

EM ADVANCES

Does a waiting room video about what to expect during an emergency department visit improve patient satisfaction?

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ABSTRACT

Objective: We created an instructional waiting room video that explained what patients should expect during their emergency department (ED) visit and sought to determine whether preparing patients using this video would 1) improve satisfaction, 2) decrease perceived waiting room times and 3) increase calls to an outpatient referral line in an ambulatory population.

Methods: This serial cross-sectional study took place over a period of 2 months before (control) and 2 months after the introduction of an educational waiting room video that described a typical patient visit to our ED. We enrolled a convenience sample of adult patients or parents of pediatric patients who were triaged to the ED waiting room; a research assistant distributed and collected the surveys as patients were being discharged after treatment. Subjects were excluded if they were admitted. The primary outcome was overall satisfaction measured on a 5-point Likert scale, and secondary outcomes included perceived waiting room time, and the number of outpatient referral-line calls.

Results: There were 1132 subjects surveyed: 551 prevideo and 581 postvideo. The mean age was 38 years (standard deviation [SD] 18), 61% were female and the mean ED length of stay was 5.9 hours (SD 3.6). Satisfaction scores were significantly higher postvideo, with 65% of participants ranking their visit as either "excellent" or "very good," compared with 58.1% in the prevideo group ($p = 0.019$); however, perceived waiting room time was not significantly different between the groups ($p = 0.24$). Patient calls to our specialty outpatient clinic referral line increased from 1.5 per month (95% confidence interval [CI] 0.58–2.42) to 4.5 per month (95% CI 1.19–7.18) ($p = 0.032$). After adjusting for possible covariates, the most significant determinants of overall satisfaction were perceived waiting room time (odds ratio [OR] 0.41, 95% CI 0.34–0.48) and having seen the ED waiting room video (OR 1.41, 95% CI 1.06–1.86).

Conclusion: Preparing patients for their ED experience by describing the ED process of care through a waiting room video can improve ED patient satisfaction and the knowledge of outpatient clinic resources in an ambulatory population. Future studies should research the implementation of this educational intervention in a randomized fashion.

Keywords: emergency department, emergency medicine, patient satisfaction, patient education, waiting room, video

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RÉSUMÉ

Objectif : Nous avons créé, pour la salle d'attente, une bande vidéo éducative qui explique aux patients à quoi s'attendre lors de leur visite à l'urgence. Nous avons aussi cherché à déterminer si la préparation des patients par son utilisation aurait les effets suivants : 1) améliorer la satisfaction des patients; 2) réduire le temps d'attente perçu dans la salle d'attente; 3) augmenter le nombre d'appels à la ligne d'aiguillage pour services de consultations externes au sein d'une population ambulatoire.

Méthodes : Cette étude transversale en série s'est déroulée sur une période de deux mois avant (groupe témoin) et deux mois après l'introduction, dans la salle d'attente, de la bande vidéo éducative décrivant une visite typique à l'urgence. L'étude a été menée auprès d'un échantillon de commodité de patients adultes ou de parents d'enfants qui ont été dirigés vers la salle d'attente après le triage. Un adjoint à la recherche a distribué les sondages et les a recueillis lorsque les patients ont obtenu leur congé après avoir été traités. Les sujets qui ont été hospitalisés étaient exclus de l'étude. La principale mesure de résultats était la satisfaction globale mesurée selon l'échelle de Likert en 5 points, et les mesures de résultats secondaires incluaient le temps d'attente perçu dans la salle d'urgence et le nombre d'appels à la ligne d'aiguillage pour services de consultations externes.

