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REGIONAL COMPARISON OF ENTERAL NUTRITION-RELATED ADMISSION POLICIES IN SKILLED NURSING FACILITIES

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Abstract

Background—Nursing home admission policies are one driver of increased and earlier gastrostomy placement, a procedure that is not always medically or ethically indicated among patients needing short-term nutrition support. This important clinical decision should be based upon patient prognosis, goals, and needs. We compared nursing home enteral nutrition-related admission policies in New York City and other regions of the United States. We also explored motivations for these policies.

Methods—We conducted a telephone survey with skilled nursing facility administrators in New York City and a random sample of facilities throughout the United States about enteral nutrition-related admission policies. Survey data were matched with publically available Centers for Medicare and Medicaid Services facility characteristics data. The relationship between facility location and admission policies was described with regression models. Reasons for these policies were thematically analyzed.

Results—New York City nursing homes were significantly less likely to admit patients with nasogastric feeding tubes than nursing homes nationwide, controlling for facility characteristics (OR=0.111, 95% CI=0.032, 0.344). Reasons for refusing nasogastric tubes fell into five categories: Safety, capacity, policy, perception of appropriate level of care, and patient quality of life.

Conclusion—Our findings indicate that enteral nutrition-related admission policies vary greatly between nursing homes in New York City and nationwide. Many administrators cited safety and policy as factors guiding their institutional policies and practices, despite a lack of evidence. This

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gap in research, practice, and policy has implications for quality and cost of care, length of hospital stay, and patient morbidity and mortality.

Keywords

Enteral Nutrition; Nursing Homes/Organization and Administration; Medical Ethics; Nasogastric Feeding; Percutaneous Endoscopic Gastrostomy

Background

Nutrition support is a life-saving therapy for many patients requiring post-acute and long-term care (LTC). As of 2010, about 6% of the 1.6 million people living in skilled nursing facilities (SNFs) were receiving enteral nutrition (EN – tube feeding)¹, with much higher rates reported for those with cognitive impairment^{2,3}.

Whether and how EN is provided is an important clinical decision that should be based upon diagnosis, comorbidities, risk factors, and prognosis as well as patient goals and needs^{1,4,5,6,7,8,9,10}. Decision-making should be based on patient preference when research does not indicate superiority of one or the other access methods.

Feeding with small bore nasogastric feeding tubes (NGFT), is safe and appropriate for short- to medium-term EN (i.e., <30-90 days)⁷. A feeding gastrostomy (FG) is considered appropriate for longer term feeding.

Feeding gastrostomies are relatively contraindicated in advanced cognitive disorders, such as dementia^{11,12}. An increased risk of complications related to FGs has been demonstrated in patients with cirrhosis¹³; non-head/neck or thoracic malignancy¹⁴; pneumonia^{12,15}; esophageal obstruction¹⁶; and diabetes^{16,17,18}. Nor do gastrostomies prevent pneumonia^{12,15}. Patients who are older and those who are male¹⁹ as well as those with ascites¹³, sepsis¹⁶, peritonitis¹⁸, active coagulopathy¹⁶, organ failure¹⁹, or low serum albumin¹⁷ have also been demonstrated to be at increased risk when undergoing FG.

Results of systematic comparisons of NGFT and FG feeding are inconsistent; further, they are based on a small number of low and moderate quality trials²⁰. A recent review of observational and randomized studies among non-stroke dysphagia patients found that NGFT feeding was not associated with pneumonia or overall complications when compared with FG²¹. A Cochrane review found that NGFT feeding was not associated with increased mortality when compared with FG, though FG was associated with significantly less intervention failure, defined as feeding interruption, blockage, or non-adherence²⁰. Nasal bridles have been demonstrated to be a safe way to improve NGFT reliability by reducing dislodgement and therefore feeding interruption^{22,23,24}; however, they are infrequently used²³. In a prospective descriptive analysis of 140 nasal bridle placements in a UK hospital, patients were fed via bridled NGFT for a median 7 days, with 52% regaining adequate swallow within 28 days, and reported no complications²³. It should be noted that the long-term use in SNFs has not been well studied.

