# Questions and Answers - Governor's Cancer Research and Treatment Proposal

**What will NCI designation for more cancer centers mean for the state of Florida?**

The designations will mean enhanced economic competitiveness for the state in industries among the largest and fastest growing in the global economy, particularly in the United States and other areas of the developed world.

**What are these industries and how does the NCI designation for Florida's Clinical and Translational Science Award (CTSA) centers enhance Florida's economic competitiveness?**

The primary industry is the health care industry, which includes goods and services to treat patients with preventive, curative, rehabilitative, and palliative care.[1] This industry was recognized in 2013 by the *Brookings Institution* as "the fastest growing industry in the U.S." over the past decade,[2] and in 2012 by the U.S. Bureau of Labor Statistics as "projected to gain the most jobs"[3] between 2010 and 2020. Employment growth in health care is largely attributable to an aging U.S. population — something which is more pronounced across the rest of the developed world,[4] yet even more pronounced in Florida.[5]

The health care industry is massive and complex, and therefore more specifically includes various subsectors and related industries, virtually all of which qualify in one way or another as belonging to the science, technology, engineering, and math (STEM) fields. These subsectors and related

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[1] "Preventive, curative, rehabilitative, and palliative care" all feature prominently in cancer treatment.

[2] <http://www.healthcare-informatics.com/news-item/brookings-healthcare-fastest-growing-industry-us>. According to *Brookings*: "The industry's 22.7 percent employment growth rate over that period significantly outstripped the 2.1 percent employment growth rate in all other industries." <http://www.brookings.edu/research/reports/2013/07/01-healthcare-metro-monitor>.

[3] <http://www.bls.gov/news.release/ecopro.nr0.htm>. See also the following articles: <http://www.reuters.com/article/2012/02/01/us-usa-economy-jobs-outlook-idUSTRE8102FT20120201> and <http://www.bloomberg.com/news/2012-02-01/employment-rising-as-health-care-eclipses-factories-with-aging-americans.html>.

[4] According to data from the Organization for Economic Co-operation and Development: "In 2010, 13% of the U.S. population was over the age of 65 (OECD average 15%) and 3.7% of the population was over the age of 80 (OECD average 4%). By 2050, 20% of the U.S. population will be over the age of 65 (OECD average 25%) and 7.4% of the population will be over the age of 80 (OECD average 10%) (OECD Historical Population Data and Projections Database, 2013)." See page 2 of the following article online: <http://www.oecd.org/els/health-systems/UnitedStates-OECD-EC-Good-Time-in-Old-Age.pdf>.

[5] According to the U.S. Census Bureau, Florida had the largest percentage of its residents aged 65 or older among all U.S. states at 17.3 percent in 2010. See page 9 of the following report online: <http://www.census.gov/prod/cen2010/briefs/c2010br-09.pdf>. The Census also has projected Florida to have the largest percentage of its residents aged 65 and older among all U.S. states in 2030 at 27.1 percent. See Table 3 at the following site: <http://www.census.gov/population/projections/data/state/projectionsagesex.html>. According to the Florida Legislature: "In 2010, 17.3 percent of Florida's population was aged 65 and older. This age group is forecast to represent 24.1 percent of Florida's population in 2030. Over the next two decades, Florida's older population (age 60 and older) will account for most of Florida's population growth, representing 55.2 percent of the gains."

industries are too diverse and numerous to list entirely, even while focusing on cancer. In general, they include not just direct care practitioners and facilities, but also companies and other organizations engaged in researching, developing, and/or manufacturing therapies, medical equipment, supplies, and pharmaceuticals.

As to how NCI designation for Florida's two CTSA centers will enhance economic competitiveness, it means the state will triple its number of centers in one of the most prestigious, collaborative, and advanced networks in all of science and medicine. This means enhanced access for numerous Florida STEM professionals to a nationwide network conducting cutting edge research and care in cancer. Because the CTSA centers are affiliated with the state's most recognizable public and private universities, such designation unavoidably entails similar opportunity for many of Florida's brightest students, and future professionals, as well.

**Just how important is NCI designation to a cancer center being competitive in cancer research and care?**

Cancer remains so fatal and challenging to treat because we continue to learn how incredibly complex it can be. A single cancer patient, and even a single tumor, often possesses cancer cells that vary so drastically in their genetic expression and constantly shifting evolutionary stages that multiple therapies are required for treatment. Because every patient's cancer is different, the combination of therapies required for optimal treatment plausibly may be expected to vary with similar distinction on an individual basis.[6]

The magnitude of this challenge necessitates "the capability to integrate a diversity of research approaches to focus on the problem of cancer," in order to "play a vital role in advancing towards our goal in reducing morbidity and mortality from cancer,"[7] which is precisely what the National Cancer Institute recognizes NCI-designated cancer centers for. The NCI uses "cancer center" rather than "cancer research center" as its designation to emphasize:[8]

