): 75-80.

Published studies indicate that older people have special needs on discharge from accident and emergency (A&E) departments that are not always fully met. The literature reflects that although a significant proportion of older people have a decrease

in functional independence and an increased need for services following discharge from A&E, social and functional assessment by A&E staff can be inadequate, as can the arrangement of follow-up community services. As part of a wider study into the organization of care for older people in A&E, a health visitor for older people was funded to work part-time in the A&E department of a large NHS Trust. The health visitor identified potential clients through reviewing the A&E documentation of patients aged 75 years or over discharged directly from A&E. Telephone calls or home visits were used to follow up those individuals deemed to be vulnerable by the health visitor. Interventions included health education, referral to other agencies and patient or family counselling. None of the clients followed up by the health visitor (n = 212) had been referred by A&E to a specialist in gerontology, which suggests that these clients would otherwise not have received the potential benefit of specialist intervention. The pilot study described here highlights a number of practical issues in relation to the health visitor post for older people in A&E, including the importance of dedicated office space and access to a telephone. Data collected during the study, plus the positive evaluation of the role by a small group of A&E staff confirm the claims made in other studies (e.g. Runciman et al, 1996) that health visitors for older people may be of value in meeting the post-discharge needs of these people.

Bridges, J., J. Meyer, et al. (2000). "Organisation of care for older people in A&E." *Emergency Nurse* 8(3): 22-6.

Brookoff, D. a. M.-H., M. (1994). "Emergency department-based home care." *Annals of Emergency Medicine* 23: 1101-1106.

Brymer, C. (1996). "Geriatric education needs assessment of emergency department nurses." *Gerontology and Geriatrics Education* 17(1): 51-64.

Caplan, G., Brown, A., Croker, W. et al. (1998). "Risk of admission within 4 weeks of discharge of elderly patients from the emergency department." *Age and Ageing* 27: 697-702.

Caplan, G., Timmiss, P., Abrahams, K. et al. (2000). "How can we help older patients after the emergency? A randomized controlled trial of comprehensive geriatric assessment after discharge of elderly from the emergency department. The DEED II Study."

Cherry, J. and J. Reid (2001). "Fast-tracking older people through A&E." *Nursing Standard* 15(16): 42-4.

This article explores the concept and feasibility of fast-tracking older people through A&E services to enable appropriate admission and quality responsive patient care. It illustrates how an academic assignment undertaken as part of a pre-registration programme could be adapted for publication to challenge thinking and encourage examination of potential new ways of working. [References: 27]

Chioyenda, P., G. M. Vincentelli, et al. (2002). "Cognitive impairment in elderly ED patients: need for multidimensional assessment for better management after discharge." *American Journal of Emergency Medicine* 20(4): 332-5.

We describe the prevalence of cognitive impairment in a population aged 65 and older requiring urgent medical services and to propose global evaluation, involving cognitive, functional and social aspects, during the emergency department (ED) visit to

define an individualized care protocol. A total of 150 patients aged 65 and older attended at the ED were screened for cognitive impairment using the Mini-Mental State Examination (MMSE). Patients with an MMSE score lower or equal to 23 were included in the second step of the study, namely evaluation involving neuropsychological instruments to assess cognitive and functional status and a questionnaire exploring socioeconomic conditions and type of support need. Cognitive impairment was detected in 24 patients (16%). In no case of mild impairment had a cognitive deficit already been diagnosed. The functional and socioeconomic profile enabled proposing a strategy for better management of the patients discharged by the ED. Copyright 2002, Elsevier Science (USA). All rights reserved.)

Clarfield, A., Bergman, H., Kane, R. (2001). "Fragmentation of care for frail older people - an international problem. Experience for three countries: Israel, Canada and the United States." *Journal of the American Geriatrics Society* 49: 1714-1721.

Clarke, M. E. a. P., W. (1999). "Management of elder abuse in the emergency department." *Emerg Med Clin North Am.* 17(3): 631-644.

Crane, K. and L. Sparks (1999). "An admission avoidance team: its role in the Accident & Emergency department." *Accident & Emergency Nursing* 7(2): 91-5.

The recent problems and pressures felt by Accident and Emergency departments around the country led a team at Newham Hospital, London, to develop a scheme to prevent frail elderly and vulnerable younger patients being unnecessarily admitted, thus blocking acute hospital beds. This paper outlines the creation of the scheme, its aims and practice, and early results.

Criss, E. A. and L. K. Honeycutt (2000). "20 challenges of geriatric care." *Journal of Emergency Medical Services* 25(4): 26-37.

Responding to incidents involving geriatric patients presents multiple challenges and considerations for care. A variety of changes occur to the human anatomy, the physiological functions of the body and emotional state as an individual ages. Understanding these changes, their effect on medication administration and treatment options is important for the EMS provider. The elderly represent a rapidly growing segment of our prehospital patient population. More people will reach age 65 by 2020 than at any other time in the world's history. Many of these individuals will present to the EMS system in need of emergency care and may have multiple chronic conditions that will complicate your patient assessment and available treatment options. Knowing the relationship between aging and a patient's overall health provides the best basis for treating this precious population.

Currie, C., Lawson, P., Robertson, C. et al. (1984). "Elderly patients discharged from an accident and emergency departments their dependency and support." *Arch Emerg Med* 1: 205-213.

Delbaere, K., Crombes, G. (2004). "Fear-related avoidance of activities, falls and physical frailty. A prospective community-based cohort study." *Age and Ageing* 33(4): 368-373.

Dendukuri, N., J. McCusker, et al. (2004). "The identification of seniors at risk screening tool: further evidence of concurrent and predictive validity." *Journal of the American Geriatrics Society* 52(2): 290-6.

