Women & Infants Hospital
Cancer Committee/Cancer Program
2017 Highlights

Commission on Cancer®
ACCREDITED PROGRAM

Women & Infants
A MEMBER OF CARE NEW ENGLAND

In the Spotlight

- On January 20, 2017, Dr. Sonali V. Pandya was interviewed by Barbara Morse Silva, reporter with WJAR-TV10. The topic of their interview was "Women & Infants Participating in International Study into Interrupting Breast Cancer Treatment in Young Patients who wish to Become Pregnant."

  For a younger woman, a diagnosis of breast cancer means not only dealing with a potentially life-threatening illness, but also facing the possibility that the treatment designed to prevent the cancer from coming back will also affect her ability to become pregnant and have a child. Most women with early stage breast cancer are cured of their disease, but treatment often includes a course of endocrine therapy lasting five years or longer, during which the woman is advised not to become pregnant, and by the end of which her fertility may be markedly reduced. Sometimes, a woman decides to stop this treatment early so that she can try to become pregnant. While there is no evidence that this increases her risk of having the cancer come back, available data is limited.

  Researchers at the Breast Health Center are participating in an international trial designed to answer the question as to whether the interruption of treatment in some women with early stage breast cancer to allow them to try to become pregnant affects the long-term risk that the cancer will reoccur. The trial, "Pregnancy Outcome and Safety of Interrupting Therapy for Women with Endocrine Responsive Breast Cancer" or POSITIVE, is recruiting women in the United States and around the world, according to Dr. Pandya, the primary investigator at Women & Infants.

  "We're looking for a very specific group of women," Dr. Pandya explains, adding that participants must be between the ages of 18 and 42, have been diagnosed with an estrogen receptor positive breast cancer for which they have been taking endocrine therapy such as the medication Tamoxifen for between 18 and 30 months, and have a desire to become pregnant. Breast cancer is the most common serious cancer in women and approximately 15 percent of patients are diagnosed in their reproductive years.

  "The biology of cancers diagnosed in young women is different from those that develop in older women," Dr. Pandya says. "We also know that five to 10 years of endocrine therapy like Tamoxifen can substantially reduce a woman's fertility and chance of conception, but no one has studied the effect of interrupting that treatment to allow a woman to try to become pregnant."

  With that in mind, the objectives of POSITIVE are two-fold:
  1. To assess the risk of breast cancer relapse associated with the temporary interruption of endocrine therapy to allow for pregnancy.
  2. To evaluate factors associated with pregnancy success after the interruption of endocrine therapy.

- Dr. David Edmonson, Breast Health Center, who helped to pioneer the use of the BioZorb™ marker, has been featured on an Oncology Tube video about the use of BioZorb in breast conservation surgery.

- On October 5, 2017, Dr. Jennifer Gass participated in an interview for WJAR-TV10 with Barbara Morse-Silva regarding air expanders for breast surgery patients.

Events and Symposiums

- On May 12, 2017, the Program in Women's Oncology held its second "Pills & Poems (Medicine & Art)" event in the South Pavilion of Women & Infants Hospital. Under the direction of Dr. Skip Granai, and with the performance training of poet/actor Toni Adashi, the oncology fellows and two ob/gyn residents presented both English Romantic and original poems, among the backdrop of an afternoon tea accompanied by music. Dr. Gary Wharton emceed this event with poem critiques provided by Drs. Maureen Phipps and James Sung at the conclusion of this event.

- On May 19, 2017, the Program in Women's Oncology and Breast Health Center hosted the "Critical Advances in Cancer Genetics: Applications to Daily Patient Care" Symposium. Dr. Erin W. Hofstatter from Yale New Haven Hospital was the keynote speaker. Dr. Robert Legare presented "Hereditary Breast Cancer Syndromes – An Overview of Established Syndromes"; Dr. Ashley Stuckey presented "Hereditary Breast and Ovarian Cancer Syndrome: Risks and Management of the BRCA Mutation Carrier"; and Marcina Beaston-Casey, MS, CGC, moderated the Genetic Symposium "Critical Advances in Cancer Genetics: Applications to Daily Patient Care." Jessica Kent Laprise, MS, CGC, and Jennifer Scalia Wilbur, MS, were co-directors of the "Critical Advances in Cancer Genetics: Applications to Daily Patient Care" Women & Infants half-day symposium, and presented "Lynch Syndrome: An Often Overlooked Entity in Female Cancer Risk" and "Case Panel: Complex Cases in Multi-Gene Panel Testing."