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[6] According to the Exploratorium museum in San Francisco: "Cancer isn't just a single condition; it's actually a complex collection of diseases that can arise in almost any tissue in the body . . . Each cancer has its own unique pattern of bad behavior determined by the tissue in which it was formed, the mutations the cells have adopted, and the chemistry in an individual's body. Because every cancer is unique, a treatment that works wonders for a leukemia patient, for example, might do little or nothing for a woman with breast cancer. Even patients who have the same kind of cancer will have different responses to the same therapy, because the way the cancer arises and plays out depends on unique cellular events and the patient's individual genome." Quote taken from Exploratorium's website online at:<http://www.exploratorium.edu/imaging-station/research/cancer/story_cancer1.php>. Exploratorium was founded by Manhattan Project experimental physicist Frank Oppenheimer, and in 2011 won the National Science Board's Public Service Award for unique contributions to increasing public understanding of science and engineering. See the following press release from the National Science Foundation: <http://www.nsf.gov/nsb/news/news_summ.jsp?cntn_id=119077&org=NSB&from=news>.

[7] http://cancercenters.cancer.gov/cancer_centers/index.html

[8] http://cancercenters.cancer.gov/about/our-history.html

> *. . . the close association within NCI-funded institutions of research and other critical components, such as clinical care, education, and outreach; indeed it is this intimate association that distinguishes these centers as a group from other "cancer centers," which, whatever their credentials as dispensers of medical care, lack the strong research base that will drive progress in the years ahead. Institutions lacking their own research base can quickly follow and adopt advances developed elsewhere, but they cannot lead, as can those centers that integrate research with service.*

The NCI designation not only recognizes excellence, but also:[9]

- ". . . opens the door to greater federal funding, information sharing, and resources";
- ". . . leads to increased interest and support from philanthropic sources, as well as the biotech and pharmaceutical industries";
- ". . . confers a seat at the table where the strategic plans and initiatives of NCI are formed, and allows the center to represent the needs of its local community in national dialogue ";
- Improves prospects for "recruiting highly qualified scientists and clinicians, who are also attracted to cutting-edge research and treatment programs"; and
- Creates "a fertile test bed for new ways to enhance patient care ."

The NCI summarizes its Cancer Centers Program in the following detail:[10]

> *The NCI-designated Cancer Centers are a major source of discovery of the nature of cancer and of the development of more effective approaches to cancer prevention, diagnosis, and therapy. They also deliver medical advances to patients and their families, educate health-care professionals and the public, and reach out to underserved populations. They are characterized by strong organizational capabilities, institutional commitment, and trans-disciplinary, cancer-focused science; experienced scientific and administrative leadership, and state-of-the-art cancer research and patient care facilities.*
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> *NCI-designated Cancer Centers are funded through the P30 Cancer Center Support Grant. These awards fund formal research programs that foster interactions between basic laboratory, clinical, and population scientists; access for investigators to shared services and technologies that are necessary to their research efforts; and other scientific infrastructure. Requests from eligible institutions are subjected to a competitive peer review process that evaluates and ranks applications according to their merit.*

When someone with a cancer diagnosis goes online to search for the best cancer treatment, there is a good chance he or she looks at *U.S. News & World Report's* rankings of the top 50 hospitals for

[9] http://www.cancer.gov/researchandfunding/extramural/cancercenters/about
[10] http://cancercenters.cancer.gov/about/index.html

cancer, since this is the very first result of a Google search for "best cancer treatment".[11] All of the top 25 on this list, and 46 out of the entire 50, are NCI-designated cancer centers.[12] Even with the excepting centers on this list, NCI designation appears to remain a crucial, if indirect, factor in regards to their competitiveness. As evidence of the positive economic spillover effects NCI-designated cancer centers can have on their surrounding communities, it is noteworthy that the four exceptions among these top 50 hospitals are all located in metro areas within large and diverse states where NCI-designated cancer centers already are a strong presence at both the local and state levels:

- The top exception is Cedars-Sinai Medical Center, which is located in the Los Angeles metro area and ranked #26 on the list. California has ten NCI-designated cancer centers in total, two of which (UCLA Medical Center at #11, and USC Norris Cancer Hospital at #48) are also located in the Los Angeles metro area. UC San Diego Medical Center, which is ranked #42, is also nearby in the San Diego metro area.

- The second exception is Hackensack University Medical Center, which is located in the New York metro area and ranked #35 on the list. New York has six NCI-designated cancer centers in total, three of which (Memorial Sloan-Kettering Cancer Center at #2, New York-Presbyterian University Hospital of Columbia and Cornell at #22, and NYU Langone Medical Center at #38) are also located in the New York metro area.

- The third exception is Houston Methodist Hospital, which is located in the Houston metro area and ranked #40 on the list. Texas has four NCI-designated cancer centers in total, including the #1 ranked University of Texas MD Anderson Cancer Center, which is also located in the Houston metro area.

- The fourth and final exception is Hahnemann University Hospital, which is located in the Philadelphia metro area and ranked #46 on the list. Pennsylvania has five NCI-designated cancer centers in total, three of which (Hospital of the University of Pennsylvania at #13, Thomas Jefferson University Hospital at #17, and Fox Chase Cancer Center at #30) are also located in the Philadelphia metro area.