Résultats : Nous avons sondé 1132 personnes : 551, avant l'introduction de la bande vidéo et 581 après. L'âge moyen des participants était de 38 ans (écart-type [ET] de 18), 61 % étaient des femmes et la durée de séjour moyenne à l'urgence était de 5,9 heures (ET de 3,6). Les taux de satisfaction étaient nettement plus élevés après le visionnement de la bande vidéo, 65 % des répondants ayant accordé à leur visite la note « excellente » ou « très bonne » par rapport à 58,1 % pour le groupe qui n'avait pas vu la bande vidéo ($p = 0,019$). Par ailleurs, nous n'avons pas observé de différence significative entre les deux groupes concernant le temps d'attente perçu ($p = 0,24$). Quant au nombre d'appels de patients à la ligne d'aiguillage pour services de consultations externes, il est passé de 1,5 appel par mois (intervalle de confiance [IC] à 95 %, 0,58 à 2,42) à 4,5 par mois (IC à 95 %, 1,19 à 7,18) ($p = 0,032$). Après avoir fait les ajustements pour les covariables possibles, les déterminants les plus significatifs en matière de satisfaction globale étaient les temps d'attente perçus (rapport de cotes [RC] 0,41, IC à 95 %, 0,34 à 0,48) et le visionnement de la bande vidéo (RC = 0,41, IC à 95 %, 1,06 à 1,86).

Conclusion : On peut améliorer la satisfaction des patients se présentant à l'urgence et leurs connaissances des ressources de clinique externe à la disposition de la population ambulatoire si on les prépare à leur expérience à l'urgence en utilisant, dans la salle d'attente, une bande vidéo décrivant le processus de soins à l'urgence. Il faudrait maintenant envisager la réalisation d'études randomisées sur la mise en application de cette méthode éducative.

Introduction

Satisfaction with emergency care involves good communication with and the education of patients and their families. Going to an emergency department (ED) is often an intimidating and confusing experience for patients and families because they fear the unexpected. Studies have shown that providing information about ED care is associated with improved perception of the quality of care and overall satisfaction.¹⁻⁴ An explanation of what they can expect with regard to care seems to be just as important, if not more so, to patients than information on actual conditions and can help to alleviate anxiety.⁴⁻⁶ ED visits and waiting times present a unique opportunity to provide educational and instructional material to patients. Most studies to date in this area have used written material about the ED process to instruct and inform patients on what to expect during their visit.^{2,3}

Patient education videos are a relatively effective yet

inexpensive means of describing the ED process and procedures, and they can serve to increase patients' understanding of and satisfaction with their care, as well as decrease their anxiety. In other medical specialties, videos have been used to help patients understand what to expect during their care, which has led to greater use of videos for patient education.^{5,7-12}

Our study sought to determine if showing an ED process and patient education DVD would improve patient satisfaction, increase calls to an outpatient clinic referral line and reduce perceived waiting room times.

Methods**Study design and setting**

This was a serial, cross-sectional survey of ED patients at a tertiary care university teaching hospital, with an annual census of 41 000. We created an ED-specific professional

video describing the process of care from registration to discharge. We then took this ED process video and interspersed it with commercially developed patient education segments and played it in our waiting room for ambulatory ED patients who were treated and discharged from the ED. The preintervention (control) group was shown regular cable programming and the postintervention group was shown the intervention video.

Study subjects

The study enrolled a convenience sample of consecutive adult patients or parents of pediatric patients who were triaged to the waiting room and discharged between the hours of 10 am and 6 pm Monday through Friday and on alternating weekends. The study was conducted over a 4-month period with 2 months before and 2 months after the introduction of the instructional waiting room video. Subjects were at least 18 years of age and were only included if they were discharged from the ED. Patients were excluded if they were younger than 18 years without an accompanying adult, not triaged to the waiting room, admitted to the hospital or discharged from the ED between 6 pm and 10 am. No patients who were acutely ill or transferred directly to a stretcher from triage were included.

Intervention

We hired a professional video development company to create a customized instructional waiting room video; our own ED staff members (physicians, nurses and support staff) helped develop the script and acted in the video. During the 6-minute video we introduced patients to the process of care in our ED from registration to discharge and prepared them for their experience using a typical patient-visit scenario. Basic triage principles were described in the video to assure viewers that even though the most ill patients are seen first, all patients are seen as soon as possible. At various points in this segment, we inserted patient health education information together with the telephone number for the outpatient referral line, so ED patients could access the hospital's specialty clinics. The final product was a 2-volume DVD set that lasted 4 hours and was developed at a cost of just under US\$4000. The DVD was played on a continuous loop on the television in our waiting room, with the ED process segment appearing every 15 minutes. The television was mounted at the corner of the ED waiting room in full view of all visitors, and operated continuously. Prior to the intervention, regular cable programming was available on the same television for patients in the ED waiting room, and channels were changed when requested by patients.

