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The Effect of Web-Based Education on Patient Satisfaction, Consultation Time and Conversion to Surgery

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Introduction: To evaluate the effect of web-based education on (1) patient satisfaction, (2) consultation times, and (3) conversion to surgery.

Methods: A retrospective review of 767 new patient consultations seen by 4 university-based plastic surgeons was conducted between May 2012 and August 2013 to determine the effect a web-based education program has on patient satisfaction and consultation time. A standard 5-point Likert scale was completed at the end of the consultation. The program was used to assess satisfaction with their experience. Consult times were obtained from the electronic medical record. All analyses were done with Statistical Analysis Software version 9.2 (SAS Inc., Cary, NC). A $P$ value less than 0.05 was considered statistically significant.

Results: Those who viewed the program before their consultation were more satisfied with their consultation compared to those who did not (satisfaction scores, mean ± SD: 1.13 ± 0.44 vs 1.36 ± 0.74; $P = 0.02$) and more likely to rate their experience as excellent (92% vs 75%; $P = 0.02$). Contrary to the claims of Emmi Solutions, patients who viewed the educational program before consultation trended toward longer visits compared to those who did not (mean time ± SD: 54 ± 26 vs 50 ± 35 minutes; $P = 0.10$). More patients who completed the program went on to undergo a procedure (44% vs 37%; $P = 0.16$), but this difference was not statistically significant.

Discussion: Viewing web-based educational programs significantly improved plastic surgery patients’ satisfaction with their consultation, but patients who viewed the program also trended toward longer consultation times. Although there was an increase in converting to surgical procedures, this did not reach statistical significance.

Key Words: decision aid tool, satisfaction, web-based education, plastic surgery consultation

(Please refer to the original article for further details.)
### Statistical Analysis

Satisfaction and consultation time data were analyzed using a 2-sided Wilcoxon rank-sum test. When comparing the 2 groups with regard to ultimately undergoing surgery, a 2-sided Fisher exact test was used. All analyses were done with Statistical Analysis Software version 9.2 (SAS Inc., Cary, NC). A P value less than 0.05 was considered statistically significant.

### RESULTS

Between May 2012 and August 2013, 767 new patient consultations were completed by 4 plastic surgeons at the UC Davis Medical Center Plastic Surgery Center. Our surgeon performing satisfaction surveys produced one hundred thirty-nine surveys completed after their consultation, of which 37 had completed EE before their visit. The average satisfaction score ± SD in the EE group was 1.13 ± 0.44 compared to 1.36 ± 0.74 in the control group (P = 0.02) (Table 1).

Of the 767 patients seen in clinic, 368 patients had proxy times available for review. Of those, 54 had completed EE before their consultation. The EE group had an average consultation time of 54 ± 26 minutes and the control group 50 ± 35 minutes (P = 0.10). Information regarding conversion was available for 687 consultations, of which 262 converted to surgery, with 44% of the EE group and 37% in the control group (P = 0.16) (Table 1). When stratifying the EE group based on patient satisfaction score, it can be seen that 89% of the intervention group rated their consultation as excellent, compared with 76% in the control (P = 0.02) (Table 2).

### DISCUSSION

With continued financial pressure on our health care system, it is necessary to evaluate the effectiveness of our interventions. Additionally, since the release of Hospital Consumer Assessment of Healthcare Providers Survey, the public can see hospitals' patient satisfaction ratings. In a report by Grote and Newman, the number 1 influential factor in choosing a provider or hospital is patient experience. He further pointed out that 77% of patients would be willing to switch to a hospital where they felt better informed before and after their procedure. The next most significant factor affecting patient experience was having their appointment be on time. Emmi Solutions reports that using EE will increase patient satisfaction and decrease consultation time. Regardless, satisfaction is an important metric to target and directly affects patient's willingness to recommend a physician, hospital, or service. Those patients who rated their experience as excellent were 87% likely to recommend the associated service to their friends and family, whereas those who rated very good were only 23% likely. This finding emphasizes the importance of striving for “excellent” ratings by our patients. It also reminds that “very good” ratings are not good enough to promote word-of-mouth advertising, which can have profound implications on a hospital's reputation and ultimate profitability.

This retrospective review of our early experience with use of EE revealed a 13% increase in satisfaction scores of “excellent,” as well as a statistically significant increase in overall satisfaction. There was no statistical difference in consultation time or conversion to surgery due to several limitations of our study. These limitations include retrospective study design, unmatched groups, comparing 4 surgeons with varying practices, small sample size, insufficient or missing data, patient compliance, and satisfaction surveys collected by only 1 physician.

With regard to consultation time, we did not reach statistical significance. The data might suggest that patients in the EE group require more time for consultation. Aside from the same limitations noted with the satisfaction data, these data should be interpreted cautiously because no direct measurement for consultation time was obtained. By using a proxy for consultation, additional time outside of the direct consultation time could not be verified. These include: time waiting for the physician to start the consultation, changing in and out of an examination robe, and administrative timing of after visit summary printing. There is no system in place to ensure consultation times are recorded for each surgeon, so further studies are likely to be limited by the same proxy time. Overall, our administrative staff is better educated about printing the after visit summary, helping improve data collection in the future.

In our early experience with EE, we found patients had higher levels of satisfaction. Although longer consultation times and higher rates of conversion to surgery were seen with those who viewed EE.
before consultation, these differences did not reach a level of statistical significance. Because of the limitations of this trial, a prospective randomized control trial has been devised and powered to reach statistical significance and address the shortcomings and biases noted above. This study will target 4 clinical endpoints: (1) patient satisfaction, (2) consultation time, (3) litigious behavior, and (4) conversion to surgery.

REFERENCES