

Overview of the hysterectomy episode of care

State of Ohio

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1. CLINICAL OVERVIEW AND RATIONALE FOR DEVELOPMENT OF THE HYSTERECTOMY EPISODE

1.1 Rationale for development of the hysterectomy episode of care

Hysterectomy is second most frequent major surgical procedure among reproductive-age women to treat patients with uterine fibroids, uterine prolapse, cancers, and other pelvic conditions. Globally, hysterectomy rates in Western countries have been declining due to more conservative approaches; yet, the United States still has one of the highest rates of hysterectomies relative to other countries at 5.4 per 1000 women.¹ 600,000 hysterectomies are performed each year in the U.S., which amounts to over \$5 billion in hospital costs per year.² Over the last decade, the number of inpatient hysterectomies performed nationally has declined by 36 percent, while the incidence of minimally invasive and outpatient hysterectomies has increased.³ In Ohio, there were 4,456 hysterectomies among Medicaid beneficiaries in 2015, which accounts for approximately \$22 million in spend and a median cost of \$3,778 per hysterectomy episode.⁴

Evidence-based guidelines recommended by the American Congress of Obstetricians and Gynecologists (ACOG) outline several best practices for clinicians to improve quality of care and outcomes for patients.⁵ Clinical guidelines recommend that for non-emergent, non-oncologic scenarios a hysterectomy should generally be performed only in the presence of appropriate indications (e.g., leiomyomas,

¹ Santiago Domingo. Overview of Current Trends in Hysterectomy. Expert Rev of Obstet Gynecol. 2009.

² Carlson KJ, Nichols DH, Schiff I. Indications for hysterectomy. N Engl J Med 1993; 328:856-860.

³ Wright JD et al. Nationwide trends in the performance of inpatient hysterectomy in the United States. Obstet Gynecol. 2013; 122:233-41.

⁴ Analysis of Ohio Medicaid claims data for episodes ending between October 1, 2014 and September 30, 2015, Total Episodes

⁵ American Congress of Obstetricians and Gynecologists. Choosing the route of hysterectomy for benign disease. ACOG Committee Opinion No. 444. Obstet Gynecol 2009;114:1156-8

endometriosis, uterine prolapse) and after consideration of alternative treatment options.⁶ Evidence demonstrates that, in general, vaginal hysterectomy is associated with better outcomes and fewer complications than laparoscopic or abdominal hysterectomies.⁷ ACOG states that the physician should take into consideration how the procedure may be performed most safely and cost-effectively to fulfill the medical needs of the patient.⁸

Although evidence suggests that broader use of a transvaginal hysterectomies for benign disease would lead to better patient outcomes,⁹ this approach is the least common among Ohio Medicaid beneficiaries. In 2016, across both inpatient and outpatient settings, approximately 65 percent of episodes were performed laparoscopically, 22 percent via abdominal approach, and 13 percent via vaginal approach.¹⁰ Relative to abdominal hysterectomies, vaginal hysterectomies are less invasive, have a lower risk of complications, have shorter recovery times, and are less costly.¹¹ In 2015, the average costs of abdominal and laparoscopic hysterectomy episodes were \$6,442 and \$4,012, respectively, whereas a vaginal hysterectomy episode cost \$3,884.

Despite these clinical guidelines, surgical and treatment practices during the operative and perioperative periods of a hysterectomy vary widely from one provider to another. Unique patient needs will necessitate variation in surgical and treatment practice; however, practice variation due to reasons not related to the patient may lead to sub-optimal patient outcomes, higher than necessary costs, or both.

Implementing the hysterectomy episode of care is intended to improve patient outcomes through reducing variation in care across providers. As part of a concerted effort to improve overall obstetric and gynecological care for Ohio Medicaid patients, the hysterectomy episode is being deployed together with a suite of episodes (including perinatal and neonatal episodes). Alongside these and other episodes of care and patient-centered medical homes, the hysterectomy episode will contribute to a model of care delivery that benefits patients through improved care quality and clinical outcomes with attention to overall cost of care.

⁶ Bernstein SJ. Hysterectomy, Ratings of Appropriateness. RAND 1997; 1-144.

⁷ American Congress of Obstetricians and Gynecologists. Choosing the route of hysterectomy for benign disease. ACOG Committee Opinion No. 444. *Obstet Gynecol* 2009;114:1156–8

⁸ Ibid.

⁹ Ibid.

¹⁰ Analysis of Ohio Medicaid claims data for dates between January 1, 2016 and December 31, 2016.

