Impact of a Program to Provide Patients With Comparative Information About Providers of Durable Medical Equipment for Home Respiratory Care

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BACKGROUND: How patients are informed regarding their choices of durable medical equipment (DME) providers for home-going respiratory equipment may affect their decisions about which vendor to use. When a new enhanced information program to inform home-going patients about all available respiratory DME providers was implemented, we hypothesized that patients' utilization of providers would change and that satisfaction with service would be enhanced. METHODS: The enhanced information program consisted of offering detailed descriptions of the many available providers to home-going patients. To characterize available providers, we administered a questionnaire to all respiratory DME providers listed in our area. We assembled information about the scope of services, the number and types of providers, the geographic range of service, and the providers' contact information, on a 1-page information sheet about the DME providers, which was given to all home-going patients. Case managers, who routinely help patients make such DME arrangements, were oriented about the questionnaire and given the information sheets to distribute. The study compared responses from Medicare insurees prescribed to receive home-going respiratory care equipment on discharge from The Cleveland Clinic Hospital during the periods before and after implementing the enhanced information program. Consecutive eligible patients in the before and after groups were called by two of the study investigators (ERH, DAM), at least 2 weeks after discharge, and, on their granting consent, were asked to complete a telephone survey. RESULTS: Responses were available from 75 patients in each group. Both before and after implementing the enhanced information program, patients' satisfaction with their respiratory DME service providers' services was high. The number of providers selected increased after the program from 12 to 18, and though the differences between the before and after scores were not statistically significant, there was a trend toward prompter visits to patients in their homes by DME-provider respiratory therapists. CONCLUSIONS: The enhanced information program was associated with a larger number of DME providers being selected, with preservation of a high level of patient satisfaction with DME services. The trend toward prompter respiratory therapists' visits to the home and better availability of oxygen canisters for at-home patients suggested benefits from the enhanced information program. *Key words: information management, respiratory care, home care services.* [Respir Care 2004;49(11):1309–1315.

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Introduction

Although providing durable medical equipment (DME) to patients returning home from the hospital is a common practice, little formal attention has been given to patients' experience of DME providers or patients' satisfaction with the services. Furthermore, little attention has been given to the process by which patients are informed about DME providers or how providers are chosen by patients on hospital discharge. Indeed, patients' choices are sometimes influenced by insurance companies' preferred provider arrangements or by hospitals' longstanding interactions with some providers.

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Prompted by occasional reports of home-going patients' disappointment with DME providers' services and our goal to optimize that service, The Cleveland Clinic Foundation implemented a formal, explicit, comparison-based choice system for patients choosing a respiratory DME provider. We hypothesized that this new "enhanced information" program, in which the hospital both facilitated head-to-head comparison of DME providers and offered patients comparative information about all available DME providers, would encourage better service and enhanced patient satisfaction. In this context, this observational study examined Medicare-insured patients' responses regarding respiratory DME provider services before and after implementing the comparison-based enhanced information program.

Methods

The impetus for the study was our implementing the enhanced information program to assure that patients received comparative information about respiratory DME providers. Before this program, case managers routinely informed home-going patients of their option of a spectrum of providers while also recognizing that one provider had previously been affiliated with The Cleveland Clinic Hospital. The 4 specific aspects of the enhanced information program were that the hospital:

1. Announced to respiratory DME providers that it would offer a comparison chart of responding DME providers to home-going patients
2. Assembled DME providers' responses to a questionnaire regarding service features that we imagined would interest patients
3. Prepared a DME-provider information sheet that presented and allowed comparison of the DME providers' services
4. Assured that all home-going patients who needed home respiratory equipment received the DME-provider information sheet

The DME-provider information sheet was a major component of the enhanced information program and was intended to summarize features of various respiratory DME providers' services that might prompt inquiries and discussion with case managers, who help home-going patients arrange physician-prescribed DME services.

To gather information for the DME-provider information sheet, we sent a letter describing our goals and a questionnaire to all 18 local respiratory DME companies listed in the Cleveland area Yellow Pages. The questionnaire asked for company location, telephone number, coverage area, respiratory therapists (RT) staff size, who provided equipment instruction, and frequency of home visits. Company identifiers were made known to study participants but are withheld from the present report.

