

# The “Total Cancer Care” Concept: Linking Technology and Health Care

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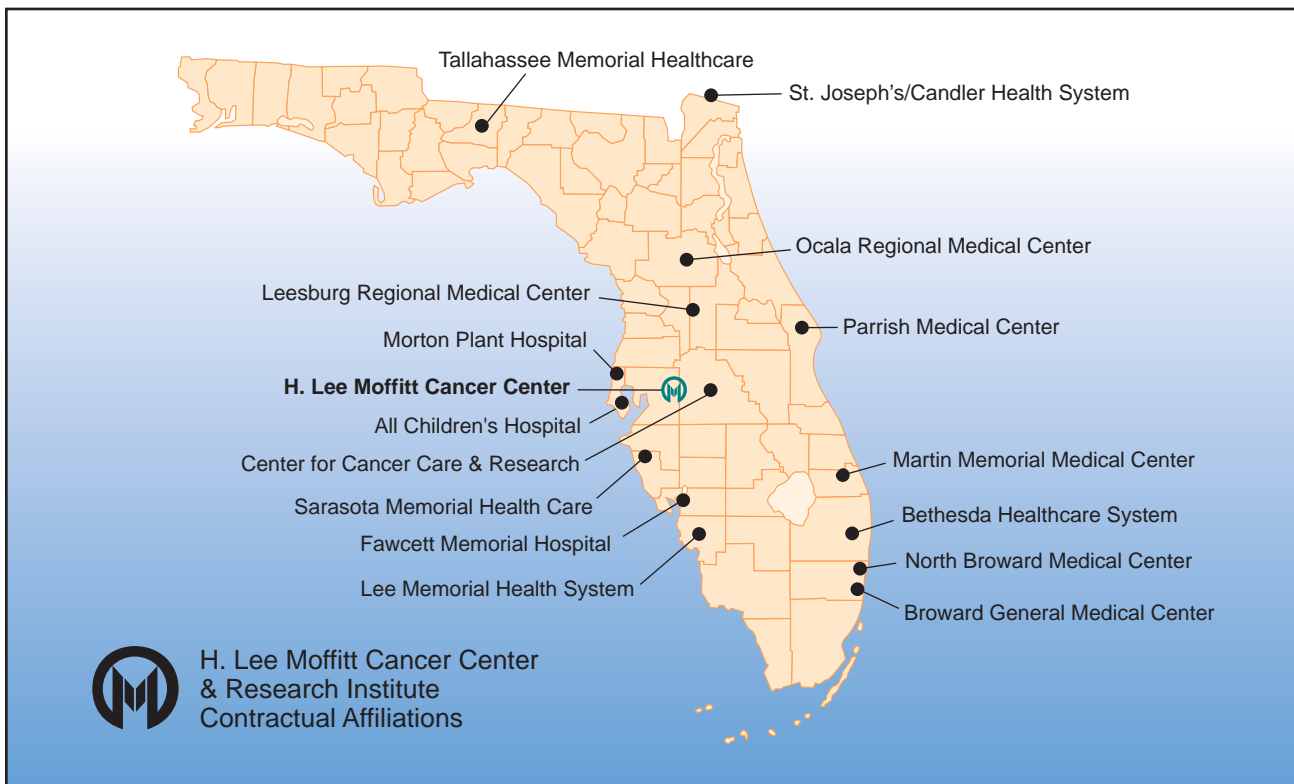
## Introduction

Providing “best care” to patients is the goal of every cancer institute. New knowledge gleaned over the past decades about screening, cancer drugs, tumor imaging, genetics, cancer risk, lifestyle and nutrition allows us the ability to provide a level of care unimagined by researchers only a few generations ago. The term “best care,” however, covers a broad spectrum of issues in the cancer experience. Several parts of the whole picture need to be in place to ensure delivery of optimal care: a focus on the disease, an understanding of the patient, a high level of clinical expertise, access to clinical trials, the support of interdisciplinary teams, and the means to bring state-of-the-art equipment and the benefits of scientific findings to the bedside — all of which hinge on patient access to the right place at the right time.

With Florida ranking second nationwide in both cancer incidence and mortality, accessibility to quality care is integral to the state’s 17 million residents. In 2005, approximately 95,000 residents will be diagnosed with cancer and 40,000 will die of it.<sup>1</sup> To address the needs of this large and expanding population, the H. Lee Moffitt Cancer Center & Research Institute in Tampa has initiated a new, broad-based cancer care delivery system — Total Cancer Care (TCC) — that will overcome barriers to cancer care and provide far-reaching access to the latest discoveries in lifesaving research.