An individual searching online for the best cancer treatment is also likely to peruse a number of articles from popular sources, starting with an article from *WebMD* that is the second result of a Google search for "best cancer treatment":

[11] https://www.google.com/#q=best+cancer+treatment

[12] *U.S. News & World Report's* rankings of the top hospitals for cancer are available online at: <http://health.usnews.com/best-hospitals/rankings/cancer>. To see whether a hospital has NCI designation, click on the hospital's "cancer scorecard".

- *WebMD*: "If there is a comprehensive cancer center designated by the National Cancer Institute, near you, it's a good idea to seek care or at least an opinion from one of these top-notch centers . . . Where you get your initial cancer care may matter most . . . The best cancer care may require the best operations from the start, the best decisions about useful of different treatment modalities, and exposure to trials and new therapies . . . It can certainly be worthwhile to make a trip to a major cancer center to get a second opinion . . . If your cancer is rare or more advanced, it may be more important to travel in order to find a hospital or center with expertise in the latest treatments for your particular cancer . . ."[13]

- *Reuters*: "Patients can start by checking to see if a hospital has a designation from the National Cancer Institutes (NCI) . . . NCI-designated centers are dedicated to research and often develop more effective approaches to prevent and diagnose cancer . . ."[14]

- *U.S. News & World Report*: "Newton discovered what every cancer patient should know: that the country's major cancer centers are a rich resource even for people who can't or don't want to receive all of their care there. That's particularly true of the cancer centers specially recognized by the National Cancer Institute and funded by taxpayers to support research into the disease."[15]

- *Sarasota Magazine*: "Depending on the level of care cancer patients require, a short drive to a hometown hospital or a trek across I-75 to Moffitt Cancer Center in Tampa may be the most beneficial option. Moffitt is about an hour-long journey for the average Sarasota resident, and the facility is the only Florida-based cancer center that has received a National Cancer Institute designation as a Comprehensive Cancer Center. Moffitt also offers Total Cancer Care, which is a trademarked, customized course of treatment based on a patient's one-of-a-kind genetic fingerprint. Because of these standout features, Moffitt is often a necessary trip."[16]

During the summer of 2013, the Markey Cancer Center at the University of Kentucky became the latest cancer center that "has won a prestigious National Cancer Institute designation. Markey is now one of 68 medical centers that have special access to federal research funding, clinical trials

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[13] Shaw, Gina. "How to Find the Best Cancer Treatment." *WebMd*. Available online at: <http://www.webmd.com/cancer/features/how-to-find-the-best-cancer-treatment>.
[14] Sherman, Debra. "Finding the best hospitals to treat your cancer." *Reuters*. September 13, 2013. Available online at: <http://blogs.reuters.com/cancer-in-context/2013/09/13/finding-the-best-hospitals-to-treat-your-cancer/>.
[15] Hobson, Katherine. "How to Get the Very Best Cancer Care." *U.S. News & World Report*. November 30, 2009. Available online at: <http://health.usnews.com/health-news/managing-your-healthcare/cancer/articles/2009/11/30/how-to-get-the-very-best-cancer-care>.
[16] Weingarten, Abby. "Cancer News and Breakthroughs from Southwest Florida Physicians." *Sarasota Magazine*. October 22, 2013. Available online at: <http://sarasotamagazine.com/blog/2013/10/22/cancer-news-and-breakthroughs-from-southwest-florida-physicians/>.

and new treatments."[17] In announcing and celebrating the designation, politicians, scientists, medical professionals, and university officials noted that the designation not only is "the ultimate recognition for academic cancer centers" and "will make it easier to attract people and funding," but also "indicates a level of research and patient care that anyone who is seeking cancer care would take note of" and "could generate more high-tech jobs in the state as drug or device companies spin off as a result of UK's cancer research."[18]

> "*It brings to the forefront that we're doing outstanding work here . . . It brings UK into the limelight nationally," which will in turn have a "snowball effect" on research and treatment . . . "The new designation means the odds are improving for those in Eastern and Southern Kentucky who have cancer . . . You're now part of the big leagues."*[19]

**So, with this proposal, Florida will have two more centers included in the NCI network, and provide further encouragement for existing NCI-designated cancer centers to expand in terms of patient caseload, peer-review research conducted, and educational programs offered. Membership in the NCI network and being competitive in cancer research and care obviously have value, but so do many other things. Why should Florida have this focus on cancer?**

As the leading cause of death in the state, cancer is arguably the greatest public health challenge facing Florida.[20] Since the ultimate goal of biomedical research is to improve the health of the population, state taxpayer funding for biomedical research should be tied to the health needs of Florida's citizens. This public health challenge simultaneously presents substantial economic opportunity to the state for the foreseeable future, due to Florida's unique population traits, cancer treatment's continual heavy reliance on the latest cutting edge research, and increasing incidence of cancer both nationwide[21] and worldwide in an increasingly global economy.