Methods of measurement

We used a patient satisfaction survey that included 12 questions about quality of care based on an abbreviated version of a validated ED patient satisfaction scale¹³ (Fig. 1). A single research assistant distributed and collected the surveys from patients or parents of patients who were being discharged between 10 am and 6 pm Monday through Friday as well as on alternating weekends. On the survey, subjects were asked if they had viewed the waiting room video. Subjects completed the surveys in the patient care area just before discharge. The research assistant approached the patients and family members after they had received discharge instructions, allowed them to complete the survey independently and acted as a facilitator for those having difficulty understanding the survey and to ensure survey completion. The research assistant emphasized to subjects that their responses were anonymous and for research purposes only. She did not discuss the content of the video, nor did she discuss the follow-up referral clinic number. As part of the postvideo survey, subjects were asked if they found the portion of the video that explained their ED care helpful. Our institutional review board granted the study exempt status as no personal identifying information was collected.

Emergency room patient survey					
1. How satisfied were you with TODAY'S visit?	Excellent	Very good	Good	Fair	Poor
2. How well did we EXPLAIN WHY you had to wait?	Excellent	Very good	Good	Fair	Poor
3. How was the COURTESY of the registration staff?	Excellent	Very good	Good	Fair	Poor
4. How was the COURTESY of the nurses?	Excellent	Very good	Good	Fair	Poor
5. How was the COURTESY of the physicians?	Excellent	Very good	Good	Fair	Poor
6. How QUICKLY the nurse evaluated you?	Excellent	Very good	Good	Fair	Poor
7. How QUICKLY the physicians evaluated you?	Excellent	Very good	Good	Fair	Poor
8. Level of CONFIDENCE you felt in the nurses?	Excellent	Very good	Good	Fair	Poor
9. Level of CONFIDENCE you felt in the physicians?	Excellent	Very good	Good	Fair	Poor
10. How well ORGANIZED was your care?	Excellent	Very good	Good	Fair	Poor
11. How well did staff EXPLAIN your condition?	Excellent	Very good	Good	Fair	Poor
12. How was the LENGTH OF TIME in the waiting room?	Very short	Just right	Long	Very long	

Fig. 1. Emergency department satisfaction survey.

Outcome measures

The primary outcome was patients' and parents' overall satisfaction with their ED visit as measured on a 5-point Likert scale ranging from poor (poor = 0) to excellent (excellent = 4). Secondary outcomes included 1) changes in perceived waiting room time (defined as time physically spent in the waiting room before being brought to a care area in the ED) as measured with a 4-point Likert scale from short (short = 0) to too long (too long = 3), and 2) changes in the number of calls from ED patients to the referral line accessing the hospital's specialty clinics. Additionally, we graphed satisfaction levels over time to look for secular trends during the study period. These trends were assessed over 6 consecutive periods broken down into 3 sections of days in each of the pre- and post-ED video phases, that is, with 3 blocks of 20 days in the pre- and 3 blocks of 20 days in the post-ED video phases.

Data analysis

An a priori sample size requirement was determined to be 510 patients per group for 90% power and a significance of 0.05 to detect an improvement of 5% between the groups using means and a parametric sample size calculation. This approach was used for simplicity and this difference was based on the results of a pre- and postintervention study, which looked at improving patient-reported quality measures.¹⁴ Likert scores were treated as ordinal data. Proportions were compared using χ^2 analysis and ordinal data were analyzed using Kendall tau-b. Additionally, multivariate logistic regression analysis was used to assess the contribution of possible covariates, including age, sex, length of stay and perceived waiting room time on the dichotomized outcome of satisfaction (i.e., poor, fair or good v. very good or excellent). These covariates were selected because they have all previously been found to be strongly associated with satisfaction. Significance was assumed when a *p* value of ≤ 0.05 was observed. Data were analyzed using SPSS 10.0.5 statistical software (SPSS, Inc.).