Awards and Nominations

- Dr. Paul DiSilvestro has been named the director of the Program in Women's Oncology for Women & Infants Hospital and Care New England and the division director for Gynecologic Oncology in the Department of Obstetrics and Gynecology at The Warren Alpert Medical School of Brown University. Dr. DiSilvestro replaces Dr. Cornelius "Skip" Granai, whose efforts brought the Program in Women's Oncology into the national spotlight as an innovative center of cancer care excellence and who remains in a supportive emeritus role while continuing to see patients, train the next generation of women's health providers and provide outreach support. Dr. DiSilvestro is a professor of obstetrics and gynecology at the Warren Alpert Medical School and has been the interim director of the Program in Women's Oncology and the Division of Gynecologic Oncology since April 2016. Dr. DiSilvestro is a trusted and steadfast leader presenting an exciting vision for the future, including development of a research program in developmental therapeutics as well as a personalized cancer medicine treatment program. In addition to being an outstanding clinical leader, Dr. DiSilvestro serves as the director of research in the Program in Women's Oncology and the chair of the Board of Managers for the recently formed Care New England Medical Group (CNEMG). He

is principal investigator for the Women & Infants Hospital site of the National Cancer Institute's cooperative research group, NRG Oncology, the NIH-sponsored cancer collaborative that includes the Gynecologic Oncology Group. Dr. DiSilvestro is currently the co-chair of the Ovarian and Breast Cancer Committees at NRG Oncology and previously served on the Cancer Prevention and Control and the Phase I Committees. In addition, he has been study chair or co-chair of multiple National Cancer Institute-sponsored Gynecologic Oncology Group trials. Dr. DiSilvestro is well respected nationally for his clinical, teaching and research expertise. He is a general board examiner as well as a subspecialty (gynecologic oncology) board examiner for the American Board of Obstetrics and Gynecology (ABOG).

- Dr. Robert Legare was selected as honoree for Castle Connelly's America's Top Doctors for Cancer – 2017.
- Dr. Skip Granai was selected as honoree for Castle Connelly's America's Top Doctors for Cancer – 2017.
- On March 11, 2017, Dr. William Sikov was named a Fellow of the National Consortium of Breast Centers (an honorary designation based on professional accomplishments and contributions to the organization) at opening session of the NCBC conference.
- Dr. Sonali Pandya was the recipient of "Unsung Heroine Award". She was nominated by Powerful Independent Notoriously Knowledgeable (P.I.N.K.) Women for their 9th Annual Unsung Heroine Awards. Dr. Pandya received her award on Thursday, April 20, in the Union Ballroom at the University of Rhode Island. Dana Haseotes, Oncology Social Worker, who also is a staff member at the Breast Health Center at Women and Infants, was a main speaker at this event. As an all-women organization on the campus of the University of Rhode Island, P.I.N.K. strives to empower women and to gain influence through community services and deeds. Their Annual Unsung Heroine Awards is a banquet that allows them to honor women in the community who have impacted the lives of many, and continue to do so with their keen spirits and selfless actions. This year, they decided to incorporate their philanthropy of breast cancer into the event and honor women who have impacted breast cancer in some way. Therefore this organization recognized Dr. Pandya for all that she has done for breast cancer. P.I.N.K. women hold this event at a high esteem. It encompasses their mission and values of making connections that exemplify pride, community, and respect. Each year, they seek to instill hope, and motivate members to have a presence on the college campus. They seek to develop their members into women like Dr. Pandya.
- The following physicians were selected for the 2017 "Top Doc" award by *Rhode Island Monthly*:
  - Dr. Jennifer Gass was selected the 2017 "Top Doc" for breast surgery.
  - Dr. Robert Legare was selected the 2017 "Top Doc" for medical oncology.
  - Dr. Katina Robison was selected the 2017 "Top Doc" award for gynecologic oncology
- Dr. Katina Robison was elected member-at-large for the New England Association of Gynecologic Oncologists and will be president in 2021.
- Dr. Ashley Stuckey was selected as the new fellowship program director for the Gynecologic Oncology Fellowship Program. This is a nationally recognized position and one of great importance to the success of, and consistent with the educational mission of our Program in Women's Oncology. This promotion is representative of the