The high prevalence of cancer in Florida, and with it the strong demand for quality cancer care, is primarily attributable to the state's large population of elderly residents. "Cancer is an age-related disease—sometimes exponentially so. The risk of breast cancer, for instance, is about 1 in 400 for a

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[17] Blackford, Linda B. "UK HealthCare snags prestigious National Cancer Institute designation." *Lexington Herald-Leader*. July 12, 2013. Available online at: <http://www.kentucky.com/2013/07/12/2712314/uk-healthcare-snags-prestigious.html>.

[18] *Ibid.*

[19] *Ibid.*

[20] Surgeon General Dr. John Armstrong noted that "the biosciences hold much promise to improve the quality of life here in Florida, where cancer is the leading cause of death, heart disease claims the lives of almost 42,000 Floridians every year, and diabetes afflicts one in ten adults" at the annual BioFlorida conference in Tampa this past September. See: Manning, Margie. "BioFlorida leaders cite life science gains." *Tampa Bay Business Journal*. September 16, 2013. Available online at: <http://www.bizjournals.com/tampabay/news/2013/09/16/bioflorida-leaders-cite-life-science.html>.

[21] Cancer became the leading cause of death for Americans under the age of 85 years old as far back as 1999. See: Brody, Jane E. "How Cancer Rose to the Top of the Charts." *The New York Times*. February 1, 2005. Available online at: <http://www.nytimes.com/2005/02/01/health/01brod.html?_r=0>.

thirty-year-old woman and increases to 1 in 9 for a seventy-year-old."[22] As is noted above, Florida has the largest percentage of its residents aged 65 and older among all U.S. states, and is projected to continue to as the nation's population ages in the coming decades. Although Florida currently is the fourth most populous state, it ranks second in the nation for overall cancer incidence and mortality with more than 117,000 state residents diagnosed with cancer each year.[23] As the state will overtake New York within the next few years to become the nation's third most populous state, it is also projected to rank first in overall cancer incidence and mortality around the same time.[24]

"Cancer treatment is evolving at a rapid pace,"[25] yet cancer remains very often fatal.[26] Cancer also can be nearly as emotionally draining for family and friends as it is physically and mentally draining for the patients.[27] The sense of immediacy caused by cancer within individual lives, coupled with an ever-evolving awareness of how truly complex it is and how challenging it can be to understand and treat, sustains a need for patients, and corresponding market opportunities, to continuously push the understandings of science and the limits of medicine. These dynamics result in a perpetual motivation to innovate[28] in order to stay economically competitive, and it is NCI centers that consistently push the limits of existing cancer treatment through world-class scientific research. Because the continuous and tremendous drive to innovate in cancer treatment is directly related to

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[22] Quote taken from page 44 of *The Emperor of All Maladies: A Biography of Cancer*, by Siddhartha Mukherjee (Scribner), and winner of the Pulitzer Prize in 2011 for General Nonfiction. See: http://www.pulitzer.org/works/2011-General-Nonfiction

[23] This fact has been relayed by Moffitt, Shands, and Sylvester numerous times to OPB HHS.

[24] H. Lee Moffitt (the person) relayed this fact to OPB HHS in a meeting on November 4, 2013.

[25] Shaw, Gina. "How to Find the Best Cancer Treatment." *WebMd*. Available online at: <http://www.webmd.com/cancer/features/how-to-find-the-best-cancer-treatment>. The AACR Cancer Progress Report 2013 from the American Association for Cancer Research (AACR) notes that: "More people survive their cancers today than in the past." While 1 in 69 Americans was a cancer survivor in 1969, 1 in 23 are cancer survivors today. According to AACR, the "progress has been spurred by many decades of investments in basic, translational, and clinical research . . . of particular importance are the investments in basic research supported by public funds through the National Institutes of Health (NIH) and NCI." See pages 2 through 5 of the 2013 progress report, which is available online at: <http://cancerprogressreport.org/2013/Documents/2013_AACR_CPR_FINAL.pdf>.

[26] AACR also cautions: "Despite significant improvements in survival from many cancers, it is estimated that 580,350 Americans will die from some form of cancer in 2013. Cancer will account for nearly one in four deaths, making it the second most common cause of disease-related death in the United States. Unless more effective preventive interventions, early detection tools, and treatments can be developed, it will not be long before cancer is the leading cause of death for all Americans, as it already is among the U.S. Hispanic population." See page 3 of the report: <http://cancerprogressreport.org/2013/Documents/2013_AACR_CPR_FINAL.pdf>.