It has been suggested that FG is overused from an ethical standpoint^{25,26,27}. In one UK hospital, FG use and 30-day mortality increased 10-fold and 3-fold, respectively, from 1992-2002²⁸. FG insertion is not a frivolous procedure: it is often painful²⁹, complication rates are reported variably between 13-40%³⁰, and 30-day mortality is reported variably between 10 and 26%^{19, 31}. FG futility rates (i.e., patients die in hospital within days of insertion) have been measured as high as 19%³² and an evaluation of survivors in one series found that 73% had FGs removed, and after relatively short use (median=76 days)³³. Delaying FG placement until 30-days after discharge has been associated with 40% lower 30-day post procedure mortality ($p=.01$)³⁴. Further, a recently published observational cohort study demonstrated that FG placement can be safely and effectively done in the outpatient setting³⁵. These findings suggest FG insertion may be avoided in a large number of patients.

This evidence also suggests that temporary, non-surgical NGFT feeding may be the best care for many patients who are being discharged from hospitals to SNFs, particularly when prognosis for return to self-feeding is short or unknown. Both hospitals and SNFs should be equipped to care for patients with different EN access based on collaborative decisions made by patients, their families, and their medical teams. Despite this, a move towards earlier insertion of FGs has become commonplace³³. Further, some have attributed this trend to nursing home admission policies^{3,19}; SNF characteristics, including staffing³⁶; and “reasons of administrative and professional convenience”²⁶. Regional differences in enteral nutrition practices have also been identified^{3,37,38}.

If patients receiving NGFT are systematically denied admission to SNFs in certain regions, the rate of FG may be unnecessarily high, as may be the potential for FGs placed outside of medical and ethical indications. In addition to patient mortality and quality of life concerns, the refusal of SNFs to accept patients receiving NGFT feeding could exert significant financial pressure on hospitals by prolonging length of stay for FG insertion prior to discharge and for the cost of the procedure itself. In order to improve EN practices and outcomes in hospitals and LTC, it is important to better understand SNF EN admission policies.

In the current study we sought to: 1) quantify SNF EN admission policies in a large city on the east coast of the United States (US), 2) assess regional disparity in admission policies by comparing these SNFs to a random sample of SNFs throughout the US, and 3) Describe SNF administrators’ perceptions about their facilities’ reasoning for their EN admission policies.

Methods

We performed a mixed methods, cross-sectional study and followed an explanatory sequential design³⁹ that used participants’ responses to an open-ended survey question to provide a more in-depth explanation of the results of a quantitative analysis of the same survey data.

Participants

We contacted administrators at every SNF in the five boroughs of New York City (NYC; n=126), and a randomly selected comparison cohort from the entire US (n=100) between June and November 2013. Nursing directors, admission directors, and directors of social work at selected SNFs were eligible to participate. Appropriate sample size for 95% power at $\alpha=.05$ to detect a difference in admission policy (i.e., accept/reject NGFT) was calculated, and a random sample of SNFs across the US was selected from the publicly available Centers for Medicare and Medicaid Services (CMS) database⁴⁰. Nationwide SNFs were oversampled by two-fold to account for potential non-response. A total of 222 facilities were contacted. No facilities were excluded from the NYC sample; 5 facilities were excluded from the nationwide sample: 2 were in NYC, 3 were not SNFs. Participating SNF administrators provided verbal informed consent prior to beginning the phone survey. The Columbia University Medical Center Institutional Review Board (IRB) approved the study protocol.

Survey

A trained research assistant (RA) contacted SNF administrators at each SNF by phone and invited them to participate in a brief verbal survey. Each SNF was contacted up to five times until contact with the appropriate administrator was made. Once it was determined that an administrator was eligible to participate, the RA used a scripted protocol to conduct the survey, first asking if the facility had an explicit policy regarding admission of patients with NGFTs. The RA then asked the administrator to confirm if their SNF admits patients with NGFTs. Follow up questions queried the formality (i.e., is this common practice or a written policy?) and origin (i.e., is your policy or practice based on a policy from a regulatory or government agency?) of the institutional policy. Administrators who did not report basing their policy on specific government or agency policies were asked to comment on the basis of their EN policy. Balancing feasibility and precision, the RA took extensive notes during the phone survey, including verbatim quotes when possible. Responses to the question about NGFT acceptance were coded yes or no. The reasons for NGFT acceptance or non-acceptance were descriptively coded and quantified. When there were questions about coding, two or more members of the research team examined the data and reached consensus.

