PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Assessing Residents' Knowledge of Patient satisfaction: A Cross-sectional Study at a Large Academic Medical Center
AUTHORS	Stewart, Diana; Dang, B.N.; Wells Trautner, Barbara; Cai, Cecilia; Torres, Sergio; Turner, Teri

VERSION 1 - REVIEW

REVIEWER	Boissy, Adrienne Cleveland Clinic
REVIEW RETURNED	13-Feb-2017

GENERAL COMMENTS	Line 34 - There is a comment made that the Crow R article influences drivers of patient satisfaction, but this is moved over quickly that probably needs a bit more explanation. As an example, it talks about the most influential domain is the patient-physician relationship, but the only domains asked about in the 11 point survey are doctors explain and listening. It also talks about the impact of choice and outcomes, but these are not included? In addition, patients cant really judge competence of an individual physician, so I don't understand this as a domain or influencer. In table 2, data would suggest that <29 and in the first year of training is the vast majority of surveyed populations. I have some concern that this group would be the least informed about patient satisfaction and it biases the results. Page 4 - line 49. Discussion notes that hospitalization for themselves or a loved one was associated with increased knowledge of patient satisfaction. I think causality is the issue. IS the hypothesis that people who have some experience of their own are more influenced by what matters most to patients or that their concrete knowledge is enhanced secondary to interest ? Page 4 - line 56. ITs well known that adults learn most effectively when grounded in adult learning principles, which support self-directed and experiential learning. However, the learning would need to differentiate whether we are hoping to promote factual knowledge or behavior changes to be most impactful. There is more recent data on influencers of patient satisfaction than just from 2002. Please supplement whats presented here. There is a difference between knowing drivers of patient satisfaction and knowledgeable about patient satisfaction (the surveys used, the timing, how they are reported, etc). The language alternates a bit throughout the article - would be consistent. I also think these are interesting topics to separate out - drivers of patient satisfaction

	might be more value laden, thus variable, and factual knowledge about the survey process will not be. Lastly, some food for thought is that if resident believe their patients are satisfied 88% of the time, there is little to no impetus to learn or change behavior - this wont be fixed by more education. The patient satisfaction surveys need to be adapted to drive individual accountability - only then will blind spots be highlighted and an appetite for learning emerge. This doesn't exist currently.

VERSION 1 – AUTHOR RESPONSE

Reviewer's Comment	Description of Revision	Location of Revision
I don't agree with the framing that it's important to understand what residents know about patient satisfaction so they can improve satisfaction at academic hospitals - this is a bit of silly reason for a paper - would think the more important reason is that the residents become the physicians of tomorrow. Besides, things like communication and explanation are already supposed to be part of the resident curriculum. If they are not taught well or learned adequately, that is a problem in itself and does not need to be framed in terms of needing to do understand drivers of patient satisfaction. They are already intrinsic goals for medical training	We feel that understanding what residents know about patient satisfaction is important, and not well established. We regret that we did not communication this message clearly initially. In response, we adjusted the introduction in the following manner: Patient satisfaction and patient experience has received even greater emphasis in health care institutions in the United States since the Affordable Care Act (a comprehensive healthcare reform act in the United States enacted in 2010), as a hospital's reimbursement is impacted by the value of care it provides rather than traditional fee for service. Functioning as both learners and providers, residents are important to the framework, quality, and outcomes of the health care delivered in an academic setting, specifically patient satisfaction.[8,9] Even though residents may have been taught some components of patient satisfaction in medical school; teaching and learning are not interchangeable. Prior studies have assessed interventions geared toward residents to improve patient satisfaction, such as generalized education and incentives, but the literature regarding residents' current knowledge of patient satisfaction is sparse. However, to develop practical, cost-effective, sustainable interventions that benefit the trainee as well as the institution, understanding the gaps in residents' knowledge regarding drivers or positive determinants of patient satisfaction is critical and a necessary first step.	"Background"; Page 5