All responses received from the DME companies were then summarized in a single-page DME-provider information sheet (Table 1) that was written to be understandable by patients and personally given by case managers to all patients needing home respiratory equipment. The case managers, who are nurses or RTs specially trained to help patients make choices about home care needs and services, were oriented to the questionnaire and the DME-provider information sheet and they invited discussion and questions from patients. Case managers were encouraged to provide neutral information, without influencing patient choice. For example, when patients expressed uncertainty of choice or doubt after receiving the DME-provider information sheet, it was suggested that the case managers should encourage the patient and/or family members to call the providers they were considering in order to directly elicit information germane to their choice. Indeed, the case managers were explicitly asked to avoid expressing a preference or view, even if prompted. In this way, to the greatest extent possible, patients' choices were based on their own deliberations, with the case manager serving as a neutral facilitator of choice. As per usual practice in our hospital, case managers were given the beeper number of an RT member of The Cleveland Clinic Hospital's Section of Respiratory Therapy (who had no employment relationship or connection with any DME provider), and were encouraged to page the therapist to help counsel patients if questions arose about equipment types or needs. Once the patient expressed a choice of DME provider, the case manager directly contacted that provider to assure that prompt contact was made before the patient's discharge.

Because patients' choice of a DME provider can be influenced by private insurance plans and contractual arrangements between insurers and specified DME providers, we included in this study only patients whose primary

Table 1. Characteristics of Respiratory Durable Medical Equipment Providers in Northeast Ohio Who Responded to the Questionnaire, as of February 1, 2003

Medical Equipment Company*	Number of Therapists on Staff	Equipment Instruction Provided by	Home Visit Frequency	Coverage Area	Locations
A	6	Therapist	When needed	NE Ohio	Brooklyn Amherst
B	2	Driver or therapist	Per order	Ohio and 37 other states	Twinsburg
C	9	Driver or therapist	90 d	NE Ohio	Boardman Cleveland Warren
D	2	Driver or therapist	90 d	NE Ohio	Cleveland
E	4	Therapist	90–180 d	NE Ohio	Cleveland
F	11	Therapist	When needed	Ohio	Cleveland Akron
G	8	Driver or therapist	Per order	NE Ohio	Mentor
H	12	Driver or therapist	When needed	United States	Bedford Middleburg Heights
I	2	Driver or therapist	30–90 d	NE Ohio	Lakewood
J	6	Driver or therapist	When needed	NE Ohio	Oakwood
K	2	Driver or therapist	90 d	NE Ohio	Mayfield
L	11	Driver or therapist	Varies	NE Ohio	Valley View Cuyahoga Falls

*Names and phone numbers were disclosed to patients but are withheld from this publication.

insurance was Medicare, which poses no limitations or preferences regarding patient choice of DME provider. Also, Medicare insurees composed the largest portion of The Cleveland Clinic Hospital in-patients.

The study compared responses from Medicare insurees prescribed to receive home-going respiratory care equipment (most often oxygen equipment but also nebulizers and machines that deliver continuous positive airway pressure or bi-level positive airway pressure) on discharge from The Cleveland Clinic Hospital in the periods before and after implementing the enhanced information. Consecutive home-going patients prescribed to receive home respiratory care equipment in the before and after groups were called by two of the study investigators (ERH, DAM), at least 2 weeks post-discharge and, on their granting consent, were asked to complete a telephone survey. The survey (Fig. 1) asked about which provider was chosen, the patient's level of satisfaction with the service, with the provider's explanation about the equipment and its operation, the timeliness of the DME provider's initial equipment setup, and how soon an RT visited the home after the patient's arrival home. The rating system was a 1–5-point ordinal scale in which 1 = best and 5 = worst. Case managers were also surveyed (Fig. 2) regarding their impressions about the impact of the enhanced information program.

The study was approved by The Cleveland Clinic Hospital's institutional review board. Statistical analysis was done with Sigmastat (SPSS, Chicago, Illinois), using the Mann-Whitney rank sum test.

Results

To gather data on 75 Medicare patients in the baseline period, we attempted to telephone a total of 94 consecutive patients, at least 2 weeks after discharge from The Cleveland Clinic Foundation, between August 11, 2002, and December 31, 2002. Eighteen patients could not be reached by telephone and one declined to participate, leaving 75 respondents. After implementing the information program, data for the after group were gathered from a pool of patients discharged from The Cleveland Clinic Hospital between May 1, 2003, and September 15, 2003. To recruit 75 patients in the after group, 92 consecutive patients were contacted, of whom 16 could not be reached and one declined to participate.