outstanding achievements of Dr. Stuckey in the area of medical education and her commitment to the standard of excellence within our program.

- Drs. Kyle Wohlrab and Dario Roque were the recipients of The Society of Gynecologic Surgeons (SGS) research award in robotic-assisted gynecologic surgery for their proposal entitled "The Impact of a Stepwise Training Program for OB/GYN residents on the outcomes and Cost Effectiveness of Robotic Assisted Hysterectomy." Grant funding in the amount of $8,000 for this program was made available by Intuitive Surgical. Drs. Wohlrab and Roque will serve as co-PIs for this project.
- Dr. Katina Robison participated in the National Women's Health Technologies Coordinated Registry Network in Washington, DC, where she was asked to join as a member of the Sterilization Workgroup. This initiative is a collaboration between the FDA, the National Institute of Health (NIH)/National Library of Medicine (NLM), the Office of the National Coordinator for Health Information Technology (ONC), The American Congress of Obstetricians and Gynecologists (ACOG), American Urogynecologic Society (AUGS), clinicians, industry, and other stakeholders to develop and expand the registry system for critical medical devices in the area of women's health.

Patient Care Improvements

- Implemented the STAT program in genetics to provide more efficient screening of newly diagnosed patients with an increased probability of genetic positivity.
- A HUSH: Helping Us Support Healing program has been initiated on the inpatient oncology units.
- A plastic surgeon is providing on-site consults for patients regardless of their insurance status.
- Pre-op genetic testing for breast patients is being done in order to assist in surgical decision making. Results are received within seven to 10 days of the patient's initial visit to discuss their diagnosis/management.

Clinical Improvements

- A monthly Molecular Tumor Board was initiated.
- The Metastatic Breast Tumor Board was developed and is held twice a month. This is a separate meeting amongst the medical oncologists, collaborating on treatment options and available local, regional, and national trials, for patients with metastatic breast cancer.
- A CERNER template for determining outcomes in distress screening was developed and is currently in use.

Prevention Programs - 2017

- On April 6, 2017, Dr. Hannah Bansil attended Career Night at Providence College.
- On April 19, 2017, Dr. Sonali Pandya gave a presentation on breast density at Thundermist Healthcare.
- On April 30, 2017, Lauren Talbert, RD, CSO, LDN, presented "Superfoods: Your Sidekick to Help Fight Cancer" at the Cancer Survivor's Tea.
- On May 19, 2017, Lauren Talbert, RD, CSO, LDN, presented "Superfoods: Your Sidekick to Help Fight Cancer" at the Kent Annual Breast Health Survivorship Day.

- On May 25, 2017, Lauren Talbert RD, CSO, LDN presented “Oncology Nutrition: Fact vs. Myths.”
- On June 8, 2017, Dr. Sonali Pandya presented “Breast Cancer Screening: Individualized Strategies, Risk Assessment, and Supplemental Screening” at the Brown Staff Development Day.
- On June 22, 2017, Dr. David Edmonson and Dr. Singh presented “Changes in Cancer Staging” at the Chronic Disease Webinar for the Rhode Island Department of Health. This was initially broadcast to 112 sites across the country. The target audience was CTRs. It was well received and further shared with other sites.
- On June 2, 2017, Marcina Beaston-Casey, MS, CGC, hosted an information table at Relay for Life.
- On September 21, 2017, Lauren Talbert, RD, CSO, LDN presented “Nutrition Goals for the Cancer Survivor” to the Transitions Support Group.
- On October 15, 2017, Dr. Jennifer Gass was an invited speaker at the Annual American Cancer Society’s Making Strides Against Breast Cancer Event, Providence, RI
- On November 4, 2017, Marcina Beaston-Casey participated in the “No Stomach for Cancer Walk and Wellness Fair” at Grafton High School in Grafton, MA.

