Cancer Consult

Nonsurgical Lung Cancer Treatments
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Lung cancer has the highest mortality rate in the United States in both men and women, claiming more lives than other common cancers—breast, colon and prostate—combined.

While its incidence has gone down in men and stabilized in women, long-term survival rates remain low because lung cancer is usually diagnosed at a stage when the cancer has spread to the lymph nodes or to other organs and structures outside the chest. Even in patients with lung cancer involving the lymph nodes and who may be potentially curable, many are not considered appropriate candidates for surgery, either because their cancer is too bulky in the chest or they have medical conditions such as COPD or heart disease, which make surgery unsafe. Unfortunately, comorbidities and cancer often go hand in hand in the lung cancer population, which make even early lung cancers (most often managed by surgeons) sometimes very challenging because of the risks to patients.

The good news is that there have been major advances in nonsurgical treatments that are benefiting the medically unfit patient with early stage cancer. One important innovation is stereotactic body radiation therapy (SBRT), which delivers very high doses of radiation precisely targeted to the tumor in the lung only, while sparing normal tissues. Since the lung is a resilient organ that can compensate for small losses of tissue when a tumor is eradicated, it is well-suited to this aggressive form of radiotherapy. “SBRT is very effective at local control of early cancers and remarkably safe,” says Gregory Videtic, MD, radiation oncologist and Section Head for Thoracic Malignancies.

At Cleveland Clinic, SBRT is a primary treatment for medically inoperable patients with non-small cell lung cancer (NSCLC) that hasn’t spread to other organs. Since the majority of SBRT patients treated have a lung disability such as COPD, it has been reassuring to find that less than 5 percent of such patients will experience clinically significant changes in their breathing after therapy. SBRT requires far fewer treatments than conventional radiation—between one and five sessions over one week depending on the tumor’s size and location in the lung. “The advantage over conventional radiotherapy isn’t just the low number of treatments but also the higher radiation doses which change the cancer’s biology,” says Dr. Videtic.

Cleveland Clinic is one of a select number of medical institutions that offers SBRT. “Patients with early-stage cancer who are medically inoperable should consider SBRT at Cleveland Clinic,” says Nathan Pennell, MD, PhD, a medical oncologist specializing in thoracic cancers.

In Japan, where SBRT was pioneered, anecdotal evidence suggests that SBRT may be as effective as surgery at curing cancer, based on results for a small number of patients who have now been followed for more than 10 years; these were patients who could have had surgery but refused.
Dear Colleagues and Friends:

I am pleased to send you the latest issue of Cleveland Clinic Cancer Consult. On behalf of the physicians, researchers and other healthcare professionals at the Taussig Cancer Institute, I welcome your interest in the exciting work being done here.

In this issue, we review nonsurgical solutions for disease, new applications for genetic testing, exciting results from kidney cancer drug trials and several other initiatives of our internationally recognized staff. I am proud to share these examples of our strengths in clinical excellence, innovation and patient-centered care. We are inspired by our patients to challenge the status quo, developing new ways to treat cancer today with an ultimate goal of eradicating it in the future.

In addition to providing care to more than 28,000 patients annually on our main campus, we offer treatment at 13 other locations in Northeast Ohio. Every member of our team is committed to giving our patients the best opportunity to beat their disease.

I hope you find this issue of Cancer Consult valuable and inspiring. I encourage you to explore our care further by reviewing our Outcomes books, produced annually and available at www.clevelandclinic.org/outcomesonline.

Please feel free to email me at bolwelb@ccf.org with suggestions and questions. The Cleveland Clinic cancer team looks forward to collaborating with you in the care of your patients.

Sincerely,

Brian J. Bolwell, MD
Chairman
Taussig Cancer Institute

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research studies in the United States for potentially operable patients are planned for the near future.