Table 2 presents the demographic features of the compared groups, which were similar with regard to age (mean

Question 1. Please rate the level of satisfaction with the services from your DME company.
1. Very satisfied 2. Somewhat satisfied 3. Moderately satisfied 4. Minimally satisfied 5. Not at all satisfied

Question 2. Please rate the level of satisfaction with the explanation of the equipment given to you.
1. Very satisfied 2. Somewhat satisfied 3. Moderately satisfied 4. Minimally satisfied 5. Not at all satisfied

Question 3. Were you able to operate the equipment completely after the explanation was given?
1. Completely 2. Mostly 3. Somewhat 4. Not at all

Question 4. Please rate your level of satisfaction with the performance of the equipment.
1. Very satisfied 2. Somewhat satisfied 3. Moderately satisfied 4. Minimally satisfied 5. Not at all satisfied

Question 5. Please rate your impression on how timely the equipment was set up in your home.
1. Very timely 2. Moderately timely 3. Somewhat timely 4. Not at all timely

Question 6. How soon after the equipment was set up did a respiratory therapist visit you?
1. Within 24 hours 2. Between 24–48 hours 3. Between 48 hours and 1 week 4. Between 1 and 2 weeks 5. Longer than 2 weeks

Fig. 1. Questionnaire administered to patients.

Question 1. How well do you think the patients understand the DME handout?
1. Very well 2. Somewhat 3. Moderately 4. Minimally 5. Not at all

Question 2. As the case manager, rate your level of satisfaction with the DME handout.
1. Very helpful 2. Somewhat 3. Moderately 4. Minimally 5. Not helpful

Question 3. Do you think the patient handout improves the process of the patient's decision making?
Yes *No*

Question 4. Has the new process improved the patients' receiving their DME equipment?
Yes *No*

Question 5. Has the new process improved the availability of portable tanks for patients at discharge?
Yes *No*

Figure 2. Questionnaire administered to case managers.

age of before and after groups 73.9 y and 72.9 y, respectively) and the diagnoses underlying the need for home respiratory equipment.

In the before group, 12 different DME companies were selected by the 75 patients, 8 of which had responded to our questionnaire and were included on the DME-provider information sheet. More providers (18) were chosen by the 75 patients in the after group: 12 of the 18 providers selected by the after group had responded to the questionnaire and were described on the DME-provider information sheet.

As shown in Table 3, patients' responses indicated a high level of satisfaction with DME providers' services both before (range of mean values 1.133–1.333, where 1 = very satisfied) and after implementing the enhanced information program (range of mean values 1.133–1.227). Though the change in mean ratings after implementing the program was favorable in 4 of the 6 questions (questions 2, 3, 5, and 6) and unchanged in 1 (question 4), none of the differences were statistically significant. However, notably, there was a trend toward improvement after the program began in the ratings about the promptness of RTs visiting the home after equipment set-up. Figure 3 presents the distribution of patient responses to question 6 ("How soon after the equipment was set up did a respiratory therapist visit you?," where 1 = within 24 h and 5 = longer

Table 2. Demographic Features of the 75 Study Participants Before and After Implementing the Enhanced Information Program

Feature	Before	After
Age (mean y)	73.9	72.9
Male/female (*n*)	42/33	32/43
Reason for Patients' Need for Home DME		
COPD	33	32
Lung cancer	15	14
Congestive heart failure	15	11
Idiopathic pulmonary fibrosis	2	2
Obstructive sleep apnea	2	2
Pulmonary hypertension	3	9
Restrictive lung disease	1	2
Asthma	4	0
Hypoxemia, cause unspecified	0	3

DME = durable medical equipment
COPD = chronic obstructive pulmonary disease

than 2 wk [see Table 3]) for the group of patients receiving home respiratory DME services from companies other than the most commonly used provider before the program. (We reasoned that because patients were amply informed about that company both before and after implementing the enhanced information program and the services from that provider were unchanged, the impact of the program might be diluted by including patients from that one provider in this subset analysis). Though the change in ratings of the promptness of therapists' visits was also not statistically significant ($p = 0.124$), Figure 3 suggests a trend that RTs visited the homes sooner following equipment delivery after the enhanced information program was implemented.