Secondary Data

Data about SNF characteristics, including staffing levels, facility size, type of ownership, CMS rating scores, health and quality of care deficiencies, and fines were obtained from the CMS website for the SNFs in the selected sample and were matched with survey data⁴⁰.

Analyses

Data for SNFs with both survey responses and CMS-reported characteristics were used for descriptives and logistic regressions (USA n=71, NYC n=92). Means and frequencies for SNF characteristics were calculated in order to describe the study sample. T-tests were used to identify significant differences in characteristics between NYC and nationwide samples. Two logistic regression models were used to determine the relationship between location and

NGFT acceptance. In the naïve model, the binary location, (i.e., NYC or nationwide) was regressed on NGFT acceptance. The second model controlled for various SNF characteristics. All statistical analyses were conducted in R version 3.1.1 (R Core Team, 2013).

All survey data were used for the qualitative analysis (USA=72, NYC=107). Frequencies and percentages for each NGFT feeding non-acceptance descriptive code were calculated by sample, descriptive codes were categorized by theme, and exemplar quotes from the NYC and nationwide samples were selected.

Results

Survey response rate was 81.4% (USA=75.7%, NYC=84.9%) with total contact rate of 83.7%, and a total cooperation rate of 97.3% (221 telephone numbers, 180 completed interviews, 5 refusals, 36 non-contact). Only 18.3% of NYC SNFs (n=17) reported accepting patients with NGFTs, whereas 62% of SNFs nationwide (n=44) reported accepting patients with NGFT. We were able to match 73% of SNFs in our sample with data on SNF characteristics from CMS. For-profit corporations owned most SNFs in both samples. All SNF characteristics, except substandard quality of care deficiencies, were significantly different between the two samples. Descriptive statistics for nationwide and NYC SNFs are reported in Table 1.

Two logistic regression models were developed to compare NGFT acceptance in NYC and nationwide. In the naïve model, SNFs in NYC were 86% less likely to accept patients with NGFT than nationwide SNFs (OR=0.137, $p<0.0001$, 95% CI= 0.066, 0.275). When controlling for SNF characteristics, including case-mix adjusted staffing hours, type of ownership, number of beds, CMS rating, and recorded health deficiencies, SNFs in NYC were 89% less likely to accept patients with NGFT than nationwide SNFs ($B=-2.198(0.60)$, $p<0.001$, Model $\chi^2 = 50.1$, $p<0.001$, OR=0.111, 95% CI= 0.032, 0.344). Results of the logistic regression with CMS characteristic covariates are shown in Table 2.

Of the 115 total SNFs indicating NGFT refusal, 86 (USA n=17, NYC n=69) provided more detailed explanations for their policy. Reasons for refusal were coded with 15 descriptive codes that were then categorized into five themes: Safety, SNF capacity, policy, perception of appropriate level of care, and patient quality of life. There were notable differences between NYC SNFs and nationwide SNFs, particularly relating to concern for aspiration risk, which 44% (n=30) of NYC SNF administrators cited as a reason for NGFT non-acceptance, compared to 6% (n=1) of nationwide SNF administrators. NYC SNF administrators also cited facility (23%, n=16) or governmental (9%, n=6) policy as well as safety concerns (23%, n=16) more frequently than nationwide SNF administrators. A detailed comparison of the reasons provided by each group, along with exemplar quotes, is presented in Table 3.

Discussion

In this study, we demonstrated a significantly lower rate of NGFT acceptance among NYC SNFs compared to a random sample of nationwide SNFs. Notably, when we controlled for

staffing hours as well as other SNF characteristics, the likelihood that NGFT acceptance was related to location increased, indicating that staffing, case-mix, facility size, and other SNF characteristics did not explain why NYC SNFs were less likely to accept NGFT. Commonly reported reasons for SNF non-acceptance of patients receiving NGFT feeding among our sample included those related to patient safety and quality of life, policy, and SNF capacity.