Moving from the concept of a physical target (tumor) for which SBRT is well-designed, lung cancer has been revolutionized by an understanding of the molecular makeup of cancer cells. This has led to the development of molecularly based “targeted” therapies, which act on the cellular mechanisms that lead to cancer growth. Identifying abnormal pathways and genetic mutations has led to the development of a number of innovative treatments, including, for example, drugs like bevacizumab (Avastin®) aimed at blocking blood vessel growth in tumors. Such drugs can often be used with conventional chemotherapy to treat lung cancer.
In another setting, currently all patients with adenocarcinoma, the most common type of NSCLC, are routinely tested for a genetic mutation in the epidermal growth factor receptor (EGFR), which is a normal part of the cell. This testing is conducted to determine if the patients might be candidates for the drug erlotinib (Tarceva®), which in appropriate patients may be more effective than conventional chemotherapy in extending lifespan. In the past, doctors had to rely on patient characteristics rather than a test to estimate the chance that the mutation would be present; for example, it is found mainly in people who are light smokers or who’ve never smoked.

Treatment for another genetic mutation, echinoderm microtubule associated protein like 4-anaplastic lymphoma kinase (EML4-ALK), is currently being investigated in a Phase III trial at Cleveland Clinic. A newly developed ALK inhibitor, crizotinib, has shown impressive results and may receive early FDA approval. Together, EGFR and EML4-ALK are found in about 60 percent of people with lung cancer who’ve never smoked.

Cleveland Clinic is participating in a comprehensive study to identify the entire spectrum of genomic changes in human cancer — The Cancer Genome Atlas — conducting the research on lung, bladder and brain cancers. “It will provide a road map of how we can treat lung cancer by identifying more mutations and pathways,” says Dr. Pennell.

New advances haven’t replaced standard chemotherapy and radiation, which continue to be used in the vast majority of patients, both as adjuncts to surgery and as primary treatments for nonsurgical patients, not the least of which is for palliative care.

Ultimately, the greatest hope for improving lung cancer prognosis is early detection. The National Lung Screening Trial has compared screening with chest X-rays with a new type of CT scan, spiral CT, in 50,000 people at high risk for lung cancer. Preliminary results indicate that people screened with spiral CT have a 20 percent lower risk of dying from lung cancer. Research is also under way to develop a lung cancer blood test. “It’s an incredibly exciting time to be working with lung cancer. If we can identify people at Stage 1, we could potentially cure them,” says Dr. Pennell.
Researchers at Cleveland Clinic’s Genomic Medicine Institute have revealed multiple genetic discoveries that may permit easier diagnosis and disease management for Cowden syndrome patients who are predisposed to breast and kidney cancer.

The research, which could allow for earlier discovery of cancerous tumors, was published in the Dec. 22, 2010, issue of the Journal of the American Medical Association.

Charis Eng, MD, PhD, Chair of the Genomic Medicine Institute at Cleveland Clinic, led the research. It revealed KILLIN as a novel predisposition gene for Cowden syndrome (CS) and Cowden-like syndrome (CLS) features in individuals without germline PTEN mutations, which also plays a role in cancer risk.

According to Dr. Eng, “CLS is at least 10 times more common than CS, but the genetic alteration responsible for CLS and its cancers has eluded the scientific community for more than a decade. From our research, we now know that KILLIN accounts for almost half of CLS, making diagnosis much more accurate.”

Mutations in the PTEN gene are the foundation of Cowden syndrome. PTEN is a tumor suppressor gene, helping to direct the growth and division of cells. Inherited mutations in the PTEN gene have been found in approximately 80 percent of Cowden syndrome patients. These mutations prevent the PTEN protein from effectively regulating cell survival and division, which can lead to the formation of tumors.

However, not all CS and CLS patients carry mutated PTEN. In fact, in CLS, less than 10 percent of patients have PTEN mutations, yet they develop cancers just like CS. In those patients without the PTEN mutation, 42 percent of Cowden syndrome patients and 33 percent of Cowden-like syndrome patients have low levels of KILLIN tumor suppressor gene.

“We know that 80 percent of Cowden patients carry the PTEN mutation, and half of the remaining 20 percent carry the inactive KILLIN gene,” Dr. Eng says. “What that means is that altogether PTEN and KILLIN should account for 90 percent of all cases of classic Cowden syndrome — a huge step forward in diagnosing an often overlooked disease. More important, KILLIN and PTEN should account for almost half of CLS individuals.”

This study shows that CS/CLS individuals with KILLIN-promoter methylation, which switches the KILLIN gene off, have a threefold greater risk of breast cancer, and a twofold greater risk of kidney cancer, compared to those with mutant PTEN.

