Introduction

Learn how a feeding assistance intervention protocol can help nursing home staff to individualize mealtime assistance so that residents at risk for weight loss get the foods and fluids they need from a support program that is manageable for staff.

UNINTENTIONAL WEIGHT LOSS: A COMMON PROBLEM AMONG NURSING HOME RESIDENTS

For the past 10 years, Dr. Sandra F. Simmons, PhD has been devising and testing non-medical interventions to improve nutrition and prevent dehydration among nursing home residents, thereby helping to prevent unintentional weight loss among this vulnerable population. The impetus for this work derives from a substantial body of research that supports two conclusions:

1. Under-nutrition and dehydration are common problems among nursing home residents (1-5); and
2. These problems are associated with unintentional weight loss and can lead to a host of other problems for older adults including delayed wound healing and increases in the rates of hospitalizations and death (6-10).

The many causes of weight loss, under-nutrition, and dehydration in the frail elderly—depression, dementia, and reduced senses (taste, smell, hunger, thirst), to name a few—suggest many possible solutions to these problems. Recent evidence, however, suggests that the amount and quality of feeding assistance provided to residents during and/or between regularly-scheduled meals is possibly the most powerful determinant of their daily food and fluid intake (11-16). Thus, it makes sense to direct weight loss prevention efforts toward improving feeding assistance care quality.

RESEARCHERS TAKE A GOOD LOOK AT NUTRITIONAL CARE QUALITY

With this in mind we set out to first assess, and then improve, the quality of feeding assistance in nursing homes. Our approach has been somewhat unorthodox, and not only because it is based heavily on common sense. Throughout, we have employed quality control techniques that are more commonly used in factory assembly lines than in nursing homes. “Show me the food!” we demanded; the medical charts can wait.

Our researchers have spent hours in nursing home dining rooms, observing the staff, the residents, the meal tray service, and recording what’s done, what’s said, and what’s eaten. In addition to clip boards, paper and pencils, the tools of our trade include disposable or digital cameras, for shooting before and after photos of meal trays, to ensure reliable estimates of food consumption, and stopwatches, for timing every phase of the feeding assistance process, from transportation to the dining room and meal tray set-up to actual provision of feeding assistance and tray clearance. When you station yourself in the dining room, as we have, to directly observe mealtime routines, you see things that would otherwise escape notice if your only information source was resident charts.

"Nurse Aides consistently overestimate by 15% or more the amount of food and fluids consumed by residents"

Consider these findings:

- Nurse aides consistently overestimate residents' mealtime food and fluid consumption by as much as 15% to 20%, on average so many residents who are potentially at risk for weight loss, under-nutrition, and dehydration are not identified by staff when examining only a resident's "percent eaten" documented in their medical record (17-19). Other research groups have reported similar error rates in nursing home staff estimation of residents' oral intake during meals (20,21). Moreover, one of our studies showed that there was a systematic error rate in nurse aide estimation of residents' oral intake; that is, the *less* a resident ate, the more likely staff were to *over*estimate the resident's consumption (17).
- The majority of residents are at risk for under-nutrition and dehydration due to low food and fluid intake (17-19). These residents consistently eat less than 75% of their meals, one criterion used in federally mandated resident assessments, called Minimum Data Set or MDS assessments, to identify individuals potentially at risk for weight loss and under-nutrition due to low intake.
- Most facilities do not have enough direct care staff to adequately assist all residents who need assistance during mealtimes (13-15, 22); this finding is in accord with a recent report to Congress, which noted that nine out of 10 nursing homes in the United States have too few direct care staff to consistently provide daily feeding assistance care, and other daily care routines (e.g., toileting assistance, walking assistance, repositioning programs) to all residents in need (23).
- Due to understaffing, nurse aides "triage" residents at mealtimes, with the most functionally and cognitively impaired individuals, those who wouldn't eat a bite if someone didn't put it in their mouth, getting the most help (14,15,19).
- The others are physically capable of eating on their own, with little or no assistance from staff, which is, in fact, all the help they get (14,15,19).
- Of this latter group, many are at high risk for under-nutrition, dehydration, and weight loss because they do not eat enough on their own (14,15,19).
- These at-risk residents don't consume many calories between meals either, though the staff often believe they do. Staff usually are surprised by our findings based on direct observations, which show that residents consume, on average, fewer than 100 calories from additional foods and fluids (snacks) and oral liquid nutrition supplements between meals. However, also based on our own direct observations, staff do not consistently offer residents additional foods and fluids between meals nor do they provide appropriate assistance to encourage consumption—even when the resident has a physician or dietitian order to receive snacks or supplements (15,24,25).