Questionnaire responses were received from 47% of the case managers (14 of 29 polled). Case managers' level of satisfaction with the DME-provider information sheet was favorable among 60%, and 50% thought that the sheet improved the patients' decision making regarding choice of DME provider (Table 4). Sixty-two percent of the case managers thought that the information sheet did not improve patients' receipt of DME equipment, and 69% thought that the availability of portable oxygen tanks for patients' use at the time of discharge was better after the program had been implemented.

Discussion

In this study of the impact of a program to enhance the comparative information given to home-going patients regarding the DME equipment providers from whom they could choose services, our main findings are:

1. The number of DME providers chosen by patients after implementing the enhanced information program increased, suggesting that the program expanded the spectrum of patients' choices.

2. Patients' level of satisfaction with DME was generally high both before and after implementing the program. Trends toward improvement after implementing the program were evident, especially regarding the promptness with which RTs visited the home once the equipment was set up, and also regarding the availability of providers' oxygen canisters for patients to take home on hospital discharge.

3. Case managers' impressions about the benefits of the program were mixed, though most thought that the availability of portable oxygen tanks for patients at discharge had improved after implementing the program.

In interpreting the modest impact of the enhanced information program, it is noteworthy that the high baseline degree of satisfaction (mean rating of 1.133 on an ordinal scale in which 1 = "very satisfied with the services from your DME company") makes it difficult to demonstrate further improvement. Still, trends toward improvement were achieved after implementing the enhanced information program while preserving the high patient satisfaction with respiratory DME providers that was already evident before the program.

Enhanced availability of oxygen canisters was reported by the majority of case managers after the program was implemented. We speculate that 2 factors may underlie this improved availability: (1) providers' increased responsiveness in the context of the greater scrutiny encouraged by the DME-provider information program, and (2) providers' greater competition on service excellence.

One of the premises upon which we developed the enhanced information program was that expanding patients' knowledge about their choices would enhance their satisfaction with services. We reasoned that 2 factors—patient knowledgeable choice and the effect of "consumerism" on provider service—might drive enhanced patient satisfaction. Specifically, with the enhanced information system, patients enjoyed the opportunity to pick a DME provider that seemed most suitable to their personal needs, based on the reported provider features. Also, because the information sheet allowed patients to explicitly compare alternative providers' service features in making choices about which DME provider to choose, it seemed reasonable to imagine that providers would optimize their services in order to compete as effectively as possible.

Though, to our knowledge, the impact of enhanced information and choice on satisfaction with services has not been examined previously in respiratory care, the association between enhanced choice and satisfaction has been shown in other health-related contexts. For example, focusing on the relationship between patient choice and sat-

Table 3. Ratings by Patients Surveyed Before and After Implementing the Enhanced Information Program*

Question Number	Issue	Before†	After†	p
1	Level of satisfaction with service	1.133	1.227	0.729
2	Level of satisfaction with explanation	1.187	1.133	0.584
3	Able to operate equipment after explanation	1.330	1.173	0.681
4	Level of satisfaction with performance of equipment	1.240	1.240	0.897
5	Impression regarding timeliness of equipment set-up	1.333	1.200	0.316
6	How soon after set-up did a respiratory therapist visit the home?	4.320‡	3.907‡	0.072

*There were no statistically significant changes in response ratings after the program was implemented, but the responses to question 6 suggest a trend towards more prompt respiratory therapist visits after the program was implemented.
†The values are mean values from ratings on an ordinal scale in which 1 = best and 5 = worst.
‡The mean values for Question 6 appear in Figure 1.