Although regional differences in preferential admission for different types of EN have not previously been studied, SNFs in urban locations have been demonstrated to be more likely to use feeding tubes in nursing home residents with advanced cognitive impairment³. Regional variation in feeding tube practices has been reported^{38,41} and New York has been identified as a region in which the odds of receiving tube feeding are highest³⁷. This study is the first to use qualitative data to explore SNF administrators' motivations for refusing patients with NGFT. In addition we provide additional detail to differences in regional EN practices, specifically, that while rates of EN are higher, NGFT use is not.

In the current study, interviewees specifically cited aspiration, aspiration pneumonia, dislodgement, and liability as safety reasons for admission policies prohibiting NGFT feeding. However, while the presence of enteral nutrition of any kind is an independent risk factor for pneumonia in observational studies^{1,42}, a causal relationship between feeding route and pneumonia or mortality has not been found²⁰. That one interviewee lamented that NGFT would be more acceptable "if there were a way to secure the tube" is consistent with previous assertions that nasal bridles are underused²², despite the fact that they have been demonstrated to be a safe and effective way to reduce dislodgment and ensure adequate feeding²²⁻²⁴. Our finding that SNF administrators were concerned about liability is consistent with a vignette-based survey study of primary care physicians (PCPs) in Hawaii in which PCPs who indicated that they would start tube feeding in fictional patients with dementia were also significantly more likely to place great importance on liability concerns as their motivation for doing so⁴³.

Staffing, including RN, LPN, and CNA hours per patient per day, did not explain the difference in NGFT acceptance in our regression models. This is contrary to suggestions that human resource limitations contribute to EN practices in SNFs²⁶. However, among our participants, a larger percentage of SNF administrators in the nationwide sample reported staffing as a motivation to refuse patients receiving NGFT feeding. This suggests that further examination of SNF staff capacity and efficacy in caring for patients with NGFT is necessary and important.

Although several SNF administrators in our cohort indicated that state policy precluded NGFT altogether, or limiting their use to short time periods such as one week or less, this is inconsistent with New York State Department of Health policy, which allows for NGFT to be used for up to 96 days before requiring only that a FG be considered⁴⁴. EN practice guidelines are published by professional organizations, and indicate that NGFT are a well-accepted option for patients requiring EN, especially for shorter-term use, while FGs are deemed reasonable, but not required, for patients in whom a need for enteral nutrition of more than 30 days is anticipated⁷.

Other pressures, perceived or actual, might account for SNF feeding tube policies. SNFs are monitored closely by regulators for patient weight loss and other signs of malnutrition³⁷. This may drive an overemphasis on feeding, and could result in unnecessary invasive procedures for feeding access. This is particularly concerning in the patients who have poor prognoses for response to nutrition support, such as those with advanced dementia⁴⁵. For example, in our experience patients with dysphagic strokes are undergoing FG insertion 2-4 days after the stroke solely to allow rapid discharge to a SNF for subacute rehabilitation, only to be independent of tube feeding in 1-3 weeks.

Future research should focus on identifying what educational, technical, or policy interventions would support NYC SNFs to be more responsive to patient wishes and medical indications in their care of patients requiring nutrition support and allow more inclusive admission policies related to EN. Additional research that clarifies what informs patient perceptions about EN and how information about EN should be communicated by clinicians to patients would further improve care during transitions from hospital to SNFs.

Despite a well-powered sample size and high response rate, the possibility remains that we were unable to control for all of the characteristics that differed between our NYC and nationwide samples. Additionally, in order to reduce participant burden and achieve adequate sample size for our quantitative questions, the qualitative data may lack the context that a more in-depth interview study would capture. Further, because of the limitations of publicly available data, we were unable to explicitly examine the presence of potential differences between rural and urban locales nor differences depending on race and/or ethnicity, both of which have been previously identified as influences on SNF feeding practices³⁶. It is unclear from our data if either of these factors played a role in our findings, but the suggestion of the existence of disparities in care along socioeconomic and/or racial lines should be further investigated. Nevertheless, our study calls into question regional practices relating to the refusal of patients receiving NGFT feeding, and also points toward FGs, which are surgical procedures, being performed for non-medical reasons.