**OBJECTIVES:** To evaluate the validity of the Identification of Seniors at Risk (ISAR) screening tool for detecting severe functional impairment and depression and predicting increased depressive symptoms and increased utilization of health services. **SETTING:** Four university-affiliated hospitals in Montreal. **DESIGN:** Data from two previous studies were available: Study 1, in which the ISAR scale was developed (n=1,122), and Study 2, in which it was used to identify patients for a randomized trial of a nursing intervention (n=1,889 with administrative data, of which 520 also had clinical data). **PARTICIPANTS:** Patients aged 65 and older who were to be released from an emergency department (ED). **MEASUREMENTS:** Baseline validation criteria included premorbid functional status in both studies and depression in Study 2 only. Increase in depressive symptoms at 4-month follow-up was assessed in Study 2. Information on health services utilization during the 5 months after the ED visit (repeat ED visits and hospitalization in both studies, visits to community health centers in Study 2) was available by linkage with administrative databases. **RESULTS:** Estimates of the area under the receiver operating characteristic curve (AUC) for concurrent validity of the ISAR scale for severe functional impairment and depression ranged from 0.65 to 0.86. Estimates of the AUC for predictive validity for increased depressive symptoms and high utilization of health services ranged from 0.61 to 0.71. **CONCLUSION:** The ISAR scale has acceptable to excellent concurrent and predictive validity for a variety of outcomes, including clinical measures and utilization of health services.

Denman, S., Ettinger, W., Zarkin, B. et al. (1989). "Short-term outcomes of elderly patients discharged from an emergency department." *Journal of American Geriatric Society* 37: 937-943.

Drew, B. L., Mion, L.C., Meldon, S.W., Khalil, M.Y., Beaver, A. and Ghazai-Haddad, L. (2004). "Effect of environment and research participant characteristics on data quality." *West J Nurs Res.* 26(8): 909-921.

Dziedzic, L., W. J. Brady, et al. (1998). "The use of the mini-mental status examination in the ED evaluation of the elderly." *American Journal of Emergency Medicine* 16(7): 686-9.

This study was done to examine the impact of the mini-mental status examination (MMSE) in the emergency department (ED) evaluation of the elderly patient. The study was a prospective study of the MMSE applied by the investigators with a comparison to the findings of the treating physician, in a university hospital ED with annual volume of 60,000. Participants were a convenience sample of patients older than 65 years of age without apparent mental status abnormality presenting to the ED. Seventy-four patients were entered in the study with 43 exclusions (23 with low educational level, 5 with Glasgow Coma Scale score of <15, and 15 other) leaving 31 cases for analysis. Of the 31 patients, 20 patients had an MMSE score of <24. The MMSE findings agreed with the treating physicians' assessments in 21 (67%) cases. Disagreement occurred in 10 (32%) cases in which the treating physician believed that both the patient's mental status and results of the investigator's MMSE were normal; these 10 cases all involved low MMSE scores as performed by the investigator. When informed of the abnormal MMSE, both the physician's estimate of the patient's mental status and the patient's ED course were altered in all cases. These results show that the MMSE is a valuable screening tool to assess the mental status of the elderly in the ED setting. Unexpected abnormality was noted in a significant minority of patients in this

study, altering the patient's course in all instances. The MMSE should be considered in evaluation of all geriatric patients encountered in the ED.

Elmstahl, S., Wahlfrid, C. (1999). "Increased medical attention needed for frail elderly initially admitted to the emergency department for lack of community support." *Aging* 1: 56-60.

Fabacher, D. A., N. Raccio-Robak, et al. (2002). "Validation of a brief screening tool to detect depression in elderly ED patients." *American Journal of Emergency Medicine* 20(2): 99-102.

Although depression is the most common psychiatric disorder in the elderly, it is often unrecognized by physicians. The objective of the study was to assess the utility of a 3-question screening instrument (ED-DSI) to detect depression among elderly emergency department (ED) patients. We used a prospective convenience sample of English-speaking ED patients  $\geq 65$ yr. Patients were excluded for being too ill to participate, having obvious dementia, or acute changes in mentation. A physician administered the ED-DSI. Trained research personnel blinded to ED-DSI answers then administered the 30 question Geriatric Depression Scale (GDS). The ED-DSI was considered positive if the patient answered yes to one or more questions and subjects were considered depressed when the GDS score was  $\geq 10$ . ED-DSI was compared to GDS using contingency tables. A total of 103 subjects were enrolled. Average age was 75 years and subjects were predominately female (66%) and white (85%). GDS identified 33 patients (32%) as depressed. Of these, 26 were correctly identified by ED-DSI giving an ED-DSI sensitivity of 79% (95%CI (65%, 93%)) specificity of 66% (95%CI (54%, 78%)) and a negative predictive value of 87% (95%CI (79%, 95%)). The 3-question ED-DSI is a useful tool to detect depression in this population of ED patients. Copyright 2002, Elsevier Science (USA). All rights reserved.)

Ferrell, B. (2000). "Pain Management." *Clinical Geriatric Medicine* 16(4): 853-874.

Ferrera, P. (1999). "Geriatric trauma: outcomes of elderly patients discharged from the ED." *American Journal of Emergency Medicine* 17(7): 629-632.

Fisher, R. H. (2002). "The role of specialized geriatric services in acute hospitals." *Geriatrics and Aging* 5(5): 48-51.

Fletcher, A. a. R., A. (2003). "Three-in-one femoral nerve block as analgesia for fractured neck or femur in the emergency department: a randomized, controlled trial." *Annals of Emergency Medicine* 41(2): 227-233.

Fletcher, P. a. H., J. (2004). "Restriction in activity associated with fear of falling among community-based seniors using home care services." *Age and Ageing* 33(3): 273-279.

Gerson, L., Counsell, S., Fonanarosa, P. and Smucker, W. (1994). "Case finding for cognitive impairment in elderly emergency department patients." *Annals of Emergency Medicine* 23(4): 813-817.

Gerson, L., Rousseau, E., Hogna, T. et al. (1995). "Multicenter study of case finding in elderly emergency department patients." *Acad Emerg Med* 2: 729-734.

Gillick, M. (2002). "Do we need to create geriatric hospital?" *Journal of the American Geriatric Society* 50(1): 174-177.

