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Surgery Update

NEWS FROM **THE MEDICAL COLLEGE OF WISCONSIN DEPARTMENT OF SURGERY**

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DEPARTMENT OF SURGERY

Dedicated to Clinical Care, Research and Education

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Editors: Tracy Milkowski, MBA
Ph: **414-805-5602**, E-mail: *tmilkows@mcw.edu*
Rebecca Anderson, PhD

Message from the Chairman

By **Douglas B. Evans, MD**
Donald C. Ausman Family Foundation Professor of Surgery;
Chairman, Department of Surgery, The Medical College of Wisconsin

As we are struggling to recover from the loss of perhaps the greatest educator in the history of the Department of Surgery, Charles Aprahamian, MD, (see page 12) we welcome a new academic year, energetic and enthusiastic interns and the maturity and experience of this year's chief residents (see page 10). The photo below of Dr. Aprahamian, Stuart Wilson, MD, Sam Pappas, MD, and Edward Quebbeman, MD, PhD, embodies the history, great tradition, legacy and future of the Department of Surgery at The Medical College of Wisconsin.

I would like to acknowledge the extra efforts of those who contributed to this edition of Surgery Update, including: David Cronin, II, MD, PhD, director of liver transplantation; Rachel Greenup, MD, MPH, administrative chief resident for this academic year; Susan Tsai, MD, MHS, and Kiran Turaga, MD, MPH, who recently joined the Division of Surgical Oncology from Johns Hopkins and Moffit Cancer Center respectively; Marshall Beckman, MD, leader of current and future off site surgery and critical care initiatives, Karen Brasel, MD, chair of the critical care committee and director of the Surgical ICU; and Beth Krzywda, MSN, APNP, and Shannon Lahiff, MSN, APNP, who are experienced nurse practitioners trained by Dr. Wilson. Drs. Brasel and Cronin also have significant expertise in bioethics; Dr. Brasel was recently featured in an article in the *New York Times*.

(left to right): Charles Aprahamian, MD, Stuart Wilson, MD, Sam Pappas, MD, and Edward Quebbemann, MD, PhD, at the Eberbach banquet in 2009.

KIDNEY TRANSPLANTATION AS LIFE-SAVING THERAPY

December 1954 marked the first successful human kidney transplant.

By **David C. Cronin, II, MD, PhD**
Associate Professor of Surgery

December 1954 marked the first successful human kidney transplant. Since that Nobel prize-winning event, progress in the field of solid-organ transplantation has been nothing short of miraculous. Improvements in immunosuppressive therapy, organ preservation, surgical techniques, tissue typing and the acceptance of brain death criteria have resulted in a broader application of this life-saving surgical intervention, and the demonstration that kidney transplantation is the preferred method of kidney replacement therapy. Simultaneously with these surgical advancements, there has been rapid development and dissemination in dialysis technology as a life-sustaining therapy. Consequently, the number of kidney transplants performed and the number of patients receiving dialysis therapy have increased world wide. Unfortunately, wider application of kidney transplantation as a life-saving therapy is significantly hampered by the limited number of donor organs. The increasing disparity between the number of candidates waiting for transplantation and the number of kidneys available for transplantation has resulted in an ever increasing waiting time for kidney transplantation (Figure 1). For some patients, the current waiting time for deceased-donor kidney transplantation exceeds their life expectancy while being maintained on dialysis therapy.[1]

A Variety of Donors for Kidney Transplantation

Living Donors

Efforts to increase substantially the number of kidneys available for transplantation have met with minimal success. Acceptable live-donor candidates have expanded from genetically identical pairs to now include: genetically related, emotionally related, friends, acquaintances and Samaritan or anonymous donors. Application of minimally invasive advanced laparoscopic techniques for live-donor nephrectomy (performed routinely at Froedtert & The Medical College of Wisconsin), have contributed to a noticeable, but limited increase in the number of live-donor transplants performed.[2] In addition to providing the best functioning and longest-lived kidney graft, in the majority of cases, living-donor kidney transplantation can be performed before the recipient experiences the morbidity and mortality associated with dialysis. Unfortunately, although live donation represents a potentially limitless source of kidneys for transplantation[3], the number of live donors has remained relatively constant over the last decade (Figure 2).

Deceased Donors

Kidneys obtained from deceased donors can be segregated into three major categories: standard-criteria donors (SCD), donation-after-cardiac-death donors (DCD) and expanded-criteria donors (ECD) (Figure 3).

SCD represent the traditional group of brain-dead deceased donors for which all candidates listed for kidney transplantation are competing. Kidneys from this group are expected to have excellent function and longevity (Figure 4).

ECD are defined by the United Network for Organ Sharing (UNOS) as: being older (> 60-years-old) or being > 50-years-old and having hypertension, cause of death from cerebral vascular accident (stroke) and/or a degree of kidney dysfunction.[4] Expansion of the donor pool to include this group of donors was undertaken to provide more kidneys for transplantation (Figures 2 and 3). Because use of these organs is associated with an expected increase in graft dysfunction and shorter graft longevity, (Figure 4) potential recipients must signify their acceptance through the process of informed consent. Each transplant program has allocation protocols for the use of kidneys from this category. The goal of these protocols is to provide life-saving transplantation for patients in whom dialysis and death would be the only option.[5]

DCD are donors who have indicated their desire to be organ donors through a living will, advanced directive, driver's license, healthcare power of attorney or next of kin and do not meet brain-death criteria. Before donation can occur, they must be declared dead by cessation of cardiopulmonary function. This donor category can include members from ECD and non-ECD groups. Kidney transplants with organs from this group have been associated with higher incidence of initial delay in graft function. However, modification in immunosuppressive therapy and short-term dialysis support has resulted in acceptable graft function in the majority of recipients of DCD and DCD/non-ECD kidney grafts (Figure 4).

Froedtert & The Medical College of Wisconsin

The ultimate measure of success in kidney transplantation is demonstrated in patient and graft survival. The most recent data collected by the Scientific Registry of Transplant Recipients (SRTR) demonstrates that Froedtert & The Medical College of Wisconsin have a one-year patient and graft survival of 97.3 percent and 96 percent, respectively. These results place Froedtert & The Medical College of Wisconsin in the top tier among kidney transplant programs in the United States. In addition, the average waiting time to transplantation at Froedtert & The Medical College is shorter than the national average: 30 months v. 46 months, respectively.[6]

The exceptional outcomes obtained within our program are in no small measure due to the academic excellence and clinical experience of the transplant team members. One of our most rewarding outcomes is combining the knowledge and experience of a world-class transplant team with the most precious of human gifts (donor organs), resulting in a life-saving kidney transplant.