Conclusion

NYC SNFs were significantly less likely to accept patients receiving NGFT feeding when compared to a random sample of US SNFs, even when staffing, case-mix, facility size, and other SNF characteristics were considered. Many SNF administrators cited safety and policy as factors guiding their institutional policies and practices, despite the lack of either evidence linking NGFT feeding to adverse outcomes or definitive governmental policy or practice guidelines related to NGFT feeding. This suggests major gaps in EN research, practice, and policy and has implications for disparity in quality of care, length of hospital stay, cost of care, and patient morbidity and mortality.

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Table 1

CMS-Reported Characteristics of Nursing Homes Surveyed across the United States (US) and in New York City (NYC)

	US (n=71)		NYC (n=93)	
Characteristic	n	%	n	%
NGFT acceptance	44	62 ***	17	18.3 ***
Ownership Type				
<i>For profit - Corporation</i>	42	59.2	41	44.1
<i>For profit - Individual</i>	2	2.8	10	10.8
<i>For profit - Limited Liability</i>	0	0	2	2.2
<i>For profit - Partnership</i>	2	2.8	10	10.8
<i>Government - City</i>	1	1.4	1	1.1
<i>Government - City/County</i>	0	0	1	1.1
<i>Government - County</i>	5	7	0	0
<i>Government - Federal</i>	0	0	1	1.1
<i>Government - State</i>	1	1.4	0	0
<i>Non profit - Church related</i>	4	5.6	4	4.3
<i>Non profit - Corporation</i>	14	19.7	22	23.7
<i>Non-profit- other</i>	0	0	1	1.1

	Mean	SD	Mean	SD
CNA hrs/pt/day [‡]	2.5 **	0.5	2.3 **	0.5
LPN hrs/pt/day [‡]	1 ***	0.4	0.7 ***	0.3
RN hrs/pt/day [‡]	0.6 ***	0.3	0.4 ***	0.2
Beds	94.2 ***	51.0	248.5 ***	124.5
Overall CMS rating (US n=70)	3.4 *	1.3	3.9 *	1.2
Health Deficiencies	5.9 ***	4.7	3.1 ***	3.5
Substandard QOC Deficiencies	0.0	0.26	0.0	0.23
QOC Deficiencies	1.4 **	1.5	0.7 **	1.1
Fines	0.21 **	0.53	0.0 **	0.15

Notes:

[‡] Case Mix Index Adjusted; NGFT= Nasogastric Feeding Tube, SD=standard deviation, CNA=Certified Nursing Assistant, LPN=Licensed Practical Nurse, RN=Registered Nurse; hrs/pt/day=hours per patient per day; CMS=US Centers for Medicare and Medicaid Services; QOC=Quality of Care

* t-test significance <.05

** t-test significance <.01

*** t-test significance <.001

Table 2

Logistic Regression Representing Relationship between New York City (NYC) Location and Nasogastric Feeding Tube (NGFT) Acceptance Controlling for CMS-Reported Characteristics

	B	SE	95% CI for odds ratio		
Nursing Home Characteristic			Lower	OR	Upper
Intercept	−1.019	1.521	0.019	0.361	7.611
NYC location	−2.198	0.603	0.032	0.111	0.344
CNA hrs/pt/day *	0.289	0.429	0.578	1.335	3.143
LPN hrs/pt/day *	−0.663	0.633	0.141	0.515	1.731
RN hrs/pt/day *	0.128	1.030	0.145	1.137	8.544
Ownership Type					
<i>For profit - Corporation</i>	Reference value				
<i>For profit - Individual</i>	0.125	0.798	0.205	1.133	5.107
<i>For profit - Limited Liability</i>	1.510	1.515	0.157	4.526	131.353
<i>For profit - Partnership</i>	1.169	0.714	0.766	3.219	13.190
<i>Government - City</i>	−0.681	2.053	0.007	0.506	27.634
<i>Government - City/County</i>	−15.150	2400	NA	NA	NA
<i>Government - County</i>	−0.232	1.199	0.074	0.793	9.552
<i>Government - Federal</i>	−15.610	2400	NA	NA	NA
<i>Government - State</i>	−15.970	2400	NA	NA	NA
<i>Non profit - Church related</i>	0.474	0.942	0.248	1.607	10.505
<i>Non profit - Corporation</i>	−0.670	0.553	0.167	0.512	1.486
<i>Non-profit- other</i>	−14.950	2400	NA	NA	NA
Beds	0.000	0.002	0.995	1.000	1.004
Overall CMS rating	0.287	0.222	0.871	1.332	2.090
Health Deficiencies	0.015	0.081	0.865	1.015	1.191
Substandard QOC Deficiencies	1.731	1.098	0.799	5.646	129.448
QOC Deficiencies	0.187	0.218	0.785	1.206	1.857
Fines	0.913	0.655	0.769	2.493	10.712