I disagree that the drivers of patient satisfaction are so clear that we could identify and remediate deficiencies in residents. As one of the reviewers points out, knowing a driver ("physician explanation") is very far from knowing how to affect it. Here, it seems we are measuring things associated with satisfaction, such as patient health status, that are hard to make actionable, rather than true drivers that could be taught in an educational curriculum since this seems their goal. In this sense, it is little surprising that having lectures about it didn't improve "knowledge."	Patient satisfaction is a common topic in US institutions especially given the goal to provide patient-centered care. The literature was reviewed to identify what is currently known about satisfaction. The following was added: - Crow et. al reviewed 139 international articles and 127 data sets and concluded that determinants of patient satisfaction can be broken down into two groups: characteristics of the health care delivery system and patient. For many US institutions, patient experience is a surrogate marker of patient safety satisfaction, therefore the current validated surveys that assesses patient satisfaction were reviewed for themes as well. “Methods (Section: Knowledge of Drivers Affecting Satisfaction) -Identifying the most common and universally accepted drivers of patient satisfaction will provide a foundation for curricula to address trainee’s knowledge gaps in these areas. -Understanding resident’s current knowledge base is an important first step to changing their practices. Teaching and learning are not interchangeable and there is a complex interplay of many factors, such as attention, cognitive load, rehearsal practice, that result in knowledge being retained in long term memory. Knowledge that is not used, rehearsed or revisited is often forgotten. These factors may explain that lack of improvement in knowledge following a lecture on satisfaction.	“Methods (Section: Knowledge of Drivers Affecting Satisfaction); Page 6 “Discussion; Page 10-11
It is unclear why a "3" - or important - is marked as incorrect for the true drivers listed. It seems more defensible to include 3 as a correct response.	An answer was correct if the resident strongly identified whether the item was related to patient satisfaction (answer of 4 or 5 for true variables/drivers and an answer of 1 or 2 for the non-drivers/false variables). Other responses were deemed incorrect (answer of 1, 2 or 3 for true variables/drivers and an answer of 3, 4 or 5 for the non-drivers/false variables). Selection of “3” for either category was regarded as a neutral response.	“Methods (Section: Knowledge of Drivers Affecting Satisfaction); Page 6
Also, we did not understand why two constructs were listed as decoys - physician board scores and board certification - when it seems they would be how many residents might conceptualize physician competence, a key driver you identified.	-We did not use decoys; we used 9 non-drivers that are commonly presumed to affect satisfaction but have been shown to not be associated. We agree that these two distractors are similar in construct and both have been identified as non-determinants of patient satisfaction in the literature. Thus, increasing the likelihood that a trainee should not pick these distractors if they were aware that this construct was not a driver of patient satisfaction. When	“Methods (Section: Knowledge of Drivers Affecting Satisfaction); Page 6

	developing initiatives to improve it, it is important to also know where the current misconceptions are on the topic.	
Finally, their main deficiencies are things that are not modifiable - such as patient age. One could reasonably argue these are least important to identify and perhaps should be excluded, if the argument is that residents need more training to deliver better patient satisfaction.	We agree that patient age is not modifiable however knowledge of this as a driver may improve treatment plans. The following was added: -Regarding patient features, patients with more comorbidities may have lower satisfaction scores; however how satisfaction is affected in acute illness is undetermined. What is known is that these patients have specific preferences based on their health status. Learning how to affectively decipher these preferences prior to making treatment plans is a potential focus area for curricula and could lead to improved satisfaction.	"Discussion"; Page 9
Even without these changes, residents scored quite well - in fact, the conclusion from this paper could read that residents have excellent knowledge of items associated with patient satisfaction, and as a result are quite confident in their ability to deliver it. It would be useful to contrast this finding with any data that refutes it, either from your data or that of others. Otherwise, the burning platform to improve this knowledge seems lacking.	We do not believe we can state whether the score is good or bad score. To our knowledge there has not been documented studies which correlate a knowledge assessment with the ability to deliver care with high patient satisfaction scores. We agree that correlating the knowledge score to individual provider score would enable us to make this conclusion; however, we thought ensuring anonymity was more important to obtain an honest assessment. This is a limitation of our paper. However, the acquisition of knowledge related to the drivers of patient satisfaction is the first step in applying this knowledge to the clinical environment and patient care.	"Limitation"; Page 10
It's also odd that, no the one hand the authors want to characterize their institution as one in which there's already a lot of feedback about satisfaction but at the same time want to highlight that residents can't seem to learn this knowledge. I am not sure there is any way of knowing from the present paper if patient satisfaction receives any more attention here than elsewhere. The authors state" "Supervising physicians regularly receive data on the various institution's satisfaction metrics or scores. At each institution, this information may be disseminated to residents during patient rounds, morning reports, or noon conferences." But, the same could be said of many academic institutions. The problem is that we have no idea to what extent	We clarified this section by added the following: -Moreover, patient satisfaction exposure at the clinical site is variable in degree and frequency for each resident and therefore difficult to quantify given the differences in each training site and program. It is also unclear if supervising physicians pervasively acknowledge and disseminate to residents. The reviewer points out an important attribute of memory. If we don't pay attention to the data it will not be encoded. Therefore, the problem is not only in the delivery of the data, but also how you make sure this data is encoded and acted upon.	Methods Section: Participant Exposure to Patient Satisfaction Metrics; Page 5-6