Having the ability to identify these individuals will allow for more proactive management of their health, such as more careful screening and shared best practices among physicians who treat them.

Findings from this study indicate that individuals with classic Cowden syndrome should be offered PTEN testing first; those found not to have PTEN mutations should then be screened for the inactivated KILLIN gene and offered genetic counseling. Those patients who carry neither the PTEN mutation nor the inactive KILLIN gene should be offered additional/alternative genetic testing and importantly, encouraged to participate in research.
Deciphering TET2 Protein’s Fundamental Function

Researchers at Cleveland Clinic’s Taussig Cancer Institute have shown that measurement of 5-hydroxymethylcytosine (5-hmC) levels in myeloid malignancies may prove valuable as a diagnostic and prognostic tool and in tailoring therapies and assessing responses to anticancer drugs.

The team’s discovery of TET2 (Ten-Eleven Translocation 2) gene mutations and their function in methylcytosine hydroxylation is an entirely new line of scientific study into the function and pattern of hydroxymethylation and its likely alteration of epigenetic regulation. This work led to a publication in *Nature* (Ko et al. Impaired hydroxylation of 5-methylcytosine in myeloid cancers with mutant TET2. Nature 2010;468(7325):839-843.) and was presented as Abstract No. 1 at the plenary session of the 2010 American Society of Hematology annual meeting.

The collaborative study — led by investigators here and in the United Kingdom and at Harvard Medical School, the Dana-Farber Cancer Institute in Boston and the National Institutes of Health — assessed the frequency of TET2 mutations in more than 100 patient samples of the various myeloid malignancies, including myelodysplastic syndromes (MDSs), myeloproliferative neoplasms (MPNs), and both primary and secondary acute myeloid leukemias (AMLs and sAMLs, respectively). Results from the research showed that in general TET2 converts 5-methylcytosine (5-mC) to 5-hmC, which predicts that the bone marrow cells of patients with mutated TET2 would have lower levels of 5-hmC incorporated into their DNA.

“The function of this gene was a mystery until work from our laboratory, in collaboration with colleagues from Harvard Medical School, showed that TET2 is a dioxygenase domain-containing enzyme utilizing α-ketoglutarate to hydroxylate methylcytosine in genomic DNA. We have demonstrated that mutations in human TET2 encountered in leukemia impair this important function, and as a result the content of hydroxymethylcytosine in the genome of cancer cells affected by these mutations is decreased,” says senior study author Jaroslaw P. Maciejewski, MD, PhD, FACP, Chairman of the Department of Translational Hematology and Oncology Research at the Taussig Cancer Institute.

The level of 5-hmC in DNA was identified through the development of an immunoblot.
assay to detect 5-hmC in genomic DNA, followed by a more sensitive test that indirectly measured 5-hmC through the accumulation of 5-methylenesulfonate (CMS) after treating DNA with bisulfite. The results support the finding that the TET2 gene alters methylated cytosines in the DNA by showing that TET2 gene alters methylated cytosines in the DNA, the experimental results demonstrate TET2 mutation led to lower levels of 5-hmC in both the bone marrow cells of patients with various myeloid malignances, as well as in genetically engineered mouse cells. Additionally, experimentally decreased TET2 levels result in lower hydroxymethylcytosine levels and perturbed maturation of stem cells. These results suggest that 5-hmC levels might constitute a functionally more significant classification of myeloid cancers than TET2 mutational status alone.

“Our study has led to the realization that there are not only four or five building blocks of DNA, but six, with one of them being hydroxymethylcytosine.”

Jaroslaw P. Maciejewski, MD, PhD, FACP

“TET2 is one of the first of the mutated genes found to be involved in epigenetic regulation and thereby establishes a link between epigenetic and genomic instability. A decrease in methylcytosine hydroxylation is a ubiquitous phenomenon that needs to be explored should the pathogenesis of certain malignant conditions be clarified. This study has instigated an entirely new line of investigations, which brings an incredible level of innovation and contributes to acceleration of the progress in this field.”
Cancer Answer Line 866.223.8100

At the 47th Annual American Society of Clinical Oncology (ASCO) meeting, researchers at Cleveland Clinic’s Taussig Cancer Institute reported that cancer progression in patients with previously treated advanced renal cell carcinoma was delayed by an average of two months when treated with axitinib versus sorafenib.