MEALTIME INTERVENTION HELPS HALF OF AT-RISK RESIDENTS

Clearly these findings point to a serious problem with the adequacy and quality of feeding assistance in nursing homes. If you're now thinking, as we did, that the obvious solution is to assign more staff to help at mealtimes, then think again. We tried that in three nursing homes: Assigned our own highly trained staff to provide one-on-one feeding assistance over six consecutive meals to each of 74 residents who were consistently under-eating (14). Working within the context of a standardized protocol, we coaxed, cajoled, and conversed with each resident for about 40 minutes per meal, doing everything we could think of to get the person to eat more. About half did eat more, significantly more, increasing their intake by 30% on average.

The other half did not increase their consumption. For a sub-sample of these residents, we provided an additional two days of individualized feeding assistance—to no avail. Despite our best efforts, they still ate less than half of the food on their plates at meals.

BETWEEN-MEAL SNACK INTERVENTION HELPS THE OTHER HALF

Not satisfied with these results, we offered all residents who did not increase their food and fluid consumption in response to mealtime feeding assistance a tempting array of between-meal snacks three times a day (10am, 2pm, and 7pm) for two days. Again, we sat and visited with each person during the snack period, providing feeding assistance as needed. It worked, and although the residents ate and drank more at snack time, they didn't eat or drink less at mealtimes. On average, these residents consumed an additional 380 calories per day from snacks (15).

This finding suggests yet another reason why some nursing home residents do not eat or drink enough on a daily basis: They have a small appetite, which means they will eat and drink only a small amount at any one time. Thus, offering between-meal snacks three times a day doubles the number of opportunities that residents have to eat to six times per day, which leads them to increase their overall daily consumption. The results of a separate study showed that offering residents a choice among a variety of foods and fluids was more cost-effective in increasing residents' between meal caloric intake than offering residents oral liquid nutrition supplements alone – the most common nutrition intervention (26). Residents preferred alternative foods and fluids to supplements, and due to residents' preference for snacks, this approach required less staff time (26). Offering residents a choice of assorted fluids between meals also leads to increased fluid intake and a decrease in dehydration, an important outcome because residents who are not eating enough during meals generally are not drinking enough either (27).

ADVANTAGES OF THE COMBINED WEIGHT LOSS PREVENTION INTERVENTION

When paired together, our mealtime and snack interventions combine to create a single very powerful and, equally important, *feasible* weight loss prevention intervention. This dual intervention offers several advantages:

- Nearly 90% of residents with low intake will significantly increase their food and

- fluid consumption with either the mealtime or snack intervention protocols.
- Both the mealtime and snack interventions can be implemented with groups of three (during meals) or more residents (during snacks) and still effectively prompt residents to significantly increase their intake. This group model is a more practical alternative for most nursing homes, though it requires staff to transport residents to the dining room or another common area for group delivery.
- Nursing home staff need not provide intensive feeding assistance to all residents at mealtimes. Residents who are responsive to mealtime assistance can be identified in a two-day, or six-meal, assessment trial. Staff should concentrate their efforts on helping these residents during meals; that is, residents who are not eating well on their own *and* who will eat significantly more when staff spends time providing the appropriate level and amount of assistance. Residents who are not responsive to this approach become the focus of the snack intervention.
- The snack intervention fits in well with most organized social activities programs, as part of which snacks can be efficiently provided in larger groups (four or more residents). Many residents who are responsive to snacks require only verbal encouragement and social stimulation to increase their food and fluid intake. In our experience, social activities coordinators are willing, even eager to take on the extra responsibility of a snack program because the intervention adds a new dimension to their existing social programs, one the residents seem to appreciate (after all, who doesn't enjoy snacks at a social event?). This arrangement leaves nurse aides free to attend to other duties between mealtimes. Residents not appropriate for mealtime assistance (e.g., those with a strong preference to dine in their rooms for most meals or those who refuse to alter their dining room seating arrangement to allow for group delivery) also may be good candidates for the snack intervention.
- Our nutrition software program can be used to generate summary reports for individual residents related to their appropriateness for mealtime feeding assistance or the delivery of snacks between meals. These summary reports can be filed in residents' medical records to serve as documentation that an intervention has been put in place for that resident. In addition, a module within the software can be used to project staffing needs for daily feeding assistance care delivery. This allows facilities to determine exactly how many staff must be available to provide feeding assistance during each meal or snack period. If there is not enough staff available, then decisions must be made about which residents will receive assistance (e.g., those at highest risk for weight loss) or if other staff (e.g., social activities personnel, volunteers, non-nursing staff trained as "dining assistants") could help.