Screening Programs - 2017:

- Women & Infants Department of Women’s Gastrointestinal Health participated in the ongoing 80% by 2018 Cancer Screening Program in conjunction with the American Cancer Society in 2017. There were 921 patients screened with first-time colonoscopies; of these, 328 were found to have adenomas, and of these, 23 were positive for cancer. Patients who were given positive diagnosis for cancer were referred to colorectal surgery, sent for follow-up imaging after colonoscopy to evaluate for metastases, referred to the oncology team, and discussed and reviewed at the Multidisciplinary GI Tumor Board.
- The Women’s Cancer Screening Program (WCSP) is a grant-funded program that provides screening for breast and cervical cancer. Patients with lack of insurance sometimes do not get the cancer screening they need. Since the inception of the Women’s Cancer Screening Program in the early 1990s, more than 35,000 RI women have been enrolled through the program. Representatives from Women & Infants promote the WCSP by going out into the community, setting up tables at various health fairs, setting up workshops at various locations throughout RI, working with community partners to give information on the WCSP, and going door-to-door to businesses to hand out flyers. The WCSP provides any uninsured or underinsured women who live in RI, regardless of immigration status, age 21 and over, access to one of their participating providers. There are more than 70 providers in RI; Women & Infants Hospital, the Breast Health Center at 695 Eddy Street, and the Obstetrics and Gynecologic Care Center (OGCC) at 2 Dudley are providers. The program pays for the office visit, Pap test, clinical breast exam, and if the patient is over 40, a yearly mammogram. In addition, any uninsured or underinsured woman of any age who is experiencing symptoms suspicious for breast cancer can be seen through the WCSP. Additionally, the WCSP pays for follow-up services, such as breast ultrasounds; and is linked with the state Medicaid service for treatment. If a woman were to be in treatment and lose her health insurance, WCSP may be able to assist.

- On November 16, 2017, Jennifer Scalia Wilbur, MS, presented “BRCA Mutations in Young Women: Breast Cancer Screening and Risk Reducing Options” at the BRCA Support Group.

Accountability Measures

The web-based Cancer Program Practice Profile Reports (CP3R) offer local providers comparative information to assess adherence to and consideration of standard of care therapies for major cancers. This reporting tool provides a platform from which to promote continuous practice improvement to improve quality of patient care at the local level and also permits hospitals to compare their care for these patients relative to that of other providers. The aim is to empower clinicians, administrators, and other staff to work cooperatively and collaboratively to identify problems in practice and delivery, and to implement best practices that will diminish disparities in care across Commission on Cancer (CoC)-accredited cancer programs.

AMERICAN COLLEGE OF SURGEONS COMMISSION ON CANCER QUALITY INDICATORS

Select Measures - BREAST	2011	2012	2013	2014	2015
Breast conservation surgery rate for women with AJCC clinical stage 0, I, or II breast cancer **(Target Measure N/A)**	79.8%	73.6%	76.2%	78.5%	80.9%
Image or palpation-guided biopsy (core or FNA) is performed to establish diagnosis of breast cancer. **(Target Measure 80%)**	89.0%	90.7%	86.8%	89.1%	89.2%
Radiation therapy is considered or administered following any mastectomy within one year (365 days) of diagnosis of breast cancer for women with >= 4 positive regional lymph nodes. **(Target Measure 90%)**	90.9%	93.8%	87.5%	80.0%	80.0%
Radiation is administered within one year (365 days) of diagnosis for women under the age of 70 receiving breast conservation surgery for breast cancer. **(Target Measure 90%)**	94.9%	95.2%	94.2%	95.4%	95.6%
Combination chemotherapy is considered or administered within 4 months (120 days) of diagnosis for women under age 70 with AJCC T1c, N0, or Stage IB – III hormone receptor negative breast cancer. **(Target Measure N/A)**	100%	92%	90%	100%	100%
Tamoxifen or third generation aromatase inhibitor is considered or administered within one year (365 days) of diagnosis for women with AJCC T1c or stage IB – III hormone receptor positive breast cancer. **(Target Measure 90%)**	97.9%	97.2%	96.0%	94.10%	98.7%