David C. Cronin, II, MD, PhD, is the director of the Liver Transplant Program at Froedtert & The Medical College of Wisconsin. He is a member of the Transplant Surgery Division at The Medical College of Wisconsin and Children's Hospital of Wisconsin, and can be reached at 414-955-6920.

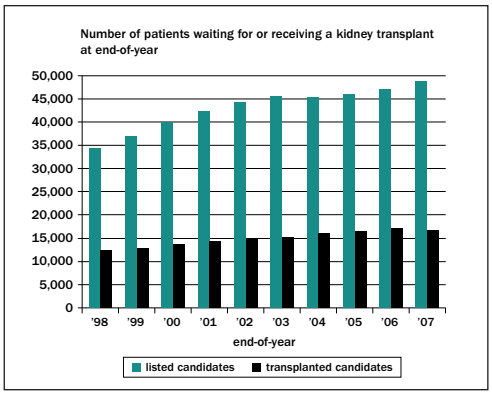

Figure 1[7]

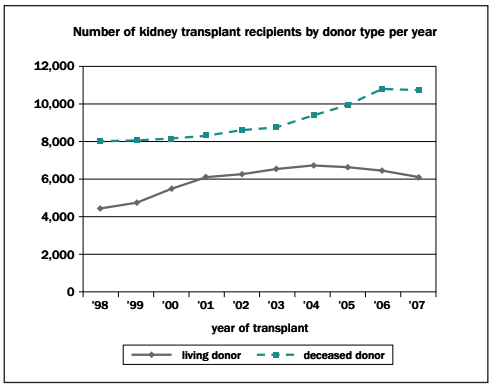

Figure 2[8]

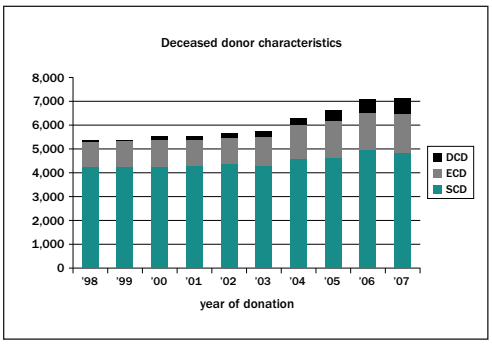

Figure 3[9]

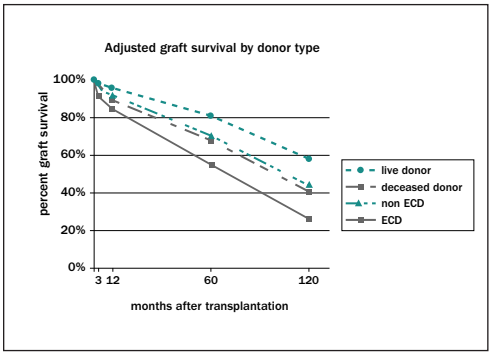

Figure 4[10]

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7. Figure 1 represents the number of candidates at the end of the calendar year listed for kidney transplant or the number of recipients of a kidney transplant from any donor source (living or deceased). http://www.ustransplant.org/annual_reports: OPTN/SRTR Data as of May 1, 2008. Table 5.1a Waiting List Patient Characteristics at End of Year Kidney Waiting List Active Waitlist Patients, 1998 to 2007. Table 5.4c Transplant Recipient Characteristics, 1998 to 2007 Recipients of Deceased Donor Kidneys. Table 5.4d Transplant Recipient Characteristics, 1998 to 2007 Recipients of Living Donor Kidneys
8. Figure 2 represents the number of kidney transplant recipients receiving a living donor kidney or deceased donor kidney in a given year. The small increase in deceased donor activity from 2003-2006 was primarily accounted for by the increased use of ECD and DCD organ donors. There has been no expansion in the living donor volume since 2001. http://www.ustransplant.org/annual_reports: OPTN/SRTR Data as of May 1, 2008. Table 5.4c Transplant Recipient Characteristics, 1998 to 2007 Recipients of Deceased Donor Kidneys. Table 5.4d Transplant Recipient Characteristics, 1998 to 2007 Recipients of Living Donor Kidneys
9. Figure 3 represents the relative contribution of DCD, ECD and SCD to the total number of deceased donors. The major contribution to the increase in the number of deceased donors has been from donation-after-cardiac-death (DCD) and expanded-criteria donors (ECD).

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FIRST RECIPIENT HONORED WITH THE SURGERY SCHMITZ SCHOLARSHIP

Caitlin Patten, MD

Caitlin Patten, MD, is the first recipient of the Maryann Zwaska Schmitz Endowed Scholarship.

The Maryann Zwaska Schmitz endowment scholarship was established to recognize in-state students who have demonstrated merit and proficiency in surgery. The scholarship is equal to one year of full tuition. The Office of Student Financial Services, with the assistance and approval of the Department of Surgery, selects a recipient for this award.

Caitlin Patten, MD, graduated from The Medical College of Wisconsin on May 21, 2010 and has entered her first year of a general surgery residency in the Department of Surgery at The Medical College of Wisconsin.

Congratulations, Caitlin!

PATIENT-CENTERED COMMUNICATION IN CANCER CARE

In 2007, The National Cancer Institute identified patient-centered communication as a clinical and research priority in the setting of multidisciplinary cancer care.[1]

By **Rachel Adams Greenup, MD, MPH**
Surgical Chief Resident

Patient-centered communication is defined as the practice of fostering healing relationships, exchanging information, responding to emotions, managing uncertainty, assisting in treatment decision-making, and enabling patient self-management on behalf of healthcare providers[2]. Historically, the healthcare system has assessed the success of cancer care through the outcome measures of morbidity, mortality and cancer recurrence rates. More recently, however, patient perception of the personal healthcare experience has gained significant attention, especially in the setting of evaluating cancer care. The phrase "patient-centered care" focuses on evaluating the healthcare experience from the patient's perspective. Certain factors within the cancer treatment process are critical to the overall well being of cancer patients, including: communication between patients and providers, perceived participation in treatment decision-making, outside support systems, and a sense of mutual respect.[1-2] Practicing oncologists and oncologic surgeons are intimately aware of the critical importance of the doctor-patient relationship during cancer treatment. Physicians caring for cancer patients not only manage the medical aspects of cancer treatment, but also act as resources of medical knowledge, provide emotional support, and foster encouragement and consistency during the cancer treatment process. The medical and surgical team caring for cancer patients must aid patients in receiving difficult news, processing and understanding complex medical information, and must facilitate treatment decision-making. Medical, radiation and surgical oncologists are entrusted with the medical, physical and emotional care of this population.