¹¹ American Congress of Obstetricians and Gynecologists. Choosing the route of hysterectomy for benign disease. ACOG Committee Opinion No. 444. *Obstet Gynecol* 2009;114:1156–8

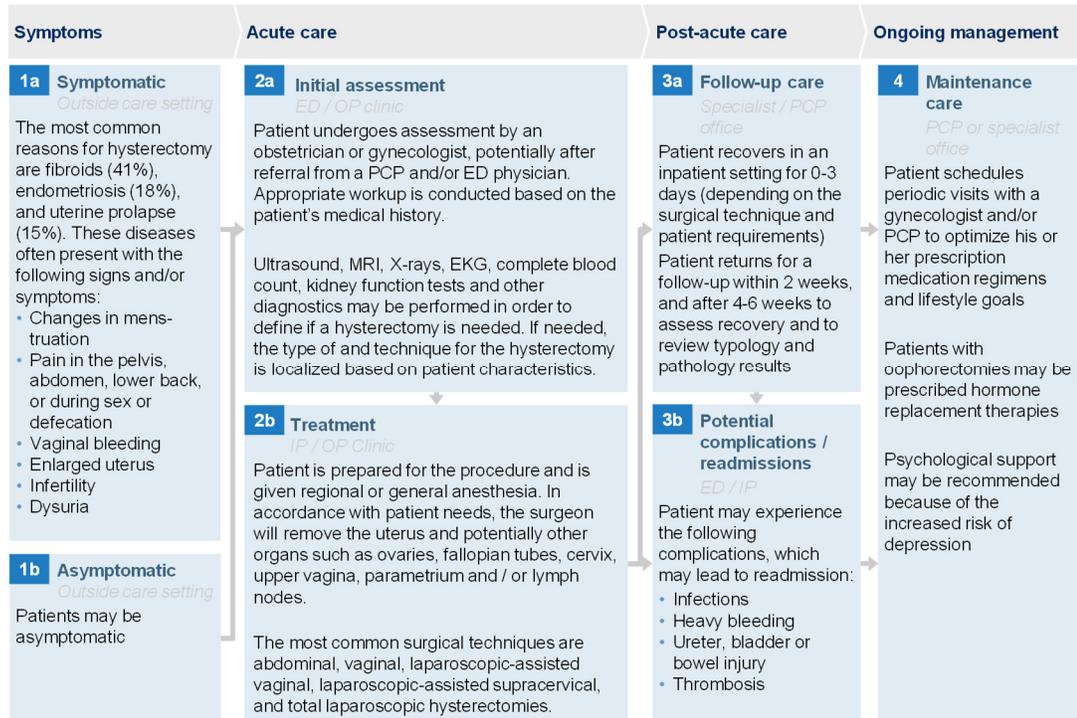
1.2 Clinical overview and typical patient journey for a hysterectomy procedure

A hysterectomy is a surgical procedure to remove the uterus and can be performed vaginally, abdominally, or laparoscopically. Generally, a hysterectomy is indicated for patients experiencing one or more of the following: uterine leiomyomas, abnormal uterine bleeding, pelvic organ prolapse, endometriosis and other pelvic pain or infection (e.g. pelvic inflammatory disease), and malignant and premalignant disease.

As depicted in Exhibit 1, a hysterectomy episode is triggered by an inpatient or outpatient (non-emergency department) vaginal, abdominal, or laparoscopic hysterectomy. Prior to the procedure, a complete patient history is taken and the appropriate diagnostic work-up is performed to establish a clear indication for the hysterectomy. After the hysterectomy, the patient receives follow-up care during a recovery period, which can be in either inpatient or outpatient settings. Some patients may develop complications (e.g., post-operative bleeding, infection, ureteral injury), may require a post-procedure admission, and have follow-up clinician visits. Others may have only follow-up clinician visits following the hysterectomy.

The hysterectomy episode will be complemented by a patient-centered medical home (PCMH) in Ohio to cover a broad spectrum of care delivered for Medicaid beneficiaries who require a hysterectomy. PCMHs will focus on chronic management of symptoms, such as abnormal uterine bleeding and pelvic pain, and other patient comorbidities before and after the hysterectomy episode. In addition, PCMHs will handle patient referrals to gynecological surgeons and other specialists as appropriate. To complement PCMHs, the hysterectomy episode will focus on improving outcomes directly related to the 60-day window surrounding the hysterectomy procedure.

EXHIBIT 1 – HYSTERECTOMY PATIENT JOURNEY



1 American Congress of Obstetricians and Gynecologists. Choosing the route of hysterectomy for benign disease. ACOG Committee Opinion No. 444. *Obstet Gynecol* 2009;114:1156–8

2 Ewalds-Kvist SB, et al. Depression, anxiety, hostility and hysterectomy. *J Psychosom Obstet Gynaecol*. 2005; 26(3):193-204.

1.3 Potential sources of value within the hysterectomy patient journey

Within the hysterectomy episode of care, providers have several opportunities to improve quality of care and reduce unnecessary spend associated with the episode (see Exhibit 2). For example, providers may choose less invasive surgical approaches and only perform open hysterectomies when deemed clinically necessary, thereby limiting the time required for inpatient recovery.¹² In addition, providers can ensure that the patient is treated in the appropriate care setting, adhere to care to reduce the risk of complications, and offer appropriate guidance and support upon discharge (e.g., patient education regarding wound care and recovery, smoking cessation counseling) to minimize the likelihood of readmissions. In general, these practices can improve quality by reducing the likelihood of complications and post-procedure admissions, as well as reducing the overall spend for a hysterectomy episode.

EXHIBIT 2 - HYSTERECTOMY SOURCES OF VALUE



¹² American Congress of Obstetricians and Gynecologists. Choosing the route of hysterectomy for benign disease. ACOG Committee Opinion No. 444. Obstet Gynecol 2009;114:1156-8.