[27] "Emotional support is critically important for anyone going through a trauma, and a cancer diagnosis is a trauma." *Ibid.*

[28] A new technology for detecting cancer cells in blood took the top prize at The Wall Street Journal's Asian Innovation Awards in November 2012. "One of the prominent themes among this year's applicants was how to find solutions to health-care-related problems, often linked to social issues such as population aging . . ." See: Osawa, Juro. "Cancer-Detection Device Wins Top Asian Innovation Award." *The Wall Street Journal*. November 20, 2012. Available online at: <http://online.wsj.com/news/articles/SB10001424127887323353204578130062734161502> and also <http://www.nus.edu.sg/enterprise/ETP_Newshub/public_mediacoverage/2012/Nov12/20121120%20-%20The%20Tech%20Savvy%20Patient%20-%20%20Clearbridge%20Biomedics%20-%20ETP%20Incubatee%20Companies.pdf>.

how complex and challenging it is to treat cancer, such innovation requires deep understandings of the most challenging level[29] in all of science, technology, engineering, and math,[30] requiring extensive collaboration involving teams of individuals who are leaders in these fields. This is precisely why NCI centers, with their membership to such an elite network with such privileged access, are the ones constantly pushing the limits of existing cancer treatment, and why NCI designation for more centers is so essential to Florida being competitive in cancer care.

At the same time, the Florida population's combination of size, diversity, and age (often cited to describe the state as a microcosm of what the U.S. will look like in the near future) present unique potential to contribute to the cutting edge research and care pursued by the NCI network, which looks to its designated centers "to have an impact on national research and treatment priorities"[31] through experiences with their patients. Not only does the state's large number of cancer incidents offer opportunity to conduct more scientific research, but the diversity and age of the population offer opportunity to conduct more properly representative,[32] generalizable, and useful research. This potential means NCI membership for cancer centers in Florida enhances the state's competitiveness beyond what is common in other states.[33]

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[29] "Cancer, we now know, is a disease caused by the uncontrolled growth of a single cell. This growth is unleashed by mutations--changes in DNA . . . The secret to battling cancer, then, is to find the means to prevent these mutations from occurring in susceptible cells, or to find means to eliminate the mutated cells without compromising normal growth. The conciseness of that statement belies the enormity of the task. Malignant growth and normal growth are so genetically intertwined that unbraiding the two might be one of the most significant scientific challenges faced by our species." Quote taken from page 6 of *The Emperor of All Maladies: A Biography of Cancer*, by Siddhartha Mukherjee (Scribner), and winner of the Pulitzer Prize in 2011 for General Nonfiction. See: http://www.pulitzer.org/works/2011-General-Nonfiction

[30] In terms of science and math, researchers at Moffitt have recently been testing mathematical approaches to cancer treatment modeled on evolutionary game theory where cancer cells are predicted to respond to different treatments as rational actors within the context of their specific environments. See: "Game Theory and the Treatment of Cancer." *MIT Technology Review*. May 14, 2013. Available online at: <http://www.technologyreview.com/view/514821/game-theory-and-the-treatment-of-cancer/>. Also see: Orlando, Paul A.; Robert A. Gatenby; and Joel S. Brown. "Cancer treatment as a game: integrating evolutionary game theory into the optimal control of chemotherapy." *Physical Biology*. Vol. 9, No. 6. (December 2012). Available online at: <http://iopscience.iop.org/1478-3975/9/6/065007/pdf/1478-3975_9_6_065007.pdf>.

[31] http://www.cancer.gov/researchandfunding/extramural/cancercenters/about

[32] "One of the biggest draws of the major cancer centers is the opportunity to be part of a clinical trial. Very few adult cancer patients--about 3 percent-- participate in trials; experts believe that's one of the reasons progress has lagged in adult disease compared with childhood cancer, where most patient are enrolled in trials." Hobson, Katherine. "How to Get the Very Best Cancer Care." *U.S. News & World Report*. November 30, 2009. Available online at: <http://health.usnews.com/health-news/managing-your-healthcare/cancer/articles/2009/11/30/how-to-get-the-very-best-cancer-care>. Also see: Scher, Kevin and Arti Hurria. "Under-Representation of Older Adults in Cancer Registration Trials: Known Problem, Little Progress." *Journal of Clinical Oncology*. Vol. 30, No. 17 (June 2012). pp. 2036-2038. Available online at: <http://jco.ascopubs.org/content/30/17/2036.full.pdf>.

[33] Florida's potential has already been demonstrating itself in this regard. ". . . economic development leaders say our reputation as a hotbed of clinical trials is a plus for local patients--who get access to cutting-edge treatments--and the economy. In fact, attracting more clinical trials is a goal of both the Tampa Bay Partnership, a local nonprofit charged with building the economy, and the state's own corporate recruiting agency, Enterprise Florida . . . contract clinical trial companies have performed 7,845 such trials in Florida since 1999 . . . Not surprisingly, cancer trials far outpaced trials for other conditions, with 1,953 performed since then. Florida was second only to Texas, which has had 8,254 clinical trials since 1999 . . . To be sure, population is a major factor

In addition to the sense of immediacy caused within individual lives by a cancer diagnosis, the growing ubiquity of the illness across societies is every bit as much significant to the economic opportunities available. When Florida is able to realize this potential that is beyond what most other states could ever hope to realize, it will be strongly positioned to reap the dividends from a large and continuously expanding global market:

> *In 2010, about six hundred thousand Americans, and more than 7 million humans around the world, will die of cancer. In the United States, one in three women and one in two men will develop cancer during their lifetime. A quarter of all American deaths, and about 15 percent of all deaths worldwide, will be attributed to cancer. In some nations, cancer will surpass heart disease to become the most common cause of death.*[34]