Interactions between cancer patients and their multitude of providers can be complex and challenging. Patient-centered communication focuses on several factors that may improve discussion between patients and providers. These include: using everyday language, repeating diagnosis and treatment options, encouraging questions, and allowing adequate time for discussion with patients and their families.[3] Communication has been identified as a core clinical skill among physicians caring for cancer patients, and has been associated with improved compliance, greater satisfaction, and decreased anxiety among patients.[4] Additionally, physicians who are better able to identify patients' concerns and need for information have patients who are more satisfied with their care.[5]

Improved communication in the cancer setting has been correlated with improved well-being among cancer patients. Evidence suggests the presence of hopelessness and depression may be associated with worse outcomes among breast cancer patients.[6] Improved satisfaction with the physician-patient relationship has also been correlated with improved emotional function among cancer patients. Shared decision-making and communication are aspects of this relationship that correlate strongly with improved patient ratings on well-being measures. Literature suggests cancer patients prefer to be part of the decision-making process during treatment.[7] Clear communication between cancer patients and their providers has the potential to facilitate health outcomes by improving adherence to treatment recommendations, improving enrollment in clinical trials, and motivating patients to adopt behaviors that aid in better prevention and surveillance. Improved communication between patients and their healthcare team may even further impact our healthcare system through better use of resources and reduction in healthcare disparities. Patient-centered communication is especially important in the setting of cancer care, as patients navigate through a complex treatment process toward cancer survivorship.

Dr. Greenup will pursue fellowship training in breast surgical oncology when she completes her residency in July 2011. She can be reached at *rgreenup@mcw.edu.*

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KIDNEY TRANSPLANTATION AS LIFE-SAVING THERAPY

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http://www.ustransplant.org/annual_ reports: OPTN/SRTR Data as of May 1, 2008. Table2.2 Deceased Donor Characteristics. 1998-2007 Kidney donors
10. Figure 4 demonstrates the graft survival (time to return to dialysis) among the different types of donor organs. The data excludes multi-organ transplant recipients. Deceased donors are divided into two mutually exclusive and complete categories. All donors meeting the criteria for Expanded Criteria Donors for Kidney are classified as ECD. Non-ECDs include all other donors, including SCDs and DCDs.http://optn.transplant.hrsa.gov/ar2008/iKI_Recipients_survival_rate.htm?o=2&g=2&c=19. OPTN/SRTR Data as of May 1, 2008. Tables 5.8a,b and c. Adjusted graft survival, deceased donor non-ECD, ECD and SCD kidney transplants survival, respectively, at 3 months, 1 year, 5 years, and 10 years. Table 5.8d Adjusted graft survival, living donor kidney transplants survival at 3 months, 1 year, 5 years, and 10 years.

IMPROVING THE PROGNOSTIC VALUE OF PERFORMANCE MEASURES BY RADIOGRAPHIC IMAGING

Using objective measures to assess performance status

By **Susan Tsai, MD, MHS**
Assistant Professor of Surgery

In the United States, the total projected cancer incidence is expected to increase by 45 percent, from 1.6 million to 2.3 million from 2010 to 2030.[1] For many malignancies, surgical resection is the cornerstone of therapy and offers the only opportunity for cure. Although several series have demonstrated excellent surgical outcomes in elderly individuals,[2-5] an increasing number of studies suggest elderly individuals are less likely to be offered surgery due to perceptions of their inability to tolerate treatment.[6-8] While age is an independent risk factor for postoperative complications, it is not a sufficient predictor of increased treatment morbidity and mortality. Current performance measures rely on subjective scales which frequently do not capture functional impairments. The inclusion of objective measures of physical function has been demonstrated to increase sensitivity to major clinical and subclinical outcomes versus subjective measures alone.[9] The incorporation of objective methods of assessing physiologic age may be useful in the elderly cancer patient and aid in the appropriate selection of patients for higher risk surgical procedures. One potential indicator of performance status may be sarcopenia, which is the age-related decline in lean body mass.

Sarcopenia was initially recognized in 1989 as a clinical condition associated with a decline in lean body mass structure and functional quality.[9] It is generally defined as a reduction in the quantity of skeletal muscle more than two standard deviations below that typical of healthy adults. Sarcopenia has been associated with functional impairment and disability, increased risk of falls, longer hospital stays, nosocomial infections, and decreased survival in non-malignant disease. The presence of sarcopenia may not be evident by physical appearance, but can be easily assessed using the computed tomography scans commonly obtained in routine diagnostic evaluation (Figure 1). Although sarcopenia has been extensively studied in the general population of elderly patients, interest in sarcopenia as a specific risk factor for oncologic outcomes is relatively new.

The presence of sarcopenia has been predictive of cancer mortality in several studies of patients undergoing palliative care. In a study of 2,115 patients with solid tumors of the lung or gastrointestinal tract referred to a regional cancer center, the prevalence of sarcopenia was 15 percent. Patients who were obese and sarcopenic had poorer functional status as compared to obese non-sarcopenic patients and poorer survival (HR 4.2, 95 percent CI 2.4-7.2, p <0.0001).[10] Another study of 111 patients with pancreatic cancer demonstrated the prevalence of sarcopenia to be 55.9 percent with 16.2 percent of patients being sarcopenic and obese (Figure 2). In multivariable analysis, sarcopenic obesity was also identified as an independent adverse predictor of survival (HR 2.07, 95 percent CI 1.23-3.50, p =0.006).[11] The presence of sarcopenia may also predict treatment toxicity. In a prospective study of stage II/III colon cancer patients treated with 5-FU and leucovorin, the incidence of dose-limiting toxicity was inversely related to muscle mass measured by CT (OR 16.73, p=0.021).[12] Similarly, among breast cancer patients, chemotherapeutic toxicity was present in 50 percent of sarcopenic patients as compared to only 20 percent of non-sarcopenic patients (p=0.03) and time to tumor progression was shorter in sarcopenic patients than in non-sarcopenic patients (101.4 vs. 173.3 days, p = 0.005).[13]