2. OVERVIEW OF THE HYSTERECTOMY EPISODE DESIGN

2.1 Episode Trigger

The hysterectomy episode is triggered by a planned (i.e. non-emergent) hysterectomy procedure that occurs in an inpatient or outpatient setting. The range of hysterectomy procedure codes that trigger an episode include CPT codes for vaginal, abdominal, and laparoscopic hysterectomies (see Table 1 in the Appendix for the complete list of trigger procedure codes).

2.2 Principal Accountable Provider

The principal accountable provider (PAP) is the person or entity best positioned to influence the patient journey and the clinical decisions made throughout the course of the episode. For the hysterectomy episode the PAP is the surgeon or physician who performed the hysterectomy procedure. This is because the decisions regarding planning, execution, and follow-up of a hysterectomy should be under the primary purview of the surgeon.

2.3 Episode Duration

The hysterectomy episode begins 30 days prior to the triggering procedure (called the “pre-trigger window”), includes the procedure and any associated admission and recovery (called the “trigger window”), and ends 30 days after the procedure ends or 30 days after discharge (i.e., 30 days after the day of the procedure for episodes where the hysterectomy is performed in an outpatient setting or 30 days after the day of discharge for episodes where the hysterectomy is performed in an inpatient setting). The 30-day pre-trigger window was deemed an appropriate period of time to capture the majority of pre-operative diagnostics, workup, and management. Similarly, the 30-day post-trigger window was an adequate time to capture readmissions, complications, follow-up care and other relevant included claims). The rationale for the split post-trigger window relates to which services are included when, and is described in greater detail in section 2.4.

2.4 Included Services

The episode model is designed to address the spend for care and services directly related to the diagnosis, treatment, and immediate recovery phase of the patient journey. Each period of the patient journey, or episode “window,” has a distinct claim inclusion logic derived from two major criteria: 1) that the type of included care and

services must correspond to that window of the patient journey and 2) that the included care and services are understood to be directly or indirectly influenced by the PAP during that window.

The hysterectomy episode is comprised of four distinct windows, for the purpose of spend inclusions: a pre-trigger window, a trigger window, and two post-trigger windows. During the pre-trigger window all diagnostic work-up (e.g., labs, imaging, pathology), symptom management (e.g., drug and other therapy for treatment of endometrial pain), and pre-operative preparation are included in the total spend of the episode. During the trigger window—when the procedure itself happens—all relevant spend is included (including medical and drug spend). During the first post-trigger window (one through three days following the procedure), immediate post-operative complications (e.g., urinary tract infections, management of operative injury to the bladder or urethra, adverse reaction to medications, nausea and vomiting, or fever) and related follow-up care (e.g., wound care, bladder or ureter repair, and select medications), along with any associated ED visits or hospitalizations, are included. Finally, during the second post-trigger window (four to 30 days following the procedure) only treatment for continuation of the symptoms that initially necessitated the hysterectomy procedure, care directly relating to the procedure, and related follow-up care is included (e.g., select labs and imaging, pathology, and post-operative follow-up appointments).

Throughout the episode window spend for transportation and vaccinations are excluded. Vaccination spend is excluded to prevent doctors from withholding procedures deemed beneficial for patients and transportation spend is excluded since there is variability in transportation costs among patients that falls outside the purview of the PAP.

The total episode spend is calculated by adding up the spend amounts on all of the individual claims that were included in each of the episode windows.

2.5 Episode Exclusions and Risk Factors

To ensure that episodes are comparable across patient panels, select risk factors and exclusions are applied before assessing PAP performance. Risk factors are applied to episodes to make spend more comparable across different patient severities, while episode exclusions are applied when a clinical factor deems the patient too severe (and too high spend) for risk adjustment to be possible.

In the context of episode design, risk factors are attributes (e.g., age) or underlying clinical conditions (e.g., obesity or known adhesions) that are likely to impact a patient's course of care and the spend associated with a given episode. Risk factors are selected via a standardized and iterative risk-adjustment process which gives due

consideration to clinical relevance, statistical significance, and other contextual factors. Based on the selected risk factors, each episode is assigned a risk score. The total episode spend and the risk score are used to arrive at an adjusted episode spend, which is the spend on which providers are compared to each other. The final list of risk factors is detailed in Table 2 of the Appendix. Other risk factors were inputted into the model because they were clinically relevant to the hysterectomy episode but did not come out of the model as statistically significant.¹³

By contrast, an episode is excluded from a patient panel when the patient has clinical factors that suggest she has experienced a distinct patient journey (e.g., pregnancy) and/or which drive significant increases in spend relative to the average patient (e.g., select cancers and HIV). In addition, there are several “business-related” exclusions. These exclusions are factors relating to reimbursement policy (e.g., whether a patient sought care out of state), the completeness of spend data for that patient (e.g., third party liability or dual eligibility), and other topics relating to episode design and implementation (e.g. a care pathway that overlaps with other non-hysterectomy episodes) during the comparison period. Episodes that have no exclusions are known as “valid” episodes and are the episodes that are used for provider comparisons. In contrast, episodes with one or more exclusions are “invalid” episodes.