Select Measures – GYNECOLOGIC*	2012	2013	2014	2015
Chemotherapy and/or radiation therapy administered to patients w/Stage 3C or IV endometrial cancer.	82.4%	82.6%	94.10%	100%
Endoscopic, laparoscopic, or robotic surgery is performed for all endometrial cancer (excluding sarcoma and lymphoma) for all stages except Stage IV	81.5%	89.8%	87.10%	92.5%
Use of brachytherapy in patients treated with primary radiation with curative intent in any stage of cervical cancer	100%	100%	100%	100%
Chemotherapy administered to cervical cancer patients who received radiation for stages 1B2 – IV cancer, or with positive pelvic nodes, positive surgical margin, and/or positive parametrium	95.8%	91.7%	100%	100%

*No Target Measures currently established by the Commission on Cancer for these Quality Measures.

Standard 4.7 Studies of Quality

Each calendar year, the Cancer Committee, under the guidance of the quality improvement coordinator, develops, analyzes, and documents the required number of studies (based on the program category) that measure the quality of care and outcomes for cancer patients.

Breast Cancer Cases Initially Diagnosed and Treated Surgically at WIH
Time Between Diagnosis and Treatment

	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Total # Cases	244	244	320	346	310	308	236
*(-) Neoadjuvant tx**	*22*	*35*	*39*	*39*	*25*	*65*	*66*
Remaining Cases	222	207	281	307	285	243	170
Avg # days from dx to initial surgery	35.0	26.5	34.0	29.7	31.2	33.9	32.1

*Also includes patients who had surgery postponed secondary to other reasons (ie, Comorbidities, patient non-compliance, etc.)

Per the National Accreditation Program for Breast Centers, breast conserving surgery (BCS) is offered to appropriate patients with breast cancer. A target rate of 50 percent of all eligible patients diagnosed with early stage breast cancer (Stage 0, I, II) are treated with breast conserving surgery, and the BCS rate is evaluated annually by the breast program leadership.

2012	2013	2014	2015	2016
74.0%	76.2%	78.5%	80.9%	82.8%

Per the National Accreditation Program for Breast Centers, axillary sentinel lymph node biopsy is considered or performed for patients with early stage breast cancer (Clinical Stage I, II), and compliance is evaluated annually by the breast program leadership

2012	2013	2014	2015	2016
78.6%	80.6%	79.8%	79.3%	80.9%

Note: No target rate for this Standard has been assigned by the American College of Surgeons Commission on Cancer or National Accreditation Program for Breast Centers.

GYNECOLOGIC SURGERY AT WIH - SURGICAL APPROACH 2010 – 2016*

	2012 (490)	2013 (455)	2014 (420)	2015 (368)	2016 (349)
Laparoscopic	111	116	87	113	138
Laparoscopic, converted to open	11	5	6	7	11
Robotic	130	130	155	110	75
Robotic, converted to open	3	6	7	4	2
Open	148	128	92	82	73
Total	402	385	347	316	299
Total Minimally Invasive	241 (60%)	246 (64%)	242 (70%)	223 (71%)	213 (71%)

*Includes Uterine, Ovarian, Fallopian Tube, Cervical, and Peritoneal Cancers.

