Author's response to reviews

Title: The relationship between perceived service quality and patient willingness to recommend at a national oncology hospital network

Authors:

Christopher G Lis (Christopher.lis@ctca-hope.com)
Mark Rodeghier (markrod@xsite.net)
Digant Gupta (gupta_digant@yahoo.com)

Version: 2 Date: 11 December 2010

Author's response to reviews:

December 11, 2010

Dear Dr. Norton,

Greetings,

Thank you for your correspondence in connection with our manuscript (MS:1994522821373951) entitled “The relationship between service quality measures and patient willingness to recommend at a national oncology provider network” for consideration in “BMC Health Services Research”.

We have addressed the reviewers’ concerns in our revised manuscript, which is being resubmitted to “BMC Health Services Research”. Attached below, for your perusal, is a detailed description (highlighted in red and CAPS) of how we have addressed the reviewers’ comments in our revised manuscript. The changes in the resubmitted manuscript have also been highlighted in red for easy identification.

We thank you once again for your interest in our manuscript. We believe that our manuscript has improved substantially as a result of valuable suggestions provided by the reviewers. Please let us know if you have any further questions and we will be more than happy to clarify.

We look forward to hearing back from you soon.

Yours Sincerely,

Digant Gupta, MD, MPH (On behalf of all authors)
Cancer Treatment Centers of America
2610 Sheridan Road
Zion, Illinois 60099, USA
Reviewer's report
Title: The relationship between service quality measures and patient willingness to recommend at a national oncology provider network
Version: 1 Date: 16 August 2010
Reviewer: Anna Gagliardi

Reviewer's report:
Measurement of health system performance, particularly from the perspective of patients is an important health services research issue. Decades of research on performance measurement shows it to have little impact on physician or patient behavior, and limited impact on manager behavior. In general we have little guidance on how to measure and report system performance. So, patient willingness to recommend may be an important way to gauge system performance. Thus this paper addresses an important issue, but the findings could be better reported if the authors elaborated on this context for naïve readers, provided information on what informed survey development/inclusion of measured elements including theoretical framework, and then elaborated on the implications of the findings. THANK YOU FOR YOUR SUGGESTIONS. POINT-BY-POINT RESPONSES TO YOUR SPECIFIC COMMENTS ARE INCLUDED BELOW.

MAJOR COMPULSORY REVISIONS

BACKGROUND
First paragraph – elaborate on how patients perceive quality, and clarify that the setting of interest is acute care (ie. hospitals). THE ROLE OF PERCEIVED SERVICE QUALITY HAS BEEN EXPANDED UPON AND IT HAS ALSO BEEN CLARIFIED THAT THE SETTING OF INTEREST IS ACUTE CARE.

Second paragraph – there are no references/citations to support the discussion of performance measurement in oncology; should cancer patients be surveyed regularly – is this feasible/practical/warranted according to current research?; and evaluation of service quality by the variety of method noted is not specific to oncology, these methods are applied in multiple sectors; WE HAVE CLARIFIED THAT THESE METHODS ARE APPLICABLE TO ALL HEALTHCARE SETTINGS AND NOT JUST ONCOLOGY. Service quality surveys are linked with willingness to recommend – clarify whether this means administration of the surveys, or specific survey findings. WE MEANT SPECIFIC SURVEY FINDINGS. THIS HAS BEEN CLARIFIED IN THE REVISED PAPER AND APPROPRIATE REFERENCE CITATION HAS ALSO BEEN ADDED.
Paragraph three – there is no reference/citations to support the first sentence; is it likely that in countries where performance is not monitored/reported that patients have a choice of service provider? AS SUGGESTED, THE REFERENCE CITATION HAS BEEN INCLUDED TO SUPPORT THIS SENTENCE. The objective of this study requires further justification – would cancer patients differ from other patients in which willingness to recommend has been studied? THE INTRODUCTION SECTION HAS BEEN REVISED SUBSTANTIALLY TO PROVIDE A STRONGER JUSTIFICATION FOR THE STUDY. WE HAVE ALSO CLARIFIED THAT SIMILAR TO OTHER PATIENT SETTINGS, THE ASSESSMENT OF SERVICE QUALITY, AS PERCEIVED BY PATIENTS, IS SALIENT IN AN ONCOLOGY SETTING AS WELL. Why would it be important to study this in a heterogeneous sample? WE HAVE CLARIFIED THAT PREVIOUS STUDIES ON THIS TOPIC DID NOT HAVE THE ADVANTAGES OF STUDYING A LARGE SAMPLE SIZE REPRESENTING DIFFERENT CANCER TYPES. STUDYING A HETEROGENEOUS SAMPLE ALLOWS FOR BETTER GENERALIZABILITY OF STUDY FINDINGS AS OPPOSED TO STUDYING ONLY ONE CANCER TYPE. Clarify whether the intent is to assess perceived quality or measured quality. THE INTENT WAS TO INVESTIGATE PERCEIVED SERVICE QUALITY AND ITS RELATIONSHIP WITH WILLINGNESS TO RECOMMEND. THIS HAS BEEN CALRIFIED IN THE TITLE AS WELL AS THROUGHOUT THE TEXT OF THE REVISED MANUSCRIPT.