For the hysterectomy episode, both business and clinical exclusions apply. Several of the business and clinical exclusions are standard across most episodes while others are specific to the hysterectomy episode. As the episode is intended to capture non-malignant, non-emergent hysterectomies, the episode-specific clinical exclusions (which are in addition to clinical exclusions standard across most episodes) are claims with procedures or diagnoses indicating: 1) immunocompromised patient, 2) pelvic fracture or trauma, and 3) pregnancy and delivery. A more detailed list of business and clinical exclusions is in Table 3 of the Appendix.

2.6 Quality Metrics

To ensure the episode model incentivizes quality care, the hysterectomy episode has select quality metrics. Quality metrics are calculated for each PAP meeting the minimum threshold for valid episodes. The hysterectomy episode has six quality metrics. One of the quality metrics is linked to performance assessment, meaning that performance thresholds on these quality metrics must be met in order for the episodes to be eligible for positive incentive payments. The specific threshold amount will be

¹³ Some of these factors include chronic pain, depression, heart failure, nutritional deficiency, and previous C-section

determined during the informational reporting period. Five of the quality metrics are for informational purposes only.

The metric tied to positive incentive payments is the average difference in morphine equivalent dose (MED) per day between the pre-trigger opioid window and the post-trigger opioid window. The informational metrics are the new opioid prescription fill rate, the rate of major morbidity, the percent of abdominal hysterectomies, average MED per day during the pre-trigger opioid window, and the average MED per day during the post-trigger opioid window. A complete list of quality metrics is provided in Table 4 in the Appendix.

3. APPENDIX: SUPPORTING INFORMATION AND ANALYSES

Table 1 – Hysterectomy episode triggers

| Trigger group | Trigger codes (CPT codes) | Description |
|---------------|---------------------------|---|
| Abdominal | 58150 | Total abdominal hysterectomy (corpus and cervix), with or without removal of tube(s), with or without removal of ovary(s); |
| | 58152 | Total abdominal hysterectomy (corpus and cervix), with or without removal of tube(s), with or without removal of ovary(s); with colpo-urethrocystopexy (eg, Marshall-Marchetti-Krantz, Burch) |
| | 58180 | Supracervical abdominal hysterectomy (subtotal hysterectomy), with or without removal of tube(s), with or without removal of ovary(s) |
| Vaginal | 58260 | Vaginal hysterectomy, for uterus 250 g or less; |
| | 58262 | Vaginal hysterectomy, for uterus 250 g or less; with removal of tube(s), and/or ovary(s) |
| | 58263 | Vaginal hysterectomy, for uterus 250 g or less; with removal of tube(s), and/or ovary(s), with repair of enterocele |
| | 58267 | Vaginal hysterectomy, for uterus 250 g or less; with colpo-urethrocystopexy (Marshall-Marchetti-Krantz type, Pereyra type) with or without endoscopic control |
| | 58270 | Vaginal hysterectomy, for uterus 250 g or less; with repair of enterocele |
| Vaginal | 58275 | Vaginal hysterectomy, with total or partial vaginectomy |
| | 58280 | Vaginal hysterectomy, with total or partial vaginectomy; with repair of enterocele |
| | 58285 | Vaginal hysterectomy, radical (Schauta type operation) |
| | 58290 | Vaginal hysterectomy, for uterus greater than 250 g |
| | 58291 | Vaginal hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s) |
| | 58292 | Vaginal hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s), with repair of enterocele |
| | 58293 | Vaginal hysterectomy, for uterus greater than 250 g; with colpo-urethrocystopexy (Marshall-Marchetti-Krantz type, Pereyra type) with or without endoscopic control |

| Trigger group | Trigger codes (CPT codes) | Description |
|---------------|---------------------------|---|
| | 58294 | Vaginal hysterectomy, for uterus greater than 250 g; with repair of enterocele |
| Laparoscopic | 58541 | Laparoscopy, surgical, supracervical hysterectomy, for uterus 250 g or less |
| | 58542 | Laparoscopy, surgical, supracervical hysterectomy, for uterus 250 g or less; with removal of tube(s) and/or ovary(s) |
| | 58543 | Laparoscopy, surgical, supracervical hysterectomy, for uterus greater than 250 g |
| | 58544 | Laparoscopy, surgical, supracervical hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s) |
| | 58550 | Laparoscopy, surgical, with vaginal hysterectomy, for uterus 250 g or less |
| | 58552 | Laparoscopy, surgical, with vaginal hysterectomy, for uterus 250 g or less; with removal of tube(s) and/or ovary(s) |
| | 58553 | Laparoscopy, surgical, with vaginal hysterectomy, for uterus greater than 250 g |
| | 58554 | Laparoscopy, surgical, with vaginal hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s) |
| Laparoscopic | 58570 | Laparoscopy, surgical, with total hysterectomy, for uterus 250 g or less |
| | 58571 | Laparoscopy, surgical, with total hysterectomy, for uterus 250 g or less; with removal of tube(s) and/or ovary(s) |
| | 58572 | Laparoscopy, surgical, with total hysterectomy, for uterus greater than 250 g |
| | 58573 | Laparoscopy, surgical, with total hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s) |