The presence of sarcopenia may be a useful adjunct in the selection of patients for surgical procedures, and provides an objective, reproducible, and non-invasive assessment which may be obtained from existing diagnostic studies. This may have particular relevance for elderly patients with advanced disease who are being considered for extensive surgical procedures. Significant evidence exists to suggest that sarcopenia is reversible, even in the frail elderly.[14] Elderly cancer patients with sarcopenia may benefit from neoadjuvant therapy and progressive resistance training to augment their lean body mass prior to surgery. The appropriate management of elderly patients for high risk surgical procedures will become increasingly important as the population continues to age. Refining methods of patient selection will allow clinicians and their patients to make more informed decisions regarding the utility and anticipated course of surgical procedures. Further investigations of the impact of sarcopenia among surgical patients will be ongoing at Froedtert & The Medical College of Wisconsin and Clement J. Zablocki VA Medical Center.

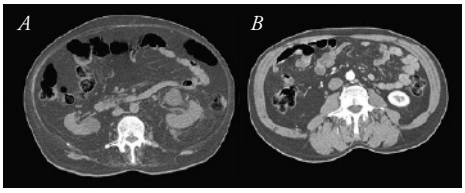

Figure 1: CT images from two male cancer patients with BMI 24.3 kg/m2. (A) represents extreme muscle wasting with severe atrophy of the psoas muscle and muscles of the abdominal wall, (B) represents normal body composition. The presence of sarcopenia in (A) is obscured by the replacement with visceral adipose tissue.

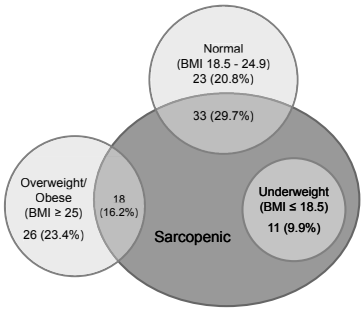

Figure 2: Venn diagram of BMI classes and prevalence of sarcopenia among patients with pancreatic cancer. Tan et al. Clin Cancer Res 2009

Susan Tsai, MD, MHS, recently joined The Medical College of Wisconsin Department of Surgery, Division of Surgical Oncology. Her clinical practice covers all aspects of general surgical oncology, with a focus on gastrointestinal and hepatobiliary malignancies. Dr. Tsai received fellowship training at Johns Hopkins Hospital, Baltimore, Md. In addition, she participated in basic science research at the National Cancer Institute, National Institutes of Health in Bethesda, Md. Dr. Tsai sees patients at Froedtert & The Medical College of Wisconsin and Clement J. Zablocki VA Medical Center.

For additional information, Dr. Tsai can be reached at *stsai@mcw.edu.*

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INTRAPERITONEAL CHEMOTHERAPY FOR PERITONEAL SURFACE MALIGNANCIES

Peritoneal surface malignancies (PSM) consist of two broad groups – primary malignancies (mesotheliomas, desmoplastic round cell tumors and primary peritoneal carcinoma) and secondary malignancies, such as those originating from gastrointestinal (colorectal, appendiceal or gastric) or gynecological (ovarian) origin.

By **Kiran K. Turaga, MD, MPH**
Assistant Professor of Surgery

PSM's unique behavior is characterized by profound hypoxia and absent vasculature, thus compromising the intravenous delivery of drugs. Intraperitoneal therapy for PSM was proposed in 1978 based on the pharmacokinetic rationale of reduced drug clearance due to the peritoneal plasma barrier. Increased concentration of drug applied locally can overcome drug resistance and have a higher cytotoxic effect. We review below the current evidence for the role of intraperitoneal chemotherapy for various malignancies.

Burden of Disease

The importance of understanding and effectively applying this treatment is imperative due to the rising number of isolated PSM. The incidence of mesotheliomas has been estimated to be 400 cases per year, while the incidence of appendiceal epithelial neoplasms, or AEN, (classically, the pseudomyxoma peritonei syndrome) is around 1,500 cases per year.[1]

On the other hand, almost 3 percent to 11 percent of patients with colorectal cancer have been estimated to have simultaneous peritoneal seeding (during surgery or local invasion) and 25 percent of patients with recurrent disease have only localized disease.[2] This could result in almost 4,500-16,500 new cases per year. The incidence of peritoneal spread of gastric cancer (5 percent to 20 percent of newly diagnosed cases) and ovarian cancer (18 percent to 60 percent) similarly contribute to the rising incidence of patients with isolated PSM who may benefit from intraperitoneal chemotherapy.

Clinical Presentation and Workup

The clinical presentation of patients with PSM includes increased abdominal girth and bowel obstruction, in addition to other symptoms of the primary malignancy such as cachexia. The workup includes referral to a center with experience in PSM and multidisciplinary evaluation. Routine tumor markers including CEA and CA19-9 have been shown to have some value in predicting optimal debulking and survival. The role of PET-CT fusion scan has been suggested in AEN and is widely applied in tumors of gastrointestinal origin.

Delivery of Intraperitoneal Chemotherapy

Various techniques have been described for delivery of intraperitoneal chemotherapy, which are performed only after effective cytoreductive surgery, or CRS. (Table 1). The combination of chemotherapy with hyperthermia is an attractive method and is very commonly used for most PSM. The techniques for delivery of hyperthermic intraperitoneal chemotherapy (HIPEC) are open, closed or laparoscopic techniques.