Not only is the market for quality health care expanding across the globe, but the competition is increasingly becoming global in nature for the high-margin, specialized services such as those relating to cancer. As the world's population ages and its economies further integrate, medical tourism is also growing, with oncology already one of the most popular specialties and the U.S. a leading contender largely due to its quality physicians and sophisticated treatments and technologies. In a recent article written by Aaron K. Chatterji, an associate business professor at Duke and former senior economist at the White House Council of Economic Advisers, he argues that:

> *. . . the same forces that led other industries to cluster in specific regions (think technology in Silicon Valley or banking in New York) are now sweeping through education and health care . . . Health care jobs might seem very different at first glance. Every city, large or small, will always need emergency room staff and obstetricians within a reasonable distance. But this could be less true for orthopedic surgeons and cardiologists, who power the high-margin services that pump significant sums into local economies. What will happen when more employers follow the example of Walmart, which announced last fall that it would send employees in need of transplants or heart or spine surgery to one of six leading medical centers around the country, rather than to their local hospital? . . . Walmart believes it will*

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in the number of trials being performed, because drug companies like having big population bases to tap into . . . However, state and local economic development leaders believe Florida is uniquely situated to clinical trials, and they hope to capitalize on that . . . drug companies want demographics that match the nation's overall . . . Many elderly people also have more health issues, which makes the area attractive." See: "Study: Florida popular testing ground for clinical drug trials." Sasso, Michael. *Tampa Tribune*. September 16, 2013. Available online at: <http://tbo.com/news/business/study-florida-popular-testing-ground-for-clinical-drug-trials-20130916/>.

[34] Opening paragraph to *The Emperor of All Maladies: A Biography of Cancer*, by Siddhartha Mukherjee (Scribner), and winner of the Pulitzer Prize in 2011 for General Nonfiction. See: http://www.pulitzer.org/works/2011-General-Nonfiction

> *save money by funneling its employees to the very best facilities, where higher volumes should generally drive lower costs.*[35]

Given the high reliance of quality cancer treatment on continuous cutting edge research, a state that is more dependent on outsiders for its latest scientific knowledge will be less competitive in industries among the fastest growing at the national and international levels, regardless of its other capabilities. Florida's unique population traits give the state unique potential to be competitive in industries associated with cancer research and care and capitalize on significant viable economic opportunities for the foreseeable future.

[35] Chatterji, Aaron K. "The Bad News for Local Job Markets." *The New York Times*. October 24, 2013. Available online at: <http://www.nytimes.com/2013/10/25/opinion/the-bad-news-for-local-job-markets.html?_r=0>.

# Governor's Cancer Research and Treatment Proposal Conforming Bill and Proviso

## Questions and Answers

**Why is the Governor proposing reforming state funding for cancer centers from direct appropriations to a program that requires NCI designation or pursuit of NCI designation along with the performance metrics relating to cancer care, cancer research, and cancer training?**

When it comes to gauging the potential of biomedical research projects and the overall quality of biomedical research being conducted at cancer centers, it is preferable to rely on competitive market-driven and/or peer-review processes rather than directly on government whenever possible. The NCI designation is itself awarded and maintained through a rigorous peer-review process, and patients (seeking quality care), businesses (seeking capacity for clinical trials), scientists (seeking projects worthy of grant funding), and students (seeking quality education and training) are all for their own reasons most attracted to cancer centers with the strongest biomedical research programs.

Above all else, the Governor's proposal responds to the NCI designation for its rigorous peer-review process and demonstrated market clout, and responds to markets and peer-review processes as superior decision-makers compared to government when it comes to assessing quality cancer research and care.

**Why fund cancer centers at all? Shouldn't all state funding for biomedical research be allocated to specific projects through competitive peer-review processes?**

Direct funding for specific biomedical research projects is best done through competitive peer-review processes, but the state's cancer centers have an important role to play because there is a larger overall pool of federal and industry biomedical research funds that accompany patients (especially those with more challenging cases that demand more from cutting edge research and experimental treatment) who tend to be more attracted to specific centers (where research can quickly be translated to care) rather than specific projects. There is overwhelming evidence that the NCI designation is virtually indispensable to being competitive at the highest level for these patients and the accompanying research dollars. Additionally, as mentioned above, the NCI designation is itself awarded and maintained through a rigorous peer-review process.

**The state just created the Cancer Centers of Excellence program, which seems to have similar conceptual goals[1] to this proposal. Is there any reason for the state to be concerned with NCI designation now that it has the Cancer Centers of Excellence program?**

Different designations and/or recognitions can serve different and important purposes, even when such purposes appear similar or are highly related. There are plenty of examples of similar state, regional, and national recognitions coexisting with each other and all still serving useful purposes. Oftentimes, these different recognitions go so far as to incorporate one another. For instance, the Cancer Centers of Excellence Award requires national accreditation by the Commission on Cancer of the American College of Surgeons (ACoS) as a minimum criterion,[2] and one of these ACoS categories of accreditation is, in fact, the NCI comprehensive cancer center designation.[3] Also, the Governor's NCI proposal incorporates ACoS accreditation among its minimum criteria.[4]

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[1] See pages 15-19 of CCRAB's 2012 annual report here: http://ccrab.org/Libraries/Annual_Reports/2012_CCRAB_Annual_Report.sflb.ashx

[2] Section 381.925(b)2., Florida Statutes

[3] See the categories of accreditation of the American College of Surgeons Commission on cancer here: http://www.facs.org/cancer/coc/categories.html

[4] Section 381.915(4)(c)1.b. of the conforming bill.