Table 2 – Hysterectomy episode risk factors

| Risk Factor | Description | Relevant time period |
|--|---|--|
| Age 40-49 | Patient's age | During the trigger start date |
| Age 50-59 | Patient's age | During the trigger start date |
| Acute kidney failure | Patient diagnosed with acute kidney failure | During the trigger window and 60 days before the episode window |
| Coagulation and hemorrhagic disorders | Patient diagnosed with coagulation and hemorrhagic disorders | During the episode window and 365 days before the episode window |
| Coronary artery disease | Patient diagnosed with coronary artery disease | During the episode window and 365 days before the episode window |
| Diabetes mellitus | Patient diagnosed with diabetes mellitus | During the episode window and 365 days before the episode window |
| History of abdominal or pelvic surgery | Patient with a history of abdominal or pelvic surgery | During the episode window and 365 days before the episode window |
| Morbid obesity | Patient diagnosed with morbid obesity | During the episode window and 365 days before the episode window |
| Non-inflammatory disorders of the uterus | Patient diagnosed with non-inflammatory disorders of the uterus | During the episode window and 365 days before the episode window |
| Pelvic masses | Patient diagnosed with pelvic masses | During the episode window and 365 days before the episode window |
| Sleep apnea | Patient diagnosed with sleep apnea | During the episode window and 365 days before the episode window |
| Stress incontinence | Patient diagnosed with stress incontinence | During the episode window and 365 days before the episode window |
| Urinary disease | Patient diagnosed with urinary disease | During the 365 days before the episode window |

Table 3 – Hysterectomy episode exclusions

| Exclusion type | Episode exclusion | Description | Relevant time period |
|---------------------|-------------------------|--|---------------------------|
| Business Exclusions | Concurrent scope | Patient has a valve procedure or percutaneous coronary intervention | During the trigger window |
| | Dual | Patient had dual coverage by Medicare and Medicaid | During the episode window |
| | FQHC/RHC | PAP is classified as a federally qualified health center (FQHC) or a rural health clinic (RHC) | During the episode window |
| | Incomplete episode | Non-risk-adjusted episode spend is less than the incomplete episode threshold | During the episode window |
| | Inconsistent enrollment | Patient has gaps in full Medicaid coverage | During the episode window |
| | Long hospitalization | Hospitalization is longer than (>) 30 days | During the episode window |
| | Long-term care | Patient has one or more long-term care claim detail lines | During the episode window |
| | Missing APR-DRG | A DRG-paid inpatient claim is missing the APR-DRG and severity of illness | During the episode window |
| | Multiple payers | Patient changes enrollment between FFS and an MCP or between MCPs | During the episode window |
| | PAP out of state | The principle accountable provider operates out of state | During the episode window |
| | No PAP | An episode's billing provider number is not available | During the episode window |

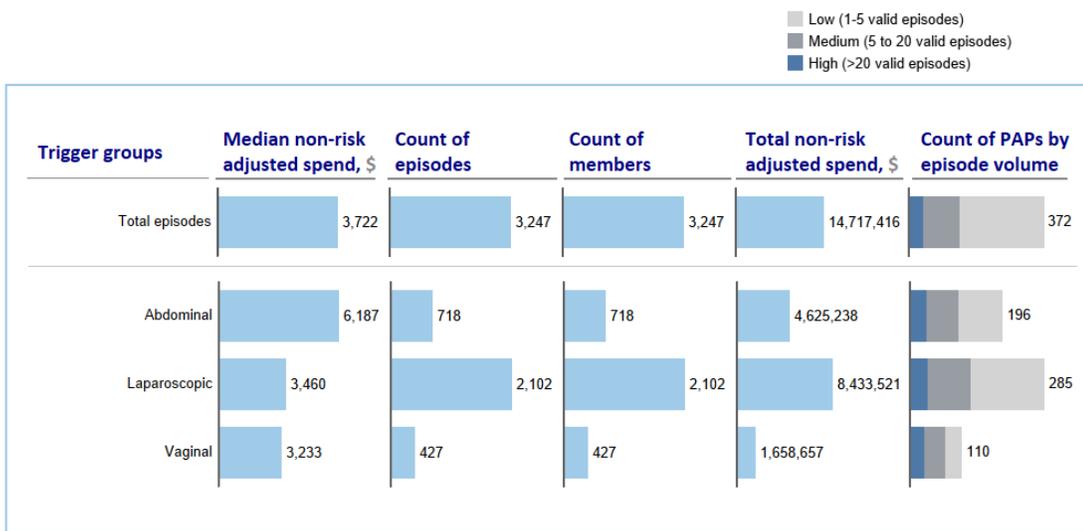
| Exclusion type | Episode exclusion | Description | Relevant time period |
|------------------------------|--------------------------------|--|--|
| | Third-party liability | Third-party liability charges are present on any claim or claim detail line, or the patient has relevant third-party coverage at any time | During the episode window |
| Standard clinical exclusions | Cancer diagnoses and treatment | Patient is diagnosed with or received treatment for active cancer | During the episode or up to 90 days before the start of the episode |
| | Coma | Patient is diagnosed with coma | During the episode or up to 365 days before the start of the episode |
| | Cystic fibrosis | Patient is diagnosed with cystic fibrosis | During the episode or up to 365 days before the start of the episode |
| | Death | Patient had a discharge status of "expired" on any inpatient or outpatient claim during the episode window or has a date of death before the end of the episode window | During the episode window |
| | End stage renal disease | Patient has diagnosis or procedure for end stage renal disease | During the episode or up to 365 days before the start of the episode |
| | HIV | Patient is diagnosed with HIV | During the episode or up to 365 days before the start of the episode |
| | Left against medical advice | Patient has a discharge status of "left against medical advice or discontinued care" | During the episode window |
| | Multiple other comorbidities | Patient has too many risk factors to reliably risk adjust the episode spend | During the episode window |
| | Multiple sclerosis | Patient is diagnosed with multiple sclerosis | During the episode window or during the 365 days |

