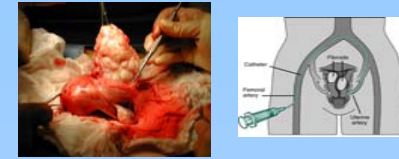




# Cost and reimbursement for three fibroid treatments: Abdominal hysterectomy, abdominal myomectomy, and uterine fibroid embolization

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## Abstract

**Objective:** The objective of this study was to compare costs and reimbursements for three different treatments for uterine fibroids.

**Methods:** Costs and reimbursements were collected and analyzed from the Thomas Jefferson University Hospital decision support database from 540 women who underwent abdominal hysterectomy (n = 299), abdominal myomectomy (n = 105) or uterine fibroid embolization (UFE) (n = 136) for uterine fibroids during a two year period. We used Chi-Square and ANOVA, followed by Fisher's Least Significant Difference tests for statistical analysis.

**Results:** The mean total hospital cost for UFE was \$2707, which was significantly less than hysterectomy (\$5707) or myomectomy (\$5676) (P < 0.05). The mean hospital net income (hospital net reimbursement - total hospital cost) for UFE was \$57, which was significantly greater than hysterectomy (-\$572) or myomectomy (-\$715) (P < 0.05). The mean professional (physician) reimbursement for UFE, hysterectomy, and myomectomy were \$1306, \$979, and \$1078, respectively.

**Conclusion:** UFE has lower hospital costs and greater hospital net income than abdominal hysterectomy or abdominal myomectomy for treating uterine fibroids. UFE may be more financially advantageous than hysterectomy or myomectomy for the insurer, hospital, and health care system. Costs and reimbursements may vary amongst different hospitals and regions.

## Background

- Uterine artery embolization (UAE) is an increasingly popular alternative to hysterectomy and myomectomy as a treatment for uterine fibroids.
- ACOG Committee Opinion 293 states that UFE provides good relief of bulk and bleeding symptoms, with a low complication rate.<sup>1</sup>
- Several earlier articles have examined the hospital costs and resource usage of abdominal hysterectomy, abdominal myomectomy, and UFE.<sup>2-5</sup>
- We compared the hospital costs, as well as hospital reimbursements and net hospital income for these three treatments for uterine fibroids at a single institution during the same time period.

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## Materials & Methods

- Financial information was retrospectively collected and analyzed from the Thomas Jefferson University Hospital decision support database for all abdominal hysterectomies, abdominal myomectomies, and UFEs performed with a principal diagnosis of uterine fibroids during a two year period at Thomas Jefferson University Hospital in Philadelphia.
- TVH, LAVH, hysteroscopic and laparoscopic myomectomies were excluded, as were uterine artery embolizations performed for indications other than primary treatment for fibroids. Patients undergoing additional procedures at the same time were similarly excluded.
- For each individual procedure, we obtained information on patient characteristics (age, race, insurance type), length of stay, direct hospital costs, indirect hospital costs, and insurer reimbursements to the hospital. All costs were categorized into five cost groups: operating room, nursing, radiology, laboratory, and pharmacy.
- SAS statistical software version 8.1 (SAS Institute, Cary, NC) was used for data management and descriptive analyses. Chi-Square and ANOVA, followed by Fisher's Least Significant Difference tests were used for statistical analysis. A two-sided Type I error was set at 0.05.

## Results

- Patients receiving UFE were younger than those receiving hysterectomy and older than those who received myomectomy. They were similar with regard to race and insurance type (Table 1).
- Length of stay averaged 2.8 days for hysterectomy, 2.6 days for myomectomy, and 1.0 day for UFE. Length of stay was significantly less for UFE compared to hysterectomy or myomectomy.
- The mean total hospital cost for UFE was \$2707, which was significantly less than hysterectomy (\$5707) or myomectomy (\$5676). Both direct and indirect hospital costs for UFE were similarly significantly less compared to hysterectomy or myomectomy (Table 2).
- The mean hospital net income (hospital net reimbursement - total hospital cost) for UFE was \$57, which was significantly greater than hysterectomy (-\$572) or myomectomy (-\$715).
- There was no statistical difference in direct, indirect or total hospital cost, or in hospital net income, between hysterectomy and myomectomy.
- The mean professional (physician) reimbursement for UFE, hysterectomy, and myomectomy were \$1306, \$979, and \$1078, respectively.
- The majority of costs for hysterectomy and myomectomy were for operating room and nursing expenses. The majority of cost for UFE, however, was in radiology charges (Table 3).

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**Table 1. Mean characteristics of patients treated with hysterectomy, myomectomy or UFE.**

	Hysterectomy (n=299)	Myomectomy (n=105)	UFE (n=136)
Age (years)	47.9 ± 8.2*	36.5 ± 5.0*	43.7 ± 6.0*
range (years)	28 – 82	25 – 49	24 – 59
Race (%)			
White	41.8	36.2	27.9
Black	35.1	43.8	28.7
Unknown	23.1	20.0	43.3
Insurance Type (%)			
Managed Care	75.6	80.3	86.9
Commercial	17.5	17.8	17.8
Medicare/Medicaid	6.9	1.9	2.1

**Table 2. Mean hospital costs and reimbursement for hysterectomy, myomectomy, and UFE in US\$.**

	Hysterectomy (n=299)	Myomectomy (n=105)	UFE (n=136)
Direct cost (DC)	\$3591 ± 778*	\$3579 ± 838*	\$2084 ± 419*
range	1086 – 7338	1264 – 7460	583 – 3861
Indirect Cost (IC)	\$2115 ± 529*	\$2097 ± 584*	\$623 ± 282*
range	760 – 5426	877 – 4879	174 – 3282
Total Cost (DC + IC = TC)	\$5707 ± 1288*	\$5676 ± 1408*	\$2707 ± 612*
range	1845 – 12764	2141 – 12340	757 – 5746
Reimbursement (R)	\$5135 ± 2882*	\$4961 ± 2882*	\$2764 ± 2412*
range	0 – 21947	18 – 19697	0 – 14341
Net hospital income (R - TC)	-\$572 ± 2879*	-\$715 ± 2946*	\$57 ± 2361*
range	-7594 – 15938	-7061 – 14203	-4262 – 8662

**Table 3. Comparison of breakdown of hospital mean total costs (%).**

	Hysterectomy (n=299)	Myomectomy (n=105)	UFE (n=136)
Operating room	56.9	58.9	2.5
Nursing	33.0	31.9	2.2
Radiology	0.5	0.3	92.5
Laboratory	5.0	4.4	0.6
Pharmacy	4.6	4.6	2.2

## Conclusion

- UFE has lower hospital costs and greater hospital net income than hysterectomy or myomectomy.
- UFE may be more financially advantageous than hysterectomy or myomectomy as a treatment for uterine fibroids for the insurer, hospital, and health care system.