In a global, randomized, Phase III trial of axitinib vs. sorafenib as second-line therapy for mRCC, axitinib was superior to sorafenib in the primary endpoint of median progression-free survival (PFS). Axitinib was also superior when considering patient-reported quality of life measures.

This Phase III trial, also called AXIS 1032, was an international study involving 723 patients with clear-cell advanced kidney cancer who had disease progression on one prior standard regimen (cytokines, sunitinib, bevacizumab or temsirolimus). The study population was reflective of a general kidney cancer population. Patients were randomized to receive axitinib 5 mg twice daily or sorafenib 400 mg twice daily. The Functional Assessment of Therapy-Kidney Cancer Symptom Index [FKSI-15] patient questionnaires and its disease-related symptoms subscale [FKSI-DRS] were administered at several points during the study.

The results showed a median PFS of 6.7 months with axitinib compared to 4.7 months for sorafenib, with benefit maintained in all patient subgroups. The composite time to deterioration endpoint (which included deterioration in quality-of-lifescores) showed a 25 percent risk reduction for axitinib vs. sorafenib. Complete or partial response to treatment more than doubled in patients treated with axitinib compared to sorafenib (19 percent vs. 9 percent). Axitinib also proved to be generally well-tolerated among study participants, with a lower rate of discontinuation due to adverse events (3.9 percent vs. 8.2 percent).

Importantly, this was the first trial to compare targeted therapies against each other in kidney cancer patients. All prior Phase III studies of targeted drugs compared their effectiveness against either placebo or cytokines. Given that axitinib is biochemically more potent against the VEGF receptor, this trial suggests that biochemical potency translates into clinical efficacy in this setting.

“Before this study, we had limited proven options for previously treated patients. Now, we can better understand how to build an effective sequence of treatments for patients with relapsed or refractory kidney cancer,” says Cleveland Clinic oncologist Brian Rini, MD, the principal investigator on the AXIS 1032 international trial.

A Phase III trial front-line therapies is under way, axitinib vs. sorafenib with results expected in the next one to two years. “We expect axitinib to be much more active as a first-line therapy since it has shown such good results as a second-line therapy,” Dr. Rini says. There are many remaining questions about the optimal use of targeted therapy in advanced kidney cancer, but these Phase III results are an important step forward.
Watchful Waiting vs. Active Surveillance: A More Obvious Answer?

In a new study designed to use the study of the human genome to eliminate unnecessary cancer treatments, Eric Klein, MD, chairman of the Glickman Urological and Kidney Institute and his colleagues analyzed prostate tissue samples to determine a way to gauge the likelihood of cancer recurrence.

The team studied tissue sampled from more than 440 prostate tumors that had been removed from men treated at Cleveland Clinic from 1987 to 2004. In those surgically removed specimens, the researchers discovered a set of nearly 300 genes that accurately predicts whether cancer will recur after surgery.

Those genes, says Dr. Klein, provided a wealth of information beyond standard measures, such as Gleason scores or PSA levels.

“The biggest challenge in treating newly diagnosed prostate cancer,” Dr. Klein says, “is deciding what to do for men with low-grade tumors found on biopsy. Many, if not most, of these tumors do not behave aggressively and can be safely watched. At present we do not have good ways of distinguishing between tumors that need treatment and those that don’t.”

“Currently, 90 percent of men diagnosed with low-risk cancer select the most radical options of radiation therapy or removal of the prostate,” he says.

Each year, more than 200,000 patients are diagnosed with prostate cancer.

“If physicians had better tools for more accurately determining whether tumors need treatment,” Dr. Klein says, “many men could avoid unnecessary treatment that has negative side effects.”

As Dr. Klein reported at the recent ASCO conference, the research team used a quantitative RT-PCR analysis of the RNA from tumor specimens to discover 295 genes that are strongly associated with cancer recurrence after radical prostatectomy. The team is currently validating these results on prostate biopsy specimens. If the results are replicated, a test to help men choose surveillance rather than immediate treatment could be developed.