| Exclusion type | Episode exclusion | Description | Relevant time period |
|-------------------------------------|---------------------------|--|--|
| Standard clinical exclusion | Paralysis | Patient has diagnosis of paralysis | During the episode or up to 365 days before the start of the episode |
| | Transplant | Patient has an organ transplant | During the episode or up to 365 days before the start of the episode |
| Episode-specific clinical exclusion | Age | Patient is younger than eighteen (<18) or older than sixty-four (>64) years of age | During the episode window |
| | Emergent hysterectomies | Patient has an emergent hysterectomy | During the episode |
| | High outlier | Risk-adjusted episode spend is greater than the high outlier threshold | During the episode window |
| | Immunocompromised patient | Patient is diagnosed as immunocompromised | During the episode or up to 365 days before the start of the episode |
| | Low outlier | Non-risk adjusted episode spend is lower than the low outlier threshold | During the episode window |
| | Pelvic fracture or trauma | Patient has a diagnosis of fracture or trauma | During the episode or up to 90 days before the start of the episode |
| | Pregnancy and delivery | Patient has diagnosis or procedures for pregnancy or delivery | During the episode or up to 90 days before the start of the episode |

Table 4 – Hysterectomy episode quality metrics (PAP level)

| Metric type | Field name | Description | Relevant time period |
|----------------------------|---|---|---|
| Tied to incentive payments | Difference between average MED/day in the pre-trigger opioid window and the post-trigger opioid window ⁹ | Difference between average MED/day in the pre-trigger opioid window and the post-trigger opioid window | During the pre-trigger opioid window and post-trigger opioid window |
| Informational | New opioid prescription (fill) rate | Number of valid episodes with a new opioid prescription divided by the total number of valid episodes (tied to positive incentive payments) | 90 days before the trigger for old prescriptions and during the episode for new prescriptions |
| | Major morbidity rate | Percent of valid episodes where the patient has a major morbidity | During the episode window |
| | Hysterectomy approach | Percent of valid episodes where the patient had a laparoscopic/abdominal/vaginal hysterectomy | During the episode window |
| | Average MED/day during the pre-trigger opioid window | Average MED per day during the pre-trigger opioid window among patients with an opioid prescription | During the pre-trigger opioid window |
| | Average MED/day during the post-trigger opioid window | Average MED per day during the post-trigger opioid window among patients with an opioid prescription | During the post-trigger opioid window |

EXHIBIT 3 - HYSTERECTOMY EPISODE TRIGGER GROUPS^{1,2}

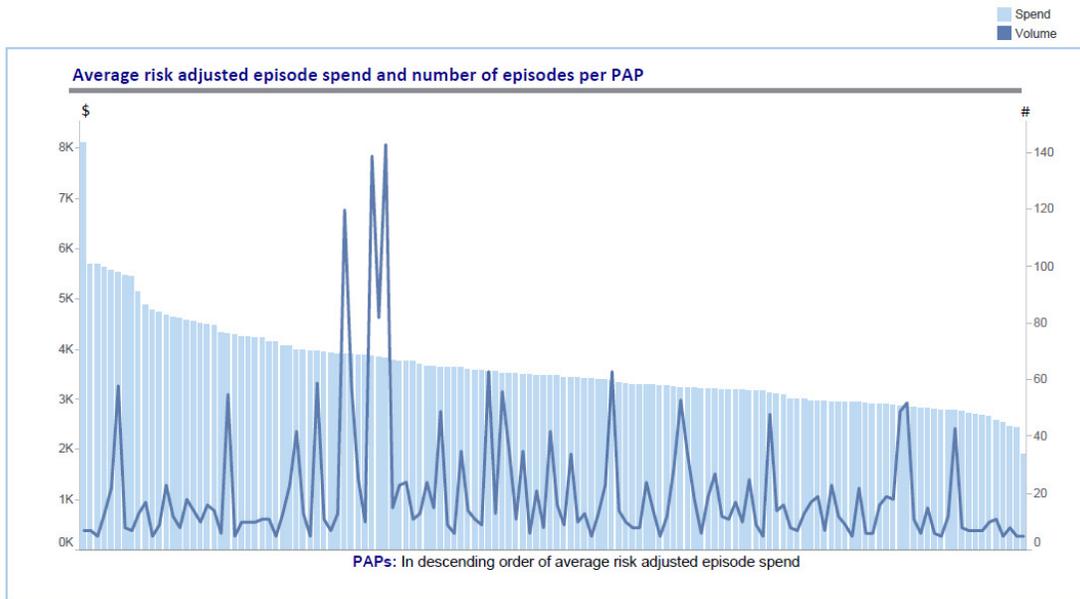


1. For valid episodes (3,247 episodes) across 372 PAPs; valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., ovarian cancer); count of PAPs includes valid PAPs (e.g. >= 5 valid episodes) and invalid PAPs (e.g. < 5 valid episodes)