TEN YEAR HISTORY OF MALIGNANCY AT WIH

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Anus & Anal Canal	0	1	0	2	2	2	2	2	0	1
Bladder & Urethra	0	2	2	1	2	2	3	3	0	3
Breast	442	475	486	463	457	552	572	593	607	550
Cervix Uteri	60	75	49	56	42	61	50	44	41	48
Colon	17	9	8	12	13	12	9	20	18	12
Esophagus	0	0	0	0	0	0	2	3	3	3
Eye	0	0	1	0	0	0	0	0	0	0
Fallopian Tube	13	12	32	26	30	23	22	21	30	31
Gum and Oral Cavity	0	0	0	0	0	0	0	1	1	2
Hematopoietic	0	2	0	1	1	0	1	4	5	6
Kidney & Renal Pelvis	5	0	0	1	2	1	0	2	1	1
Larynx	0	0	0	0	0	0	0	0	0	1
Liver & Bile Duct	1	0	0	0	0	0	0	0	0	0
Lung, Mediastinum,& Pleura	0	2	2	4	2	5	13	25	34	44
Lymphoma	3	6	1	7	3	4	7	7	10	6
Nasopharynx	0	0	0	0	0	0	0	0	1	0
Ovary	102	81	70	72	86	83	95	67	47	46
Pancreas	1	0	0	0	0	4	3	5	12	3
Penis	0	0	0	0	0	0	0	1	0	0
Peripheral Nerves	0	0	0	0	1	0	0	0	0	0
Placenta	0	0	0	0	1	1	1	0	1	2
Prostate	0	0	0	0	0	0	0	0	1	1
Rectum & Rectosigmoid	2	6	5	2	4	2	4	3	5	4
Retroperitoneum/Peritoneum	24	18	15	17	7	15	12	13	15	1
Skin	1	0	3	2	1	1	0	2	0	0
Small Intestine	0	3	1	0	1	0	1	1	1	1
Soft Tissue	0	0	0	0	1	0	0	1	1	1
Stomach & GI Tract	3	4	3	2	3	3	1	5	7	3
Testis	0	0	0	0	0	0	1	0	0	0
Unknown Primary	8	6	11	8	8	7	11	2	5	3
Uterus	260	236	247	284	268	306	277	275	235	222
Vagina	4	4	11	5	6	6	5	6	6	3
Vulva	40	45	49	49	39	56	31	41	38	39
TOTAL	986	987	996	1014	980	1146	1123	1147	1125	1037

Monitoring Compliance with Evidence-Based Guidelines

Minimally Invasive Surgery and Uterine Cancer at The Program in Women's Oncology at Women & Infants Hospital

Reviewer: Dario R. Roque, MD

INTRODUCTION

The surgical management of early-stage endometrial cancer provides patients with an excellent chance for cure. The primary treatment of uterine confined endometrial cancer entails hysterectomy with bilateral salpingo-oophorectomy in addition to lymph node assessment [1, 2]. Over the past two decades, minimally invasive surgery (MIS), specifically laparoscopy, has become increasingly used in gynecologic oncology and NCCN guidelines considers MIS as the standard of care for those patients with apparent uterine-confined disease [3]. Randomized trials, a Cochrane Database Systematic Review, and population-based surgical studies support that MIS techniques are preferred in this setting due to a lower rate of surgical site infection, transfusion, venous thromboembolism, decreased hospital stay and lower cost of care, without compromise in oncologic outcome [4-9]. With this in mind, the aim of this review was to determine the percentage of patients with uterine cancer who underwent MIS for staging of their disease at Women & Infants Hospital in 2017.

METHODS

All patients diagnosed with uterine cancer and underwent surgery at Women & Infants Hospital between January and September 2017 were identified. Uterine sarcomas, with the exception of carcinosarcoma, were excluded from this review. We reviewed the individual patients records to obtain information from the surgery and immediate post-operative period including surgical approach, type of lymph node assessment performed, complications, whether the surgery was converted from an MIS procedure to a laparotomy, readmission and length of hospital stay. For the purposes of this review, total laparoscopic hysterectomies (TLH), robotic assisted hysterectomies and total vaginal hysterectomies (TVH) classify as a minimally invasive procedure.

RESULTS

A total of 126 procedures were performed for the primary treatment of uterine cancer between January and September 2017. Of these, 109 surgeries (86.5%) were performed in a minimally invasive fashion. The distribution of cases by surgical approach is further detailed in Table 1.