Overall, the findings might be more broadly relevant if the authors noted the limitations of measuring and reporting performance data, either publicly or through other mechanisms such as audit and feedback, to highlight why it is instead important to be able to measure and address a patient reported outcome like willingness to recommend, and comment on whether and how this measure is currently reporting in oncology or other type of health system report card. PLEASE REFER TO THE DISCUSSION SECTION OF THE REVISED MANUSCRIPT.

METHODS
Approach – particularly because the authors have chosen to develop their own instrument rather than using a validated survey, the survey approach should be noted and cited. For example, it is reasonable to not use a validated survey if the intent of the survey is exploratory or descriptive rather than hypothesis testing. OUR STUDY WAS A HYPOTHESIS GENERATING STUDY RATHER THAN HYPOTHESIS TESTING. WE HAVE EXPANDED UPON THIS LIMITATION IN THE REVISED MANUSCRIPT. It is important to situate the dimensions included in the survey with research and theory so that readers understand what informed survey development – to strengthen the study perhaps a patient focused conceptual framework describing how satisfaction is linked with different service dimensions could be described

Statistical analysis – why were results dichotomized and why these two categories (top response versus all others)? THE OUTCOME VARIABLE
PATIENT WILLINGNESS TO RECOMMEND" WAS MEASURED ON AN 11-POINT SCALE RANGING FROM “NOT AT ALL LIKELY (0-9)” TO “EXTREMELY LIKELY (10)”. OVER 75% OF THE PATIENTS CHOSE “EXTREMELY LIKELY (10)”. BECAUSE OF SUCH SKewed DATA, WE COULD NOT HAVE USED THE DEPENDENT VARIABLE AS A CONTINUOUS VARIABLE AND THE OBVIOUS CHOICE WAS TO CATEGORIZE IT INTO 2 CATEGORIES. A SIMILAR APPROACH HAS BEEN USED BY OTHER RESEARCHERS IN THIS AREA. WE HAVE HIGHLIGHTED THIS IN THE REVISED MANUSCRIPT UNDER THE SECTION ON “STATISTICAL ANALYSIS”. Where did these service quality items come from – perhaps they could be defined, if not in the text, then in a table? THE SERVICE QUALITY ITEMS CAME FROM THE SERVICE QUALITY QUESTIONNAIRE THAT WE USED.

DISCUSSION
Elaborate on implications for practice or policy – how can these findings be applied by hospital managers or those who fund hospitals or those who independently monitor quality of care delivery? PLEASE REFER TO THE DISCUSSION SECTION OF THE REVISED MANUSCRIPT.

Elaborate on additional research that would be directly informed by the findings – for example, since involvement in decision making and sense of well being are important to cancer patients, what research has been done that characterizes these elements, or describes how they can be achieved, or what research is lacking and therefore warranted? PLEASE REFER TO THE DISCUSSION SECTION OF THE REVISED MANUSCRIPT.

Limitations – the survey was conducted between 2007 and 2009 – did anything take place during this time that may have influenced later data collection compared with earlier data collection? NO. WE CANNOT THINK OF ANY SYSTEMATIC CHANGES OCCURRING DURING THE STUDY THAT COULD HAVE INFLUENCED DATA COLLECTION. HOWEVER, IN THE REVISED MANUSCRIPT, WE HAVE ADJUSTED FOR THE EFFECT OF THE “YEAR” OF DATA COLLECTION. WE CREATED DUMMY VARIABLES TO TEST FOR THE EFFECT OF DATA COLLECTION IN 2008 AND 2009 AS COMPARED TO 2007. PLEASE REFER TO TABLES 6 AND 7. WE FOUND THAT 2009 SERVICE QUALITY DATA WAS ASSOCIATED WITH A HIGHER WILLINGNESS TO RECOMMEND AS COMPARED TO 2007 DATA. HOWEVER, EVEN AFTER CONTROLLING FOR THESE EFFECTS, WE FOUND ROBUST EFFECTS FOR VARIOUS SERVICE QUALITY MEASURES.
In principle, this is an interesting and well written manuscript. Unfortunately, there seems to be problems with the statistical analyses. Unless the following (hopefully constructive - my apologies if you found it unfair) critique is carefully addressed, the manuscript can’t be considered as scientifically sound. THANK YOU FOR THIS CONSTRUCTIVE FEEDBACK. AS RECOMMENDED, WE HAVE MADE SEVERAL REVISIONS TO OUR ANALYTIC APPROACH AS OUTLINED BELOW.