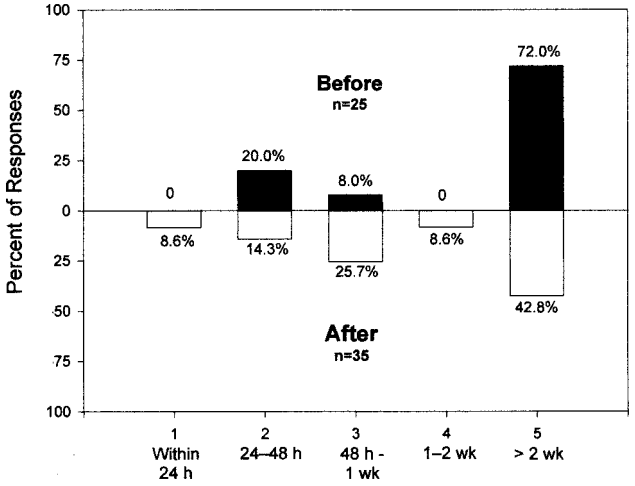

Fig. 3. Distribution of responses by patients to the question, "How soon after the equipment was set up did the respiratory therapist visit you?" for the subset of patients not receiving care from the one DME provider that offered preferred-provider services before the enhanced information program. The bars above the horizontal line indicate the distribution of responses before, and the bars below the horizontal line indicate the responses after the enhanced information program was implemented. The possible responses (see Fig. 1, question 6) were (1) within 24 hours, (2) between 24 and 48 hours, (3) between 48 hours and 1 week, (4) between 1 and 2 weeks, and (5) longer than 2 weeks.

isfaction, Davis et al[1] showed that patients who were offered a choice of health plans were more satisfied with the health plan than those not offered such a choice. Also, several studies have shown that patients in health maintenance organizations given a choice of their physician were more satisfied with their care than were patients assigned to a physician.[2,3] For example, studying patients enrolled in Kaiser Permanente of Northern California, Schmittdiel et al[2] showed that 4,748 patients who chose their physicians were more satisfied than 5,457 patients who were assigned to their personal physicians (satisfaction at a level of "excellent" or "very good" among 76.9% vs 58.1%, $p < 0.001$). Finally, studying diabetic patients in Kaiser Permanente of Northern California, Krupat et al[3] showed that patients who chose their primary care physicians were more satisfied with their physicians than were those who were assigned (mean satisfaction ratings 2.29 vs 2.80, where a lower rating indicated a higher level of satisfaction, $p < 0.001$). Furthermore, patients who chose their physicians reported greater adherence with treatment regimens and greater likelihood to receive preventive assessments (eg, retinal examination or cholesterol measurements) than those who were assigned to their physicians, suggesting that choice translates into higher motivation.

In the present study, the fact that study patients' level of satisfaction was high both before and after implementing the enhanced information program may reflect the reality that patients were well informed of their choice of a DME provider even before the program was implemented. Specifically, as a matter of law and institutional practice, patients were explicitly told by the case managers that they exercised choice of their DME provider even before the program began. In this regard, not observing a change in patient satisfaction after implementing the program may reflect the limited impact of a program that better announced choice when choice already existed before the program. Alternatively, another possible reason for our failure to show significant improvement after implementing the enhanced information program is that patients felt uncomfortable about making a choice when they felt ill-equipped to make an informed decision, despite the availability of explicit, comparative information. Indeed, half of the case managers believed that the information sheet did not improve patient decision making and 62% thought that the enhanced information program did not improve patients' receiving their respiratory DME equipment. Our study does not resolve which of these factors or others contributed to the absence of a difference between before and after.

Table 4. Case Managers' Questionnaire Responses

Question Number	Issue	Favorable* Response (%)	Unfavorable† Response (%)
1	Improved patient understanding	55	45
2	Case manager's level of satisfaction with information sheet	60	40
3	Does information sheet improve patient decision-making?	50	50
4	Has the sheet improved patients' receiving their DME equipment?	38	62
5	Has the availability of portable oxygen tanks at discharge improved?	69	31

*"Favorable" responses were those rated as "very well" or "somewhat"
†"Unfavorable" responses were those rated as "minimally" or "not at all"

Several shortcomings of the present study warrant comment. First, we cannot discount the possibility that the case managers' responses were biased by an incomplete response rate (47%) or that the 75 patients sampled in the before and after sampling periods were somehow not representative of the broad population of Medicare insurees or, more broadly, of all home-going patients needing respiratory DME services. Second, because we made no attempt to independently confirm the services and features reported by the DME providers (rather, we simply reported responses we received from the DME providers), we could neither endorse nor validate the features reported in the DME-provider information sheet (see Table 1). Finally, because patient satisfaction was high before implementing the enhanced information program, this study neither discounts nor assesses the possible benefit of an enhanced information program among patients who are dissatisfied with their DME providers. In view of the favorable effects of patient choice in electing a health plan or a physician,[1–3] we speculate that the effects would be more pronounced under those circumstances.

Conclusions

In the context that patient satisfaction was already high before implementing the enhanced information program, the effects of the program were modest in this study. The main trends were that patients selected a wider range of DME providers and that there were prompter RT visits to patients once the equipment was in-home.

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