Gold, S. and H. Bergman (1997). "A geriatric consultation team in the emergency department." *Journal of the American Geriatrics Society* 45: 764-767.

Gurley, R. a. L., N. (1996). "Persons found in their homes helpless or dead." *New England Journal of Medicine* 334(26): 1710-1716.

Hamdy, C., Forest, L., Moore, S. and Cancellaro, L. (1997). "Use of emergency departments by the elderly in rural areas." *South Med. Journal* 90(6): 616-620.

Hedges, J., Singal, B., Rousseau, E. et al. (1992). "Geriatric patient emergency visits. Part II: Perceptions of visits by geriatric and younger patients." *Annals of Emergency Medicine* 21: 808-813.

Howland, J. a. L., M. (1998). "Covariates of fear of falling and associated activity curtailment." *Gerontologist* 38(5): 549-555.

Hustey, F. M., Medon, S.W., Banet, G.A., Gerson, L.W., Blanda, M. and Lewis, L.M. (2005). "The use of abdominal computer tomography in older ED patient with acute abdominal pain." *Am J Emerg Med* 23(3): 259-265.

Hustey, F. M. and S. W. Meldon (2002). "The prevalence and documentation of impaired mental status in elderly emergency department patients.[see comment]." *Annals of Emergency Medicine* 39(3): 248-53.

**STUDY OBJECTIVE:** We sought to determine the prevalence of mental status impairment in elderly emergency department patients and to assess documentation of and referrals by emergency physicians for mental status impairment after discharge from the ED. **METHODS:** We performed a prospective, observational study of a convenience sample of 297 patients 70 years or older presenting to an urban teaching hospital ED over a 12-month period. Patients were screened with the Orientation-Memory-Concentration examination for cognitive impairment and the Confusion Assessment Method for delirium. Documentation, dispositions, and referrals were abstracted from chart review. **RESULTS:** Two hundred ninety-seven of the 337 eligible patients were enrolled. Seventy-eight of the 297 (26%; 95% confidence interval [CI] 21% to 31%) patients had mental status impairment; 30 (10%; 95% CI 7% to 14%) had delirium; 48 (16%; 95% CI 12% to 20%) had cognitive impairment without delirium; 17 (6%; 95% CI 3% to 9%) screened positive on both examinations. Only 22 (28%; 95% CI 19% to 40%) of the 78 patients had any documentation of mental status impairment by the emergency physician. Specific mention of delirium, cognitive impairment, or an acceptable synonym was noted in 13 (17%; 95% CI 9% to 27%). Of 34 (44%; 95% CI 32% to 55%) patients with mental status impairment discharged home, only 6 (18%; 95% CI 7% to 35%) had plans documented by the emergency physician to address impairment. Eleven (37%; 95% CI 20% to 56%) of the 30 patients with delirium were discharged home. Sixteen (70%; 95% CI 47% to 87%) of the 23 patients with cognitive impairment who were discharged home had no prior history of dementia; these patients were less likely to have specialized assistance with care (13%; 95% CI 4% to 27%) than those with known dementia (58%; 95% CI 28% to 85%). **CONCLUSION:** Impaired mental status is common among older ED patients. Lack of documentation, admission, or referral by emergency physicians suggests a lack of recognition of this important problem.

Hustey, F. M., S. W. Meldon, et al. (2003). "The effect of mental status screening on the care of elderly emergency department patients." *Annals of Emergency Medicine* 41(5): 678-84.

**STUDY OBJECTIVES:** We determine the effect of screening examinations for mental status impairment on the care of elderly patients in the emergency department and prospectively assess recognition of mental status impairment by emergency physicians. **METHODS:** We performed a prospective cross-sectional study. Patients were 70 years of age or older and presented to an urban teaching hospital ED over a 17-month period. Mental status impairment screening comprised the Orientation Memory Concentration examination for cognitive impairment and the Confusion Assessment Method for delirium. Emergency physicians who were blinded to the patient's screening results were interviewed to assess recognition of mental status impairment, dispositions, and referrals. Results of mental status impairment screens were then given to emergency physicians, and emergency physicians were reinterviewed regarding any change in care. **RESULTS:** Two hundred seventy-one of the 327 eligible patients were enrolled. Seventy-four (27%; 95% confidence interval [CI] 22% to 33%) patients had impaired mental status. Nineteen (7%; 95% CI 4% to 11%) had delirium, and 55 (20%; 95% CI 16% to 25%) had cognitive impairment without delirium. Mental status impairment was recognized in only 28 (38%; 95% CI 27% to 50%) of 74 patients: 3 (16%; 95% CI 3% to 40%) of 19 with delirium and 25 (46%; 95% CI 32% to 59%) of 55 with cognitive impairment without delirium. Emergency physicians altered management in none of the study patients on the basis of survey results. Five (26%; 95% CI 9% to 51%) of the 19 patients with delirium were discharged to home. Of these 5 patients discharged to home with unrecognized delirium, 1 presented with fall, 2 returned 3 days later and required hospitalization, and 1 with a history of colon cancer was given a new diagnosis of metastatic disease 4 days after the initial ED visit. **CONCLUSION:** Mental status impairment is highly prevalent in older ED patients. There is a lack of recognition by emergency physicians of mental status impairment in this group. Screening tools for mental status impairment in the ED did not substantially alter the care of elderly patients with mental status impairment.

Khan, S. A., F. G. Miskelly, et al. (1996). "Missed diagnoses among elderly patients discharged from an accident and emergency department." *Journal of Accident & Emergency Medicine* 13(4): 256-7.

