cumulative TCGs. Descriptive statistics were used to report quantitative data. \( t \) Test was used where appropriate. \( P < .05 \) was considered statistically significant.

Results: Preliminary results included 10 patients: 7 men and 3 women; mean (SD) age, 57.7 (16.8) years; mean (SD) body mass index (calculated as weight in kilograms divided by height in meters squared), 25.8 (10.1), (range, 13.4-47.1); mean (SD) Acute Physiology and Chronic Health Evaluation II score, 29.9 (6.2); and mean (SD) ICU length of stay, 23.8 (14.3) days. The mean (SD) MRM of these 10 patients was 2110 (560) kcal/d. Daily TCGs were adjusted based on the results of calorimetry for each patient. Delivery of TCGs within 10% was achieved in 5 patients (50%) on a daily basis. In all 10 patients, a mean of 14% cumulative total caloric deficit (2596 kcal) was observed. A cumulative caloric surplus was observed in 2 patients (2% and 6%). The mean caloric deficit/surplus between survivors (n = 6) and nonsurvivors (n = 4) was similar. Calories from alternate sources provided a mean (SD) of 93 (68) cal daily, which contributed to a mean (SD) of 5% (3%) of MRM and a mean (SD) of 5% (4%) of total daily calories (Figure 1). The mean (SD) duration of nutrition support after indirect calorimetry was 10 (8.8) days. Barriers to achieving TCGs included no enteral access, procedures, perceived elevated gastric residual volumes, and extubation or reintubation.

Conclusions: Although TCGs can be individualized using indirect calorimetry, these data suggest that achieving TCGs is uncommon. More frequent reevaluation (eg, daily) of the delivery rate of the nutrition support prescription seems necessary to optimize the benefit of nutrition support and to minimize cumulative caloric deficit/surplus. To what extent a cumulative caloric deficit/surplus affects clinical outcome requires further investigation.

68—796 Nutrition Support in the Critically Ill Adult: A Comparison Across Body Mass Index
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Background: An international point prevalence survey of nutrition therapies in intensive care units was conducted in January 2007. This quality improvement initiative aims to compare current nutrition practices within and across different countries. Data were collected on 2902 mechanically ventilated patients from admission to the intensive care unit (ICU) for a maximum of 12 days.

Objectives: To describe current nutrition support practice in critically ill ventilated adult patients relative to body mass index (BMI) and outcome. Data were stratified by BMI, ICU characteristics, nutrition prescription, and nutrition support received. The influence of BMI on feeding practice and outcome was evaluated.

Results: A total of 2902 patients from 156 ICUs on 6 continents were enrolled in this study. There were no significant differences across BMI groups with respect to age (mean, 59.6 years), sex (59% male), Acute Physiology and Chronic Health Evaluation II scores (21.5), or length of ICU stay (10.5 days). Table 1 gives nutrition therapy and outcomes relative to BMI. Increased 60-day mortality is associated with lower mean daily calories and protein across all BMI groups (\( P < .001 \)). Patients in the lowest calorie tertile had the fewest ventilator-free days (\( P = .003 \)) across BMI groups.

Conclusions: Significant differences in mortality were detected across BMI groups, with the highest mortality in the group with BMI (calculated as weight in kilograms divided by height in meters squared) < 20. Energy and protein received were low on a per kilogram basis across all BMI groups. Although insulin requirements on a per kilogram basis were similar across all BMI groups, the mean morning glucose levels were statistically different. This study raises important questions about feeding the very lean and the very obese ICU patient.

69—533 The Effect of Fructooligosaccharides on Colonic Microbiota in Patients Receiving Enteral Tube Feeding for 14 Days
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Background: Colon microflora have an important role during enteral tube feeding (ETF) as they may inhibit enteropathogenic colonization, stimulate immunity, and produce short-chain fatty acids that stimulate colonic water absorption. Patients with diabetes during ETF have lower fecal concentrations of bifidobacteria. However, it is unclear whether fructooligosaccharides (FOS) beneficially affect the microbiota in patients receiving ETF.

Objectives: To compare the colonic microbiota between patients receiving exclusive ETF with a standard formula vs a formula containing FOS and fiber.