supervising physicians actually pay attention to the satisfaction data and certainly not the extent to which they disseminated to residents.		
5. “Personal experience through hospitalization of a relative or friend was correlated with higher knowledge (67% vs. 71%, p=.03).” This result is interesting in some ways, but it’s such a small difference (4%) that it’s hard to attribute to much to it.	We concur with the editor’s comment and thus we did not attribute much to it. We did however feel it was important to list as it was statistically significant and educationally meaningful. Having trainees reflect on these types of personal experiences can enhance knowledge.	“Results: Experiential learning: Personal and clinical experiences”; Page 8
The authors mention the Affordable Care Act (ACA). I suggest to add - for international readers of the journal - that the ACA is a federal law of the United States. Is the official description ‘Affordable Care Act’ or ‘Patient Protection and Affordable Care Act’? Please also insert a citation.	The following was added: - Patient satisfaction and patient experience has received even greater emphasis in health care institutions in the United States (US) since the Affordable Care Act (a comprehensive healthcare reform act in the United States enacted in 2010), as a hospital’s reimbursement is impacted by the value of care it provides rather than traditional fee for service.	“Background”; Page 5
The authors state: “… specifically, patient satisfaction”. Please check, if “specifically” is a correct description. As I understood the total performance score, patient satisfaction is one domain amongst others and not of greater value than most of the other domains (e.g., FY 2017, weighting: patient experience 25%, clinical care measures: 30%, efficiency: 25%, safety: 20%).	We agree with the reviewers and the sentence was reworded to the following: - The “value” is calculated by the hospital’s value-based total performance score, which includes several domains, one of which is patient satisfaction. We also added: - For CMS, 25% of value-based purchasing will be based on the results of Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS), an instrument to assess patient satisfaction. (Despite patient satisfaction being weighted similar to others, institutions are still committing many resources to it.)	“Background”; Page 5
Please give name of country where study site was situated in. Please provide more detailed information concerning the academic medical center.	The following was added: - This study was conducted at a large urban, tertiary care academic medical center in Houston, Texas, USA; one of the most diverse cities in the US. The medical center is the largest complex in the US with over 9,000 hospital beds and more than 30 member institutions.	“Methods: Setting and Participants”; Page 5
Do you know if all study participants received information about satisfaction measures? Did all participants receive information to the same degree and frequency?	We clarified this by added the following: -Moreover, patient satisfaction exposure at the clinical site is variable in degree and frequency for each resident and therefore difficult to quantify given the differences in each training site and program.	Methods Section: Participant Exposure to Patient Satisfaction Metrics; Page 6
Residents from internal medicine, pediatrics, and a	The following was added:	“Methods: Setting and Participants”;