Note: B=regression beta value, SE= standard error, CI=confidence interval; $R^2 = 0.234$ (Hosmer and Lemeshow), 0.265 (Cox and Snell), 0.362 (Nagelkerke). Model $\chi^2 = 50.1$, $p < 0.001$. **p<0.001.**

* Case-Mix Index Adjusted, CNA=Certified Nursing Assistant, LPN=Licensed Practical Nurse, RN=Registered Nurse, hrs/pt/day=hours per patient per day; CMS=US Centers for Medicare and Medicaid Services, QOC=Quality of Care

Table 3

Reasons Provided for Nasogastric Feeding Tube (NGFT) Non-Acceptance by New York City (NYC) and United States (US) Skilled Nursing Facilities (SNFs)

Reason	US (n=17)		NYC (n=69)	
	Frequency	Exemplar quote	Frequency	Exemplar quote
<i>Safety</i>				
Aspiration risk	1 (6%)	"[We have] concerns about risk of aspiration"	30 (44%)	"[I've] dealt with too many tubes where the patients have pulled them and they get aspiration pneumonia"
Dislodgement	1 (6%)	"[We don't accept NGFT] because of complications like dislodgement"	7 (10%)	"...If there were a way to secure the tube."
Hospital readmission	0		4 (6%)	"No [NGFT] because we don't want to have to send the patient back to the hospital if something goes wrong"
Safety	3 (18%)	"We don't accept [NFGTs] because of safety concerns"	16 (23%)	"Most patients are geriatric so they get confused and don't know how to handle NGT very well so this is a safety concern"
Liability	1 (6%)	"[NGFTs are a] liability"	1 (2%)	"When they have the tubes, it increases chances for errors and it's a liability issue..."
<i>SNF capacity</i>				
Lack of equipment	5 (29%)	"[We have] no way of checking placement"	0	
Staffing	4 (24%)	"[We have] no 24 hour RNs on staff"	4 (6%)	"We have licensed practical nurses and only one RN in the building"
Training	0		6 (9%)	"[I don't] remember the last time I had to deal with a NG tube and nurses are no longer versed in it."
Overwhelm	0		1 (2%)	"We just don't do it because we cannot handle it; if we had to do NG tubes, we would do them, I have no concerns, but we cannot handle it at the moment"
<i>Policy</i>				
Facility policy	1 (6%)	"[We] do not accept patients in transitional care with NG tubes"	16 (23%)	"The medical director does not want to accept NG tubes"
Government policy	0		6 (9%)	"There are regulations from the department of health and [we] have to track how long [the patient has] had it and the willingness to get them onto a G tube"
Corporate policy	1 (6%)	"Orders from corporate"	0	
<i>Perception of Appropriate Level of Care</i>				
Type of facility	1 (6%)	"[NGFTs] would have to be a swing bed or an outpatient situation"	1 (2%)	"[NGFTs are for] short term care only and nursing homes take long term care"
SOC in other SNFs	0		4 (6%)	"Most nursing homes do not take NGT at all"
<i>Patient Quality of Life</i>				
Patient QOL	0		3 (4%)	"[It is our] policy to not take patients with NG tubes because it is uncomfortable for the patient..."

Note: SOC=standard of care, QOL=quality of life