Outcomes

Surgical outcomes

CRS with intraperitoneal chemotherapy has been associated with morbidity of 28.8 percent (with grade II morbidity of 0-52 percent in a review of 24 institutions) and a mortality of 2.9 percent (0-17 percent) which is similar to any major abdominal surgery.[3] The mean length of stay is 19 days (7-48 days) and the mean re-operation rate is 11.2 percent.[3, 4] Quality of life (QOL) is compromised at three months after surgery, but is significantly better than the pre-operative QOL after 12 months.[4]

Survival

Appendiceal Epithelial Neoplasms

Historically, the treatment for AEN was surgical debulking, but death was inevitable in three to five years due to bowel obstructions and inability to debulk. A systematic review published in 2007 revealed a five year survival of 53 percent to 96 percent among case series ranging from 33 to 501 patients.[1] Numerous international centers have reproduced the survival benefit noted (French study 2010: N=301, five year survival 73 percent, DFS 56 percent, UK NHS N=101: 2009, five year survival 86 percent, Mayo clinic N=115: 5 year survival 82 percent). In sporadic studies that have compared the role of systemic chemotherapy in AEN, the progression free survival was 7.6 months (four to 11 months).[5]

Mesothelioma

The traditional survival of patients with mesothelioma was nine to 15 months before the introduction of heated intraperitoneal chemotherapy. The five year survival is still not as good as reported with appendiceal neoplasms, but varies from 30 percent to 60 percent.[6]

Colorectal cancer

In a randomized phase III trial, Verwaal and colleagues demonstrated a significant survival benefit to patients with isolated peritoneal surface colorectal cancer treated with HIPEC using Mitomycin C compared with systemic 5-FU/LV (22.2 months vs. 12.6 months, p=0.028) in 2003.[7] Subsequent systematic reviews have revealed a median survival benefit of 28 to 60 months for patients undergoing CRS with HIPEC.[8] The results of CRS with HIPEC have to be compared against the use of modern chemotherapy agents. In chemotherapy trials, patients with peritoneal based disease were shown to have worse overall survival and response rate compared to other disease sites. In a retrospective matched review of patients who underwent CRS with HIPEC against those who received modern systemic chemotherapy including irinotecan and oxaliplatin, a significant survival advantage in favor of CRS with HIPEC was seen (62.7 months vs. 23.9 months, p<0.05).[2]

Ovarian Cancer

Patients with stage III ovarian carcinoma or primary peritoneal carcinoma with optimal debulking received either systemic chemotherapy or intraperitoneal cisplatin and paclitaxel in six cycles. The median duration of overall survival was 49.7 vs. 65.6 months in favor of intraperitoneal

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LIST OF FACULTY BY SPECIALTY

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Thomas Clark Gamblin, MD, MS
Amanda L. Kong, MD
Sam G. Pappas, MD
Edward J. Quebbeman, MD, PhD
Susan Tsai, MD, MHS
Kiran K. Turaga, MD
Alonzo P. Walker, MD
Tracy S. Wang, MD
Tina W.F. Yen, MD, MS

Transplant Surgery
Rebecca C. Anderson, PhD
David C. Cronin II, MD, PhD
Christopher P. Johnson, MD
Allan M. Roza, MD
Brian D. Shames, MD
Sarah E. Trost, PhD
Yong-ran Zhu, MD

Vascular Surgery
Kellie R. Brown, MD
Charles E. Edmiston Jr., PhD, MS, CIC
James B. Gosset, MD (Vascular Medicine)
Brian D. Lewis, MD
Peter J. Rossi, MD
Gary R. Seabrook, MD

Basic Science/Other Faculty
John E. Baker, PhD (Cardiothoracic Surgery)
Laura D. Cassidy, PhD (Pediatric Surgery)
Adrianus G.W. Domen, PhD (Cardiothoracic Surgery)
Mats Hidestrand, PhD (Cardiothoracic Surgery)
Qing Miao, PhD (Pediatric Surgery)
Aoy T. Mitchell, PhD (Cardiothoracic Surgery)
Kirkwood A. Pritchard, Jr., PhD (Pediatric Surgery)
Yang Shi, PhD (Pediatric Surgery)
Toku Takahashi, MD, PhD (General Surgery)
Hao Xu, PhD (Pediatric Surgery)
Hao Zhang, PhD (Pediatric Surgery)

Affiliated Institution Program Directors
Steven K. Kappes, MD – Columbia St. Mary's Hospital
Alysandra Lal, MD – Columbia St. Mary's Hospital
Joseph C. Battista, MD – St. Joseph's Hospital
Christopher J. Fox, MD – Waukesha Memorial Hospital

Froedtert Health Affiliated Surgeons
Kaizad Machhi, MD
John W. Haeberlin, MD
Eric A. Soneson, MD

CONTRIBUTORS *Many thanks to the physicians and staff who contributed to this issue of Surgery Update.*


Marshall A. Beckman, MD


Meg Bilicki

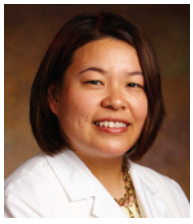

Karen J. Brasel, MD, MPH


David C. Cronin, II, MD, PhD

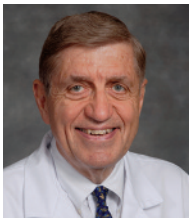

Rachel A. Greenup, MD, MPH


Beth Krzywda, MSN, APNP


Shannon Lahiff, MSN, APNP


Susan Tsai, MD, MHS


Kiran K. Turaga, MD, MPH


Stuart D. Wilson, MD

*Alumni*Corner

Joseph Battista, MD

JOSEPH BATTISTA, MD, RECEIVES DISTINGUISHED TEACHING AWARD

Each year, the Milwaukee Academy of Medicine presents the Excellence in Teaching Award. The award, selected by Medical College of Wisconsin senior medical students, is presented to a physician in private practice who distinguishes himself/herself through exemplary teaching. This year's recipient of the Excellence in Teaching Award was Joseph Battista, MD, a general surgeon at St. Joseph's Hospital who completed his surgery residency at The Medical College of Wisconsin in 1988. Dr. Battista also serves as site director of education for general surgery residents and medical students who rotate at St. Joseph's. He is a member of the Department of Surgery Student Education Committee.

TEACHING AWARDS RECIPIENTS HONORED AT EBERBACH BANQUET

The Department of Surgery would like to congratulate the recipients of this year's teaching awards, presented at the Eberbach resident graduation banquet in June.

Recipients are as follows:

David D. Schmitt, MD and John A. Weigelt, MD, DVM, MMA: "Aprahamian Faculty Teaching Award" selected by the graduating chief surgical residents

David M. Gourlay, MD: "Professionalism Award" selected by the surgical residents

Karen J. Brasel, MD, MPH: "Golden Cane Award" selected by the medical students

David D. Schmitt, MD

John A. Weigelt, MD, DVM, MMA

David M. Gourlay, MD

Karen J. Brasel, MD, MPH

*Development*Corner

By **Meg M. Bilicki**
Director of Development

NATIONAL PANCREATIC CANCER AWARENESS MONTH

November is designated as National Pancreatic Cancer Awareness Month. The designation was made with the goal to raise awareness and highlight the importance of research on prevention, early detection, and innovative therapies. Pancreatic cancer is the fourth leading cause of cancer-related deaths in the U.S. with 36,800 deaths reported in 2010.