combination of internal medicine/pediatrics were eligible. Please explain why only these medical fields were included in your study.	- All residents from internal medicine (n= 185) and pediatrics (n=156) were asked to participate. This was a convenience sample of primary care training programs in which a large percentage of care involves communicating and interacting directly with patients daily. Additionally, these programs are two of the largest programs at our institution, train about 40% of the residents, and it was felt that if differences could be detected the larger sample size afforded by these programs would be beneficial in this assessment.	Page 5
Page 2, line 3-8: How is the satisfaction data being assessed in the medical center (e.g., survey instrument(s), survey method: written questionnaire, interviews)?	The following was added: -To collect this patient satisfaction data, the affiliates partner with Press Ganey, a private organization whose questionnaires are used by over 7000 facilities in the US, to survey their patients on their experience at the institutions. These surveys are typically done via phone, mail, or email and meet the requirements of CMS that utilizes the Consumer Assessment of Healthcare Providers and Systems (CAHPS) (discussed further in methods). Partnering with Press Ganey, allows the institutions to make internal and external comparisons regarding their satisfaction metrics.	Methods Section: Participant Exposure to Patient Satisfaction Metrics; Page 6
Survey instrument, knowledge of factors impacting patient satisfaction: How was reliability of the instrument assessed (e.g., Cronbach's α?).	Reliability using Cronbach's alpha was not assessed. The following was added: - A 31-item survey was developed through review of patient satisfaction literature, prior surveys, and published work.[2,11-16] The questionnaire focused on three concepts: (1) knowledge of factors that influence patient satisfaction, (2) personal and clinical experiences contributing to a resident's satisfaction knowledge, and (3) prior educational sessions (didactics) received related to patient satisfaction. The questionnaire was formulated through an iterative process that incorporated a psychometrician, health services researchers, and residency program faculty. Pilot testing using a think-aloud process was conducted with a group of internal medicine residents who were not part of the study. Internal assessment and feedback from these individuals improved the clarity of the items and general format.	"Methods: Survey"; Page 6
Page 2, line 32: The authors cite HCAHPS and PSQ using references 10 and 11. Please check reference 10	This was adjusted	"Methods: Survey"; Page 7

(Banka, 2015). The PSQ-18 is listed under reference 12 in your reference list (Marshall, 1994).		
Several patient satisfaction surveys (HCAHPS, CG-CAHPS, and PSQ) were reviewed by the authors from which a subset of items (=drivers of satisfaction, N=11) was selected. Reviewed surveys consist of many items. Please provide a rational for item selection to help the reader understand why some items were selected from the surveys and some items not.	The paper was adjusted to following: -Crow et. al reviewed 139 international articles and 127 data sets and concluded that determinants of patient satisfaction can be broken down into two groups: characteristics of the health care delivery system and patient. For many US institutions, patient experience is a surrogate marker of patient safety satisfaction, therefore the current validated surveys that assesses patient satisfaction were reviewed for themes as well. CMS uses the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys to assess patient satisfaction in different settings; by 2017, 25% of value-based purchasing will be based on the results of HCAHPS. These surveys are developed and maintained by the U.S. Agency for Healthcare Research and Quality (AHRQ) and have been validated. HCAP surveys patients based on 6 areas: communication with physicians, communication with nurses, communication about medications, quality of nursing services, adequacy of planning for discharge, and pain management. The Hospital CAHPS (HCAHPS) survey, the Clinician and Group CAHPS (CG-CAHPS) for outpatient use, the Patient Satisfaction Questionnaire (PSQ) from Rand Health, all well-known validated instruments that assess patient satisfaction via patient experience, were reviewed. Using these surveys, published literature 5 domains of patient satisfaction were identified and assessed in the knowledge portion of the survey (Table 1). To minimize bias and limit survey question, the survey included 11 variables truly related to patient satisfaction and 9 non-drivers that are commonly presumed to affect satisfaction but have been shown to not be associated. Inclusion of commonly mistaken non-drivers in the survey were done because the authors thought it was important to also know where the current misconceptions are regarding patient satisfaction.	“Methods: Survey”; Page 7
Study participants were invited and response rates were 72% / 73%. Might study findings be biased by differences between participants and non-participants (e.g., participants are more	We clarified this statement to the following: -All residents from internal medicine (n= 185) and pediatrics (n=156) were asked to participate.	“Methods: Settings and Participants”; Page 5