Dr. Klein presented an additional study utilizing a separate analysis of RNA from those same specimens on the aggressiveness of prostate cancer after RP. That review found no association of expression of TMPRSS2-ERG fusions or ERG expression on the recurrent cancer. Both papers can be viewed at the ASCO proceedings website at asco.org.

“The biggest challenge in treating newly diagnosed prostate cancer is deciding what to do for men with low-grade tumors found on biopsy.”

Eric Klein, MD
Intraoperative radiation therapy (IORT) is a technique used to deliver a high dose of radiation to tumor sites exposed during surgery. Since the radiation is delivered directly to the tumor site, IORT spares normal surrounding tissue and may have fewer side effects than standard external beam radiation therapy (EBRT).

As IORT technology has evolved and become more flexible and convenient, its use has expanded in recent years. IORT typically requires resection of the tumor prior to radiation. Intraoperative radiation therapy is used to treat select types of retroperitoneal, intra-abdominal, breast, pancreatic, rectal, gynecologic and brain cancers and is typically indicated for patients with tumors in close proximity to vital healthy tissues. In some cases, IORT may also make radiation therapy available to patients who live far from major medical centers and can’t undergo weeks of conventional EBRT.

At Cleveland Clinic, IORT is most commonly used to treat patients with retroperitoneal sarcomas. Retroperitoneal sarcomas are frequently located close to vital organs, such as the kidney, small bowel and liver. As such, these patients are good candidates for IORT since standard EBRT doses can, in some circumstances, locally damage these nearby healthy tissues. During IORT treatment, the vital surrounding organs are moved away from the radiation field or shielded and thereby protected from radiation exposure.

Intraoperative radiation therapy may also offer an advantage when combined with surgical resection of locally advanced malignancies that are invading tissue where the surgeon is unlikely to get a wide margin of resection, such as in patients with locally advanced colon cancer or rectal cancer invading the presacral space. IORT also offers advantages to patients with cancers that have recurred within a previously radiated field, as it allows for precise retreatment of tumors even if the surrounding normal tissues have already received maximum radiation doses.

Patients with tumors that may benefit from IORT are identified by surgeons during the preoperative evaluation. Patients should discuss the risks and benefits of IORT treatment in detail with the surgeon and radiation oncologist prior to surgery. Planning ahead is critical, as IORT may require the availability of specialized equipment or surgical suites. Patients and radiation oncologists should also discuss other forms of radiation therapy that may be beneficial. Finally, including patient caregivers in the consultation with the surgeon and radiation oncologist is helpful. The final decision to use IORT may be made during surgery, and the surgeon and radiation oncologist will inform and discuss this with waiting caregivers.

Several factors, including each patient’s circumstance and the technology and expertise available, impact the use and method of IORT employed by the surgeon and radiation oncologist. In some cases, the surgeon is able to remove the tumor with clean margins and IORT is not needed. For some patients, the tumor is surgically removed and IORT is used to treat the surface of the surgical cavity during the surgical procedure. Two IORT devices — IntraBeam and Mobetron — deliver radiation nearly instantly during surgery and are used for single fraction treatments. The IntraBeam emits low-energy, high-dose X-rays up to 50 kV, which penetrate only a few centimeters of tissue. Since the treatment device is mobile and does not require additional shielding, it can be used in a range of operating rooms; however, its maximal field size is 5 cm, limiting its use to a small spherical radiation volume. The Mobetron, which will be introduced at Cleveland Clinic this year, is housed in a shielded OR. With an energy range of 4 MeV.
to 12 MeV and a field size of 3 cm to 10 cm, the Mabtron can be used to treat the spherical radiation volume of most tumors.

Another option for delivery of IORT involves the use of an intraoperative IORT applicator, such as the HAM applicator. The HAM applicator is a 22-cm-long applicator that is placed in the patient’s surgical cavity at the time of surgery. It be tailored to many shapes and sizes to provide customizable 3D radiation coverage of an operative bed. The applicator delivers high-intensity energy radiation and must be used in a well-shielded OR. If no shielded OR is available, the patient can be transported after surgery to the radiation oncology department for treatment planning and radiation delivery. The HAM applicator is used in cases that require a larger applicator and greater flexibility of coverage, such as patients with cancers in the abdominal wall, retroperitoneum or lower pelvis. The applicator can be used for single or multiple fraction treatments and is removed at a later date.