Results

Of the 1132 subjects surveyed, 551 were in the prevideo group and 581 were in the postvideo group. The mean age was 38 years (standard deviation [SD] 18), 61% were female and the mean ED length of stay was 5.9 hours (SD 3.6), with no significant differences between the pre- and postvideo groups. Refusal to answer the survey questions occurred in less than 2% of cases. Table 1 describes subject characteristics. Table 2 compares the survey responses in each of the pre- and postvideo groups. Because no personal

identifiers were obtained, we were unable to comment on individual characteristics.

Likert scores for satisfaction were significantly higher in the postvideo group, with 65% of subjects rating their ED visit as either "excellent" or "very good," compared with 58.1% in the prevideo group (*p* = 0.019, Table 2).

ED patient calls to our specialty outpatient clinic referral line increased from 1.5 per month (95% confidence interval [CI] 0.58–2.42) to 4.5 per month postvideo (95% CI 1.19–7.18) (*p* = 0.032). Likert scores for perceived time in the waiting room were not significantly different between groups, with 67.2% of the prevideo group reporting either a very short or appropriate wait room time compared with 69.3% in the postvideo group (*p* = 0.24, Table 2). Results of multivariate logistic regression analysis with adjusted odds ratios for variables associated with satisfaction are shown in Figure 2. After adjusting for age, sex, length of stay, perceived waiting room time and ED waiting room video, the most significant determinants of satisfaction were perceived waiting room time (odds ratio [OR] 0.41, 95% CI 0.34–0.48) and viewing the ED waiting room video (OR 1.41, 95% CI 1.06–1.86).

No specific external or system factors were altered in the ED during the study period, such as changes to staffing,

Table 1. Subject characteristics in pre- and postvideo groups

Characteristic	Group, %*	
	Prevideo (n = 551)	Postvideo (n = 581)
Mean (and SD) age, yr	38 (19)	39 (18)
< 21	18	16
21–40	43	44
41–60	25	26
> 60	14	14
Sex		
Female	61	62
Male	39	38
Mean (and SD) length of stay, h	6.1 (4.0)	5.8 (3.2)
< 2	6	6
2–4	25	25
4–6	28	30
> 6	41	39
Overall satisfaction		
Poor	5.4	3.6
Fair	8.7	10
Good	27.8	21.3
Very good	30.5	32
Excellent	27.6	33

SD = standard deviation.

*Unless otherwise indicated.

reception, overall visit numbers, patient acuity, admissions or physical environment. To further examine the possibility of any secular trends we assessed satisfaction over 6 distinct time periods divided into 20-day blocks: 3 blocks before and 3 blocks after the introduction of the video. Satisfaction levels before the video's introduction showed considerable variability and were all lower than in the postvideo phase. Satisfaction levels in the postvideo phase

showed less variation and trended upward. Multiple comparisons revealed no statistically significant differences among any of the 6 time periods ($p = 0.25$, Fig. 3).

All patients reported that they watched the video: 41% viewed it in its entirety and 59% viewed at least a portion of it. When we asked patients if they found the video "helpful," 80.6% reported that it was either somewhat or very helpful (Fig. 4).

Table 2. Results of satisfaction survey pre- and postvideo expressed as percentages using a 5-point Likert scale from poor to excellent