interested in improving patient satisfaction and, therefore, have greater knowledge of drivers of satisfaction)?		
Selection of drivers of patient satisfaction based on three surveys and one HTA. It should also be mentioned that using other sources might have affected study findings. E.g., domain “personal factors of patient”, survey question: “age of patient” (see table 1): patient’s age is influential on satisfaction scores in many studies, but not in all of them. There is also a significant body of studies in which age is not related to satisfaction ratings or, at least, is only a weak predictor in comparison to other determinants. Therefore, depending on the sources they used, some physicians might have correctly decided not to choose patients‘ age (or parents’ age in case of pediatrics) as a driver of satisfaction or would have only rated patients’ age as “important” (see one of the comments above).	The paper was adjusted to following: -Crow et. al reviewed 139 international articles and 127 data sets and concluded that determinants of patient satisfaction can be broken down into two groups: characteristics of the health care delivery system and patient. For many US institutions, patient experience is a surrogate marker of patient safety satisfaction, therefore the current validated surveys that assesses patient satisfaction were reviewed for themes as well. CMS uses the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys to assess patient satisfaction in different settings; by 2017, 25% of value-based purchasing will be based on the results of HCAHPS. These surveys are developed and maintained by the U.S. Agency for Healthcare Research and Quality (AHRQ) and have been validated. HCAP surveys patients based on 6 areas: communication with physicians, communication with nurses, communication about medications, quality of nursing services, adequacy of planning for discharge, and pain management. The Hospital CAHPS (HCAHPS) survey, the Clinician and Group CAHPS (CG-CAHPS) for outpatient use, the Patient Satisfaction Questionnaire (PSQ) from Rand Health, all well-known validated instruments that assess patient satisfaction via patient experience, were reviewed. Using these surveys, published literature 5 domains of patient satisfaction were identified and assessed in the knowledge portion of the survey (Table 1). To minimize bias and limit survey question, the survey included 11 variables truly related to patient satisfaction and 9 non-drivers that are commonly presumed to affect satisfaction but have been shown to not be associated. Inclusion of commonly mistaken non-drivers in the survey were done because the authors thought it was important to also know where the current misconceptions are regarding patient satisfaction.	“Methods: Survey”; Page 7
Table 2, age: Why cutoff chosen at age of 29?	-The survey had 4 age groups (<25, 25-29, 30-35, >35), most were <25 and 25-29 and these were grouped together. We corrected table to include the ungrouped categories.	Table 2
I think that it is worth more	It is difficult to draw conclusions on this	“Discussion”; Page

discussion that factors that may be emphasized or important to residents (board scores, med school rank, year in residency) are very overestimated by residents to be important to patients. I thought the discussion of the experiential component of learning to be interesting and intuitive. Any thoughts on why personal hospitalization was not helpful in improving scores?	point given the low number of participants hospitalized and the lack of significance.	10
Further studies might link individual responses to performance, or to empathy scales.	We agree that it is a limitation of the study given that we were unable to correlate survey results with individual performance scores or resident's clinical performance. We did not use empathy scales in the study.	"Limitation"; Page 10
Line 34 - There is a comment made that the Crow R article influences drivers of patient satisfaction, but this is moved over quickly that probably needs a bit more explanation. As an example, it talks about the most influential domain is the patient-physician relationship, but the only domains asked about in the 11-point survey are doctors explain and listening. It also talks about the impact of choice and outcomes, but these are not included? In addition, patients can't really judge competence of an individual physician, so I don't understand this as a domain or influencer.	We based the survey on the same domains from literature that were also on the patient experience survey, specifically the Hospital CAHPS (HCAHPS) required by the Center for Medicare and Medicaid Services (CMS). We thought it was essential to align our survey with themes asked by CMS since this is a major driver for many of the patient satisfaction initiatives in the US. This is the survey that CMS uses and now lists the results publicly. 4 of the 11 drivers on the questionnaire addressed the patient-physician relationship. Physician competence includes aspects such as, completing a physical exam, discussing treatments, and providing health education; all of which had positive effects on satisfaction.	"Methods: Survey"; Page 7
In table 2, data would suggest that <29 and in the first year of training is the vast majority of surveyed populations. I have some concern that this group would be the least informed about patient satisfaction and it biases the results.	We did note that about 50% were first year residents but 50% were (upper level residents). However, most participants received didactics on patient satisfaction in medical school (185 of 239 respondents (77%) had attended an educational session on patient satisfaction, most of these sessions were delivered in medical school). Based on this, we would think that the first-year residents would be more informed given they recently had the lectures, but there was no difference in knowledge with trainee years.	"Discussion", Page 10
Page 4 - line 49. Discussion notes that hospitalization for themselves or a loved one was associated with increased knowledge of patient satisfaction. I think causality is the issue. IS the hypothesis that people who have some experience of their own are more influenced by what matters most to patients or that	This is possible, but our study does not address this.	