**OBJECTIVE:** To investigate how often elderly patients are discharged from an accident and emergency (A&E) department with unrecognized but remediable problems. **METHODS:** Over a period of six months, 174 elderly patients fulfilling inclusion criteria for the study were discharged from A&E, and of these 97 (56%) agreed to be reviewed in the day hospital. They were assessed by a doctor, nurse, physiotherapist, occupational therapist, speech therapist, and social worker. A full blood count, urea and electrolytes, liver and thyroid function tests, a chest radiograph, and an electrocardiogram were performed. A Barthel activity of daily living index was performed on the first visit and before discharge. **RESULTS:** 28% had missed diagnoses which benefited from day hospital attendance and a further 13 patients had been admitted before they could attend day hospital. Those patients presenting with falls and living alone constituted a high risk group. **CONCLUSIONS:** Elderly patients attending A&E merit special consideration to detect underlying medical or social problems.

Krimm, J. a. H., M. (2002). "Domestic violence screening in the emergency department of an urban hospital." *Journal of the National Medical Association* 94(6): 484-491.

Lachs, M., Feinstein, A., Cooney, L. Drickamer, M., Marrotti, R., Pannill, F. et al. (1990). "A simple procedure for general screening for functional disability in elderly patients." *Annals of Internal Medicine* 112: 699-706.

Lee, V., B. Ross, et al. (2001). "Functional assessment of older adults in an emergency department." *Canadian Journal of Occupational Therapy - Revue Canadienne d Ergotherapie* 68(2): 121-9.

The fast paced nature of emergency medicine often precludes assessment of patient functioning which may have significant consequences for geriatric patients including falls, functional decline and/or hospital re-admission. A rehabilitation consultation service to a hospital emergency department was implemented based on recommendations in the literature that functional assessments and a multidisciplinary approach be used with older adults. A systematic method of targeting and assessing elderly at-risk patients included a safety checklist and a comprehensive functional assessment tool. An observational study of 80 patients receiving functional assessments from rehabilitation professionals is described. Patients with high levels of disability or who lived alone prior to the emergency visit were more likely to be admitted to hospital. This study supports using multidisciplinary efforts and comprehensive functional assessments in emergency departments to guide decision-making about discharge outcome and planning for the health care needs of elderly patients.

Madden, J., Hogan, D. and Maxwell, C. (2002). "The prevalence of geriatric syndromes and their effect on the care and outcome of patients aged 75 years of age and older presenting to an emergency department." *Geriatrics Today: J. Can Geriatrics Society* 5: 69-75.

McConnel, C. a. W., R. (1998). "The demand for prehospital emergency services in an aging society." *Social Science and Medicine* 7(3): 249-259.

McCusker, J., Ardman, O., Bellavance, F. et al. (2001). "Use of community services by seniors before and after an emergency visit." *Can J Aging* 20: 193-209.

McCusker, J., F. Bellavance, et al. (1999). "Validity of an activities of daily living questionnaire among older patients in the emergency department." *Journal of Clinical Epidemiology* 52(11): 1023-30.

The objective of this study was to determine the validity of French and English versions of the Older American Resources and Services (OARS) activities of daily living (ADL) questionnaire using a premorbid reference period among older emergency department (ED) patients. A sample of 404 ED patients aged 65 and over participating in a study of functional decline was invited to participate in a clinical assessment shortly after their ED visit. The OARS ADL questionnaire was administered either to the patient or a proxy informant at the ED visit. The clinical assessment was conducted by a nurse, blind to the OARS score, using the Functional Autonomy Measurement System (SMAF). Disability scores for the OARS and SMAF were computed, based on the patient's premorbid status. Assessments were conducted in 213 patients (52.7%). The OARS summary scores, a total and an ordinal score, were highly correlated with the SMAF total disability score (Spearman's  $r$  of 0.80 and 0.79, respectively). Similar correlations were found for French and English versions. The OARS ADL questionnaire with a premorbid

reference period appears to be valid when administered in the ED, both in French and English.

McCusker, J., F. Bellavance, et al. (2000). "Prediction of hospital utilization among elderly patients during the 6 months after an emergency department visit." *Annals of Emergency Medicine* 36(5): 438-45.

**STUDY OBJECTIVE:** A simple screening tool, Identification of Seniors at Risk (ISAR), developed for administration in the emergency department for patients 65 years and older, predicts adverse health outcomes during the 6 months after the ED visit. In this study, we investigated whether the ISAR tool can also predict acute care hospital utilization in the same population. **METHODS:** Patients 65 years and older who visited the EDs of 4 acute care Montreal hospitals during the weekday shift over a 3-month period were enrolled. At the initial (index) ED visit, 27 self-report screening questions (including the 6 ISAR items) were administered. The number of acute care hospital days during the 6 months after the index visit were abstracted from the provincial hospital discharge database. High utilization was defined as the top decile of the distribution of acute care hospital days. **RESULTS:** Among 1,620 patients with linked data, a score of 2+ on the ISAR tool predicted high hospital utilization with a sensitivity of 73% and a specificity of 51%; the area under the receiver operating characteristic curve was 0.68. The ISAR tool also performed well in subgroups defined by disposition (admitted versus discharged) and by age (65 to 74 years versus 75 years and older). **CONCLUSION:** The ISAR tool, a 6-item self-report questionnaire, can be used in the ED to identify elderly patients who will experience high acute care hospital utilization as well as adverse health outcomes.

McCusker, J., F. Bellavance, et al. (1998). "Screening for geriatric problems in the emergency department: reliability and validity. Identification of Seniors at Risk (ISAR) Steering Committee." *Academic Emergency Medicine* 5(9): 883-93.