Surgical Approach	**N (%)**
Robotic Assisted Laparoscopic Hysterectomy	61 (48.4%)
Total Laparoscopic Hysterectomy (TLH)	47 (37.3%)
Total Abdominal Hysterectomy (TAH)	17 (13.5%)
Total Vaginal Hysterectomy (TVH)	1 (0.8%)

Table 1. Case distribution for primary surgical management of uterine cancer.

Of the 17 cases that were performed via a laparotomy, 10 (59%) were converted after an initial attempt was made to perform the case in a minimally invasive fashion. The reason for

conversion for each of these cases is listed in Table 2. Of the remaining seven cases that were performed via a laparotomy, two had medical contraindications to being placed in steep Trendelenburg, one patient refused to undergo surgery via laparoscopy, and the remaining four patients had known extra-uterine disease diagnosed in the pre-operative period.

Therefore, the four cases with known extra-uterine disease, there were a total of 122 patients with presumed disease confined to the uterus. Of these, 109 underwent surgery via MIS, which accounts for 89.3% of patients with presumed early stage endometrial cancer undergoing MIS at Women & Infants Hospital.

Cases	Reason for Conversion from MIS to laparotomy
1	Metastatic disease
2	Metastatic disease
3	Metastatic disease
4	Metastatic disease
5	Poor visualization
6	Poor visualization
7	Poor visualization
8	Poor visualization
9	Large fibroid uterus
10	Large retroperitoneal lipomatous mass

Table 2. Reasons for conversion of cases from an MIS approach to laparotomy

In this group of patients, there were eight peri-operative complications; two patients had a total abdominal hysterectomy (TAH) and the remaining 6 underwent the procedure via an MIS approach. There were two cases with intra-operative blood loss greater than 2,000; one case was performed via a TAH and the second case was a robotic assisted procedure. Similarly, two patients (one TAH and one TLH) developed a post-op ileus and required re-admission. In the remaining four patients, one was admitted to the MICU for acute hypercarbic respiratory failure; one patient experienced a pelvic hematoma; one patient experienced a vaginal cuff dehiscence and the last patient experienced a vaginal cuff laceration requiring a return to the operating room. Of these eight patients, only four had to be re-admitted after initial discharge. These included the two patients who developed a post-op ileus, the patient with the pelvic hematoma, and the patient with vaginal cuff dehiscence.

The mean length of post-operative admission was 3 days (range 2-5 days) for patients who underwent surgical staging via a laparotomy and 1 day (range 1-4 days) for patients who underwent staging via MIS.

DISCUSSION

Traditionally, surgical staging for endometrial cancer was accomplished with open laparotomy. However, the currently available literature has demonstrated lower rates of surgical site infection, transfusion, venous thromboembolism, decreased hospital stay and lower cost of care, without compromise in oncologic outcome [4-9]. Based on these data, the NCCN as well as The American College of Obstetricians & Gynecologists (ACOG) as well as the Society of Gynecologic Oncology (SGO), endorse MIS as the standard surgical approach for comprehensive surgical staging in women with endometrial cancer [2, 3]. As such, this

retrospective review was carried out to determine the percentage of endometrial cancer patients treated at Women & Infants Hospital (WIH) who underwent a surgical staging via MIS.

Overall, 85.6% of patients with endometrial cancer underwent an MIS staging procedure at WIH. However, excluding the 4 patients with known metastatic disease pre-operatively, that rate was 89.3%. This is a remarkable achievement considering the fact that in 2005, the Agency for Health Research and Quality reported that only an estimated 14% of all hysterectomies performed in the USA were done laparoscopically [10]. Therefore, in the span of slightly over 10 years, the Program in Women's Oncology at WIH has demonstrated an unparalleled endorsement of MIS as the standard of care for women undergoing surgical staging for endometrial cancer.

Furthermore, the implementation of MIS as the standard of care has delivered tangible outcomes for the patients. Many of these outcomes were demonstrated in the randomized trials, but it is encouraging to realize that the women treated at WIH also benefitted from improved outcomes such as an average reduction of 2 days in post-operative length of stay. Furthermore, the rate of conversion from MIS to laparotomy was only 8.4%, which was significantly lower than the rate reported in the LAP2 randomized trial [4].

