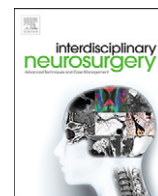


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Technical Note & Surgical Technique

Exploring patient and family satisfaction in pediatric neurological surgery

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ABSTRACT

Introduction: Patient and family satisfaction during outpatient visits is correlated with a continuance of care and likelihood to recommend the practice to others. Additionally, patient-family satisfaction can determine the success of the practice and influence medical outcomes. Utilizing a well-validated surveys instrument, patient and family satisfaction can be explored in the office setting.

Methods: During a consecutive 36 month period, a standardized and validated patient satisfaction survey instrument was provided to the family members of patients who presented to two pediatric neurosurgery clinics associated with Nemours Children's Health System. The completed surveys were analyzed statistically to identify correlations between overall satisfaction, defined as "Likelihood to Recommend (LTR) the Practice", and relevant practice and provider variables.

Results: The factors that exhibited the greatest correlation to LTR were: 'Cheerfulness of Practice' ($r = 0.74$), 'Ability to Get Desired Appointment' ($r = 0.70$), 'Likelihood of Recommending Care Provider' ($r = 0.65$), 'Staff Worked Together' ($r = 0.65$), and 'Waiting Area Comfort and Pleasantness' ($r = 0.60$).

Discussion and conclusions: Patient and family satisfaction surveys are useful for gaining insight into pediatric neurosurgical practices. Data from this cohort suggest that the environment in which patient care is delivered, timeliness of appointments and positive perceptions of the healthcare team correlate most strongly with overall satisfaction.

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1. Introduction

In a typical doctor's office, there could be hundreds of patient encounters daily. It is difficult to maintain the same level of care with each patient as well as meet every expectation that a patient may possess prior to seeing his physician. However, while it would be difficult for the staff to tailor their approach to every single patient's needs and expectations, certain qualities can ensure that each patient receives excellent quality of care and is satisfied with his visit. It is no surprise that patient satisfaction during a doctor's visit can have dramatic effects on the patient, his family, the practice and its staff. A great experience can mean that the patient will be compliant with the doctor's orders and medications [3] – therefore, requiring less healthcare in the future. On the other hand, a less than ideal experience may mean that the patient does not return to his doctor and does not seek the care he needs. For many years, the best way to assess the level of care that each patient receives has been to anonymously survey the patient at the end of his visit [2,7]. Several online programs allow this process, even without the physician's knowledge. These methods are ideal because without the patient's responses, the practice has no way of knowing how best to

improve their care. The results of these surveys can have surprising effects on the physician and staff of the practice. For example, one aspect that the staff may believe is conducted exceedingly well may not resonate as such with the patients. Thus, the use of the results of these surveys can serve to provide identifiable targets for improvement.

Within pediatric neurosurgery, patient satisfaction can serve as a marker of quality of care [6]. Enhancement of neurosurgical patient satisfaction can lead to less emergency room visits by the patient [10]. Additionally, gaining a better understanding of patient and family expectations during a typical visit to a pediatric neurosurgeon will help pave the way for the new generation of healthcare that will implement technological advancements such as Telehealth, which serves to bring the expertise of physicians from all around the world to a patient's bedside via a live video feed [12]. Understanding the intricacies of the doctor-patient-family dynamics is a crucial element in the future of all of medicine, particularly the subspecialties, including pediatric neurosurgery. More physicians also are moving toward a shared decision approach to the treatment of their patients, in which the traditionally authoritative patient care approach is replaced by a cooperative approach with collaborative decision making [1]. This means that formidable communication between all members of a patient's healthcare team, including the family, is absolutely fundamental and increasingly imperative.

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A pediatric neurosurgery office may experience an influx of patients ranging from normal post-op care to newly diagnosed devastating disorders. The care provider may see patients suffering from congenital abnormalities or neoplasms or accidents/recent trauma all in the same day. Throughout this day, the staff is faced with identifying seriousness of situations, available radiological information present on each patient, prepping the patient, answering questions, putting the patient at ease, etc. To better serve the patients, the office staff rely on the patient feedback, which is best attained through anonymous surveys conducted after the visit. Since the patient and family's interactions with the physician, nurses, and assistants are the majority of the patient experience while in office and, thus, carry the most weight in the satisfaction, we hypothesize that the patient's likelihood to recommend the care provider and rating of staffs' sensitivity to patient's needs should have the strongest effect on the patient's likelihood to recommend the practice.