Research on treatment outcomes using modern IORT is limited but growing. Because IORT allows for a higher radiation dose due to normal tissue shielding, it is often correlated with better control rates. Immediate treatment with radiation after surgery may also prevent the repopulation of tumor cells. Targeted intraoperative radiotherapy (TARGIT-A) is a multicenter clinical trial comparing single-dose IORT using IntraBeam with a standard three-to-six-week course of EBRT in women with early-stage breast cancer.

Cleveland Clinic has been collecting IORT patient data, particularly for patients with colorectal cancer and retroperitoneal sarcomas. As more data becomes available, IORT has the potential to become a more commonly used modality for providing radiation therapy, saving time and money for both patients and healthcare providers.
Case Study:
Cleveland Clinic Surgeon Performs First Robotic Partial Removal of Transplanted Kidney Tumor

Jihad Kaouk, MD, Director of the Center for Robotic and Laparoscopic Surgery at the Glickman Urological & Kidney Institute, performed the first robotic partial nephrectomy on a patient with a 7 cm tumor in her transplanted kidney.

History: A routine ultrasound on a 35-year-old woman revealed a large mass on the transplanted kidney she had received from her father 24 years ago. Patient presented to Cleveland Clinic after consults with two other centers. Both centers had offered total nephrectomy with lifelong dialysis.

Cleveland Clinic consult: Additional testing was done to determine the proximity of the kidney tumor to the renal vessels. Examination of the CT scan led to a decision to remove only the cancerous part of the kidney. Dr. Kaouk’s experience in more than 2,000 laparoscopic and robotic urologic surgeries was critical in such a decision.

Surgery: A robotic partial nephrectomy was performed successfully. The modified robotic approach allowed for more controlled surgery to minimize bleeding and the removal of the tumor alone with reasonable warm ischemia time. Patient was kept in the hospital two extra days for observation due to the complexity of the procedure. One week postop the patient was doing fine and had no pain. Surgical margins were negative, and serum creatinine returned to baseline two weeks after surgery.

Outcome: Removing only the cancerous part of the kidney spared the patient from losing the transplanted kidney and undergoing long-term dialysis treatment.

For more information, contact Dr. Kaouk at 216.444.2976.
Shrinking Tumors to Allow for Partial Nephrectomy

Therapy targeting the vascular endothelial growth factor (VEGF) pathway has revolutionized the management of advanced renal cell carcinoma (RCC), in part due to robust effects in shrinking RCC tumors. Cleveland Clinic recently completed a Phase II trial of neoadjuvant sunitinib, a VEGF-receptor (VEGF-R) inhibitor in patients with primary RCC tumors not amenable to resection. Neoadjuvant sunitinib led to downsizing/downstaging of primary tumors and permitted resection in more than 40 percent of initially unresectable primary RCC tumors. The most clinically relevant effect was in patients with an anatomic or functionally solitary kidney in which partial nephrectomy was not technically possible due to tumor anatomy, and radical nephrectomy was not desirable because of the need for subsequent dialysis.

Based on these preliminary data, Cleveland Clinic has designed a prospective Phase II trial of a similar VEGF-R inhibitor, pazopanib, as neoadjuvant therapy in localized RCC patients to enable partial nephrectomy. Patients with a primary RCC tumor in whom a partial nephrectomy is desired, but not currently possible due to anatomic considerations, will receive pazopanib in an attempt to downsize tumors and enable partial nephrectomy. Thirty patients with histologically proven clear-cell RCC who meet strict eligibility criteria will be enrolled on a prospective Phase II trial, giving 90 percent power to identify a conversion to partial nephrectomy rate of 40 percent. Pazopanib 800 mg daily will be given for two eight-week cycles, with amenability to partial nephrectomy assessed by CT scans at the end of week eight and week 16.
Outcomes Reporting
Helps Advance Transparency in Healthcare

Public reporting of outcomes data has been making headlines recently as more and more cancer centers announce the debut of their first editions. The Taussig Cancer Institute is one of 16 institutes at Cleveland Clinic that has reported its outcomes for physicians and patients since 2008 as part of the organization's commitment to transparency.

