As the 2012 Olympics were in full swing this summer, people around the world enthusiastically watched top athletes who had trained tirelessly for years as they competed for a medal. Gold medal winners heard their national anthem and knew for that moment in time they were the best in the world. A select few of them will be immortalized in history; Michael Phelps’ 22 medals have afforded him the accolades of the most decorated Olympian to date.

The prevention of, screening for, and treatment of breast cancer are no different. Top scientists and physicians around the world work tirelessly to find a cure. Until that day, we acknowledge efforts that advance the field, thereby changing forever the standard of practice. No better is that seen than in the topics discussed in this issue of Cancer Control.

In the first article, Drs Pal and Vadaparampil discuss the importance of identifying women (and men) at risk for a genetic mutation that may predispose them to cancer development such as breast cancer. Genetic counseling and testing are still in its infancy (past 15 years) and need to be better incorporated into the daily practice of physicians who treat cancer patients. Confirming a genetic mutation allows the affected individuals (previvors and survivors) to take advantage of the latest medical advances in prevention, early detection, and treatment.

Another area that has seen a slow evolution of change is the axilla. Traditionally, a complete axillary node dissection was performed in all women with breast cancer as a diagnostic and treatment tool. We accepted the high morbidity rates until the risk of metastatic disease became lower than the complication rates. In the mid to late 1990s, sentinel lymph node biopsy was introduced to address this and was awarded a gold medal. Now the procedure has achieved immortality and has changed the practice of medicine forever. If the sentinel node is without cancer, then no axillary node dissection is performed. If the sentinel node has cancer, then a complete axillary node dissection would always be performed, but is that necessary? Until recently, the answer was “yes,” but a recent provocative study, the ACOSOG Z0011 trial, suggests the answer may be “no.” In doing so, it has emerged as the dark horse to take a highly disputed medal, as eloquently discussed by Drs Shah-Khan and Boughey in this issue’s second paper. This one study is a game changer for some surgeons in select patients with early-stage breast cancer and limited nodal burden treated with breast conservation.

The ACOSOG Z0011 study is also one example of the notion that the role for surgery of the axilla seems to be moving away from treatment and focusing more on staging. As such, axillary staging for nonmetastatic breast cancer continues to evolve toward less invasive techniques. Sentinel lymph node biopsy is the primary avenue for staging the axilla, but a second contender has entered the ring, an axillary ultrasound. The third paper, by Dr Lee and colleagues, reviews the accruing data on utilization of both sentinel node biopsy and axillary ultrasound in the particular subset of women having neoadjuvant therapy.

Another surgical paradigm shift is the growing use of nipple-sparing mastectomy. A radical mastectomy was the standard of practice for many years until several clinical trials demonstrated the efficacy and oncologic safety of breast-conserving therapy. From the 1990s through 2005, 80% of breast cancer patients were treated with breast conservation. With advances in breast reconstruction, increasing utilization of genetic testing, social media availability (think Christina Applegate), and the introduction of nipple-sparing mastectomy, the number of mastectomies is increasing and, at many centers, comprises 50% of surgeries. In the fourth paper, Drs Lewis, Smith, and I review the evolution of the nipple-sparing mastectomy from ancient Egypt to the current day.

In the July 2010 issue of Cancer Control, which also focused on breast cancer, a review article by Drs Biagioli and Harris discussed the concept of accelerated partial breast irradiation (APBI) as opposed to whole breast radiation for early-stage invasive breast cancer — a gold medal winner. In this issue Dr Harris returns, along with Drs Deneve, Hoefer, and me, to immortalize APBI and introduce the next generation of gold medal contenders: intraoperative radiation devices. As the name implies, this technique is done in the operating room and can be performed as a single treatment during the time of lumpectomy (partial mastectomy). The woman arrives in the recovery room having completed both her surgery and radiation treatment. For those of us in the breast cancer arena, intraoperative radiation is our 2012 Olympic sweetheart, Gabby Douglas.

In the afterglow of the Olympics, stories emerged that tainted the reputation of a select few of our newly coroneted medalists. Steroid scandals come to mind. However, we learn from these mistakes and move proudly forward. These misfortunes occur not only in sports but also in science; perhaps this is best illustrated in the recent bevacizumab controversy. Dr Mortimer and colleagues discuss in detail the steps that led to the approval and subsequent change in approval status of this drug for advanced breast cancer. As their paper cites, “Bevacizumab is an important agent in the oncologic armamentarium and is currently approved by the US Food and Drug Administration (FDA) for the treatment of a number of solid tumors. Despite its acknowledged...
benefits in patients with a variety of solid tumors, the oncologic community has focused on the recent decision by the FDA to remove treatment of advanced breast cancer from its labeling. We have learned a great deal from the drug development of bevacizumab in oncology: the approval process, its impact on underserved diseases, and the identification and management of unusual and unexpected toxicities."

This past Olympics saw many “firsts,” such as the introduction of women’s boxing and the fact that the female athletes outnumbered the male athletes. Treatment of breast cancer is also experiencing a “first”: survivorship issues. As we cure more women of breast cancer, we must refocus our sights on the costs of our treatment in terms of quality of life. Sequelae of our treatment may not be a significant long-term issue in the elderly, but what about the young? In this issue’s final article, Drs Murthy and Chamberlain address the paucity of data investigating the effects of early menopause in our young breast cancer survivors, including distressing vasomotor symptoms, sexual dysfunction, decreased metabolism, and musculoskeletal and cardiovascular effects.

Circa 2012 in the breast cancer world can be summed up as follows: incorporation of genetic testing for treatment and prevention, evolution of axillary nodal staging, the development of targeted therapies, and consideration of the expense of our treatments in terms of impact on quality of life. Circa 2012 in the Olympics can be summed up as follows: records are meant to be broken, and small feats can be life-changing. So our “take-home” lesson here is: continue to work tirelessly and “Go for the Gold.”

Christine Laronga, MD, FACS
Senior Member
Clinical Director, Breast Surgical Oncology
Comprehensive Breast Program,
Department of Women’s Oncology
H. Lee Moffitt Cancer Center & Research Institute
Tampa, Florida
Christine.Laronga@moffitt.org

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