Review Article


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HIGHLIGHTS

• Cost savings exist for women with endometrial cancer undergoing hysterectomy.
• Increases in the rate of minimally invasive surgery can decrease cost.
• Decreases in length of study and emergency department visits also result in cost savings.

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ABSTRACT

Objective. To design an endometrial cancer (EC) alternative payment (ECAP) model focused on surgical management of EC, as well as identify drivers of cost in order to develop opportunities for cost-savings while maintaining quality of care.

Methods. National practice patterns and reimbursements were compared between private payers (MarketScan data, years 2009–13) and public payers (Medicare, year 2014) of EC patients who underwent hysterectomy. An episode of care for EC included the hysterectomy, stratified by surgical approach (laparotomy versus robotic versus laparoscopy), and in- and outpatient reimbursements from 30 days preoperatively to 60 days postoperatively. Reimbursements were categorized into cost centers. A decision model informed modifiable components influencing overall reimbursements for EC surgical care. Variations in length of stay (LOS), emergency department (ED) visits, and readmissions were analyzed to create an optimal care model.

Results. A total of MarketScan (n = 29,558) and Medicare (n = 377) patients were included. Mean total reimbursement for an episode of care was $19,183 (SD $10,844) for Medicare and $30,839 (SD $19,911) for MarketScan. Mean reimbursements were greatest for abdominal cases in Medicare ($25,553; SD $11,870) and MarketScan ($35,357; SD $21,670), followed by robotic and laparoscopic. Among MarketScan patients, 7.6% of women were readmitted within 60 days after surgery and 11.7% had an evaluation in the ED. The median reimbursement per patient for readmission was $14,474 (IQR $8564 to $26,149), and for ED visit was $6327 (IQR $1369 to $29,153). In an optimized care model, increasing the rate of minimally invasive surgery by 5% while reducing LOS by 10% and ED visits/readmissions by 10%, lowered the average case reimbursement by $903 (2.9%) for MarketScan and $1243 (5.9%) for Medicare.

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Conclusion. An ECAP model demonstrates that reimbursements vary by public versus commercial payers in the U.S. for the surgical management of endometrial cancer patients, and that opportunities for cost savings exist. Nominal increases in the rate of minimally invasive surgery and reduction in the rate of ED visits/readmissions and length of stay can result in substantial savings for endometrial cancer care.

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1. Introduction

Value is defined as the patient-driven outcomes achieved relative to the cost of delivering care. Improving the value of healthcare for patients is the goal of reform. In 2015, the Medicare Access and CHIP Reauthorization Act (MACRA) was enacted into law. MACRA repealed the Sustainable Growth Rate and set the stage for programs to promote value in healthcare delivery [1–3]. The goal of the Society of Gynecologic Oncology (SGO) Physician Payment Reform Taskforce (PPRTF) is to determine sources of potential cost savings while promoting quality care for gynecologic cancers.

Endometrial cancer is the most common cancer of the female genital tract in the developed world and its incidence is rising due to sedentary lifestyles and obesity. The mainstay of treatment for this disease is surgery, including hysterectomy with bilateral salpingo-oophorectomy. Women with early-stage, low grade tumors have an excellent prognosis and often do not require additional therapy. Patients with higher-risk, early-stage tumors are often treated with adjuvant therapy. The surgical management of endometrial cancer is typically performed by gynecologic oncologists, and, as such, is the ideal setting for an advanced, alternative payment model (APM) that promotes the delivery of value-driven care [4,5].

In light of the need for innovation in the pursuit of value-based gynecologic cancer care, the SGO PPRTF has worked to develop a pilot advanced APM for the surgical management of clinically apparent, low-risk endometrial cancer. As a first step toward this goal, the PPRTF performed comprehensive analyses of nationwide endometrial cancer reimbursements using commercial (private) and public payer databases. We performed data analysis and cost modeling work to investigate potential sources of cost savings that might be coupled with improvements in various quality measures in the surgical management of endometrial cancer.

The current manuscript describes an analysis of reimbursement data from commercial (private) and public payers, undertaken to ascertain the potential cost savings achievable with several quality improvement initiatives. These analyses form the basis for the PPRTF's proposed endometrial cancer alternative payment (ECAP) model.

2. Methods

2.1. Data sources and patient selection

We obtained data on reimbursements for the surgical treatment of endometrial cancer from two large data files, MarketScan (commercial private payer data source) and Medicare (Centers for Medicaid and Medicare Services, public payer). The Truven Health Analytics' MarketScan® research database is a commercial payer data source which contains de-identified healthcare claims data for >115 million commercially insured patients [6]. The dataset includes inpatient claims, outpatient claims, and prescription drug use and allows for the longitudinal capture of patients over time [6,7]. We analyzed women in MarketScan from 2009 to 2013. Medicare is a federally funded health insurance program for persons age 65 or older, or with end-stage renal disease, or with some disability [8]. The 2014 Medicare data files were used for this analysis. These files include inpatient claims files (Part A) as well as [outpatient] claims (Part B) for physician/supplier fee-for-services and home health/skilled nursing. Part B physician claims were available for only 5% of the sample. Our analysis of Medicare patients was limited to this 5% sample.

We selected women who underwent hysterectomy for endometrial cancer. In MarketScan we only included women who had continuous coverage for this entire time period. In the Medicare database, we limited the analysis to patients with 12 months of part A and part B coverage. Patients enrolled in Medicare due to end stage renal disease and those in a health maintenance organization were excluded. Patients who received chemotherapy or radiation prior to the date of hysterectomy were excluded from both datasets.

The primary route of hysterectomy for each patient was classified as abdominal (open), laparoscopic, or robotic-assisted. Women with only a code for a vaginal hysterectomy (1.8% of MarketScan and 2.4% of Medicare) were excluded from the analysis. All patients including those who underwent nodal assessment and those who did not have nodal evaluation were included. The length of stay (LOS) during the hospitalization for the index procedure was classified as 0, 1, 2, 3 or...
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