Gynecologic Oncology xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Gynecologic Oncology

journal homepage: www.elsevier.com/locate/ygyno

Impact of surgical approach and patient factors on Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey scoring in gynecologic surgery☆

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HIGHLIGHTS

- Patients undergoing laparotomy gave lower overall hospital ratings based on HCAHPS scores.
- Patients with longer LOS reported poorer patient experience, which is the driver of lower scores.
- Adjustment of HCAHPS scores for surgical approach should be considered for public reporting.

ARTICLE INFO

Article history:
Received 7 June 2017
Received in revised form 5 November 2017
Accepted 10 November 2017
Available online xxxx

Keywords:
HCAHPS
Surgery
Survey
Quality
Laparoscopy
Reporting

ABSTRACT

Objective. We sought to compare the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey responses of women who underwent gynecologic surgery at our institution across patient factors and surgical approach.

Methods. We identified patients with returned HCAHPS surveys following an inpatient laparoscopic surgery or laparotomy in gynecologic surgery from 10/1/2012–9/30/2015. Exclusions included patient age < 18 years, discharge by a service other than Gynecologic Surgery, or refusal of Minnesota research authorization. HCAHPS composite measures were calculated using published top-box and summary star rating methodologies and dichotomized as "high" versus "low." Chi-square, Fisher's exact, and Wilcoxon rank sum tests, and multivariable logistic regression were performed.

Results. Of 403 women who met inclusion criteria, 109 (27%) underwent laparoscopic surgery (19% laparoscopic hysterectomy and 8% other laparoscopic procedures) and 294 (73%) laparotomy (28% open hysterectomy and 47% other open procedures). Length of stay (LOS) was longer for laparotomy cases vs. laparoscopy cases (median 2.5 days following open hysterectomy and 4 days following other open procedures vs 1 day following laparoscopic hysterectomy and other laparoscopic procedures, $p < 0.001$). Patients who underwent laparotomy other than hysterectomy were more likely to have low summary scores (79% vs 66% laparoscopic hysterectomy, 66% open hysterectomy, and 52% other laparoscopic procedures, $p = 0.005$). After adjustment, non-hysterectomy laparotomy cases were more likely to have a low summary score than non-hysterectomy laparoscopy (OR 3.86, 95% CI 1.71–8.68, $p = 0.001$). This significance did not remain after further adjusting for LOS.

Conclusion. In Gynecologic Surgery, patients undergoing laparotomy gave lower hospital ratings compared to laparoscopy. Those with longer LOS reported poorer patient experience, which is the driving variable for lower scores. In the future, it may be necessary to adjust for surgical approach when reporting patient experience scoring.

1. Introduction

Surgical practices in Gynecology and Gynecologic Oncology have changed significantly over the past three decades with new developments in surgical technique, with minimally invasive surgery becoming the standard of care for many procedures [1,2]. For example,

☆ All authors contributed to the concept and design of this study, in addition to the drafting and editing of the manuscript.

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https://doi.org/10.1016/j.ygyno.2017.11.015
0090-8258/

endometrial cancer is typically treated surgically via a minimally invasive approach [3,4]. However, traditional open approaches remain the standard of care for other procedures, such as cytoreduction for ovarian cancer [5]. This difference in surgical technique leads to differing degrees of surgical complexity. While postoperative recovery and postoperative complications have been shown to differ depending on surgical approach [6], less is known about the associated patient reported experience.

Patient experience following surgery is dependent on many factors and could be affected by postoperative complications or other variables related to surgery [7–9]. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey is an assessment of the patient experience during hospital admission [10]. This survey is sent to a random sample of patients following an inpatient hospital admission and is a standardized method of acquiring information regarding patient perception of their care. HCAHPS scores are available to the public by region and state, and are compiled into star ratings for individual hospitals which can be found on the Center for Medicare's Hospital Compare website [10].

The HCAHPS survey was endorsed by the National Quality Forum (NQF) in 2005, and has garnered increased interest among healthcare providers since the 2007 requirement of survey participation for full payment for hospitals that utilize the Inpatient Prospective Payment System (IPPS), and since value-based purchasing (VBP) began in 2011 [10,11]. Many research studies have analyzed different aspects of the survey, including differences in responses and reported scores based on demographic factors [12–14]. Others have reported methods to improve HCAHPS scores or factors related to patient satisfaction and quality or value of care [15–17].

Although research regarding HCAHPS surveying has increased, to our knowledge there have been no studies in the gynecology or gynecologic oncology fields focusing on these surveys. Given the contrasting surgical approaches performed for patients with gynecologic abnormalities and malignancies, it is plausible that HCAHPS survey scores differ among patients due to type of procedure. We sought to describe the HCAHPS survey responses of women who underwent gynecologic surgery at our institution and compare survey scores across patient factors and surgical approach.