Regarding the distribution of cases, it should briefly be discussed that the majority of MIS cases (56%) were performed utilizing a robotic platform.

Compared with traditional laparoscopy, robotic-assisted laparoscopy appears to have a shorter learning curve and similar benefits [11]. Although robotic-assisted laparoscopy has not been compared prospectively with conventional laparoscopy in a randomized trial, complication rates, conversion rates, and length of hospital stay appear similar [12]. This was also true in our patient population. Although traditional laparoscopy typically is the least expensive surgical approach, robotic-assisted laparoscopy appears to be less costly than laparotomy, especially when societal costs associated with recovery are considered [2].

Form these results, it can be concluded that the practice pattern at WIH regarding surgical staging for endometrial cancer follows national guidelines and recommendations. It appears that there is a well-balanced distribution of conventional laparoscopic and robotic cases being performed for endometrial cancer staging. The implementation of MIS as the standard of care for these patients has translated into enhanced post-operative outcomes and shorter hospital stays.

REFERENCES

[1] Childers JM, Brzechffa PR, Hatch KD, Surwit EA. Laparoscopically assisted surgical staging (LASS) of endometrial cancer. Gynecol Oncol. 1993;51:33-8.
[2] Practice Bulletin No. 149: Endometrial cancer. Obstet Gynecol. 2015;125:1006-26.
[3] NCCN. Uterine Neoplasms Version 3.2017. 2017.
[4] Walker JL, Piedmonte MR, Spirtos NM, Eisenkop SM, Schlaerth JB, Mannel RS, et al. Laparoscopy compared with laparotomy for comprehensive surgical staging of uterine cancer: Gynecologic Oncology Group Study LAP2. J Clin Oncol. 2009;27:5331-6.
[5] Kornblith AB, Huang HQ, Walker JL, Spirtos NM, Rotmensch J, Cella D. Quality of life of patients with endometrial cancer undergoing laparoscopic international federation of

gynecology and obstetrics staging compared with laparotomy: a Gynecologic Oncology Group study. J Clin Oncol. 2009;27:5337-42.
[6] Galaal K, Bryant A, Fisher AD, Al-Khaduri M, Kew F, Lopes AD. Laparoscopy versus laparotomy for the management of early stage endometrial cancer. Cochrane Database Syst Rev. 2012;9:CD006655.
[7] Scalici J, Laughlin BB, Finan MA, Wang B, Rocconi RP. The trend towards minimally invasive surgery (MIS) for endometrial cancer: an ACS-NSQIP evaluation of surgical outcomes. Gynecol Oncol. 2015;136:512-5.
[8] Fader AN, Weise RM, Sinno AK, Tanner EJ, 3rd, Borah BJ, Moriarty JP, et al. Utilization of Minimally Invasive Surgery in Endometrial Cancer Care: A Quality and Cost Disparity. Obstet Gynecol. 2016;127:91-100.
[9] Mannschreck D, Matsuno RK, Moriarty JP, Borah BJ, Dowdy SC, Tanner EJ, 3rd, et al. Disparities in Surgical Care Among Women With Endometrial Cancer. Obstet Gynecol. 2016;128:526-34.
[10] Jacoby VL, Autry A, Jacobson G, Domush R, Nakagawa S, Jacoby A. Nationwide use of laparoscopic hysterectomy compared with abdominal and vaginal approaches. Obstet Gynecol. 2009;114:1041-8.
[11] Lim PC, Kang E, Park DH. A comparative detail analysis of the learning curve and surgical outcome for robotic hysterectomy with lymphadenectomy versus laparoscopic hysterectomy with lymphadenectomy in treatment of endometrial cancer: a case-matched controlled study of the first one hundred twenty two patients. Gynecol Oncol. 2011;120:413-8.
[12] Boggess JF, Gehrig PA, Cantrell L, Shafer A, Ridgway M, Skinner EN, et al. A comparative study of 3 surgical methods for hysterectomy with staging for endometrial cancer: robotic assistance, laparoscopy, laparotomy. Am J Obstet Gynecol. 2008;199:360 e1-9.