“Cleveland Clinic firmly believes that our patients and peers deserve transparency — how many cases we see, how our patients fare with their treatments, and how these numbers compare to national averages,” says Brian J. Bolwell, MD, Chairman of Taussig Cancer Institute. “In 2008, when we started publishing our annual outcomes booklets, other organizations were surprised that we were willing to take this on. Now, we’re proud to see many others joining in.”

A member of Cleveland Clinic’s Board of Governors, Dr. Bolwell says the organization strives to make data easily accessible to patients as part of a belief that consistent dialogue with patients results in fully informed patients.

“Informed patients are empowered patients who can take a more proactive approach to their own healthcare,” he says.

The vast data collection involved in releasing outcomes books every year allows the organization to uncover strengths that are then cultivated, and also weaknesses that warrant increased attention.

Among cancer centers, Dr. Bolwell says the pressure to publish outcomes is continuing to grow. As consumers become more savvy, they are asking important questions about the quality of care that is being delivered by their treatment teams.

Taussig Cancer Institute’s outcomes book includes data from patients receiving initial cancer treatment at Cleveland Clinic’s main campus as well as its regional oncology practices. All told, the most recent outcomes book comprises data for more than 120,000 patients.

“We maintain an extensive tumor registry, which is the source for much of the data we publish,” Dr. Bolwell says. Besides data on overall survival by disease, the report provides results on patients receiving certain treatments, such as radiation therapy. For example, it provides five- and 10-year survival rates for prostate cancer when using external beam radiotherapy, low-dose-rate brachytherapy or radical prostatectomy.

Dr. Bolwell cautions that current outcomes reporting methods are not without limitations. Taussig Cancer Institute compares statistics with the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) data. He says SEER is good for demographics but less valuable for advanced profiling of diseases, such as molecular typing. Ensuring “apples-to-apples” comparisons that will truly benefit patients and physicians requires that all cancer centers report their outcomes in relation to the same national dataset, adds Dr. Bolwell.

Even with its current limitations, outcomes reporting is certain to become more important as healthcare reimbursement moves toward a “pay for performance” model.

“We support the transformation to a system that ultimately compensates providers according to the results they achieve rather than the amount of service they deliver,” says Dr. Bolwell. “Once a link has been made between compensation and results, provider accountability will grow. Ultimately, it’s the patients who will benefit.”

Taussig Cancer Institute’s Outcomes booklets are available at clevelandclinic.org/outcomesonline.
Each provides a dashboard scorecard on specific metrics for each institute, and those scorecards are reviewed quarterly with the goal of continuous improvement.
Selected Publications


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Taussig Cancer Institute physicians were recently awarded “top” rankings from two independent national sources.

Aplastic Anemia
Jaroslaw Maciejewski, MD, PhD
Castle Connolly “Top Doctors”
Cleveland Magazine Best Doctors
Mikkael Sekeres, MD, MS
Cleveland Magazine Best Doctors
Benign Hematology
Alan Lichtin, MD
Cleveland Magazine Best Doctors
Keith McCrae, MD
Cleveland Magazine Best Doctors
Roy Silverstein, MD
Cleveland Magazine Best Doctors

Bladder Cancer
Robert Dreicer, MD
Castle Connolly “Top Doctors”
Cleveland Magazine Best Doctors
Jorge Garcia, MD
Cleveland Magazine Best Doctors
Timothy Gilligan, MD
Cleveland Magazine Best Doctors
Brian Rini, MD
Cleveland Magazine Best Doctors

Bone Marrow Transplant
Brian J. Bolwell, MD
Castle Connolly “Top Doctors”
Cleveland Magazine Best Doctors
Edward Copelan, MD
Castle Connolly “Top Doctors”
Matt Kalaycio, MD
Castle Connolly “Top Doctors”
Brad Pohlman, MD
Castle Connolly “Top Doctors”
Brian Rini, MD
Cleveland Magazine Best Doctors

Brain Tumor — Adult & Pediatric
David Peerboom, MD
Castle Connolly “Top Doctors”
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