**OBJECTIVE:** To determine the test-retest reliability and concurrent criterion validity of a self-report ED screening questionnaire for adverse outcomes in elders. **METHODS:** A cohort of 1,885 patients aged  $>$  or  $=$  65 years were recruited from the EDs of 4 Montreal hospitals. Patients were excluded if they could not be interviewed because of their clinical status or cognitive impairment and no informant was available. The screening questionnaire, administered in the ED, contained 27 items on social, physical, and mental risk factors, medical history, and use of hospital services, medications, and alcohol. A random sample of 404 patients were invited to participate in a clinical assessment 1-3 weeks after the ED visit, that included re-administration of the screening questionnaire, and standardized instruments to assess disability, social resources, depression, alcohol use and abuse, and current medications. **RESULTS:** Study data were collected from 221 patients (54.7%), of whom 193 were included in the test-retest reliability analyses and 213 in the analyses of concurrent validity. The concordance correlation coefficient for test-retest reliability of the risk factor score was 0.78 (95% confidence interval: 0.71, 0.83;  $n=193$ ). Several screening questions showed moderately good agreement with the appropriate criterion standard, particularly those on visual and hearing impairment, depression, and use of medications. The best subset of 9 screening questions explained approximately half of the variance in the total disability score. **CONCLUSIONS:** The screening questionnaire score has good test-retest reliability, but individual screening questions have, at best, modest concurrent validity. The final set of screening questions should be selected based on their predictive validity.

McCusker, J., F. Bellavance, et al. (1999). "Detection of older people at increased risk of adverse health outcomes after an emergency visit: the ISAR screening tool." *Journal of the American Geriatrics Society* 47(10): 1229-37.

**OBJECTIVES:** To develop a self-report screening tool to identify older people in the emergency department (ED) of a hospital at increased risk of adverse health outcomes, including: death, admission to a nursing home or long-term hospitalization, or a clinically significant decrease in functional status. **DESIGN:** Prospective (6-month) follow-up study of a cohort of ED patients aged 65 and older. **SETTING:** The EDs of four acute-care hospitals in Montreal, Quebec, Canada. **PARTICIPANTS:** Community-dwelling patients aged 65 and older who came to the EDs during the weekday shift over a 3-month recruitment period. Patients were excluded if they could not be interviewed either because of their medical condition or because of cognitive impairment and no other informant was available. **MEASUREMENTS:** Measures ascertained at the ED visit included: 27 self-report screening questions on social, physical, and mental risk factors; medical history; use of hospital services, medications, and alcohol; and the Older American Resources and Services (OARS) activities of daily living (ADL) scale. At follow-up, the OARS scale was readministered by telephone, and other adverse health outcomes were ascertained. **RESULTS:** Among 1673 patients who completed the follow-up measures, 488 (29.2%) had an adverse health outcome. Scale development and selection methods included logistic regression, receiver operating characteristic curves, and expert judgment. The proposed screening tool (ISAR) comprises six self-report questions on functional dependence (premorbid and acute change), recent hospitalization, impaired memory and vision, and polymedication. The tool performed well in the total cohort aged 65 and older, and in sub-groups defined by disposition (admitted or released from ED), language of questionnaire administration (French or English), information source (patient or other), and other characteristics. **CONCLUSIONS:** The ISAR is a short self-report questionnaire that can quickly identify older patients in the ED at increased risk of several adverse health outcomes and those with current disability.

McCusker, J., S. Cardin, et al. (2000). "Return to the emergency department among elderly: patterns and predictors." *Academic Emergency Medicine* 7: 249-259.

McCusker, J., N. Dendukuri, et al. (2003). "Rapid two-stage emergency department intervention for seniors: impact on continuity of care.[see comment]." *Academic Emergency Medicine* 10(3): 233-43.

**OBJECTIVES:** A two-stage intervention comprising screening and a brief standardized nursing assessment and referral, for emergency department (ED) patients aged 65 years and over, reduced the rate of functional decline four months after the visit, without increasing societal costs. In this study, the authors investigated the effects of the intervention on the process of care at, and during the month after, the ED visit. **METHODS:** Patients at four Montreal hospital EDs were randomized by day of visit to the intervention or to usual care. Patients admitted to the hospital were excluded. Measures of process of care included: referrals and visits to the primary physician and to the local community health center, for home care or other services, and return ED visits. Data sources included hospital charts, patient questionnaires, and provincial administrative databases. **RESULTS:** The study sample included 166 intervention and 179 control group patients ready for discharge from the ED. Intervention group patients were more likely to have a chart-documented referral to their local community health center [adjusted odds ratio (OR) 4.0, 95% confidence interval (95% CI) = 1.7 to 9.5] and their primary physician [adjusted OR 1.9, 95% CI = 1.0 to 3.4], and to have received home care

services one month after the ED visit [adjusted OR 2.3, 95% CI = 1.1 to 5.1]. Unexpectedly, they were also more likely to make a return visit to the ED [adjusted OR 1.6, 95% CI = 1.0 to 2.6]. CONCLUSIONS: The beneficial outcomes of the intervention appear to result primarily from the early provision of home care rather than early contact with the primary physician.

McCusker, J., P. Jacobs, et al. (2003). "Cost-effectiveness of a brief two-stage emergency department intervention for high-risk elders: results of a quasi-randomized controlled trial." *Annals of Emergency Medicine* 41: 45-56.

McCusker, J., Kakuma, R., and Abrahamowicz, M. (2002). "Predictors of functional decline in hospitalized elderly patients: A systematic review." *Journal of Gerontology: Medical Sciences* 57A(9): M569-577.

McCusker, J., J. Verdon, et al. (2001). "Rapid emergency department intervention for older people reduces risk of functional decline: results of a multicenter randomized trial." *Journal of the American Geriatrics Society* 49: 1272-1281.

McCusker, J., Verdon, J., Caplan, G.A., Meldon, S.W. and Jacobs, P. (2001). "Older persons in the emergency medical care system." *Journal of American Geriatric Society* 49(10): 1390-1392.

McDonald, A. J. a. A., S.T. (1990). "Social emergencies in the elderly." *emerg Med Clin North Am.* 8(2): 443-459.

Meldon, S. W., L. C. Mion, et al. (2003). "A brief risk-stratification tool to predict repeat emergency department visits and hospitalizations in older patients discharged from the emergency department." *Academic Emergency Medicine* 10: 224-232.

Meldon, S. W., Mion, L., Palmer, R., Emerman, C. and Bass, D. (2000). "Case finding of at-risk elders in the emergency department (ED): A multicenter study." *Acad Emerg Med* 7(10): 1166.