2. Low volume is defined as PAPs with less than five valid episodes, Medium volume as PAPs with five to 20 valid episodes and High volume as PAPs with more than 20 valid episodes

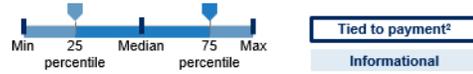
SOURCE: OH claims data, episodes ending between 01/01/2016 and 12/31/2016

EXHIBIT 4 - DISTRIBUTION OF AVERAGE RISK-ADJUSTED EPISODE SPEND AND COUNT BY PAP¹

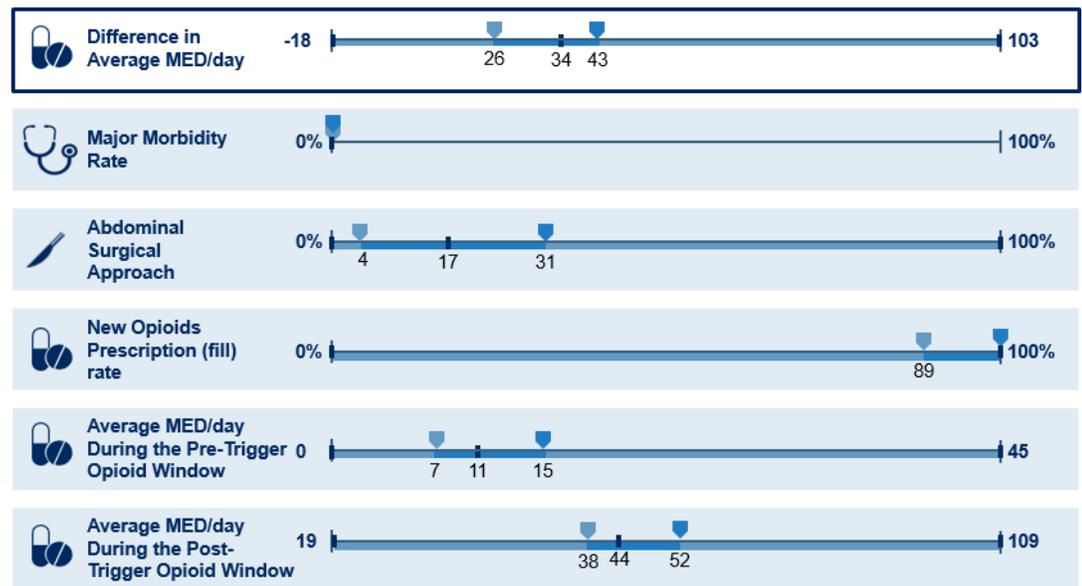


1. For valid episodes (2,833 episodes) across valid PAPs (138); valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., ovarian cancer); valid PAPs are physicians with five or more episodes
SOURCE: OH claims data, episodes ending between 01/01/2016 and 12/31/2016