their concrete knowledge is enhanced secondary to interest ?		
Page 4 - line 56. ITs well known that adults learn most effectively when grounded in adult learning principles, which support self-directed and experiential learning. However, the learning would need to differentiate whether we are hoping to promote factual knowledge or behavior changes to be most impactful.	We agree with the reviewers. We want to promote behavior change, but before developing curriculum to do that, a need's assessment should be done to better understand where the learners current deficiencies are.	"Discussion", Page 9
There is more recent data on influencers of patient satisfaction than just from 2002. Please supplement whats presented here.	We added the following additional articles: A. Lindsay RW. Linking Reimbursement to Patient Satisfaction: Is the Tail Wagging the Dog? JAMA Facial Plast Surg. 2017 Feb 23. [Epub ahead of print] B. Jha AK[1], Orav EJ, Zheng J, Epstein AM. Patients' perception of hospital care in the United States. N Engl J Med. 2008 Oct 30;359(18):1921-31. C. Resnick AS[1], Disbot M, Wurster A, Mullen JL, Kaiser LR, Morris JB. Contributions of Surgical Residents to Patient Satisfaction: Impact of Residents Beyond Clinical Care. 2008 May-Jun;65(3):243-52	References
There is a difference between knowing drivers of patient satisfaction and knowledgeable about patient satisfaction (the surveys used, the timing, how they are reported, etc). The language alternates a bit throughout the article - would be consistent. I also think these are interesting topics to separate out - drivers of patient satisfaction might be more value laden, thus variable, and factual knowledge about the survey process will not be.	We adjusted the paper to include the following: - For this study, patient satisfaction knowledge will refer to the drivers of patient satisfaction being assessed by the survey instrument.	"Methods: Knowledge of Factors Impacting Patient Satisfaction"; Page 6
Lastly, some food for thought is that if resident believe their patients are satisfied 88% of the time, there is little to no impetus to learn or change behavior - this won't be fixed by more education. The patient satisfaction surveys need to be adapted to drive individual	This is a valid point. See following comment: - A limitation is the lack of correlation with the resident's clinical performance. Specifically, the anonymous nature of the survey prevented us from correlating knowledge scores, experiences, and confidence of a resident with actual provider	"Limitation"; Page 10

accountability - only then will blind spots be highlighted and an appetite for learning emerge. This doesn't exist currently.	satisfaction scores or evaluations from patients, which would have enabled us to correlate knowledge with behavior. However, as the first step in understanding the trainees' experiences, the benefit of anonymity and honesty of reporting outweighed the ability to correlate knowledge with actual clinical behavior.	

VERSION 2 – REVIEW

REVIEWER	Adrienne Boissy Cleveland Clinic, USA
REVIEW RETURNED	25-May-2017

GENERAL COMMENTS	Thank you for your significant revisions. Page 3: Line 8 - 1st sentence needs a verb. PAge 3 : line 46-47 and PAge 10: Line 48-49 - you make the statement that resident care impacts satisfaction and quality, however, there is no data presented to support this statement. Please revise.