2. Methods

During a consecutive 36 month period (12/2012–12/2014), patient-family satisfaction surveys were obtained from attendees at two pediatric neurological surgery clinics associated with Nemours Children's Healthcare System. One is located in Orlando, Florida and the other in Wilmington, Delaware. The validated survey instrument was created by an independent healthcare improvement company, Press Ganey, Inc. It features 34 questions, which include questions relevant to 'background, access, 'moving through your visit', nurse/assistant domains, care provider domains, Personal Issues', and 'overall assessment'. All questions were presented as 5 point Likert numeral scales equating '1' with 'very poor' and 5 with 'very good'. Data were accessed through the vendor's website and analyzed. Since Press Ganey, Inc. has validated the highest score (5, or "top box score") as the most important metric, we used monthly percentages of "top box" scores to perform the correlational analysis. For example, in January 2012, 93.3% of respondents rated 'Friendliness/Courtesy of Nurses and Assistants' as a '5'. However, only 46.2% rated the same in March 2012. Alternatively, in January 2012, 69.2% respondents rated 'Care Provider's Information About Medications' as a '5', but 81.8% did the same in March 2012.

"Likelihood to Recommend" the Practice, or LTR, was used as the indicator of overall patient-family satisfaction with an individual clinic encounter [8]. Pearson product-moment correlation coefficients were calculated for other variables to identify those that are most predictive of LTR. Correlation coefficients were calculated using Pearson Point in time correlation Microsoft Excel version 2007. The likelihood to recommend was the independent variable and the other questions on the Press Ganey medical practice patient satisfaction survey were the dependent variables. Those variables included: 'Care Provider's concern for questions/worries', 'Care Provider's Information About Medications', 'Friendliness/Courtesy of Nurses and Assistants', 'Cleanliness of Practice', 'Information about Delays', 'Care Provider's Effort to Include in Decisions', 'Care Provider Spoke Using Clear Language', 'Care Provider's Instructions for Follow-up Care', 'Ease of Getting Clinic on Phone', 'Courtesy of Registration Staff', 'Concern for Patient Privacy', 'Courtesy of Person Scheduling Appointments', 'Time Care Provider Spent with Patient', 'Friendliness and Courtesy of Care Provider', 'Wait Time at Clinic', 'Convenience of Office Hours', 'Sensitivity to Patient's Needs', 'Care Provider's Explanation of Problem or Condition', 'Patient's Confidence in Care Provider', 'Extended Staff Introduced Themselves', 'Waiting Area Comfort and Pleasantness', 'Staff Worked Together', 'Concern of Nurses and Assistance for Problem', 'Likelihood of Recommending Care Provider', 'Ease of Scheduling Appointments', 'Ability to Get Desired Appointment', 'How Well Staff Protect Safety', and 'Cheerfulness of Practice'.

3. Results

A total of 458 respondents completed the survey. We identified a correlation coefficient ($r \geq 0.6$) as indicative of a strong relationship. A

correlation coefficient ($r < 0.6$) indicated a weaker relationship, which was considered inconclusive. The factors that exhibited the greatest correlation to LTR were: 'Cheerfulness of Practice' ($r = 0.74$), 'Ability to Get Desired Appointment' ($r = 0.70$), 'Likelihood of Recommending Care Provider' ($r = 0.65$), 'Staff Worked Together' ($r = 0.65$), and 'Waiting Area Comfort and Pleasantness' ($r = 0.60$). All factors with corresponding correlation factors are listed in Table 1.

Quantifying the extent to which each factor is predictive of LTR was presented through a r [2], goodness of fit linear regression (Fig. 1). The top four factors with a strong relationship to LTR are displayed.

4. Discussion and conclusion

Achieving high patient-family satisfaction is a goal for all healthcare providers. Improvement requires a thorough and accurate assessment of the patient-family experience [5]. Fundamentally, the doctor-patient-family relationship is predicated on professionalism, courtesy, and compassion. In an attempt to identify specific elements of an encounter that produce the greatest satisfaction in the outpatient pediatric neurosurgery clinic, we analyzed the results of a standardized, validated survey methodology applied to two practices. The results were enlightening.

We hypothesized that the two strongest indicators of a highly satisfactory clinical experience would be high LTR scores for the provider and high ratings of staffs' sensitivity to patient's needs. While the former was true, the latter was not. This suggests that the provider plays the dominate role in eye of a patient and family. Cheerfulness and experiencing a pleasant office environment had a strong impact on satisfaction. Therefore, it can be deduced that the office environment and the attitude experienced by the patient and family play a significant role in the satisfaction.