Meldon, S. W., Reilly, M., Drew, B.L., Mancuso, C., and Fallon, W. Jr. (2002). "Trauma in the very elderly: a community-based study of outcomes at trauma and nontrauma centers." *J Trauma* 52(1): 79-84.

Meldson, S. W., Emerman, C.L., Moffa, D.A. and Schubert, D.S. (1999). "Utility of clinical characteristics in identifying depression in geriatric ED patients." *Am J Emerg Med* 17(6): 522-525.

Miller, D. K., L. M. Lewis, et al. (1996). "Controlled trial of a geriatric case-finding and liaison service in an emergency department.[see comment]." *Journal of the American Geriatrics Society* 44(5): 513-20.

OBJECTIVE: To evaluate the effects of a program of case-finding and liaison service for older patients visiting the emergency department. DESIGN: Nonrandomized controlled trial with systematically assembled intervention cohort and matched control group. SETTING: An urban teaching hospital. PARTICIPANTS: There were 385 intervention subjects aged 65 years and older and 385 control subjects matched by day of visit, gender, and age within 5 years. INTERVENTIONS: Geriatric medical, dental and social problems were identified in intervention subjects by a geriatric nurse clinician using well validated assessment instruments during a 30-minute evaluation. Recommendations

were made to the patient, family, and attending emergency department physician, and attempts were made to arrange appropriate follow-up services. MEASUREMENTS: Frequency with which geriatric problems were identified in intervention subjects; physician, patient, and family compliance with recommendations; and mortality, institutionalization, health status, use of medical and social services, presence of an advanced directive, and quality of life at 3-month follow-up. RESULTS: Sixty-seven percent of patients were dependent in at least one activity of daily living, 82% had at least one geriatric problem identified, and 77% reported at least one unmet dental or social support need. The cost of identifying geriatric and dental/social issues was \$5 and \$1, respectively, for each problem. Physicians complied with 61.6% of suggestions, and patients and families complied with 36.6% of recommendations. Mortality and nursing home residence proportions at 3 months were not significantly different (9.3% vs 9.7% and 5.0% vs 2.5% in intervention and control groups, respectively). Intervention subjects reported more difficulty communicating (21% fair or poor ability vs 13%,  $P = 0.2$ ) than did control subjects. There were strong trends for fewer subsequent visits to emergency departments (0.26 intervention vs 0.39 control,  $P = .06$ ) and more advance directives in the intervention group (6.7% intervention vs 2.9% control,  $P = .07$ ). There was no statistically or clinically significant difference in any other health outcome. The number of new dental or social services initiated per patient over the 3-month follow-up was nearly identical (1.7 in the intervention group vs 1.5 in the control). Results in subjects aged 75 years and older and those discharged home from the emergency department were essentially identical to those in the main group. CONCLUSIONS: Numerous previously unrecognized geriatric medical and social problems can be detected in older persons visiting the emergency department. Despite this, an emergency department-based geriatric assessment and management program failed to produce improved outcomes. This suggests that either disease acuity is an overwhelming factor in subsequent outcome or, alternatively, more control over medical and social service delivery during and after the emergency department visit than was demonstrated in this program will be required before successful outcomes can be assured.

Mion, L. C., R. M. Palmer, et al. (2001). "Establishing a case-finding and referral system for at-risk older individuals in the emergency department setting: the SIGNET model." *Journal of the American Geriatrics Society* 49: 1379-1386.

Mion, L. C., R. M. Palmer, et al. (2003). "Case finding and referral model for emergency department elders: a randomized clinical trial.[see comment]." *Annals of Emergency Medicine* 41(1): 57-68.

**STUDY OBJECTIVE:** Elderly emergency department patients have complex medical needs and limited social support. A transitional model of care adapted from hospitals was tested for its effectiveness in the ED in reducing subsequent service use. **METHODS:** A randomized clinical trial was conducted at 2 urban, academically affiliated hospitals. Participants were 650 community-residing individuals 65 years or older who were discharged home after an ED visit. Main outcomes were service use rates, defined as repeat ED visits, hospitalizations, or nursing home admissions, and health care costs at 30 and 120 days. Intervention consisted of comprehensive geriatric assessment in the ED by an advanced practice nurse and subsequent referral to a community or social agency, primary care provider, and/or geriatric clinic for unmet health, social, and medical needs. Control group participants received usual and customary ED care. **RESULTS:** The intervention had no effect on overall service use rates at 30 or 120 days. However, the intervention was effective in lowering nursing home admissions at 30 days (0.7% versus 3%; odds ratio 0.21; 95% confidence interval [CI] 0.05 to 0.99) and in increasing patient satisfaction with ED discharge care (3.41 versus 3.03; mean difference

0.37; 95% CI 0.13 to 0.62). The intervention was more effective for high-risk than low-risk elders. CONCLUSION: An ED-based transitional model of care reduced subsequent nursing home admissions but did not decrease overall service use for older ED patients. Further studies are needed to determine the best models of care for this setting and for at-risk patients.

Moons, P., H. Arnauts, et al. (2003). "Nursing issues in care for the elderly in the emergency department: an overview of the literature." *Accident & Emergency Nursing* 11(2): 112-20.

Emergency care is an important link in the chain of care for geriatric patients. Due to the specific physiological, psychological, and social needs of elderly people, the type and quantity of emergency care are different for this group of patients than for other age groups. Consequently, they have a significant impact on the health care system. Doctors and nurses working in an emergency department must be aware of this specific situation and adjust the care that they provide accordingly. Appropriate communication between health care providers and patients, a sound assessment of functional status and cognitive ability, and specific attention to verbal and written discharge guidelines are indispensable. [References: 33]

Morrison, R. S. a. S., A.L. (2000). "A comparison of pain and its treatment in advanced dementia and cognitively intact patients with hip fracture." *Journal of Pain Symptom Management* 19(4): 240-248.

Nyden, K., M. Petersson, et al. (2003). "Unsatisfied basic needs of older patients in emergency care environments - obstacles to an active role in decision making." *Journal of Clinical Nursing* 12(2): 268-74.

