

# The fellowship effect: how the establishment of a fellowship in female pelvic medicine and reconstructive surgery affected resident vaginal hysterectomy training

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**OBJECTIVE:** We report on trends in resident-performed vaginal hysterectomies before and after the establishment of a female pelvic medicine and reconstructive surgery fellowship at Vanderbilt University Medical Center.

**STUDY DESIGN:** We examined medical records and resident self-reports concerning all hysterectomies at our institution in an 8-year period: 4 years before fellowship and 4 years after. Route of hysterectomy, resident and fellow involvement, and division of attending surgeon were recorded from the electronic medical record. Resident Accreditation Council for Graduate Medical Education (ACGME) case log data were used to estimate the number of hysterectomies where residents reported themselves as the primary surgeon.

**RESULTS:** During the 8-year period of this study, 3317 hysterectomies were performed at our institution, 41% (1371) before and 59% (1946) after fellowship. Prior to fellowship, 29% (393) were vaginal, 56% (766) were abdominal, and 15% (212) were

laparoscopic/robotic. After addition of fellowship, 23% (449) were vaginal, 31% (597) were abdominal, and 46% (900) were laparoscopic/robotic. Of the total vaginal hysterectomies (TVH), there was resident involvement in 98.0% (385) cases before fellowship and 98.2% (441) cases after fellowship. From the ACGME case log data, the resident identified himself/herself as the primary surgeon in 388 cases before and 393 cases after fellowship. During this time period, medical records indicate a fellow was involved in 42% (189) of TVH, with resident involvement in all but 5 of these procedures.

**CONCLUSION:** Frequency of resident involvement in TVH cases, either as primary surgeon or team member, remained constant after the addition of the female pelvic medicine and reconstructive surgery fellowship.

**Key words:** residency training, surgical fellowship, vaginal hysterectomy

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The American College of Obstetrics and Gynecology states that “vaginal hysterectomy is the approach of choice [for hysterectomy] whenever feasible”<sup>1</sup>; however, feasibility depends on the

surgeon’s level of experience. This statement is based on the minimally invasive nature of a vaginal hysterectomy and data showing higher rates of complications, including lower urinary tract injuries, with laparoscopic and abdominal hysterectomies.<sup>2,3</sup> Current trends show that fewer inpatient procedures,<sup>4</sup> including vaginal and abdominal hysterectomies, are being performed due to the increase in laparoscopic/robotic route.<sup>5,6</sup> Given this, there is a concern within the field and among residents that trainees may not be adequately proficient performing a vaginal hysterectomy after graduating from residency.<sup>7,8</sup> The current average number of vaginal hysterectomies performed by an obstetrician/gynecologist resident during his/her 4 years of training is 19 with the minimum number required being 15.<sup>9</sup>

For the majority of residents, their official surgical training ends with residency; thus, maintaining surgical volume during training is a key priority. With the recent board certification of the subspecialty of female pelvic medicine and reconstructive surgery (FPMRS), fellowships have increased in number and the impact of this on resident surgical volume is not known. A common question that medical students ask current residents is how the fellows impact their training, specifically in the role of vaginal hysterectomies. In an attempt to answer this question, we report on trends in resident-performed vaginal hysterectomies before and after the establishment of an FPMRS fellowship at Vanderbilt University Medical Center. The primary objective of our study was to evaluate the number of vaginal

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hysterectomies performed by obstetric and gynecology residents before and after the establishment of the FPMRS fellowship. Given changes in practice patterns during this time period, secondary objectives included evaluating trends in route of hysterectomy, the presence of a fellow during the hysterectomy, and the specialty of the attending surgeon.