Characteristic	Group, %		<i>p</i> value	Characteristic	Group, %		<i>p</i> value
	Prevideo (<i>n</i> = 551)	Postvideo (<i>n</i> = 581)			Prevideo (<i>n</i> = 551)	Postvideo (<i>n</i> = 581)	
Satisfaction with today's visit				Speed of physician's evaluation			
Excellent	27.6	33.0	0.02	Excellent	40.9	44.0	0.26
Very good	30.5	32.0		Very good	27.9	26.8	
Good	27.8	21.3		Good	19.3	19.3	
Fair	8.7	10.0		Fair	7.9	6.0	
Poor	5.4	3.6		Poor	4.0	3.8	
Explanation of the wait				Level of confidence in nurse			
Excellent	26.8	28.4	0.25	Excellent	44.2	46.5	0.47
Very good	23.6	24.0		Very good	31.4	30.2	
Good	21.1	22.5		Good	18.3	16.8	
Fair	13.8	14.1		Fair	3.8	4.2	
Poor	14.7	11.0		Poor	2.3	2.2	
Courtesy of the registration staff				Level of confidence in physician			
Excellent	41.8	43.9	0.51	Excellent	48.6	53.7	0.10
Very good	27.6	26.6		Very good	29.5	26.7	
Good	20.0	19.7		Good	16.6	14.9	
Fair	7.4	6.0		Fair	3.5	3.7	
Poor	3.1	3.8		Poor	1.8	1.0	
Courtesy of the nurses				How organized was your care?			
Excellent	52.8	55.4	0.25	Excellent	37.6	39.7	0.48
Very good	27.0	27.4		Very good	28.9	29.5	
Good	16.2	14.5		Good	23.6	19.2	
Fair	2.3	2.0		Fair	6.6	7.6	
Poor	1.6	0.7		Poor	3.3	4.0	
Courtesy of the physicians				Did staff explain your condition?			
Excellent	56.4	59.6	0.19	Excellent	41.8	43.5	0.43
Very good	27.1	26.6		Very good	31.3	30.8	
Good	12.2	10.5		Good	16.9	18.9	
Fair	2.4	2.4		Fair	6.0	4.5	
Poor	2.0	0.9		Poor	4.0	2.3	
Speed of nurse's evaluation				Perceived waiting room time			
Excellent	38.7	42.8	0.12	Very short	34.1	37.1	0.24
Very good	29.9	30.0		Just right	33.1	32.2	
Good	21.4	17.2		Long	19.2	19.5	
Fair	6.2	6.5		Very long	13.6	11.2	
Poor	3.8	3.4		Perceived time to see physician			
			Very short	15.9	13.3	0.31	
			Just right	45.0	45.8		
			Long	25.3	26.0		
			Very long	13.8	15.0		

Discussion

The development of this department-specific instructional waiting room video was part of an ED initiative to create quality improvement strategies for our patients. The information provided was intended to improve patient education and satisfaction, and reduce perceived waiting room times. Finding ways to improve patient education is especially difficult in a busy environment where patient–physician encounters are brief. Our study used a customized video to describe the ED process of care to our patients. Satisfaction, as well as the ED patient calls to our outpatient referral line accessing the hospital’s specialty clinics, increased following this intervention. Perceived waiting room times were not affected; however, after adjusting for other covariates, the perceived waiting room time and the ED waiting room video both impacted patient satisfaction.

Possible explanations for the increased satisfaction because of the ED video include improved patient awareness of the process of care, realistic patient expectations before care and reduction in anxiety. Other ED studies have found that providing information about ED care is correlated with higher satisfaction.^{4,15–17} Additionally, meeting patient expectations during care has also been found to be associated with satisfaction.^{18,19} Results from a similar smaller study with telephone follow-up found that patients who viewed a process of care videotape in the ED had a statistically significant reduction in anxiety.⁴ A patient-education approach has the potential to be a low-cost, effective means of improving performance on identified process measures as well as overall satisfaction.

A review of 16 studies found that the key elements of ED

satisfaction are patient information, provider–patient interpersonal factors and perceived waiting time.²⁰ Similarly, a number of prior studies support our findings. A study by Goldwag and colleagues¹⁶ in 2002 revealed that perceived comfort of ED facilities, patient education and explanations provided were factors associated with patient satisfaction. In 2000, Boudreaux and colleagues¹⁵ investigated predictors of patient satisfaction in a large municipal ED and showed that patients’ perceptions of care, rather than demographics and visit characteristics, most consistently predicted satisfaction.