NOTE: If staff does not have access to the software or simply prefers to use paper-and-pencil forms, the forms referenced in the links within this and other sections of the module can be used to document a resident's feeding assistance care needs. Each of the protocols (mealtime assistance or between-meal snack delivery) should be attempted with the resident for a two-day trial (6 meals or 6 snacks) to determine if an individual resident is appropriate. For meals, if a resident increases their average total percent eaten by 15% or more (i.e., estimated gain of 300 additional daily calories based on a 2000 calorie/day diet) in response to mealtime assistance (compare average total percent eaten during prior week or previous 2 days to average total percent eaten during the 2-day trial), then s/he should continue to receive mealtime assistance. For snacks, if a resident accepts at least 2 of 3 snack offers per day and consumes roughly 100-150 calories per snack in response to a 2-day (6 snack) trial and their meal intake remains comparable (compare average total percent eaten during meals for the prior week or previous 2 days to average total percent eaten of meals during the 2-day snack trial), then s/he should continue to be offered snacks between meals at least twice daily and preferably three times daily.

“In sum, our weight loss prevention intervention enables nursing homes to individualize care so that residents get what they need without overwhelming the staff”

In sum, our weight loss prevention intervention enables nursing homes to individualize care so that residents get what they need without overwhelming the staff. It’s a practical, efficient alternative to providing sub-optimal feeding assistance to all residents, which is the usual practice in nursing homes (14, 15, 19, 22, 23).

ABOUT THIS TRAINING MODULE

In the following sections, we present instructions and protocols for accomplishing each of the four steps required to implement the weight loss prevention intervention:

1. Assess resident risk for weight loss
2. Individualize feeding assistance
3. Implement new staffing strategies
4. Monitor quality of feeding assistance

We designed the intervention to meet federal and best practice guidelines for nutritional care in nursing homes. Throughout, we offer suggestions for tailoring the intervention to suit the needs of your residents and staff. We also point out additional uses for the information you’ll be collecting in order to maximize the utility of the intervention. Finally, recognizing that most nursing homes are understaffed at mealtimes, we identify trade-offs you can choose to provide the best care possible given your facility resources. There’s one caveat, however: In order to achieve results comparable to ours, you must complete all four steps; if you skip one, expect to see different, possibly less desirable outcomes.

Two pre-requisites are recommended before you start:

1) Enlist top-level support from the administrator and management staff (Director-of-Nursing, Staff Developer, Dietary Manager, Registered Dietitian) to facilitate acceptance of the new program by direct care staff; and
2) Allow extra time at the beginning to climb the learning curve and conduct new assessments for many residents; following this initial start-up period, assessments only need to be completed on residents newly admitted to the facility or residents who have experienced a change in clinical condition (e.g., readmission from a hospital stay for acute illness; resident previously responsive to mealtime assistance who begins to lose weight).