As the month of November brings pancreatic cancer into focus, The Medical College of Wisconsin Pancreatic Cancer Multidisciplinary Working Group will host a community education event on Friday, November 12 at 4:30 p.m. in the Froedtert & The Medical College Cancer Center. Experts in the field will make presentations to increase public understanding of the disease including its prevalence, approaches to screening and prevention, treatment options, and resources that offer updated pancreatic cancer information throughout the year. Clinicians will also be available to answer patients' questions.

Please watch *mcw.edu/surgery* for future details about this event and encourage your patients to attend. Additional information is available at *froedtert.com/liverpancbile.*

chemotherapy (p=0.03).[2] Similar survival benefits have been seen in numerous phase II and III trials and IPC has been recommended as a standard of care for stage III ovarian carcinoma.

Other Tumor Types

Promising results have been seen in patients with T3 gastric tumors who underwent adjuvant HIPEC after surgery. The overall proportional improvement in the hazards after receiving surgery and adjuvant HIPEC was 0.60 (95 percent CI 0.43-0.83, p=0.002), and 0.45 (95 percent CI 0.29-0.68; p=0.0002) favoring surgery+HIPEC +EPIC.[2] Conclusive studies in aggressive tumor types such as pancreatic and esophageal cancer have not been established.

Conclusions

Intraperitoneal drug delivery has demonstrated efficacy in patients with tumors isolated to the peritoneal cavity. Randomized trials have shown survival benefits to the application of CRS with intraperitoneal chemotherapy in ovarian and peritoneal spread of colorectal cancer. Proponents of the technique have advocated intraperitoneal chemotherapy as the standard of care for AEN and mesothelioma, although level one evidence to base these recommendations is lacking. Future randomized trials and large scale prospective collaborations will be imperative in advancing the application of such techniques in an evolving oncological environment.

Dr. Turaga can be reached at *kturaga@mcw.edu.*

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Lexicon of Terms

Term	Description
Primary Peritoneal Surface Malignancy	• Malignant mesothelioma • Cystic mesothelioma • Primary peritoneal carcinoma (serous surface papillary carcinoma) • Desmoplastic small round cell tumor
Secondary Peritoneal Malignancy	**GI primary** • Appendix: DPAM, PMCA-I, PMCA (Pseudomyxoma peritonei) • Colon/Rectal • Esophageal/Gastric **GYN primary** • Ovarian
Pseudomyxoma Peritonei	Term used to describe minimally invasive mucin producing appendiceal primary tumors that often present with increasing abdominal girth
Appendiceal Epithelial Neoplasms	**Histological Subtypes** • Disseminated peritoneal adenomucinosis (DPAM) • Peritoneal mucinous carcinomatosis-intermediate • Peritoneal mucinous carcinomatosis (PMCA)
Techniques of Delivery of IP Chemotherapy	**Hyperthermic Intraperitoneal Chemoperfusion (HIPEC - During the Operation)** • Closed technique • Open technique **Post-operative Intraperitoneal Chemotherapy** • Indwelling port for chemotherapy • Early post-operative intraperitoneal chemotherapy (EPIC)

Kiran K. Turaga, MD, MPH, recently joined the Medical College of Wisconsin Division of Surgical Oncology. His clinical practice encompasses general surgical oncology with a focus on peritoneal malignancies. He has extensive experience in hyperthermic intraperitoneal chemoperfusion to treat advanced appendiceal, ovarian, colorectal, pseudomyxoma peritonei and other cancers. He also has significant laparoscopic and robotic cancer surgery experience. Dr. Turaga received fellowship training in surgical oncology at the H. Lee Moffit Cancer Center and Research Institute in Tampa, Fla., and at the David C. Koch Regional Perfusion Center at the University of Pittsburgh Medical Center.

THE ROLE OF THE INTENSIVIST IN THE CRITICAL CARE UNIT

Intensive care medicine is a medical specialty that is relatively new compared to most other disciplines.

By **Marshall A. Beckman, MD**
Assistant Professor of Surgery
Karen J. Brasel, MD, MPH
Professor of Surgery

The origin of intensive care medicine dates back to the early 20th century, and it came into more prominence in the 1950s with the development of mechanical ventilation. Surgeon presence in the intensive care unit (ICU) was the norm when intensive care began in the United States. Dr. W.E. Dandy opened a three-bed unit for postoperative neurosurgical patients at the Johns Hopkins Hospital in Baltimore, Md. in the 1920s.

The first multidisciplinary ICU in the United States, staffed 24/7 by a physician, was established in 1958 at Baltimore City Hospitals (now Johns Hopkins Bayview). In 1970, 28 physicians with a major interest in the care of critically ill and injured patients met in Los Angeles, Calif. to discuss the formation of an organization committed to meeting the needs of critical care patients: the Society of Critical Care Medicine. The specialty of critical care was further advanced in 1986, when the American Board of Medical Specialties approved a certification of special competence in critical care for the four primary boards: anesthesiology, internal medicine, pediatrics and surgery.

Froedtert & The Medical College of Wisconsin and Froedtert Health Community Memorial Hospital are committed to intensivist-led critical care units, with surgical intensivists accessible for surgical patients. Intensivist involvement with critically ill patients reduces the relative risk of mortality by up to 60 percent. One of the advantages is bedside presence – patients in the ICU can have multiple medical and surgical issues, and there are times when a physician needs to be at the bedside to manage moment to moment changes in hemodynamics or respiratory status. The intensivist also manages fluids, nutrition, sepsis, pain control, chronic disease and electrolyte optimization. Few physicians have the training or the dedicated time to attend to these issues other than the intensivist. Some of the advantage comes from the multidisciplinary approach that occurs daily – rounding with the team of physicians, nurses, pharmacists and therapists. This allows daily manipulation of patient interventions based on the most recent clinical trials. An additional advantage relates to coordination of care. In some ways, the intensivist is like the patient's primary care physician who coordinates care provided by consultants and the patient's primary surgeon. Communication with the family is an important aspect of the intensivist's role. Family meetings for SICU patients and their families every few days allow patient progress updates and the opportunity to answer questions patients and their families may have. Family meetings are not meant to take the place of communication between the primary surgeon and the patient/family; rather, they allow a greater number of family members and members of the healthcare team to hear, understand, and question the patient's current status, goals of care and plan of care.