In an era of rapid access to most products and services, patients and families expect timely appointments. Within our pediatric healthcare system, we have set a strategic goal of seeing clinic patients within 5 days of initial contact. Finally, high satisfaction requires that the clinic

Table 1

Factors assessed on the survey with correlation coefficients (r) related to "likelihood of recommending practice" in order from strongest correlation to weakest. A correlation factor (r) of ≥ 0.6 indicates a strong relationship. (CP = Care Provider).

| Question | r |
|--|-------------|
| Likelihood of recommending practice | |
| Cheerfulness of practice | 0.74 |
| Ability to get desired appointment | 0.70 |
| Likelihood of recommending CP | 0.65 |
| Staff worked together | 0.65 |
| Waiting area comfort/pleasantness | 0.60 |
| Friendliness/courtesy of nurse/assistant | 0.59 |
| Extent staff introduced themselves | 0.59 |
| Patients' confidence in CP | 0.58 |
| CP explanations of problem/condition | 0.55 |
| Our sensitivity to patients' needs | 0.54 |
| Concern of nurse/assistant for problem | 0.53 |
| Ease of scheduling appointments | 0.53 |
| How well staff protect safety | 0.52 |
| Convenience of our office hours | 0.49 |
| Wait time at clinic | 0.48 |
| CP concern for questions/worries | 0.48 |
| Cleanliness of our practice | 0.47 |
| Information about delays | 0.47 |
| CP efforts to include in decisions | 0.44 |
| CP spoke using clear language | 0.44 |
| CP instructions for follow-up care | 0.43 |
| Ease of getting clinic on phone | 0.40 |
| Courtesy of registration staff | 0.40 |
| CP information about medications | 0.35 |
| Our concern for patients' privacy | 0.34 |
| Courtesy of person scheduling appointment | 0.33 |
| Time CP spent with patient | 0.31 |
| Friendliness/courtesy of CP | 0.30 |

Bold factors indicate a correlation coefficient of >0.6 , which denotes a strong relationship.

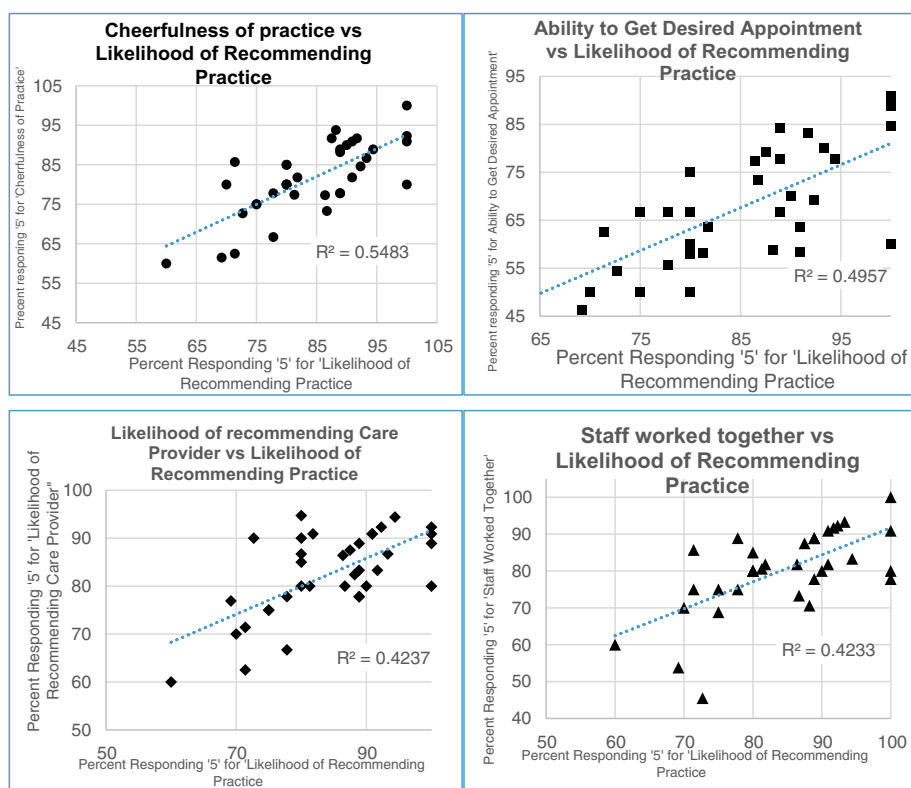


Fig. 1. Scatterplots depict the four factors with the strongest relationship to Likelihood of Recommending Practice. Each plot represents 36 data points that correlate to monthly percentages of those responding with a “top box” score of 5.

staff and providers work as a well integrated team. Quality data demonstrate this to be a dominant factor in producing safe and effective care. The lack of correlation with several other factors was surprising. For example, patients and families were not greatly affected by length of appointment nor clinic wait times. The perception of time is heavily influenced by the quality of the healthcare experience; explaining and apologizing for delays and time limitations can have great impact. Similarly, the complexities of “front end” experience of registration can be buffered by a great encounter with the clinical team [11].