REFERENCES

1. Rudman D, Feller AG. (1989). Protein-Calorie Undernutrition in the Nursing Home. *Journal of the American Geriatrics;* 37:173-183.
2. Keller HH. (1993). Malnutrition in Institutionalized Elderly: How and Why? *Journal of the American Geriatrics Society;* 41:1212-1218.
3. Abbasi AA, Rudman D. (1993). Observations on the Prevalence of Protein-Calories Undernutrition in VA Nursing Homes. *Journal of the American Geriatrics Society*; 41:117-121.
4. Morley JE, Kruenzie D. (1994). Causes of Weight Loss in a Community Nursing Home. *Journal of the American Geriatrics Society*; 42:583-585.
5. Blaum CS, Fries BE, Liatarone MA. (1995). Factors Associated with Low Body Mass Index and Weight Loss in Nursing Home Residents. *Journal of Gerontology: Medical Sciences*; 50A:M162-M168.
6. Morley JE. Anorexia and Weight Loss in Older Persons. (2003). *Journal of Gerontology; Medical Sciences*; 58A: 131-137.
7. Crogan NL, Pasvogel A. (2003). The Influence of Protein-Calorie Malnutrition on Quality of Life in Nursing Homes. *Journal of Gerontology:Medical Sciences*; 58A:159-164.
8. Liu LJ, Bopp MM, Roberson PK, Sullivan DH. (2002). Undernutrition and Risk of Mortality in Elderly Patients within 1 Year of Hospital Discharge. *Journal of Gerontology:Medical Sciences*; 57A:M741-M746.
9. Amarantos E, Martinez A, Dwyer J. Nutrition and Quality of Life in Older Adults. (2001). *Journal of Gerontology:Medical Sciences*; 56A (Special Issue 2):54-64.
10. Thomas DR, Ashmen W, Morley JE, Evans WJ. (2000). Nutritional Management in Long-Term Care: Development of a Clinical Guideline. *Journal of Gerontology:Medical*; 55A:M725-M734.
11. Amella EJ. (1999). Factors influencing the proportion of food consumed by nursing home residents with dementia. Advancing Geriatrics Nursing Practice. Mezey M, Fulmer T, Series Editors. *Journal of the American Geriatrics Society;* 47:879-885.
12. Kayser-Jones J. (1996). Mealtime in nursing homes; the importance of individualized care. *J Gerontological;* 3:26-31.
13. Kayser-Jones J, Schell E. (1997). The effect of staffing on the quality of care at mealtime. *Nursing;* 45:64-72.
14. Simmons SF, Osterweil D, and Schnelle JF. (2001). Improving Food Intake in Nursing Home Residents with Feeding Assistance: A Staffing Analysis. *Journal of Gerontology: Medical Sciences;* Vol. 56A, No. 12, M790-M794.
15. Simmons SF, Schnelle JF. Individualized Feeding Assistance Care for Nursing Home Residents: Staffing Requirements to Implement Two Interventions. *Journal of Gerontology: Medical Sciences,* accepted for publication.
16. Simmons SF, Keeler E, Xiaohui ZM, Hickey KA, Sato HW, Schnelle JF. (2008). Prevention of unintentional weight loss in nursing home residents: A controlled trial of feeding assistance. *Journal of the American Geriatrics Society*, 56:1466-1473.
17. Simmons SF, Reuben D. (2002). Nutritional Intake Monitoring for Nursing Home Residents: A Comparison of Staff Documentation, Direct Observation, and Photography Methods. *Journal of the American Geriatrics;* 48:209-213.
18. Simmons SF, Lim B, and Schnelle JF. (2002). Accuracy of Minimum Data Set in Identifying Residents at Risk for Undernutrition: Oral Intake and Food Complaints. *American Medical Directors Association;* May/June:140-145.
19. Simmons SF, Babineau S, Garcia E, Schnelle JF. (2002). Quality Assessment in Nursing Homes by Systematic Direct Observation: Feeding Assistance. *Journal of Gerontology: Medical Sciences;* Vol. 57A, No. 10, M665-M671.
20. Kayser-Jones J, Schell E, Porter C, Paul S. (1997). Reliability of percentage figures used to record the dietary intake of nursing home residents. *Nursing Home Medicine* 5(3):69-76.
21. Pokrywka HS, Koffler KH, Remsburg R, Bennett RG, Roth J, Tayback M, Wright JE. (1997). Accuracy of patient care staff in estimating and documenting meal intake of nursing home residents. *Journal of the American Geriatrics Society* 45:1223-1227.
22. Schnelle JF, Simmons SF, Harrington C, Cadogan MP, Garcia E & Bates-Jensen B. (2004). Relationship of nursing home staffing to quality of care. *Health Services Research*, 39(2):225-250.
23. Schnelle JF, Cretin S, Saliba D & Simmons SF. (2000). Minimum nurse aide staffing required to implement best practice care in nursing homes. Chapter in report to congress: *Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes.* Health Care Financing Administration, Summer, Vol. 2: Chapter 14:pages 14.1-14.68; Abt Associates, Inc: Cambridge, MA.
24. Simmons SF, Patel AV. (2006). Nursing home staff delivery of oral liquid nutritional supplements to residents at risk for unintentional weight loss. *Journal of the American Geriatrics Society*, 54(9):1372-1376.
25. Kayser-Jones J, et.al. (1998). A Prospective Study of the Use of Liquid Oral Dietary Supplements in Nursing Homes. *Journal of the American Geriatrics;* 46:1378-1386.
26. Simmons SF, Zhuo X, Keeler E. Cost-effectiveness of two nutrition interventions in nursing home residents: A randomized, controlled trial. *Journal of the American Geriatrics Society* (*favorably reviewed*).

Simmons SF, Alessi C, Schnelle JF. (2001). An Intervention to Increase Fluid Intake in Nursing Home Residents: Prompting and Preference Compliance. *Journal of the American Geriatrics Society;* 49:926-933.