There are many examples of how the intensivist model has helped individual patients. One example involved a patient with multiple injuries that needed operative intervention by multiple surgeons. The intensivist was able to coordinate efforts to facilitate the patient going to the operating room and allowing each of the surgeons involved to operate in turn. However, this occurred only after the patient was completely resuscitated and could undergo general anesthesia safely.

Of the 87,000 intensive care beds in the U.S., only 21 percent are staffed by intensivists. Even fewer are staffed by surgical intensivists. Collaborating with patients' primary surgeon, surgical intensivists at Froedert Health improve outcomes for critically ill patients.

The goals of the intensivist service include improving quality of care, decreasing morbidity and mortality, providing more efficient use of resources, and improving patient, staff and physician satisfaction – all while utilizing appropriate support from the literature. While stated simply, these goals can be challenging to achieve. With input from our multidisciplinary team, hard work and thoughtful discussion, we can achieve these goals.

Dr. Beckman can be reached at *mbeckman@mcw.edu*; Dr. Brasel can be reached at *kbrasel@mcw.edu*.

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THE DEPARTMENT OF SURGERY CHIEF RESIDENTS 2010-2011 ACADEMIC YEAR


Rachel Greenup, MD, MPH


Ciaran Bradley, MD


Rachel Ebel, MD


Robb Edwards, MD


Matthew Cox, MD

CLINICAL UPDATE – INFLUENZA VACCINES

This column is the first of several to address common clinical questions impacting the care of our surgical patients. We will provide an update on the newest research, as well as recommendations from advisory groups and experts.

By **Beth Krzywda, MSN, APNP**
Nurse Practitioner
Shannon Lahiff, MSN, APNP
Nurse Practitioner

Interest in influenza peaked during 2009, with the emergence of H1N1 virus and the first flu pandemic in 40 years. In the United States, 12,000 deaths were attributed to the H1N1 influenza.

According to epidemiologic data, on average, 36,000 influenza-related deaths occur annually in the U.S. Infection rates are highest in children. However, complications and deaths are most frequent in adults older than 65 years of age, children younger than 5, and individuals with chronic illness such as diabetes, hypertension, major organ dysfunction, those taking immunosupression drugs and those with morbid obesity (BMI > 40). Other groups at risk include pregnant women, nursing home residents and healthcare providers.

Influenza A and B are associated with human disease. Influenza is an RNA virus with glycoproteins hemagglutinin (HA) and neuraminidase (NA). The virus can be further subtyped based on the distinct HA and NA glycopeptides - for example H1N1. Hemagglutinin and NA are recognized as the two antigens most frequently responsible for promoting an antibody response, and they serve as targets for vaccines and antivirals.

Influenza vaccination serves as the most effective method to prevent infection. Mutations or antigenic drift occur at the HA and NA sites leading to the need for an annual altered vaccine. Vaccine composition is determined by the Centers for Disease Control Advisory Committee on Immunization Practices or ACIP. The ACIP working group meets every two to four weeks throughout the year to review research, influenza related issues, updates on vaccine production, and recommendations.

For the upcoming influenza season, a trivalent vaccine containing two strains of Influenza A – H1NI and H3N2 – plus a strain of Influenza B has been recommended. This single vaccine will be provided in two forms: as a trivalent inactivated influenza vaccine (intramuscular injection) or as a live attenuated vaccine (nasal spray).

Recommended use of the vaccine in the oncology population was recently noted. In general, patients with malignancies who have not had chemotherapy for more than 30 days can mount a favorable immunologic response to a vaccination. Although suboptimal responses have been seen in patients actively receiving chemotherapy, few had no response. Immunotherapy, such as Rituxamib, will markedly interfere with the immune response. Therefore, the use of influenza vaccination in this select population is questionable. Ideal timing for vaccination in oncology patients receiving chemotherapy is not clear. The preference would be to time the administration of the vaccine furthest from the treatment cycle. The general consensus is that patients in this diverse population will benefit from the vaccine despite the decreased immune response seen when they receive it.

Immunity develops two weeks after vaccine administration and extends for at least six to eight months. It is now recommended that the annual vaccine be administered to all persons aged > 6 months.

Beth Krzywda and Shannon Lahiff are experienced physician extenders who specialize in hepato-pancreaticobiliary disease, surgical oncology and endocrine surgery. Beth Krzywda can be reached at *ekrzywda@mcw.edu*; Shannon Lahiff can be reached at *slahiff@mcw.edu*.

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INTRAPERITONEAL CHEMOTHERAPY FOR PERITONEAL SURFACE MALIGNANCIES

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A TRIBUTE TO CHARLES APRAHAMIAN, MD

Charles Aprahamiam, MD

It is with great sadness that we say goodbye to one of our senior surgeons, Charles Aprahamian, MD, professor of Surgery and former chief of Trauma Surgery, who died peacefully on June 25, 2010, at the age of 75.

Dr. Aprahamian was a major influence in the development of comprehensive trauma care programs at The Medical College of Wisconsin, as well as on a national and international level. He helped establish the state's first Level 1 Trauma Center at what is now Froedtert & The Medical College of Wisconsin; he pioneered emergency medical services training in Wisconsin, and he helped develop The American College of Surgeons Advanced Trauma Life Support course. This course has been taught to thousands of healthcare providers across the United States.

Milton and Lidy Lunda honored Dr. Aprahamian for these efforts when they added his name to an endowed chair funded at The Medical College. The Milton & Lidy Lunda/Charles Aprahamian Chair in Trauma is currently held by John Weigelt, MD, DVM, MMA.

Dr. Aprahamian served in the U.S. Navy from 1952-1954, graduated from Marquette University in 1958, and from Marquette University Medical School (which is now The Medical College) in 1962. He completed his residency in surgery at the Milwaukee Veterans Administration Hospital and Milwaukee County General Hospital. Dr. Aprahamian began his career at The Medical College in 1976 as an assistant professor of Surgery. During his time at The Medical College he served as director of the Emergency Department and chief of Trauma and Emergency Surgery. A gifted surgeon and a compassionate physician, Dr. Aprahamian received the The Medical College's Distinguished Service Award, its highest honor, in 1995. He also received the Teacher of the Year Award seven times. His contributions to resident and medical student education are legendary.