REVIEWER	Spenser Lang Northwestern Memorial Hospital, Chicago, IL
REVIEW RETURNED	21-Jun-2017

GENERAL COMMENTS	Overall this is an interesting and appropriate study. Residents historically have very poor training in patient satisfaction. This makes sense - most physicians are at odds with patient satisfaction metrics, and most do not believe improving patient satisfaction improves quality of care. However, as your paper suggests, reimbursement will be tied to patient satisfaction, for better or for worse, and we must do a better job at teaching these skills in residency. The results are quite interesting and could lead to some interesting curriculum design. Looking at the paper as a whole, there are a few areas that could be more concise. I tried to highlight them below. There are also some areas of inappropriate punctuation/grammar use, of which I tried to highlight some. This paper could benefit from a good thorough revision to ensure sentence structure and punctuation are correct and appropriate. Page 5 Line 27 - change structure of this sentence - "Though residents may have been taught some components of patient satisfaction in medical school, teaching and learning are not interchangeable." 1) Under setting and participants" I would remove the statements regarding diversity and "member institutions (basically lines 45 and 46) - these lines do not support your study/objectives or conclusions whatsoever and seem to be filler. ALso lines 50-52 are unnecessary. I would then change line 46/47 to: "All residents from internal medicine (n=185) and pediatrics (n=156) were asked to participate, which comprised more than 40% of the medical center's total

	resident staff." I also would take line 54-56 and put that in a single sentence in the first paragraph. 2) Under "Participant Exposure to Patient Satisfaction Metrics" - I would significantly shorten this section. This could be a single paragraph. Lines 22-32 are unnecessary. I think a short section explaining in 3-4 sentences that resident exposure to their patient satisfaction scores/metrics varies between rotations and sites, and that it is difficult to quantify, would be all this section needs. 3) Section " Knowledge of Factors Impacting Patient Satisfaction" - this section is quite verbose. I think it would be improved by significant shortening. Lines 3-6 (page 7) could be removed. 4) Discussion section - lines 39-42 seem to be extraneous and not related to the conclusion/what was studied. 5) Limitations section - lines 27-31 can be shortened/combined - something like "This was a single medical center study, which limits generalizability. However, given the participants rotate through multiple and diverse clinical training sites, the results are likely externally valid."

VERSION 2 – AUTHOR RESPONSE

July 3, 2017

Dear Editor and Reviewers,

Thank you for the thoughtful reviews. We have adjusted the text according to your comments and have highlighted the changes within the text. Please see the attached table in the uploaded documents with the reviewer's comments in the first column, our response in the second column, and the page number/section the update can be found in the third column. We look forward to your feedback.

Warmest regards,

Diana Stewart

Reviewer's Comment	Description of Revision	Location of Revision
Please revise your title so that it includes your study design, setting and ideally research question. This is the preferred format for the journal.	It was changed to the following: Assessing Residents' Knowledge of Patient satisfaction: A Cross-sectional Study at a Large Academic Medical Center	Title Page
Please revise the first line of the abstract. There appears to be a word or two missing.	It was changed to the following: Patient satisfaction impacts healthcare quality and outcomes.	Abstract (Objectives Section) Page 3
Please revise/ remove the third bullet point in the 'Strengths and Limitations' section (page 4); this is a study finding rather than a specific strength or limitation of your study.	The following bullet was removed: Residents' patient satisfaction knowledge score was impacted by experiential learning specifically hospitalization of a close contact, peer and faculty observation, and faculty evaluations.	Strength and Limitations Section Page 4
Page 3: Line 8 - 1st sentence needs a verb.	It was changed to the following: Patient satisfaction impacts healthcare quality and outcomes.	Abstract (Objectives Section) Page 3
Page 3: line 46-47 and page 10: Line 48-49 - you make the statement that resident care impacts satisfaction and quality, however, there is no data presented to support this statement. Please revise.	The following citations were added: -Van der Leeuw R, Lombarts K, Arah O, Heineman MJ. A Systematic Review of the Effects of Residency Training on Patient Outcomes. *BMC Medicine*. 2012; 10:65. -Contributions of Surgical Residents to Patient Satisfaction: Impact of Residents Beyond Clinical Care. 2008 May-Jun;65(3):243-52 -Dalia S and Schiffman F.J. Who's My Doctor? First-Year Residents and Patient Care: Hospitalized Patients' Perception of Their "Main Physician". *J Grad Med Educ* 2010; 2(2): 201-205. -Griffith C, Rich E, Hillson S, et al. Internal Medicine Residency Training and Outcomes. *J Gen Intern Med.* 1997; 12 (6):390-396.	Conclusion (first line) Page 10