At the end of the day, the establishment of a program for state recognition does not lessen the value and significance of having more of Florida's cancer centers achieving the prestigious NCI designation.

**Why should funding be prioritized for this new NCI proposal when it comes to cancer centers?**

State funding and recognition of cancer centers must be done with adequate appreciation for the increasingly national and even global nature of recognition and competition in these fields. In other words, such a reality necessitates the state prioritize funding and programs that are primarily and directly focused on enhancing Florida's competitiveness in cancer research and care at the national and international levels. This is important not just because of the economic benefits, but also because it ensures Floridians have access to, and will access, the highest quality of care here in the state.

As mentioned above, there is overwhelming evidence of the NCI designation being virtually indispensable to the highest level of competitiveness in these fields. Enhancing Florida's competitiveness in these fields is the overriding goal and stated direct aim of the Florida NCI Centers proposal. The Cancer Centers of Excellence program, by contrast, is not directly focused at national and international competition, but rather is a state-level-focused program directly concerned with evaluating Florida's cancer centers relative to one another.[5]

**So, is it worth keeping the Cancer Centers of Excellence program, or even the peer-review grant programs for that matter, if the state is to adopt this NCI proposal?**

Absolutely. These programs serve important purposes in their own right. However, it is particularly worth noting how the NCI proposal is actually meant to complement the other programs and complete a cohesive statewide strategy for cancer research and care.

In regards to the NCI proposal's relationship to the Cancer Centers of Excellence program, it makes sense to have these two programs operating at different levels of analysis (state vs national and international) with similar conceptual goals. It has proved common across states for NCI-designated cancer centers to receive years of assistance from their respective state governments before earning the designation, and this has certainly been the case with the three centers expected to participate in the Florida NCI Centers program in its first year. One of the goals of the NCI Centers program is to establish a clear and permanent mechanism for assisting existing Florida cancer centers in becoming NCI-designated cancer centers. The Cancer Centers of Excellence program is likely to prove a valuable tool to future policymakers in evaluating a cancer center's merit for Tier 3 designation, precisely because the two programs have such similar conceptual goals.

Because successful NCI designation tends to be so reliant on significant assistance from state government, the state should appreciate a permanent tool for helping it to evaluate which cancer centers might be most deserving of such assistance. At the same time, the overwhelming role of NCI-designated cancer centers in advancing cancer medicine through cutting edge research does not

[5] Although the goal of the Cancer Center of Excellence Award program "is to encourage excellence in cancer care in this state, attract and retain the best cancer care providers to the state, and help Florida providers be recognized nationally as a preferred destination for quality cancer care," it does not change the reality of the NCI designation being indispensable to national recognition as excelling in research and care. With this said, the Governor's proposal still envisions the new state recognition as performing a role in Florida's overall strategy of being more competitive in cancer research and care at the national and international levels, as is also discussed in this document.

change the reality that "community oncologists are really the frontline of cancer medicine,"[6] which gives the Cancer Centers of Excellence program an important role to play. As cancer centers in the Florida NCI Centers program will compete on reportable cases and report to the Cancer Control and Research Advisory Council (CCRAB) on trending age-adjusted cancer mortality rates across the state, they may find considerable value in looking to the Cancer Centers of Excellence recognition as they expand and adjust their networks to perform on these metrics.

In regards to these cancer centers programs' relationships to the Florida Biomedical Research Program (which consists of the two peer-review grant funding programs: James and Esther King and Bankhead-Coley), the NCI recognizes all funded research projects from this program as being eligible "(1) to count toward the minimum research base of a cancer center, (2) to have access to CCSG shared resources, and (3) to count toward the minimum number of grants needed to constitute a research program of the center as defined in the 2013 CCSG Guidelines[7]."[8] and receipt of a Cancer Center of Excellence Award benefits a cancer center with preference[9] in competitive solicitations of such grants. In other words, the Florida Biomedical Research Program helps make Florida's cancer centers competitive for NCI designation by helping them build up their eligible peer-review research bases, and Cancer Center of Excellence Awardees will enjoy preference in competitive solicitation of grants awarded through this program.

**How many cancer centers would attain NCI designation with this proposal?**

The proposal envisions Florida having three NCI-designated cancer centers within five years. Over the longer term, the proposal envisions the encouragement of even more and larger NCI-designated cancer centers in Florida through the establishment of a dedicated source of funding tied to clear and rigorous criteria.