Little attention is paid in Emergency Care Units (ECUs) in Sweden to the special needs of older people. The aim of this study was thus to analyse older people's basic needs in the emergency care environment. The study was carried out with a life-world interpretative approach, and the theoretical framework for interpretation was Abraham Maslow's theory of motivation and personality. Seven informants aged between 65 and 88 years, with various experiences of being patients with urgent as well as non-urgent health-related problems, were interviewed about their experiences of ECU care. Their basic needs at the lower levels of Maslow's hierarchy were well-represented in the data. Higher needs, such as desire to know and understand, appeared to be totally neglected. Safety needs dominated the whole situation. Our conclusion is that standards of care must be developed in Sweden to make older patients feel safer and more secure in ECUs. Furthermore, the principles of nursing care for older patients need to be defined in order to encourage them to take an active part in their own health process.

Old, J. L. a. C., M. (2004). "Vertebral compression fractures in the elderly." *American Family Physician* 69(1): 111-116.

Parboosingh, E. a. L., D. (1987). "Factors influencing frequency and appropriateness of utilization of the emergency room by the elderly." *Medical Care* 25(12): 1139-1147.

Parker, M. (2004). "Pre-operative traction for fractures of the proximal femur." *Cochrane Database Syst. Rev.* 3: CD000168.

Poncia, H., Ryan, J. and Carver, M. (2000). "Next day telephone follow up of the elderly: a needs assessment and critical incident monitoring tool for the accident and emergency department." *Emergency Department Journal* 17: 337-340.

Reeson, C. and M. Wafer (2001). "Falls in accident and emergency departments." *Nursing Standard* 15(50): 33-7.

**BACKGROUND:** The records of 192 attendees at an accident and emergency department was audited. The aim of the audit was to identify the type of client at risk of falling, demography, fall events and medication history. **CONCLUSION:** The findings suggest that a more co-ordinated and integrated approach to assessment and treatment of older people could greatly reduce the occurrence of falling in these at-risk clients.

Richardson, D. B. (1992). "Elderly patients in the emergency department." *Med J Aust* 157: 234-239.

Rubenstein, L. Z. (1996). "The emergency department: a useful site for CGA?[comment]." *Journal of the American Geriatrics Society* 44(5): 601-2.

Runciman, P., Currie, C., Nicol, M. et al. (1996). "Discharge of elderly people from an accident and emergency department: Evaluation of health visitor follow-up." *J Adv Nurs* 24: 711-718.

Sanders, A. B. (2001). "Older persons in the emergency medical care system.[see comment][comment]." *Journal of the American Geriatrics Society* 49(10): 1390-2.

Sanders, A. B. (2002). "Missed delirium in older emergency department patients: a quality-of-care problem.[comment]." *Annals of Emergency Medicine* 39(3): 338-41.

Sayers, G. M. (1997). "Non-admitted elderly in the accident and emergency department." *Irish Journal of Medical Science* 166(4): 263-6.

The aim of the study was to identify the functional disabilities and support needs of elderly people who presented but were not admitted to a Dublin Accident & Emergency (A & E) department within a 1 month period. Semi-structured interviews were conducted with 19 per cent (100/532) of the non-admitted elderly within 2 weeks of the A & E visit. Injury related complaints were apparent in 51 per cent of the patients with 3 per cent requiring hospital admission within 2 weeks of the A & E visit. Increased dependency in 1 or more Activities of Daily Living (ADL) occurred in 10 per cent while 28 per cent had increased dependency in 1 or more Instrumental Activities of Daily Living (IADL). Increased family support following discharge was received by 45 per cent of the elderly. The most commonly needed statutory service which was not provided was the home-help service. This study provides baseline data on the non-admitted elderly in one Dublin A & E department and should assist planning of future service.

Shah, M. N., C. Glushak, et al. (2003). "Predictors of emergency medical services utilization by elders." *Academic Emergency Medicine* 10(1): 52-8.

**OBJECTIVE:** Elders (age > or = 65 years) frequently use emergency medical services (EMS) for care. Understanding reasons for EMS use by elders may allow better management of EMS demand. To the best of the authors' knowledge, no studies have identified patient characteristics associated with EMS use by elders. This study aimed to identify patient attributes associated with elder EMS users. **METHODS:** This was a

prospective cohort study of non-institutionalized elders presenting to an urban university hospital emergency department. Nine hundred thirty elder patients completed the survey. The authors asked patients about access to care, health beliefs, and reasons for requesting EMS assistance. Univariate and logistic regression were used to identify predictors of EMS use. RESULTS: The sample had a mean age of 76 years; 37% were male; 79% were African American. Thirty percent arrived via EMS. Sixty-five percent of those transported and 46% of those not transported by EMS were admitted to the hospital ( $p < 0.001$ ). Reported reasons for using EMS transport included immobility (33%), illness (22%), request by others (21%), instruction from health care providers (10%), and lack of transportation (10%). Logistic regression identified symptom onset within four hours of seeking care (OR = 3.1), age  $\geq$  85 years (OR = 1.63), increased deficiencies in activities of daily living (OR = 1.40 per deficiency), worse physical functioning (OR = 1.14/10 points), and worse social functioning (OR = 1.06/10 points) as factors associated with EMS use. CONCLUSIONS: Elders report using EMS because of immobility, perceived medical needs, or requests by others. Similarly, the presence of acute illness symptoms, older age, and poor social and physical function, rather than health beliefs, predict EMS use among elders. These factors must be considered when managing the demand for EMS services.

Shaw, F. E., J. Bond, et al. (2003). "Multifactorial intervention after a fall in older people with cognitive impairment and dementia presenting to the accident and emergency department: randomised controlled trial.[see comment][erratum appears in BMJ. 2003 Mar 29;326(7391):699]." *BMJ* 326(7380): 73.

