

# Resident Physicians' Comfort With Managing Gastroparesis at the Completion of Internal Medicine Residency

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## Introduction

Gastroparesis and nutrition instruction have been reported to be underemphasized in residency training. Physicians' familiarity with gastroparesis and nutrition issues is important. Effective nutrition support can decrease morbidity and hospitalizations in patients with refractory gastroparesis.

Wang et al recently published a study showing that hospitalizations for gastroparesis had increased 158% from 1995 to 2004, with an estimated increase in \$47.7 million to \$208.3 million in hospital charges. The number of hospitalizations with gastroparesis listed as a diagnosis increased from 60,000 in 1995 to 144,000 in 2004. The authors noted that hospitalizations for gastroparesis were increasing at a rate faster than for more common gastroenterology diagnoses such as gastroesophageal reflux, gastric ulcer, and nausea and vomiting (1).

It is estimated that 25-55% of patients with type I diabetes and 16-30% of type II diabetics have gastroparesis (1,2). As diabetes is the sixth most common reason for an ambulatory care visit, accounting for over 28 million visits to outpatient clinics in 2006 (3), physicians in all areas of medicine are likely to encounter patients with diabetes. Physicians that encounter diabetes in their practices will undoubtedly encounter gastroparesis and need have familiarity with it.

The medical management of gastroparesis is difficult, with medications that have been removed from the U.S. market due to morbid side effects (cisapride and tegaserod) and the remaining medications having significant side effect profiles (erythromycin and QT prolongation / cytochrome oxidase inhibition, metoclopramide and tardive dyskinesia). In addition, gastroparesis often complicates blood sugar control in diabetes and can place patients at higher risk for hypoglycemia and hyperglycemia.

The Federated Council on Internal Medicine Task Force on the Internal Medicine curriculum recommends instruction on the management of nausea, vomiting, abdominal pain, and interpretation of gastric emptying tests as part of the gastroenterology curriculum (4).

This study evaluated internal medicine resident physicians' comfort with gastroparesis management and the effectiveness of various teaching modalities in teaching gastroparesis management.

## Methods

An anonymous survey addressing core gastroenterology topics was distributed to all PGY-3 internal medicine resident physicians at an urban university medical center. Information was collected about the benefit of various teaching modalities utilized during residency training on core topics in gastroenterology. The teaching modalities evaluated included inpatient care, outpatient care, attending didactics, journal clubs, morning report, department-wide noon conferences and grand rounds, individual readings, and autopsy conferences. In addition, residents were surveyed on their comfort level with gastroenterology core topics at the completion of residency.

Information was collected as well from residents who completed an optional gastroenterology elective to see if residents felt more comfortable with gastroenterology core topics after the elective and how the elective benefited their residency training. A database was created. Statistical analysis was performed using Chi-square tables with p-values. Statistical significance was set at p<0.05. Weaknesses and strengths in teaching modalities in teaching core gastroenterology topics were sought. One topic of focus was gastroparesis.

Learning Platforms	
Autopsy Conference	Journal Club
Didactic Rounds	Morning Report
Grand Rounds	Noon Conference
Individual Readings	Outpatient Care
Inpatient Care	

## Results

Twenty of 29 (69%) completed surveys were returned. Care of hospitalized patients was found to be the most beneficial teaching modality for teaching gastroparesis management. Care of hospitalized patients was superior to outpatient care as a teaching modality for managing gastroparesis (p<0.01). Attending didactic rounds and individual readings were also noted as helpful. Care of outpatients, surprisingly, was a less helpful teaching modality. Journal club, grand rounds, and autopsy conference were not considered helpful by residents (see Table 1), although these teaching modalities did not emphasize gastroparesis at that time.

## Results (continued)

Only 32% of residents felt comfortable with managing gastroparesis at the completion of residency (see Table 2). Ten of 20 residents completed a gastroenterology elective. Of these, seven of 10 of the resident physicians felt more emphasis on gastroparesis was needed during training. In contrast, when residents were asked if they felt prepared for internal medicine board exams, 15 of 20 felt prepared.

Learning Platform	Agree	Neutral	Disagree	Blank
Inpatient	20 (100%)	0	0	-
Outpatient	7 (39%)	7 (39%)	4 (22%)	2
Journal Club	3 (15%)	6 (30%)	11 (55%)	-
Didactic Rounds	11 (55%)	5 (25%)	4 (20%)	-
Grand Rounds	4 (20%)	7 (35%)	9 (45%)	-
Morning Report	9 (45%)	5 (25%)	6 (30%)	-
Autopsy Conference	1 (5%)	2 (10%)	17 (85%)	-
Noon Conference	8 (40%)	6 (30%)	5 (30%)	-
Individual Readings	11 (55%)	7 (35%)	2 (10%)	-

Table 1 - PGY3 Responses for Gastroparesis Teaching Modalities

Learning Objective	Comfortable	Neutral	Uncomfortable
Gastroesophageal Reflux	12 (63%)	0	7 (37%)
Upper GI Bleeding	12 (63%)	0	7 (37%)
Lower GI Bleeding	12 (63%)	0	7 (37%)
Peptic Ulcer Disease	12 (63%)	0	7 (37%)
Acute & Chronic Diarrhea	11 (58%)	4 (21%)	4 (21%)
Colorectal Cancer Screening	11 (58%)	3 (16%)	5 (26%)
Abnormal Liver Enzymes	11 (58%)	2 (10%)	6 (32%)
Diverticulitis	11 (58%)	1 (5%)	7 (37%)
Cirrhosis and Ascites	9 (47%)	6 (32%)	4 (21%)
Chronic Viral Hepatitis	8 (42%)	8 (42%)	3 (16%)
Inflammatory Bowel Disease	7 (37%)	7 (37%)	5 (26%)
Gastroparesis	6 (32%)	8 (42%)	5 (26%)
Irritable Bowel Syndrome	5 (26%)	10 (53%)	4 (21%)
Feeding Tubes	4 (21%)	11 (58%)	4 (21%)

Table 2 - PGY3 Responses on Comfort Level of Gastroenterology Learning Objectives

## Discussion

Gastroparesis and nutrition instruction during residency may be underemphasized. Teaching modalities were evaluated to determine the best instructional method for educating physicians about gastroparesis and nutrition. Care of hospitalized patients was more beneficial than care of outpatients for residents learning gastroparesis management. Attending didactics and individual readings were also beneficial to residents. Autopsy conference, journal club, and noon conference were not considered helpful by residents. Although the majority of residents felt that the gastroenterology curriculum had prepared them for internal medicine board examination, most residents completing residency felt uncomfortable managing gastroparesis.

Educational initiatives should be developed to improve gastroparesis teaching and nutritional education. Resident physicians going into practice or entering subspecialties other than gastroenterology are likely to encounter gastroparesis as outpatients rather than inpatients. The outpatient management of gastroparesis can be complex. As multiple disciplines are involved in outpatient management of gastroparesis and nutrition (primary care physicians, dietitians, social workers, tube feeding and durable medical equipment suppliers, endocrinologists, gastroenterologists, and surgeons), early introduction of a multidisciplinary team approach may be beneficial in teaching gastroparesis and optimizing gastroparesis management.

### References:

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