Changes in Type of Foodservice and Dining Room Environment Preferentially Benefit Institutionalized Seniors with Low Body Mass Indexes

Purpose of Study
This study was conducted in order to compare energy intakes among seniors living in long term care facilities with cognitive impairment using meals by bulk (cafeteria style with waitress service) vs traditional tray delivery system. Institutionalized seniors are at a high risk for weight loss and malnutrition, especially those with a cognitive impairment. Because of this, it is essential to develop methods in foodservice that will optimize energy intake in this population.

Materials and Methods
Residents the Jewish Home for the Aged facility and the Apotex Centre were utilized in the study upon receiving informed consent. Criteria for subjects included a diagnosis of Alzheimer disease and the ability to consume meals independently or with limited assistance. Residents were excluded if they had an acute illness, had any swallowing difficulties requiring a texture-modified diet, be on a weight-maintenance program, or have a disease requiring nutrition intervention such as Diabetes. Tray service was implemented at Jewish Home for the Aged facility and bulk service was implemented at the Apotex Centre, using an identical menu and method of food preparation at each facility. Foods served at meals and snacks were weighed before and after consumption for 21 consecutive days.

Subjects were weighed fasting, before breakfast, on the first day of the study using an electronic scale to measure to the closest tenth kilogram. The starting weight was used to calculate a BMI. Each subject was also evaluated using the London Psychogeriatric Rating Scale (LPRS) in order to assess behavioral function as a cross-sectional measure of disease progression. A higher score on the scale indicates a greater disability.

Results
The group of subjects receiving bulk style service had a significantly higher energy intake at dinner compared to the tray delivery group, which was enough to propel the 24-hour
energy intake to be at a significant level as well. The enlarged intake was mainly caused by an increase in carbohydrate consumption more so than protein or fat intake. When evaluating the differences between groups on the basis of age, BMI, and London Psychogeriatric Rating Scale scores, there were no significances between bulk and tray service. Subjects with a higher LPRS score generally had lower BMIs, suggesting that those with a more progressive disease state had a lower overall energy intake.

**Conclusions**

Bulk foodservice delivery shows to increase the 24-hour energy intake of cognitively impaired long-term care residents, especially higher-risk individuals with a lower BMI. There was no significant change in energy intake among those with a high BMI between delivery systems.
Article Critique

Population Selection
The subjects used for the study were very selective and accounts for only small portion of the long term care population. Many patients in nursing home facilities are not able to consume a regular textured diet and need modifications such as mechanical soft, blenderized, or pureed food. That excluded a major portion of the potential subject group. Patients also needed to have a chronic mental impairment to participate in the study, so intakes of cognitively stable patients were not evaluated. Another key exclusion to the study was that the residents could be on a disease-modified diet in order to be included. In a long-term care setting, a large percentage of patients follow some sort of modified diet in compliance with diseases such as diabetes, heart failure, kidney failure, disease of the gastrointestinal tract, and the list goes on.

Methodology
A strength to the method of the study was that data was taken from five different dining rooms, providing a variety of subjects and environments. However, since both foodservice method and environments were changed, it is difficult to pinpoint the main reason for any benefits found.

Reported Results
Pending results, it may be difficult to isolate the main factor for the change of intake and benefits shown to come from bulk foodservice due to the many factors that were changed in the study at the same time, including improved plate presentation, temperature, food choice at time of service, and portion size adaptability. There is also no way to tell if the environment change was a factor that led to an altered consumption amount.

Validity
This seems to be an effective study that was executed properly in order to find competent results. Data was taken over a time period of several weeks, which is a suitable amount of time to notice a change in eating behavior.

Practical Application
The availability of staff is lacking in many long term care facilities on a normal basis, so it may be unrealistic to change to service type to bulk solely based on this since there were many helping hands to focus on subjects; especially since patients who need assistance
eating were not included in the study. That fact aside, the bulk foodservice may be a possible way to increase consumption for those with low BMIs and/or cognitive impairment.

Citation