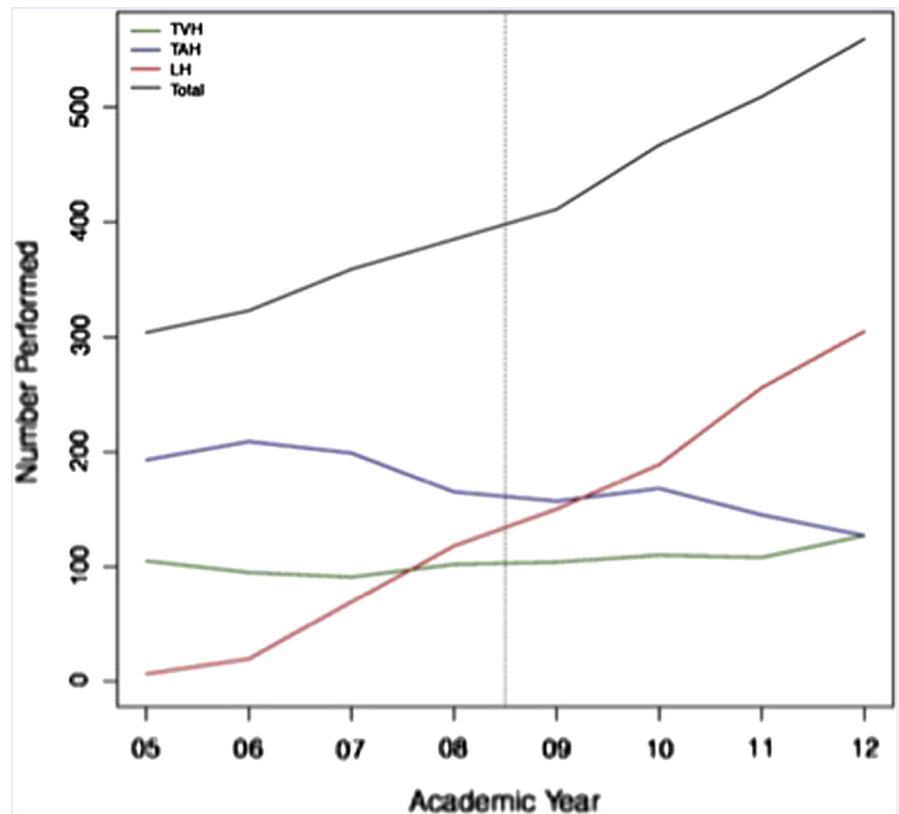
## MATERIALS AND METHODS

This is a retrospective analysis of all hysterectomy cases performed by the Department of Obstetrics and Gynecology at Vanderbilt University Medical Center from July 1, 2004, through June 30, 2012. This time period was chosen as it encompasses the 4 years prior to and 4 years following the establishment of an FPMRS fellowship within the department. This study was institutional review board approved. Data were collected from 2 distinct sources: the electronic medical record (EMR) and Accreditation Council for Graduate Medical Education (ACGME) resident case logs. The EMR provided information on the presence of residents and fellows in the operating room and the total number of hysterectomies performed by the department, but lacked information on the degree of resident involvement in the case. The ACGME resident case logs contain the number of hysterectomies in which the resident felt that s/he performed >50% of the case, but lack patient identifiers and cannot be linked to cases in the EMR.

From the EMR, all hysterectomies performed during this time period were identified by *Current Procedural Terminology* codes (abdominal [58180, 58152, 58180, 58200, 58210], vaginal [58260, 58262, 58263], and laparoscopic [58570, 58571]) and confirmed by manual review of operative notes. For each case the following data were recorded: date of procedure, mode of hysterectomy, presence of resident in the case, presence and type of a fellow in the case (FPMRS, minimally invasive fellow), and departmental division of the attending faculty member (urogynecology/FPMRS, minimally invasive surgery, gynecologic oncology, general obstetrics/

FIGURE

### Total hysterectomies performed at Vanderbilt University from 2005 through 2012



Total number of hysterectomies performed in 8-year time period at Vanderbilt University Medical Center. These are also separated between route of hysterectomy (total vaginal hysterectomy [TVH], laparoscopic hysterectomy [LH], total abdominal hysterectomy [TAH]).

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gynecology, and gynecology). The mode of hysterectomy was categorized as abdominal, vaginal, or laparoscopic/robotic. Laparoscopic-assisted vaginal hysterectomies (LAVH) were included in the vaginal hysterectomy numbers. These categories were chosen to be consistent with recording via the ACGME case log. Study data were collected and managed using Research Electronic Data Capture (REDCap) tools hosted at Vanderbilt University.<sup>10</sup> REDCap is a secure, World Wide Web-based application designed to support data capture for research studies, providing: (1) an intuitive interface for validated data entry; (2) audit trails for tracking data manipulation and export procedures; (3)

automated export procedures for seamless data downloads to common statistical packages; and (4) procedures for importing data from external sources.

The ACGME case log data on resident surgical experience were obtained for the same time period. Residents recorded whether they operated for >50% of the case or if they acted as an assistant (performed <50% of the case). Date and mode of hysterectomy (abdominal, vaginal, laparoscopic/robotic) were recorded, as well as the postgraduate year (PGY) of the resident at the time the case was performed (PGY1-4). Per ACGME guidelines, LAVH were coded as vaginal hysterectomies.

Descriptive statistics were computed and graphed for each of the 8 academic years, stratifying the self-reported

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