Interaction between the healthcare provider, office staff, patient and family can be impacted by several factors. For example, demographics and language barriers can serve to hinder proper communication or lead to a failure of meeting expectations [9,4]. One of the most debated aspects of current practice is the disparity in healthcare quality felt by different races and socioeconomic distributions. Correlating the differences with patient satisfaction may result in a different approach to interactions. Similarly, with regards to a language barrier, while interpreters can satisfactorily relay information to and from the patient and family, subtleties may be lost in translation. It is unclear whether these barriers were contributory to our results, but may be evaluated in future surveys to further identify areas of patient satisfaction improvement.

Lastly, compared to several published cross-sectional studies, the *n* value was relatively small and may have contributed to the surprising results. It is, therefore, recommended that the survey be made available to other pediatric neurosurgery patients throughout the country, with modified analyses that include the relationship between demographic, language barrier and past medical history.

In conclusion, we have employed a standardized survey methodology to seek understanding of the drivers of patient-family satisfaction in two pediatric neurosurgical clinics. We believe that these data are vital to improvement and optimization of the family-patient experience. We have been able to direct attention to the elements that have the greatest impact. We now employ this methodology throughout all clinics within

our system, and the results are provided monthly to the clinic teams for their reflection. We encourage others to learn from their patients and families and improve overall healthcare and the patient-family experience.

References

- [1] E.M. Bitzer, S. Volkmer, M. Petrucci, N. Weissenrieder, M.L. Dierks, Patient satisfaction in pediatric outpatient settings from the parents' perspective - the child ZAP: a psychometrically validated standardized questionnaire, *BMC Health Serv. Res.* 12 (2012) 347.
- [2] O.A. Bjertnaes, I.S. Sjetne, H.H. Iversen, Overall patient satisfaction with hospitals: effects of patient-reported experiences and fulfilment of expectations, *BMJ Qual. Saf.* 21 (1) (2012) 39–46.
- [3] B.N. Dang, R.A. Westbrook, W.C. Black, M.C. Rodriguez-Barradas, T.P. Giordano, Examining the link between patient satisfaction and adherence to HIV care: a structural equation model, *PLoS One* 8 (1) (2013).
- [4] J.L. Dunlap, J.D. Jaramillo, R. Koppolu, R. Wright, F. Mendoza, M. Bruzoni, The effects of language concordant care on patient satisfaction and clinical understanding for Hispanic pediatric surgery patients, *J. Pediatr. Surg.* 50 (9) (2015) 1586–1589.
- [5] A.G. Espinel, R.K. Shah, M.E. McCormick, P.R. Krakovitz, E.F. Boss, Patient satisfaction in pediatric surgical care: A systematic review, *Otolaryngol. Head Neck Surg.* 150 (5) (2014) 739–749.
- [6] T. Klot, C.C. Zygourakis, S. Imershein, C. Lau, M. Klot, The impact of a patient education bundle on neurosurgery patient satisfaction, *Surg. Neurol. Int.* 22 (6) (2015) 567–572.
- [7] M.W. Krol, D. De Boer, H. Sixma, L. Van Der Hoek, J.J. Rademakers, D.M. Delnoy, Patient experiences of inpatient hospital care: A department matter and a hospital matter, *Int. J. Qual. Health Care* 27 (1) (2015) 17–25.
- [8] S. Melanie, Emerging patient-driven health care models: An examination of health social networks, consumer personalized medicine and quantified self-tracking, *Int. J. Environ. Res. Public Health* 6 (2) (2009) 492–525.
- [9] C.L. Nieman, J.R. Benke, S.L. Ishman, D.F. Smith, E.F. Boss, Whose experience is measured? A pilot study of patient satisfaction demographics in pediatric otolaryngology, *Laryngoscope* 124 (1) (2014) 290–294.
- [10] E. Reponen, H. Tuominen, J. Hernesniemi, M. Korja, Patient satisfaction and short-term outcome in elective cranial neurosurgery, *Neurosurgery* 77 (5) (2015) 769–775.
- [11] E.D. Shirley, J.O. Sanders, Patient satisfaction: Implications and predictors of success, *J. Bone Joint Surg. Am.* 95 (10) (2013).
- [12] S. Shivji, P. Metcalfe, A. Khan, Bratu: pediatric surgery telehealth: patient and clinician satisfaction, *Pediatr. Surg. Int.* 27 (5) (2011) 523–526.