	-Banka G, Edgington S, Kyulo N, et. al. Improving patient satisfaction through physician education, feedback, and incentives. *J Hosp Med.* 2015 Aug;10(8):497-502.	
Page 5 Line 27 - change structure of this sentence - "Though residents may have been taught some components of patient satisfaction in medical school, teaching and learning are not interchangeable."	The sentence was changed to the following: Residents may have been taught some components of patient satisfaction in medical school. However, teaching and learning are not synonymous; and therefore, the information may not have been retained.	Background (second paragraph) Page 5
1) Under setting and participants" I would remove the statements regarding diversity and "member institutions (basically lines 45 and 46) - these lines do not support your study/objectives or conclusions whatsoever and seem to be filler. Also, lines 50-52 are unnecessary. I would then change line 46/47 to: "All residents from internal medicine (n=185) and pediatrics (n=156) were asked to participate, which comprised more than 40% of the medical center's total resident staff." I also would take line 54-56 and put that in a single sentence in the first paragraph.	The sentences have been changed to the following: - This study was conducted at a large, urban health sciences university in a tertiary-care academic medical center in Houston, Texas, USA. All residents from internal medicine (n= 185) and pediatrics (n=156), which comprised approximately 40% of the resident staff in our training institutions, were asked to participate. Residents do not train in one primary university-affiliated training hospital; rather, they rotate through five affiliated institutions. They receive diverse exposure to outpatient and inpatient care across private, federal (Veterans Affairs) and county hospitals.	Methods (Setting and Participant Section) Page 5
2) Under "Participant Exposure to Patient Satisfaction Metrics" - I would significantly shorten this section. This could be a single paragraph. Lines 22-32 are unnecessary. I think a short section explaining in 3-4 sentences that resident exposure to their patient satisfaction scores/metrics varies between rotations and sites, and that it is difficult to quantify, would be all this section needs.	The sentences have been changed to the following: -Patient satisfaction data at the affiliated institutions are collected by a CMS-approved third-party vendor, a private organization whose questionnaires are used by more than 7000 facilities in the US to survey patients regarding their experiences in receiving health care at the institution. [10,17] Residents' exposure to these data vary between rotation and sites, and is difficult to quantify due to their rotation schedules. Residents rotate through different inpatient or outpatient sites every four weeks, while the patient experience data are usually reviewed monthly or quarterly.	Methods (Patient Exposure to Patient Satisfaction Metrics) Page 5

3) Section " Knowledge of Factors Impacting Patient Satisfaction" - this section is quite verbose. I think it would be improved by significant shortening. Lines 3-6 (page 7) could be removed.	The sentences have been changed to the following: - Questions 1-20 assessed knowledge of the factors related to patient satisfaction, using a 5-point Likert-type scale (1 = not at all important to 5 = extremely important) (See Appendix 1 for Survey Instrument). For this study, patient satisfaction knowledge will refer to knowledge of the drivers of patient satisfaction. -The information regarding the survey was added to the previous paragraph and was condensed to the following: Patient experience can be a surrogate marker of patient satisfaction; therefore, current validated surveys that assesses patient satisfaction via patient experience were also reviewed for themes and important determinants of patient satisfaction. The validated surveys were the Hospital CAHPS (HCAHPS) survey, Clinician and Group CAHPS (CG-CAHPS) for outpatient use, and Patient Satisfaction Questionnaire (PSQ) from Rand Health.[19-20]	Methods (See Knowledge of Factors Impacting Patient Satisfaction under Survey Instrument Section) Page 6
4) Discussion section - lines 39-42 seem to be extraneous and not related to the conclusion/what was studied.	Those lines were deleted	Discussion (First Paragraph) Page 8
5) Limitations section - lines 27-31 can be shortened/combined - something like "This was a single medical center study, which limits generalizability. However, given the participants rotate through multiple and diverse clinical training sites, the results are likely externally valid."	The sentences have been changed to the following: - The study was performed at a single academic center, which may limit generalizability. However, the participants in this study rotate through multiple, highly diverse affiliated institutions, and the results are likely externally valid.	Limitations Page 9