## The Total Cancer Care Program

At the heart of the TCC initiative is an obligation and a legislative mandate to serve as a resource to Florida commu-



Current members of the affiliate network. The affiliate would send a sample of a patient’s tumor to Moffitt Cancer Center. A molecular profile of the tumor would enable researchers to identify the tumor type as well as molecular subtypes. That information would help predict diagnosis, prognosis, and successful therapy, and it would be entered into a database to help determine the success of the therapy by lifelong follow-up of patients.

nities in both cancer prevention and treatment. To fulfill this obligation and mandate, the TCC program will combine information technology, science, and clinical treatment via a three-fold initiative that focuses on (1) establishing a network of affiliates to streamline patient access to best care, (2) improving patient participation in clinical trials, and (3) developing a database as a source for the collection, storage, integration, and management of clinical data and scientific findings. This approach will integrate research at every step in the continuum of patient care and will allow physicians and hospitals access to such Moffitt programs as molecular tumor profiling.

### Accessing Best Care

Improving access to expert care for a patient who is hundreds of miles from a comprehensive cancer center will be addressed by developing a statewide cooperative network whereby prevention and treatment options are brought to the residents through an affiliate provider closest to the patient's home. With more than 80% of all cancer cases being treated in the community setting,<sup>2</sup> our institute has formed partnerships with 15 medical center affiliates (Figure) and more than 280 community oncologists throughout Florida. Thus, physicians and healthcare professionals throughout the state will have access to Moffitt programs without their patients' having to leave home. Patients also benefit from access to expert cancer care, advances in technology, and the newest cancer treatments, as well as participation in clinical trials.

### Enrolling in Clinical Trials

A basic component of TCC is a comprehensive, ongoing clinical trial that focuses on improved health outcomes and patient satisfaction. The affiliate network will also expand the availability of new interventions because more patients can participate in such trials without leaving their communities.

As an example, a clinical trial designed to develop a predictive marker for response to chemotherapy in patients with liver metastasis from colon cancer is now activated. Following biopsy, they are randomized to receive one of two different forms of systemic chemotherapy: XELOX/Avastin or XELIRI/Avastin. At the end of the trial the investigators will determine if genetic profiling by microarray analysis predicted the outcomes for the patients who responded to therapy. This trial is important because, in concert with the TCC concept, it is combining a scientific end point with a clinical trial and coordinating with healthcare providers at other treatment facilities in Florida. Trials such as this will soon be open to patients at affiliate sites.

### Turning Raw Data Into Useful Information

The third aspect of TCC involves gathering and testing of patient tissue samples at different times, storing the tissue samples, and then integrating and managing the clinical data and scientific findings.

We are working to create a repository of data collected from multiple sites, including our clinical programs, affiliate medical centers, and individual oncologists, and will integrate these data with laboratory, pathology, and radiology results on individual patients as well as findings from basic science experiments and clinical trials. Facts from public data sources, such as information collected by the National Library of Medicine, also will be integrated into the TCC system. Over the next decade, scientists can assimilate extensive data merged from our clinical programs and the affiliate locations to determine treatment effectiveness. Scientists can develop evidence-based treatment guidelines for the community at large from databases housing information on all aspects of patient treatment and outcomes, including data from tissue and blood specimens. With the clinical characteristics of a newly diagnosed patient and the genetic profile of the tumor, we will be able to ascertain key elements from the database: the number of patients with a similar profile, the treatment they received, and the results of the treatment. Also, as new discoveries emerge, such as a better drug for patients with a particular genetic profile, we will be able to contact patients who have that same profile and thus improve their outcomes. Integration of genetic profiling of patient specimens will lead to personalized therapies. Overall, we will create a health information system that will allow development of evidence-based guidelines for improved cancer care, and we will be able to measure success through lifetime patient follow-up.

## Conclusions

Total Cancer Care is intended to streamline pathways to cancer care and follow the patient through screening, diagnosis, and treatment of cancer, incorporating translational research at each step along this continuum of care. Although this new standard of care applies to patients with cancer, the concept could apply to any disease. TCC will continue to evolve and expand over the next decade, elevating the quality of cancer care at the state level and beyond. The success of TCC depends on the ability to nurture scientific innovation, translate basic science into clinical practice applications, conduct clinical trials that establish scientific evidence, and disseminate information widely and rapidly.

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## References

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2. Kaluzny AD, Ricketts T, Warnecke R, et al. Evaluating organizational design to assure technology transfer: the case of the community clinical oncology program. *J Natl Cancer Inst*. 1989;81:1717-1725.