Educational material can be provided to patients through different media: verbally, through written material, or visu-

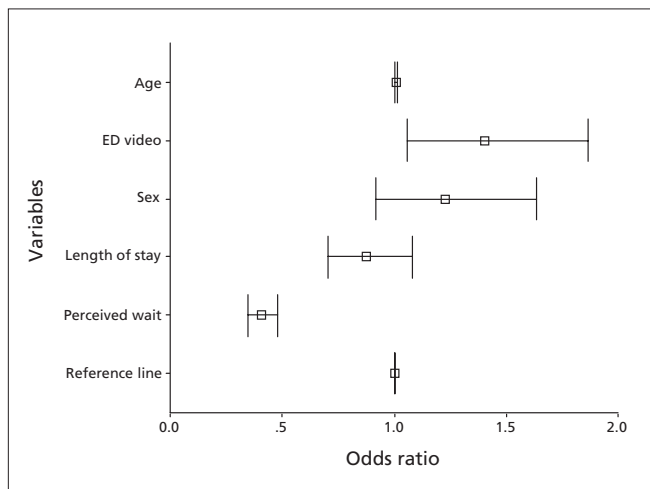


Fig. 2. Results of multivariate logistic regression analysis with adjusted odds ratios for variables associated with satisfaction. ED = emergency department.

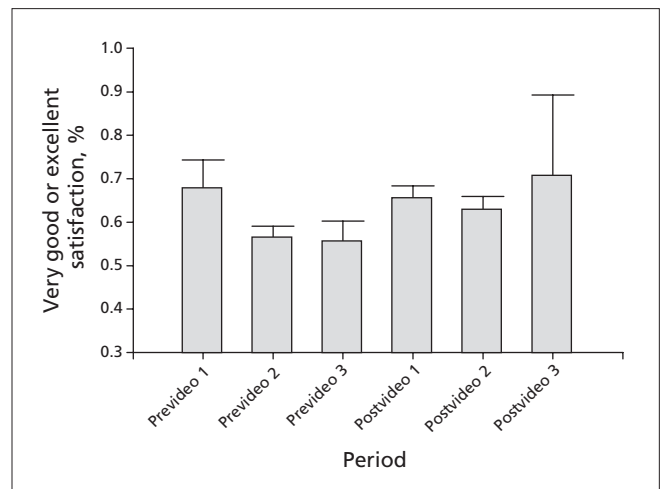


Fig. 3. Comparison of mean satisfaction over consecutive time periods in both the pre- and post-emergency department (ED) waiting room video phases. Each block or time period was 20 days in length for a total of 6 consecutive 20-day blocks with 3 in the pre- and 3 in the post-ED video phases.

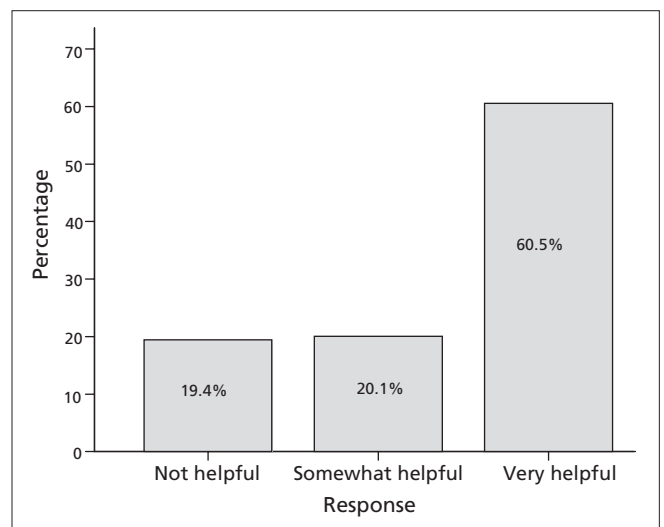


Fig. 4. Response of 304 subjects in the postvideo group to the question “Was it helpful to view the video that explained your care?”

ally, through videos. A randomized study in a preanesthetic clinic showed that patient satisfaction and information gain was highest in those patients who received a documentary video when compared with a brochure or interview.⁹ Similarly, at a women's cancer screening clinic, satisfaction was significantly higher among women receiving video-supported information and graphic-supported information when compared with women receiving information without teaching aids.⁶ These randomized studies support the use of videotaped information over written material.¹⁰ It can be particularly advantageous for patients with limited reading skills.