EXHIBIT 5 - PAP PERFORMANCE ON EPISODE QUALITY METRICS¹



Quality metrics

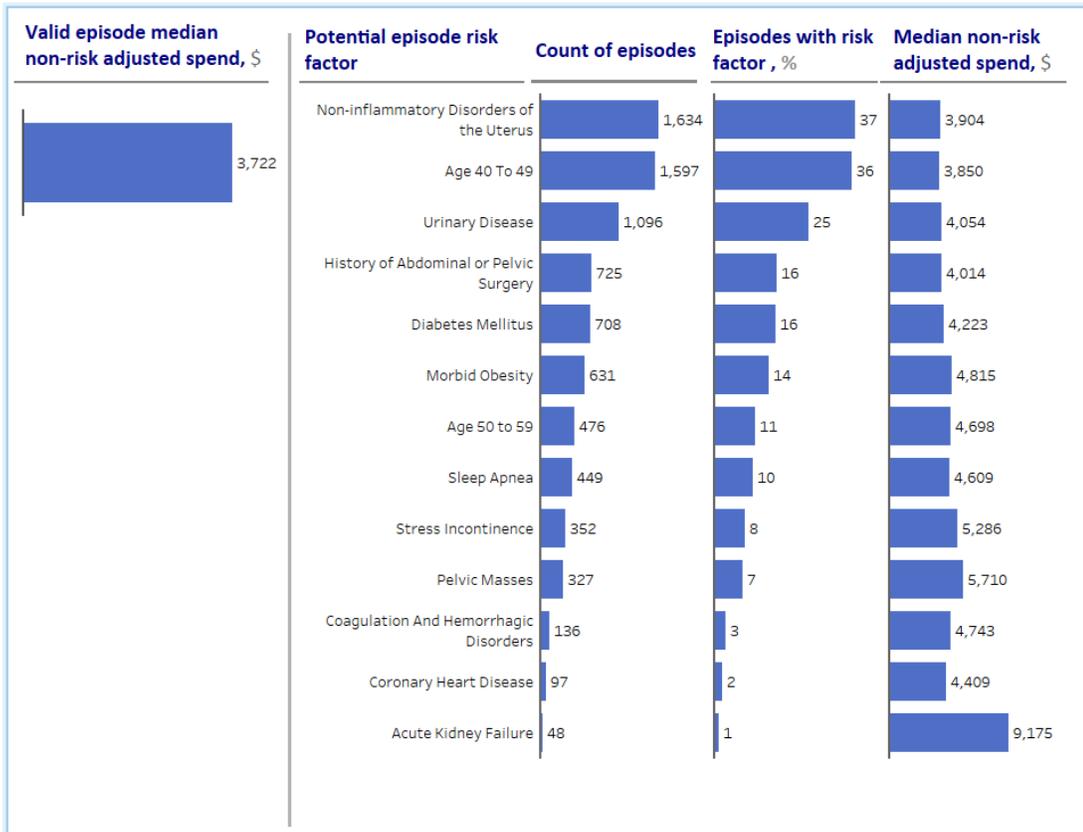


1. For valid episodes (2,833 episodes) across valid PAPs (138); valid episodes do not include episodes with business (e.g., third-party liability, dual eligibility) or clinical exclusions (e.g., ovarian cancer); valid PAPs are physicians with five or more episodes

2. Metrics tied to positive incentive payments

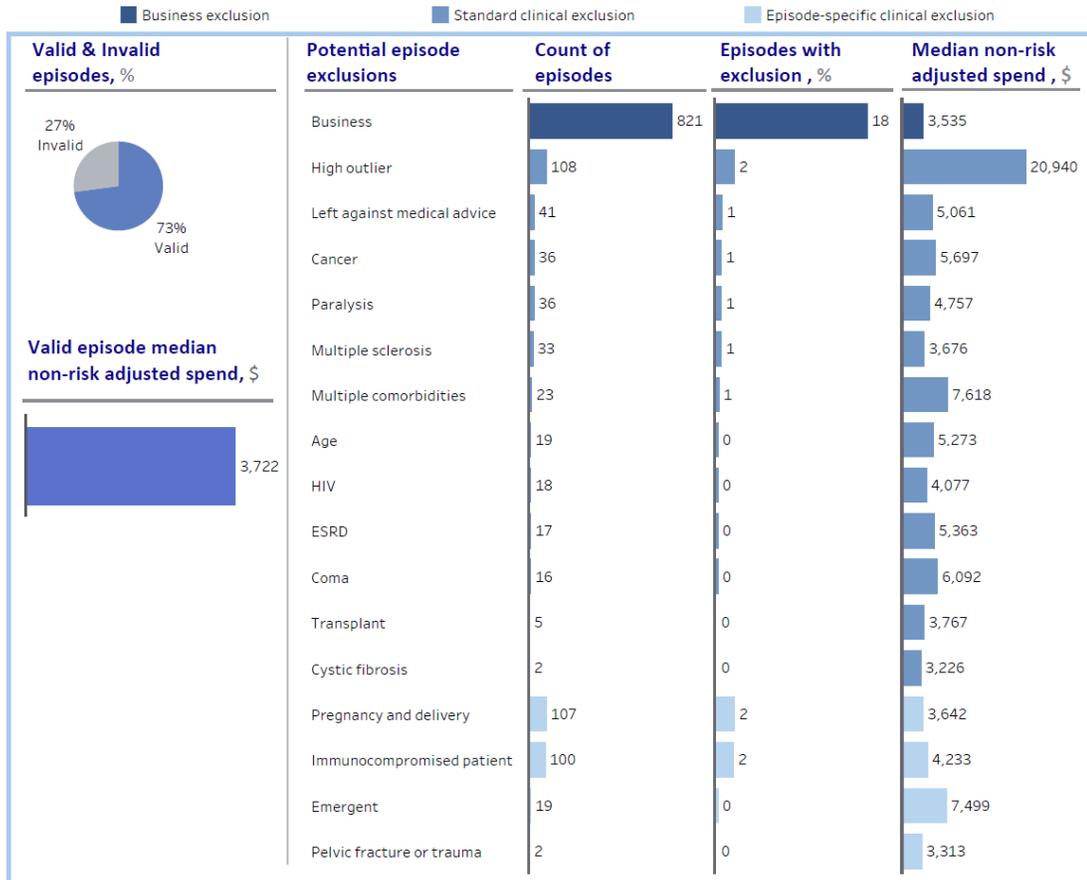
SOURCE: OH claims data, episodes ending between 01/01/2016 and 12/31/2016

EXHIBIT 6 - EPISODE COUNT AND SPEND BY RISK FACTORS¹



1. For episodes with this risk factor; episodes can have multiple risk factors
 SOURCE: OH claims data, episodes ending between 01/01/2016 and 12/31/2016

EXHIBIT 7 - EPISODE COUNT AND SPEND BY EXCLUSIONS¹



1. For episodes with this exclusion; episodes can have multiple exclusions
 SOURCE: OH claims data, episodes ending between 01/01/2016 and 12/31/2016