

END-OF-LIFE CARE FOR NURSING HOME RESIDENTS WITH ADVANCED DEMENTIA AND FEEDING PROBLEMS: A COST-CONSEQUENCE ANALYSIS

T. V. Caprio, R. G. Holloway, R. McCann

University of Rochester Medical Center, Monroe Community Hospital, Strong Memorial Hospital, Highland Hospital, Rochester, NY, USA.

Introduction: Advanced dementia may involve eating problems, swallowing difficulties, or loss of interest in food. Families and nursing homes are often faced with a difficult decision-making process regarding medical care including administration of artificial nutrition/hydration and continued hospitalization for complicating illnesses. This project performs a comprehensive cost-consequence analysis of different treatment pathways for nursing home residents with advanced dementia and feeding problems.

Methods: A two-component cost-consequence model was developed using TreeAge Pro 2006 software. The first component compared the costs associated with percutaneous endoscopic gastrostomy (PEG) feeding tube placement versus hand-feeding by staff. The second component compares costs associated with management of a single episode of aspiration pneumonia in the nursing home versus acute hospitalization. Cost estimates were obtained from published peer-reviewed literature. The mortality and risk of developing aspiration pneumonia was assumed to be uniform throughout the model.

Results: Total societal costs appear to be equivalent between tube feeding and hand feeding at approximately \$18,000 including treatment of aspiration pneumonia in the hospital, and a range \$10,000 - \$11,000 for treatment in the nursing home. The costs from payer perspectives of Medicare, Medicaid, and nursing home show considerable differences. Medicare has the highest costs with PEG tube placement and hospitalizations for pneumonia at nearly \$13,000. Medicaid costs for tube feeding is less than \$5,000 and this compares to over \$6,000-\$7,000 for hand feeding. The nursing home experiences the highest costs associated with hand feeding and pneumonia treatment on-site, due to increased staff costs exceeding \$8,000. Nursing homes overall receive higher reimbursements and have lower costs with PEG tubes.

Conclusions: This provides further evidence that conflicting financial incentives may result from chosen treatment pathways for advanced dementia in the nursing home. It must be considered that these external financial aspects may provide subtle influences on treatment decisions beyond that of evidence-based outcomes and value-based preferences of decision-makers.

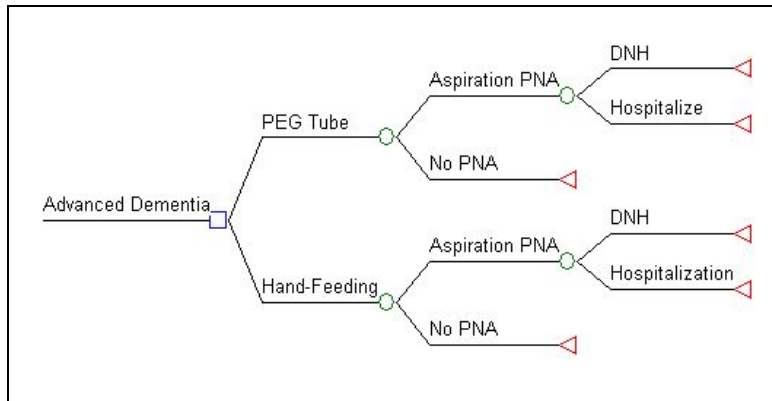
Contact Information:

Thomas V. Caprio, M.D.
Division of Geriatrics & Aging
University of Rochester School of Medicine & Dentistry
Monroe Community Hospital
435 East Henrietta Road
Rochester, NY 14620

E-mail: Thomas_Caprio@urmc.rochester.edu

Cost Consequence Model for Nursing Home Residents with Advanced Dementia.

Abbreviations: PEG = Percutaneous Endoscopic Gastrostomy Tube, PNA = Pneumonia, DNH = Do Not Hospitalize.



Costs used in Model Analysis

Description	Value	Low	High
Cost of hospitalization for pneumonia treatment	\$7,836	\$6,949	\$23,961
Medicaid costs in NH for hand-feeding	\$8,438		
Cost to Medicaid for PEG tube feeding	\$4,758		
Cost to Medicare for hand-feeding	\$1,918		
Cost to Medicare for hand-feeding if do not hospitalize	\$1,918		
Cost to Medicare for PEG tube placement and complications	\$5,085		
Costs to Nursing Home for hand-feeding	\$8,438		
Cost to Nursing Home for PEG residents	\$4,758		
Cost of Nursing Home Pneumonia treatment	\$500		
Cost of tube complications in first year	\$2,499	\$288	\$2,499
On time cost of PEG tube placement	\$2,200	\$1,086	\$2,200
Costs for tube replacements over first year	\$386		
Probability of Aspiration Pneumonia	0.18	0.03	0.66
Probability of Do Not Hospitalize for residents hand-feeding	0.03	0.014	0.838
Probability of Do Not Hospitalize for Residents Receiving PEG	0.014	0.014	0.838

Peer-Reviewed Literature: Cost Estimates Used in the Model Construction

1. Mitchell SL, Buchanan JL, Littlehale S, Hamel MB. Tube-feeding versus hand-feeding nursing home residents with advanced dementia: a cost comparison. *J Am Med Dir Assoc* 2003;4(1):27-33.
2. Kaplan V, Angus DC, Griffin MF, Clermont G, Scott Watson R, Linde-Zwirble WT. Hospitalized community-acquired pneumonia in the elderly: age- and sex-related patterns of care and outcome in the United States. *Am J Respir Crit Care Med* 2002;165(6):766-72.
3. Kruse RL, Boles KE, Mehr DR, Spalding D, Lave JR. The cost of treating pneumonia in the nursing home setting. *J Am Med Dir Assoc* 2003;4(2):81-9.
4. Callahan CM, Buchanan NN, Stump TE. Healthcare costs associated with percutaneous endoscopic gastrostomy among older adults in a defined community. *J Am Geriatr Soc* 2001;49(11):1525-9.