He was the beloved husband of Pat Aprahamian for more than 55 years, and is survived by six of his children, many grandchildren and great-grandchildren. He will be greatly missed.

IMPROVING THE PROGNOSTIC VALUE OF PERFORMANCE MEASURES BY RADIOGRAPHIC IMAGING *continued from page 5*

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THE MEDICAL COLLEGE OF WISCONSIN GENERAL SURGERY RESIDENCY – FAMILY TIES AND TRADITIONS

By **Stuart D. Wilson, MD**
Professor of Surgery

The word tradition comes from the Latin word "traditionen," which means "handing over, passing on." Since the Edwin H. Ellison, MD, era, our General Surgery Residency Program (GS) has had a strong history of family ties and traditions, something important for our department's heritage. Four surgeons who completed their GS residencies in our program have been followed by sons or daughters in the same program.

George M.A. Fortier, III, MD, (GS '68) now deceased, was followed by his son George M.A. Fortier, IV, MD, (GS '89). They practiced together in Randall, Minnesota.

George Fortier, IV, watching his father suture a laceration (above); Father and son at American College of Surgeons Fellowship (right)

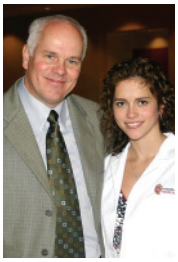
Paul S. Fox, MD, (GS '73), a founding member of Waukesha Surgical Specialists, Waukesha, Wis., recruited his son Christopher J. Fox, MD, (GS '04) to join his practice. Another son, Paul S. Fox, MD, is an interventional radiologist in the same group.

Fishing partners (left). Chris Fox at his Medical College of Wisconsin graduation (right).

Mark B. Adams, MD, (GS '78) served our faculty as chief of the Transplant Program and then chairman for the Department of Surgery at The Medical College of Wisconsin. Mark's daughter, Rachel Adams Greenup, MD, MPH, is currently a chief resident in our GS Program.

Baby Rachel at Dr. Adams' Eberbach graduation (left); Dr. Greenup, surgery resident (right)

Steven K. Kappes, MD, (GS '83) practices in Milwaukee and daughter, Ashley Kappes Cayo, MD, is currently a PGY III resident in our GS Program.



The Kappes' at Disneyland (left); proud father and Dr. Cayo, surgical resident (right).

Charles Aprahamian, MD, (GS '67), recently deceased, has a third generation surgeon, his grandson, Charles J. Aprahamian, MD, whom he mentored while attending medical school at The Medical College of Wisconsin. The younger Dr. Aprahamian completed his GS residency at the University of Alabama of Birmingham and stayed on there as a pediatric surgery fellow.

Dr. Aprahamian and grandson Charles J. Aprahamian, MD

Several of our GS alumni have adult children who followed the tradition, but trained in other programs:

George Korkos, MD, (GS-Plastics '63) trained at Milwaukee Hospital (affiliated with Marquette) before his GS plastic surgery training. His son, Thomas Korkos, MD, (GS-Plastics '96) currently practices with his father. Another son, James Korkos, MD, (GS-Anesthesiology '90) completed his anesthesia residency at The Medical College.

Stuart Wilson, MD, (GS '65) has a son, Christopher Wilson, MD, (GS-Hennepin '98) who practices in Milwaukee and another, Douglas Wilson, MD, (GS-Grand Rapids '93) who practices in St. Maries, Idaho.

William Davies, MD, (GS '71) and son, Christopher Davies, MD, (GS-Cincinnati) a general and vascular surgeon, practice together at Waukesha Surgical Specialists, along with two other children: Elizabeth Davies, Family Practice (MCW '98) and William A. Davies, Ortho (Grand Rapids '98).

Barry Seidel, MD, (GS '72) and his daughter, Barbara Seidel Boyer, MD, (GS-Utah) practice together in Woodruff, Wis.

These surgeons and their family ties and traditions have greatly enriched our history.

MEDICAL COLLEGE OF WISCONSIN
8701 Watertown Plank Rd.
P.O. Box 26509
Milwaukee, WI 53226-0509

MARK YOUR CALENDARS

Complex Abdominal Hernia Symposium

The Complex Abdominal Hernia Symposium will be held on Friday, February 18, 2011 at Froedtert & The Medical College of Wisconsin.

Liver/Pancreas Symposium

The Second Annual Medical College of Wisconsin Liver/Pancreas Symposium will be held on Friday, February 25 and Saturday, February 26, 2011 at Froedtert & The Medical College of Wisconsin.

The 38th Annual Edwin H. Ellison Lectureship - Douglas Fraker, MD

The Department of Surgery is honored to present Douglas Fraker, MD, the 38th annual Edwin H. Ellison lecturer on Wed., March 2, 2011. Dr. Fraker is a professor of Surgery at the University of Pennsylvania, where he is chief of the Division of Endocrine and Oncologic Surgery. His laboratory research efforts have focused on regional perfusion to treat melanoma and soft tissue sarcomas of the extremities and metastatic tumors of the liver. He is an internationally known endocrine and oncologic surgeon who pioneered treatment for endocrine tumors of the pancreas and hyperparathyroidism when he was at the National Cancer Institute prior to joining the faculty at University of Pennsylvania. Dr. Fraker grew up in Milwaukee.

The Eighth Biennial Medical College of Wisconsin Breast Cancer Symposium

The Eighth Biennial Medical College of Wisconsin Breast Cancer Symposium will be held on Friday, April 8, 2011 at the Crowne Plaza Hotel in Wauwatosa, Wis.

Endocrine Surgery Update Symposium

The Third Annual Medical College of Wisconsin and The University of Texas M. D. Anderson Cancer Center Endocrine Surgery Update Symposium will be held on Friday, May 13 and Saturday, May 14, 2011 at Froedtert & The Medical College of Wisconsin.

For further details regarding these events, please visit our website at *mcw.edu/surgery* or contact Tracy Milkowski at *tmilkows@mcw.edu* or 414-805-5602.

To refer a patient or request a transfer/consultation, please use these numbers:

Froedtert & The Medical College of Wisconsin
Referrals: **800-272-3666**
Transfers/Consultations:
877-804-4700
mcw.edu/surgery

Clinical Cancer Center
Referrals: **866-680-0505**
Transfers/Consultations:
877-804-4700

Children's Hospital of Wisconsin
Referrals/Transfers/
Consultations: **800-266-0366**
Acute Care Surgery:
414-266-7858