OBJECTIVE: To determine the effectiveness of multifactorial intervention after a fall in older patients with cognitive impairment and dementia attending the accident and emergency department. DESIGN: Randomised controlled trial. PARTICIPANTS: 274 cognitively impaired older people (aged 65 or over) presenting to the accident and emergency department after a fall: 130 were randomised to assessment and intervention and 144 were randomised to assessment followed by conventional care (control group). SETTING: Two accident and emergency departments, Newcastle upon Tyne. MAIN OUTCOME MEASURES: Primary outcome was number of participants who fell in year after intervention. Secondary outcomes were number of falls (corrected for diary returns), time to first fall, injury rates, fall related attendances at accident and emergency department, fall related hospital admissions, and mortality. RESULTS: Intention to treat analysis showed no significant difference between intervention and control groups in proportion of patients who fell during 1 year's follow up (74% (96/130) and 80% (115/144), relative risk ratio 0.92, 95% confidence interval 0.81 to 1.05). No significant differences were found between groups for secondary outcome measures. CONCLUSIONS: Multifactorial intervention was not effective in preventing falls in older people with cognitive impairment and dementia presenting to the accident and emergency department after a fall.

Shelton, P., M. A. Sager, et al. (2000). "The community assessment risk screen (CARS): identifying elderly persons at risk for hospitalization or emergency department visit." *American Journal of Managed Care* 6(8): 925-33.

OBJECTIVE: To develop and validate an instrument for identifying community dwelling elderly patients at increased risk for hospitalizations or emergency department (ED) encounters. STUDY DESIGN: Prospective cohort study. PATIENTS AND METHODS: The development cohort consisted of 411 Medicare fee-for-service patients and the validation cohort consisted of 1054 individuals enrolled in a Medicare Risk Demonstration. Baseline demographic, health status, and utilization measures were obtained from

telephone interviews and mailed questionnaires. Service utilization data for the development cohort were obtained from Medicare claims files. Utilization and cost data for the validation cohort were obtained from submitted claims. RESULTS: Logistic regression identified 3 characteristics that were predictors of hospitalizations or ED visits during the following year in the development cohort: having 2 or more comorbidities, taking 5 or more prescription medications, and having had a hospitalization or ED encounter in the previous 12 months. A scoring system (range 0 to 9) was developed for each predictor variable and patients in the validation cohort were assigned to low (0 to 3) and high (4 to 9) risk categories. When compared with the low-risk group, the high-risk group was significantly ( $P < .01$ ) more likely to be hospitalized (33% versus 14%), to have an ED visit (34% versus 15%), and to have higher per-member-per-month (PMPM) charges (\$977 versus \$445) during the following 12 months. CONCLUSION: The Community Assessment Risk Screen (CARS) is a simple instrument that can be used to identify elderly patients who are at higher risk for health service use and increased costs.

Sinoff, G., A. M. Clarfield, et al. (1998). "A two-year follow-up of geriatric consults in the emergency department." *Journal of the American Geriatrics Society* 46: 716-720.

Spilsbury, K., J. Meyer, et al. (1999). "Older adults' experiences of A&E care." *Emergency Nurse* 7(6): 24-31.

Steel, K. and T. Grifone (1998). "Guidelines for care of the elderly.[comment]." *Annals of Emergency Medicine* 32(1): 115-6.

Taylor, D. M., Wolfe, R. and Camerson, P.A. (2002). "Complaints from emergency department patients largely result from treatment and communication problems." *Emerg Med* 14(1): 43-49.

Taylor, L. J. a. H., K. (2003). "Pain intensity assessment: a comparison of selected pain intensity scales for use in cognitively intact and cognitively impaired African American older adults." *Pain Management Nursing* 4(2): 87-95.

Tinetti, M. E., Baker, D.I. et al. (1994). "A multifactorial intervention to reduce the risk of falling among elderly people living in the community." *New England Journal of Medicine* 331(13): 821-827.

Tinetti, M. E., Speechley, M. et al. (1988). "Risk factors for falls among elderly persons living in the community." *New England Journal of Medicine* 319(26): 1701-1707.

Voyer, P. and L. Sych-Norrena (2003). "Gerontology. Challenges in emergency room care for the elderly.[see comment]." *Canadian Nurse* 99(1): 22-4.

Weir, R., Browne, G., Byrne, C. et al. (1998). "The efficacy and efficiency of the quick response program: A randomized controlled trial." *Can J Aging* 17: 272-295.

Wilber, S. T. and L. W. Gerson (2003). "A research agenda for geriatric emergency medicine.[see comment]." *Academic Emergency Medicine* 10(3): 251-60.

OBJECTIVES: The Research Agenda Setting Process (RASP), part of the American Geriatric Society's (AGS's) project "Increasing Geriatric Expertise in Surgical and Related Medical Specialties," was designed to define a research agenda for the geriatrics aspects of participating specialties. This paper presents a summary of the research agenda for emergency medicine. METHODS: The RASP was developed by the AGS in conjunction

with experts from the participating specialty organizations. A "content expert" (CE) for each specialty developed a Medline search strategy in conjunction with RAND Health librarians. The CE reviewed the search to identify papers that were germane to research in the emergency care of older patients. The CE and a senior writing group member drafted a paper that synthesized the current literature and suggested areas for further research. A panel consisting of AGS members and emergency physicians with geriatrics expertise reviewed this paper. The research agenda was further refined at a two-day retreat. Two senior geriatricians reviewed the resulting paper. RESULTS: The Medline search for emergency medicine resulted in a list of 3,348 articles; 299 articles were pertinent and reviewed. The search for trauma resulted in a list of 1,838 articles; 133 were reviewed. Research agenda items were defined for multiple topics within geriatric emergency medicine and trauma. CONCLUSION: A research agenda for geriatric emergency medicine has been developed, using a combination of review of current literature and expert opinion.

Yeaw, E. M. and P. A. Burlingame (2003). "Identifying high-risk patients from the emergency department to the home." *Home Healthcare Nurse* 21(7): 473-80.