Methods: Hospitalized adult patients receiving exclusive ETF with a standard formula or a fiber/FOS formula for at least 14 days were recruited to this cross-sectional study. A fecal sample was collected, and the colonic microbiota were analyzed by fluorescence in situ hybridization using the probes to detect total bacteria (EUB338), bifidobacteria (Bif164), clostridia (EREc482), and Bacteroides (Bac303). Statistical analysis included Mann-Whitney test.
Results: Of 41 patients (25 men and 16 women), 16 were receiving the standard formula, and 25 were receiving the fiber/FOS formula. The mean (SD) patient age for the standard formula was 65.7 (18.0) years and for the fiber/FOS formula was 58.9 (12.3) years. The concentrations of fecal bacteria are given in the Table. There were no significant differences in the concentrations of fecal bacteria between the 2 study groups. In addition, there were no significant differences between formulas in the proportion of patients with detectable concentrations (>6 \( \log_{10} \) per gram of dry weight) for any of the bacterial groups. The formula that patients receiving did not seem to affect concentrations of the major bacterial genera. Because FOS has been shown to increase bifidobacteria in healthy subjects, the absence of an effect herein may be due to the patients' disease state, antibiotic prescription, or perhaps the low FOS dose delivered of 7.0 g/d (median value). Further studies investigating the effect of higher doses of FOS on colonic microbiota in patients receiving ETF are warranted.

Conclusion: There are no differences in colonic microbiota of patients receiving ETF with the standard formula vs the fiber/FOS-enriched formula.

### Table

<table>
<thead>
<tr>
<th>Bacterial Concentration, median ( \log_{10} ) per g dry weight (range)</th>
<th>Standard ( n = 16 )</th>
<th>Fiber/FOS ( n = 25 )</th>
<th>( P ) Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total bacteria</td>
<td>9.7 (6.0-11.0)</td>
<td>9.8 (7.1-10.9)</td>
<td>.81</td>
</tr>
<tr>
<td>Bifidobacteria</td>
<td>6.0 (6.0-8.9)</td>
<td>6.9 (6.0-8.9)</td>
<td>.10</td>
</tr>
<tr>
<td>Clostridium</td>
<td>8.6 (6.0-9.8)</td>
<td>8.9 (6.0-10.4)</td>
<td>.18</td>
</tr>
<tr>
<td>Bacteroides</td>
<td>9.3 (6.0-10.8)</td>
<td>9.6 (6.0-10.4)</td>
<td>.67</td>
</tr>
</tbody>
</table>

70—570 Free Glutamate Sensation and Possible Clinical Application to Hospitalized Older Patients
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Background and Aim: Taste sensation is important for appetite in humans. A sense of umami derived from free glutamate, which is a savory or meaty taste, is an essential cue for the motivation to consume protein-containing foods. Recent clinical applications among hospitalized older patients indicate that free glutamate fortification in hospital diets improves the nutritional state of older persons and that the umami taste is an important factor in maintaining appetite as well. Unfortunately, we do not know the extent to which older persons can sense the umami taste of a meal. The aim of this study was to establish a procedure for the measurement of umami sensitivity suitable for older persons and to measure their sensitivity for umami taste in monosodium salt of glutamate. At the same time, the content of free glutamate in the hospital diet was measured to assess how much free glutamate was consumed by hospitalized older patients.

Methods: Thirty-nine older (mean [SD] age, 84.3 [6.1] years) female subjects and 40 middle-aged (mean [SD] age, 49.6 [5.6] years) female subjects were recruited. All subjects participated in the experimental session after providing informed consent. Pairs of rice gruel with and without monosodium salt of glutamate were served to each subject. Monosodium salt of glutamate concentrations ranged from 0.125%–1.0% for older subjects and from 0.063%–1.0% for middle-aged subjects. The participants were instructed to choose the stronger taste and the preferable dish within each pair. The lowest monosodium salt of glutamate concentration of consecutive correct answers by a subject was regarded as her threshold value. Free glutamate contents were analyzed using an amino acid analyzer after extracting free amino acids in the hospital diet.

Results: A 2-alternative forced-choice test using rice gruel showed high acceptability for all older and middle-aged subjects. The threshold values of monosodium salt of glutamate of the older and middle-aged subjects were 0.42% and 0.16%, respectively. The threshold value of the older subjects was significantly higher than that of the middle-aged subjects (\( P < .01 \), Mann-Whitney test). The most preferable concentrations of monosodium salt of glutamate were 0.5% for older subjects and 0.125% for middle-aged subjects. The mean daily intake of free glutamate of the hospitalized older patients was low (approximately 0.5 g), compared with the mean of healthy older persons in Japan (1.6 g).

Conclusions: The sensory evaluation method using rice gruel was useful to evaluate umami sensitivity of older subjects in Asia. The findings suggest that hospitalized patients in Japan were not served sufficient glutamate in their daily meals to satisfy the taste sensation of umami. Recently, in addition to oral sensation, it was shown that free glutamate stimulates gut digestive function via abdominal vago-vagal reflexes and that supplementation of free glutamate to the diet could assist gastric food digestion. We propose that free glutamate fortification to the diet for hospitalized older patients will be helpful in improving their quality of life, including nutritional state through satisfying the oral and gut sensation of free glutamate.

71—588 Pressure Ulcer Healing With a Specific Oral Nutritional Supplement in Long-term Care Residents
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