2. Methods

We identified patients who underwent an inpatient laparoscopic surgery or laparotomy performed by a surgeon in the Gynecologic Surgery division at one large academic medical center and discharged between 10/1/2012 and 9/30/2015. Administrative data records were reviewed for patient demographics, procedures, diagnoses, and LOS. We utilized Current Procedural Terminology codes to delineate our cohort into laparotomy vs laparoscopic procedures. Laparoscopic procedures included those performed via standard laparoscopy as well as robotic-assisted laparoscopy. Procedures were further categorized as laparoscopic hysterectomy (including laparoscopically assisted vaginal hysterectomy and total laparoscopic hysterectomy), other laparoscopic surgery (including diagnostic procedures, lysis of adhesions, salpingo-oophorectomy, cystectomy, lymph node dissection, and myomectomy), open hysterectomy (including total abdominal hysterectomy and radical hysterectomy), and other open surgery (including salpingo-oophorectomy, cystectomy, debulking, lymph node dissection, and exenteration). All surgical procedures at our institution are performed by fellowship-trained surgeons, and for this study included gynecologic oncologists, urogynecologists, and minimally invasive surgeons. Enhanced Recovery After Surgery was implemented at our institution in 2011, and was the manner of perioperative care for all patients included in this study. Elixhauser comorbidities and cancer diagnoses were identified from diagnoses associated with the admission, which were documented with International Classification of Diseases, Ninth Revision (ICD-9) codes. Exclusions included patient age < 18 years, discharge by a service other than Gynecologic Surgery, or refusal of Minnesota research authorization. We identified patients who returned HCAHPS surveys, which were administered by a third party vendor to a random sample of all patients discharged from a Gynecologic Surgery service following an inpatient stay for surgery. Sub-analysis was performed to evaluate demographic data between patients who received and responded to an HCAHPS survey and those who either did not receive or did not respond to a questionnaire. All other analyses excluded patients without a survey corresponding to their inpatient stay.

HCAHPS surveys cover nine core domains: pain management, cleanliness and quietness of environment, communication with nurses, communication with doctors, communication about medicines, responsiveness of hospital staff, discharge information, transition of care, and global rating of the hospital. These core topics, or composite measures, are aggregated to establish an overall summary score [10]. HCAHPS composite measures were calculated using published top-box methodologies and dichotomized as “high” versus “low” [18]. Composite measures were recalculated on a continuous scale and combined to create the summary score on a scale of 0–100 using Centers for Medicare and Medicaid Services (CMS) methodologies and dichotomized as high quartile (98 +) vs low [19,20]. Chi-square, Fisher's exact, and Wilcoxon rank sum tests were used to compare patient demographic and perioperative variables and HCAHPS composite and summary scores by surgery type and to assess the associations between patient factors and HCAHPS global (combination of 2 questions: How would you rate this hospital? Would you recommend this hospital?) and summary scores. Multivariable logistic regression was performed to asses association of procedure type with low HCAHPS care transition, global, and summary scores after adjusting for overall health and highest grade completed to remain consistent with those variables adjusted for by CMS; further multivariable model adjustment included LOS. Key driver analysis was performed to evaluate low-scoring measures most highly correlated with global scores in order to identify areas for intervention.

Analysis was performed using SAS version 9.4 (SAS Institute Inc., Cary NC), and p-values < 0.05 were considered significant. Institutional Review Board approval was obtained.

3. Results

We identified 1389 women discharged from the Gynecologic Surgery division between 10/1/2012 and 9/30/2015 who met inclusion criteria for study, and 403 of those patients returned an HCAHPS survey. The remaining 986 patients either did not receive or did not respond to the HCAHPS questionnaire. Those that responded to a survey were older than those that did not respond or did not receive a survey (median age 61 vs 57 years, $p < 0.001$). There were no differences in procedure type, LOS, Elixhauser comorbidity, or cancer diagnosis between survey responders and those without a returned questionnaire.

Of the 403 women with surveys corresponding to their inpatient stay, 109 (27%) underwent a laparoscopic procedure (19% laparoscopic hysterectomy, 8% other laparoscopic procedure) with a median age of 62 years, and 294 (73%) underwent laparotomy (28% open hysterectomy, 45% other open procedure) with a median age of 61 years. When assessing surgical sub-specialty, 367 procedures were performed by a gynecologic oncologist (91.1%) with 101 laparoscopies and 266 laparotomies, and 36 (8.9%) procedures were performed by a urogynecologist or minimally invasive surgeon with 8 laparoscopies and 28 laparotomies. On univariate analysis, there was no difference in the Elixhauser comorbidities across procedure groups. As expected, there was a significantly longer LOS for laparotomy cases compared to laparoscopy cases (median 2.5 days for open hysterectomy and 4 days for other open procedures vs 1 day for both laparoscopic hysterectomy and other laparoscopic procedures, $p < 0.001$). (Table 1).

When evaluating HCAHPS measures, patients who underwent laparotomy were more likely to have low scores in the care transition domain (46% vs 35%, $p = 0.04$) and low summary scores (74% vs 62%,

Please cite this article as: S. Wallace, et al., Impact of surgical approach and patient factors on Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surve..., Gynecol Oncol (2017), https://doi.org/10.1016/j.ygyno.2017.11.015