Although other studies have shown satisfaction with instructional videos, our customized video was produced on-site and involved our own physician, nursing and support staff. In the waiting room video, patients and their families were introduced to the process of care in our ED from registration to discharge thus preparing them for their experience in our ED.

One of our hypotheses was that the ED video would impact perceived waiting room times. In 1995, Thompson and colleagues²¹ found that ED patients were least satisfied when waiting times were longer than expected, were relatively satisfied when waiting times were perceived as equal to expectations and were highly satisfied when waiting times were shorter than expected. The findings of this study suggest that managing waiting time perceptions and expectations would be a more effective strategy to achieve improved patient satisfaction in the ED than decreasing actual waiting.¹⁷ Despite the effect of the waiting room video on satisfaction, perceived waiting room time was not affected in our study. Perceived waiting room time was still the strongest predictor of overall satisfaction in our study. This is consistent with several studies in the emergency literature that have shown the importance of patients' perceptions of wait intervals on satisfaction.^{17,21,22}

Calls to our referral line increased after implementation of the ED video. Although the absolute numbers were small, the number of ED patient calls requesting access to specialty clinics quadrupled during the time the ED video was introduced. This suggests a video of the nature we studied is another potential means for connecting patients with a coordinated system of care. A 1994 study of emergency services found that patients do not often realize that there are other primary care resources that they can access for treatment of nonacute health problems.²³

Limitations

The primary limitation of our study is that it was not a ran-

domized, controlled design and that it took place at a single site. Several satisfaction studies have implemented a pre-post design (with historical controls), and have concluded this design to be a valid method, assuming that important confounders are accounted for. In order to account for pre-post differences we assessed baseline characteristics between the 2 groups as well as baseline satisfaction level before and after the ED video implementation. Demographic data were comparable and not statistically different in the pre- and postvideo groups, including the actual length of stay. Additionally, we assessed the impact of several covariates on satisfaction using multivariate analysis and found that the 2 strongest predictors were perceived waiting room time and the ED waiting room video.

Pre-post designs are susceptible to the effects of secular trends, such as system changes, during the different study periods. However, there were no specific ED or system changes during the period of the study of which the investigators were aware, including changes in patient acuity or the ED population. To further examine the possibility of secular trends in satisfaction before and after the intervention, we evaluated pre- and postvideo baseline satisfaction levels at 3 distinct time points. There was no particular trend detected in either the pre- or postintervention groups.

It would have been interesting to compare our results with actual waiting room times, but we did not capture this. We did, however, compare actual lengths of stay in the ED in the pre- and postvideo groups and found that there was no significant difference.

Calls to our outpatient referral line were recorded as patients who visited the ED within the month of their call, but the patients were not asked if they had received the information from the waiting room video.

Another aspect of intervention studies is ensuring "intervention fidelity," that is, asking patients if they understand the intervention (in this case the ED video). Although, we did not ask patients if they "understood" the video, we did have a surrogate marker of fidelity by asking patients if they had "seen" the video and if they found it "helpful."

There was no blinding in the study, so it is possible that bias was introduced during the assessments. Although the research assistant was not blinded to the purpose of the study, the same research assistant was used in both the pre- and postintervention phases.

Future studies to determine the effect of a "process of care" educational ED video should consider the design issues discussed.

We had a large sample size that was determined a priori and was sufficient to detect a significant difference between the 2 groups. Potential confounders were modelled

statistically in an effort to control for the pre–post design. An advantage of our study was that all patients in our convenience sample completed the survey on-site and none were lost to telephone follow-up as in many other satisfaction studies. Furthermore, our survey tool was based on a validated ED survey instrument. Future studies should study the implementation of this educational intervention in a randomized fashion.

Conclusion

This study suggests preparing patients for their ED experience by describing the ED process of care through a waiting room video can improve ED patient satisfaction and the knowledge of outpatient clinic resources in an ambulatory population. Although perceived waiting room time is the strongest predictor of satisfaction, an instructional waiting room video appears to be a tool that can improve ED patient satisfaction in a discharged ambulatory population. In particular, our findings underscore the importance of educating patients about ED processes of care.

Competing interests: None declared.

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