**Why does the Governor recommend the state's two Clinical and Translational Science Award (CTSA) institutes for Tier 3 designation under the new NCI program?**

The recommendation is based on the competitiveness of these institutions and their potential to achieve NCI designation within five years. Although CTSA designation is not a prerequisite for NCI designation, the vast majority of institutions with CTSAs also are home to NCI-designated cancer centers, and the NCI notices CTSA designation whenever a cancer center submits an application. Florida's two CTSA institutes (UF Shands and UM Sylvester) receive substantially more in annual peer-review funding from the NCI (more than $6 million each) than any other institutions in the state with the exception of Moffitt, which is the only Florida-based cancer center with NCI designation.

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[6] Quote taken from an answer from Siddhartha Mukherjee in an interview with Christin Melton in 2011. Full exchange:
"***Do you think community oncologists are reluctant to adopt new discoveries in practice?"***
"No, I don't think so. I think community oncologists are really the frontline of cancer medicine. I have enormous respect for community oncologists because much more than oncologists at tertiary care centers, they see the full range and breadth of the disease. When I was [working] in Boston, the one person's judgment who I trusted almost universally was the very first oncologist that the patient often saw, and this often was a community oncologist. They had a real sense of what was happening not only medically to the person, but also socially, emotionally, and so forth, and made a very valuable ally in treating a patient."
Read full interview at: http://nursing.onclive.com/publications/oncology-nurse/2011/february-2011/Interview-With-Siddhartha-Mukherjee-Author-of-The-Emperor-of-All-Maladies-

[7] The NCI expects an applicant for NCI-designation, which is awarded through receipt of the Cancer Center Support Grant (CCSG), to have a base of at least $10 million in annual directs costs of peer-reviewed, cancer-related research funding. See page 9 of the 2013 CCSG Guidelines here: http://cancercenters.cancer.gov/documents/CCSG_Guidelines.pdf

[8] http://cancercenters.cancer.gov/documents/NCIApprovedFundingOrganizations508C.pdf

[9] Section 381.925(8), Florida Statutes

Additionally, the two CTSA institutes in Florida are the only centers currently meeting the minimum objective criteria laid out in the Governor's recommended conforming bill.

**Where would Florida rank among states if it had three NCI-designated cancer centers?**

Having three NCI-designated cancer centers would put Florida at tied for 5th among all U.S. states in terms of number of NCI-designated cancer centers. The five states with the most NCI-designated cancer centers are as follows:

- California-10
- New York-6
- Pennsylvania-5
- Texas-4
- North Carolina-3

Of course, not all NCI-designated cancer centers are equal, which is why the Governor's proposal further includes provisions where qualifying centers compete on performance metrics relating to cancer care, cancer research, and cancer training to encourage further growth and benefits to the state even after a cancer center achieves NCI designation.

**Where does the idea of having participating centers submit triennial reports analyzing trending age-adjusted cancer mortality rates—broken down by age group, geographic region, and type of cancer—come from?**

The idea comes from a 1997 *New England Journal of Medicine* article authored by John Bailar and Heather Gornik.[10] In order to assess the impact of cancer research funding at the national level, Bailar and Gornik age-adjusted the U.S. population for every year between 1970 and 1994 before evaluating trending cancer mortality rates. While progress appeared to be static while looking at overall mortality rates, a clearer and more optimistic picture seemed to emerge as the data was broken down by age brackets and types of cancer involved. This break-down demonstrated substantial improvement in nearly all areas, with the large exception of lung cancer in individuals over the age of fifty-five. It turned out that the older generation's years of comparatively high smoking rates was resulting in substantially increased incidence, and mortality, of lung cancer. "This exponential upswing in mortality had effaced nearly all gains in survival not just from lung cancer, but for all other types of cancer . . . The decrease in cancer mortality in younger men and women had been perfectly offset by the increase in cancer mortality in older men and women."[11] In other words, by controlling for historical smoking rates during the mid-twentieth century (which was skewing overall age-adjusted cancer mortality rates upwards), this analysis was able to demonstrate that investments in cancer research were having an impact at the national level in terms of improving care.

As the NCI requires designated cancer centers to excel in population science research and be highly involved in their surrounding local communities, Florida NCI Consortium members are in a great

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[10] John C. Bailar, M.D., Ph.D., and Heather L.Gornik, M.H.S. "Cancer Undefeated." *New England Journal of Medicine*. vol. 336, no. 22 (May 1997). pp.1569-1574. Available online at: <http://www.nejm.org/doi/full/10.1056/NEJM199705293362206#t=abstract>.
Correspondence to the journal in reaction to this article can be found at: <http://www.nejm.org/doi/full/10.1056/NEJM199709253371313>.

[11] Quote taken from pages 331-332 of *The Emperor of All Maladies: A Biography of Cancer*, by Siddhartha Mukherjee (Scribner), and winner of the Pulitzer Prize in 2011 for General Nonfiction. See: http://www.pulitzer.org/works/2011-General-Nonfiction

position, and are a great resource, to provide such valuable analyses to the state. Such an effort is also a great way of providing avenues for collaboration among these elite centers.