How many patients declined to participate in the survey? Could this have caused your sample to be selected towards more satisfied patients? A TOTAL OF 2754 RETURNING PATIENTS WERE CONTACTED AT ALL THREE CENTERS COMBINED TO PARTICIPATE IN THE SURVEY BETWEEN JULY 2007 AND SEPTEMBER 2009. HOWEVER, ONLY 2018 PATIENTS RESPONDED. AS A RESULT, THE RESPONSE RATE FOR THIS STUDY WAS 73.3%. THIS HAS BEEN CLARIFIED IN THE REVISED MANUSCRIPT.

It seems that all your questionnaire items are very skewed so that more than 50% of patients give the highest score. It doesn’t sound to be a very good idea to consider these measures as (normally distributed) continuous variables. Categorization could be a simple solution here, although it is not without problems either. BASED UPON YOUR RECOMMENDATION, WE HAVE CATEGORIZED ALL OUR SERVICE QUALITY ITEMS INTO TWO CATEGORIES: TOP BOX (COMPLETELY SATISFIED WITH A SCORE OF 7) AND ALL OTHERS (NOT COMPLETELY SATISFIED WITH SCORES 1-6).

Calculation of correlations with this kind of data is a bit problematic. The use of Spearman’s rho doesn’t solve the problems here, because you apparently have a huge number of tied ranks in your data. Categorization and the use of polychoric correlations could be an option. AS SUGGESTED, THE USE OF SPEARMAN’S CORRELATION WAS DISCARDED. WE REPORT KENDALL’S TAU B CORRELATION INSTEAD WHICH IS DESIGNED FOR CATEGORICAL DATA AND TAKES INTO ACCOUNT TIES.

You have quite many (probably) highly correlated variables measuring very similar things in your data. The standard approach in that kind of case is to reduce the dimensionality by using an appropriate method, such as factor analysis. That could be a good idea also with this data, because then you would have only a few factors (probably with sensible interpretations), and further, the use of factor scores would result in uncorrelated normally distributed variables in your models. WE HAD PREVIOUSLY ATTEMPTED FACTOR ANALYSIS WITH THESE DATA, BUT THE RESULTS WEREN’T PROMISING. MOST ITEMS LOADED ON ONE GENERAL FACTOR, WHICH DID NOT ALLOW US TO DIFFERENTIATE BETWEEN MEASURES OF SERVICE QUALITY, THE INTENT OF THIS RESEARCH.

I’m not at all convinced that stepwise logistic regression (even with the use of split samples) is an adequate approach to deal with multicollinearity. Please see the previous comment on possible dimension reduction. THE STEPWISE LOGISTIC REGRESSION AND SPLIT SAMPLE APPROACH HAS BEEN
DISCARDED. WE ANALYZED THE ENTIRE PATIENT POPULATION AS ONE SAMPLE AND USED BLOCK ENTRY METHOD (ALL VARIABLES ENTERED TOGETHER) FOR MULTIVARIATE LOGISTIC REGRESSION IN OUR REVISED PAPER. WE WERE ALSO CAREFUL ABOUT ISSUES OF MULTICOLLINEARITY, AS EXPLAINED IN THE PAPER.

You mention that "a heterogeneous patient population that has an extensive exposure to different clinical organizations and clinical teams during their treatment history and service quality measurement at essentially the same time that service is delivered, rather than days or weeks later" are strengths of your study. However, I see all these as limitations. Measuring the quality of services among very ill patients could certainly be important from many points of view, but you should justify more carefully why the satisfaction would reflect the quality of care and not only a glimpse of hope in patients' difficult situation. More importantly, pooling heterogeneous population from different organizations seems to blur rather than explain the possible associations. WE HAVE REVISED THE SECTION ON STUDY STRENGTHS. For example, it would be interesting to know whether the proportions of patients willing to recommend vary by diagnosis or by organization. IN THE REVISED MANUSCRIPT, WE HAVE ADJUSTED FOR THE EFFECT OF ORGANIZATION BY CREATING DUMMY VARIABLES. PLEASE REFER TO TABLES 6 AND 7. WE FOUND THAT SOUTHWESTERN HOSPITAL WAS ASSOCIATED WITH A HIGHER WILLINGNESS TO RECOMMEND AS COMPARED TO MIDWESTERN HOSPITAL. HOWEVER, THE SERVICE QUALITY MEASURES REMAINED SIGNIFICANT.

If that is the case, it may be oversimplification to consider only one model here. Moreover, you obviously have hierarchical data here: patients are nested to organizations - this should be taken into account. PLEASE REFER TO OUR COMMENTS ABOVE ON ADJUSTMENT FOR THE EFFECT OF ORGANIZATION.